Learning . Life . Work

AMPS PROCEEDINGS SERIES 38

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Learning . Life . Work

INTRODUCTION

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Today, education is often defined as hybrid. Hybrid delivery in-class and online. Mixed theories of teaching and practice. Cross-disciplinary courses and programs. Alternative modes of enquiry. Community and student engagement. Concepts of explorative learning. Multicultural perspectives on subjects. The combined arts and sciences of STEAM – to name but a few. The same hybridity is true of life and work. We value a work-life balance. We seek self-fulfillment in professional contexts. We see education as continual through professional development and life-long learning.

In this context, education plays many roles, and serves many people and purposes. It takes on many forms. In embracing this hybridity, the Learning. Life. Work proceedings publication seeks to explore the numerous ways education morphs and blurs – through varied methodologies across a multitude of disciplines, geographies, and mindsets. As such it welcomes perspectives from the arts and humanities, design and media studies, science and technology, education and training, health and the social sciences.

In this diversity, these proceedings reflect the place and institution in which the conference was set: the California Institute of Integral Studies in San Francisco. A city famous for its counterculture, history of gay rights, its Hispanic heritage, Asian diaspora and its cutting-edge arts scene. It is a place renowned for alternative models of thought. Home to the first free public school in California, San Francisco has also spearheaded various education initiatives in United States. It implemented the Indian Education Program in the 1970s, supporting Native American communities. It led in the adaption of the Beacon Initiative to use schools for community needs, and it is home to one of the largest publicly funded university systems in the United States.

Incorporating authors from locations across the world who consider the future hybridities of teaching and learning, this publication aims to share perspectives, initiatives, programs, and projects, and disseminate best practices across the education sector.

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BRAIDED RIVER IN (VIRTUAL) PUBLIC SPACE: A NEW MODEL FOR COMMUNITY ENGAGEMENT AND DIGITAL LITERACY

Author:
MILAD HOSSEINI-MOZARI, KRYSTI NELLERMOE

Affiliation:
UNIVERSITY OF UTAH, INTERNATIONAL RESCUE COMMITTEE, USA

INTRODUCTION

The global refugee crisis has brought to light the urgent need for innovative approaches to resettlement and integration. Traditional methods often fail to address the complexities of modern refugee experiences, particularly in the digital age. This project emerged in response to this gap, aiming to empower refugees by enhancing their digital literacy and providing them with the tools to navigate the rapidly evolving technological landscape.

The work originated from a series of workshops conducted both within institutional settings and in the broader community. These workshops were the result of a collaboration between the International Rescue Committee (IRC) and the University of Utah, combining academic insights with practical, on-the-ground experience. The primary goal was to expose refugees to career opportunities in design and technology, which are increasingly crucial in today's job market.

However, the project's vision extends beyond mere job training. It seeks to create a sustainable model for innovation and engagement within resettlement agencies traditionally characterized by rigid structures and limited resources. By introducing flexible, adaptive pathways to technology, the BTG project offers refugees a means to not only survive but thrive in their new environments.

BRAIDED RIVER CONCEPT

The braided river concept is both a metaphor and a practical framework for the project. In natural environments, braided rivers are characterized by their multiple channels that split and rejoin, creating a dynamic and adaptable system. This imagery is apt for describing the project's approach to community engagement and digital literacy.

Modeled after successful STEM (Science, Technology, Engineering, and Mathematics) programs, the braided river model emphasizes adaptability and resilience.[1] These qualities are essential in an era of technological advancements and global challenges rapidly transforming the social and economic landscape. By drawing on the principles of STEM education, the project fosters a mindset of continuous learning and innovation among its participants.

In practical terms, the community-based project creates what can be seen as "innovation hubs" within resettlement agencies. These hubs serve as spaces where refugees can access resources, receive training, and collaborate on projects that align with their interests and aspirations. The project is designed to be inclusive, offering multiple entry points for engagement. Whether a participant is new

to technology or has some prior experience, the project model provides pathways tailored to their needs and goals.

The theoretical foundation of the project is further supported by the work of philosopher Elizabeth Grosz, particularly her concept of the virtual as an ontological dimension of reality.[2] Grosz argues that the virtual encompasses the potentials, possibilities, and tendencies that have not yet been actualized but exist as inherent in the present moment. This idea resonates deeply with the braided river model as a metaphor, which seeks to unlock the future possibilities inherent in the present digital landscape for refugee communities. The project, therefore, becomes a space of innovation and active change where the virtual realm is harnessed to create new realities for its participants.

CO-CREATION MODEL

Central to the work is its reliance on a co-creation model inspired by the Massachusetts Institute of Technology (MIT).[3] The co-creation process is a collaborative approach that involves multiple stakeholders in the design and implementation of solutions. This model is particularly effective in community-based projects where the needs and insights of the target population are crucial to the success of the initiative.

Figure 1. Co-Creation Model.

The co-creation model used in the project involves several key steps, each designed to ensure that the solutions developed are both relevant and sustainable:

1. Listen Deeply: The first step involves engaging with the refugee community to listen to their experiences, challenges, and aspirations. This deep listening is essential to understanding the unique context in which the project operates and ensuring that the solutions developed are truly responsive to the community's needs.

2. Identify Needs: Based on the insights gained from the listening phase, the project team identifies specific needs that the project can address. These needs may relate to digital literacy, access to technology, career opportunities, or other areas where the community requires support.

3. Gain Insight: This step involves analyzing the needs identified and gaining a deeper understanding of the underlying issues. The project team may conduct further research, hold focus groups, or engage in dialogue with community leaders to comprehensively understand the challenges at hand.

4. Leverage Community Resources: The work recognizes that the refugee community itself is a valuable resource. This step involves identifying and leveraging the skills, knowledge, and networks that exist within the community.[4] By empowering community members to take an active role in the project, the initiative fosters a sense of ownership and ensures that the solutions developed are grounded in the community's strengths.

5. Develop Community Prototypes: With a clear understanding of the needs and resources available, the project team works with the community to develop prototypes of potential solutions. These prototypes are co-created with input from all stakeholders and are designed to be iterative, allowing for continuous refinement and improvement.

6. User Testing: The prototypes developed are then tested within the community. User testing is a crucial step in the co-creation process, as it allows the project team to gather feedback, identify any issues, and make necessary adjustments. This ensures that the final solutions are effective and user-friendly.

7. Implementation: Once the prototypes have been refined through user testing, they are implemented on a larger scale. The implementation phase involves rolling out the solutions across the community and ensuring that all participants can access the necessary resources and support.

8. Assess Impact: The final step in the co-creation model is to assess the impact of the project. This involves measuring the initiative's outcomes, gathering feedback from participants, and evaluating the project's overall success. The insights gained from this assessment are used to inform future iterations of the project and ensure continuous improvement.

VIRTUAL REALITY IN CULTURAL ORIENTATION

One of BTG's most innovative aspects is its use of virtual reality (VR) technology in cultural orientation programs. Cultural orientation is a critical and required component of the refugee resettlement process, as it helps newcomers understand and navigate their new environments. Traditional orientation programs often rely on lectures and printed materials, which may not be effective for all learners.

During these meetings, the work leverages VR to create immersive, interactive experiences that enhance the cultural orientation process. Through VR, refugees can explore realistic depictions of their new surroundings, from local landmarks to public transportation systems. This immersive approach helps participants gain a deeper understanding of their new environment and build confidence in their ability to navigate it.

However, the project also acknowledges the limitations of technology, particularly when it is used in a one-dimensional manner.[5] Like any tool, VR must be employed thoughtfully and in conjunction with other forms of learning and engagement. The project ensures that VR is integrated into a broader educational framework, where it complements and enhances other teaching methods.

Virtual Reality In Refugee Context

In the refugee context, the use of VR presents both opportunities and challenges. On one hand, VR can provide a powerful platform for education and orientation, offering refugees a safe space to learn and practice new skills. On the other hand, there is a risk that technology may be used in a way that is disconnected from the realities of the refugee experience.

METHODOLOGY

The research aimed to build on the collective momentum behind emerging technology in resettlement. The experimental hypotheses draw upon the IRC in Salt Lake City's successes in 360 immersive learning modules and other physical and digital prototypes. The research conducted at IRC in Salt Lake City identifies newcomers' receptivity and comfort in using VR technology and immersive learning environments.

Research Design

The research team includes Mozari, Assistant Professor at University of Utah, Krysti Nellermoe, Training Officer for Emerging Technologies at Switchboard/ IRC; two part-time Emerging Technology Coordinators; former refugees hired by the University of Utah as research affiliates; university design students; and IRC staff, who will facilitate Cultural Orientation training and 360 film shoots and served as enumerators for the research.

Mozari led the development of the immersive user experience survey, establishing an appropriate consultative process, completing all data collection in the IRC's Cultural Orientation training, and conducting all data analysis. The data collected is newcomer refugee self-reported experience immersed in 360° VR modules, including simulated walkthroughs of U.S. schools, doctor's offices, pharmacies, public transportation, and grocery stores.

Data Collective Method & Timeline

This research was implemented in a mixed-method approach with institutional support, community voice, and a thorough analysis of quantitative data. The main tool developed was a user experience survey to gauge newcomer refugees' receptivity and comfort in both the VR headset technology and the immersive environment of 360° modules. The survey was administered with linguistically appropriate interpretation and enumerated by trained IRC staff. Between January and June 2023, with a sample size of 140 newcomer refugee adults attending monthly Cultural Orientation trainings from their first three months in the U.S.

Ethical Considerations

- No collection of sensitive data
- Trauma-Informed
- Demonstrate technology with volunteer newcomer first
- Provided linguistically appropriate instructions
- Allow time for learning at one's own pace
- Communal use of technology
- Culturally Appropriate facilitation (separation of genders as needed/ intergenerational)
- Voluntary participation

Limitations

The initial survey identified a receptivity to immersive learning. Future research will build on this initial user experience survey to explore how VR technology can enable newcomers to learn at their own pace and in their own context, immersing them in new environments and creating new cognitive frames for information.

DATA FINDINGS

Collected feedback data from more than 140 clients who have experienced VR. Of the group surveyed, clients spent an average of 6.8 minutes inside VR. During that time, they rated their comfort level (1 being not comfortable and 5 being very comfortable) at an average of 4 in a headset and 4.16 inside a headset immersed in a 360°video. The survey results also showed that 60% of clients indicated they could imagine using VR in their homes, and 79% could describe the types of 360 videos they would like to see in the future. After initial exposure to VR, clients have also offered suggestions for new ways to introduce VR into resettlement. Requests for virtual experiences based on supermarkets, college campuses, police procedures, and work environments, among other settings, indicate that clients find VR-based learning engaging and welcome further opportunities to use this technology.
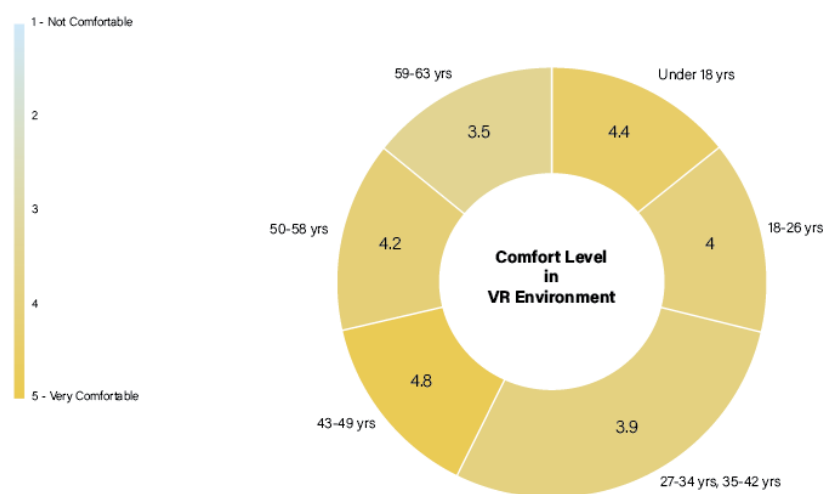
Figure 2. Comfort Level Wheel of VR in Refugee Pilot Study

The project addresses these challenges by ensuring that its use of VR is deeply rooted in refugees' lived experiences. The project team works closely with community members to create relevant, accessible, and meaningful VR content. By focusing on real-world applications and integrating VR into a holistic learning experience, the project maximizes the potential of this technology while minimizing its limitations.

CONCLUSION

BTG presents a compelling new model for community engagement and digital literacy, specifically tailored to the unique needs of refugee communities. By utilizing the braided river concept, the project has successfully created adaptable, flexible pathways that mirror the complexity and fluidity of the refugee experience. The co-creation model, deeply embedded in the project's methodology, ensures that the solutions developed are relevant and sustainable, empowering refugees to take an active role in their resettlement journey.

Overall, the BTG project serves as a pilot for future initiatives in the field of refugee resettlement, demonstrating how digital literacy and community engagement can be effectively integrated to create meaningful, lasting impacts. As the project continues to evolve and scale, it offers valuable insights into how technology and innovation can be harnessed to empower marginalized communities, fostering resilience and paving the way for a more inclusive digital future.

NOTES

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LIVE.STUDY.EAT.PLAY: HYBRID DESIGN CLASS FOR DEVELOPING PROTOTYPE UNITS OF ON-CAMPUS DORMITORY

Authors:
NUTTINEE KARNCHANAPORN, CHANIDA LUMTHAWEEPAISAL

Affiliation:
KING MONGKUT'S UNIVERSITY OF TECHNOLOGY THONBURI, THAILAND

INTRODUCTION

At the undergraduate level, practicing interior architectural design is the core of an Interior Architecture degree and all other related disciplines. The Architect Council of Thailand (ACT), as an accreditation body for a B. Arch. (Interior Architecture) degree, entitles its graduates to apply for a license to practice as a professional architect in Thailand. To be accredited by the ACT, the core courses of the undergraduate must focus on interior architectural design from fundamental to advanced level.[1] At the School of Architecture and Design, King Mongkut's University of Technology Thonburi (KMUTT), Thailand, the undergraduate curriculum of interior architecture involves a five-year degree program that aligns with the accreditation requirements of the Ministry of Higher Education, Science, Research, and Innovation[2] and the ACT.[3] The Bachelor of Architecture in Interior Architecture curriculum at the School of Architecture and Design, KMUTT, has been designed to allow students to gain essential skills such as the ability to identify requirements and problems, formulate and develop design solutions, and spatial innovation experience. Undergraduate design students can develop their skills through projects involving fundamental or complex building typologies, from pavilion design, residential design, retail design, workplace design, community space design, educational space design, museum design, and hospitality design to mixed-use space design.

This paper focuses on the strengths of the second-year Interior Architectural Design class, one of the core courses of the Bachelor of Architecture in Interior Architecture curriculum, through an example of an academic-industrial collaboration. The project "KMUTT x BKD Dormitory Unit Design Competition 2023" was an interior architecture design competition for developing prototype units for the on-campus dormitory. The project formed part of the Interior Architecture Program at the School of Architecture and Design, KMUTT, Thailand.

Academia and the Industry

The second-year interior architecture design class received a design brief to renovate the on-campus dormitory. Based on recent research funded by KMUTT, the on-campus dormitory at KMUTT Bangkhuntien Campus was no longer a comfortable place for its residents, and consequently, most undergraduate students chose to live elsewhere near the campus.[4] The Interior Architecture class took the opportunity to suggest ways in which the on-campus dormitory could be renovated. The task

aligned with the core course requirements of the second-year level: human scale, basic contextual study, and co-living design typology.[5]

As the real users, second-year interior architecture design students were asked to propose ways of renovating the on-campus dormitory from common spaces to residential units. Students were requested to critique the way they have used common spaces and lived in the unit. The new environment should support live, study, eat, and play activities to achieve better health and well-being for students living on campus. Figure 1 shows that students were given the opportunity to explore new design possibilities to renovate the on-campus dormitory during the design class through group discussions, tutorials, pin-up reviews, and a final presentation. As the final outcome, students designed prototype units to compete with one another, with the industry partner awarding the winning scheme.

Figure 1. Group discussion, design tutorials, and class presentations in the Interior Architectural Design class, Interior Architecture Program at the School of Architecture and Design, King Mongkut's University of Technology Thonburi, Bangkok, Thailand

Bangkok Dec-Con Public Company Limited focuses on interior design and furniture manufacturing and offered its expertise to collaborate with this project. Setting the project as KMUTT x BKD Dormitory Unit Design Competition 2023, Bangkok Dec-Con aimed to give awards to students of winning projects and support the construction of two prototype units. Throughout the design process, Bangkok Dec-Con provided the necessary know-how and resources to enable students to develop their designs. After ten weeks of the Interior Architectural Design class, two winning prototype units were developed and manufactured at Bangkok Dec-Con's factory. Furniture parts were assembled on site during the semester break for the existing dormitory units. Hybridity between academia and industry exposed students to the complete design process, from research design development to construction. Moreover, these prototypes represented the needs of students while aligning with the university's vision of creating health and well-being in campus life.

HYBRIDITY IN THE INTERIOR ARCHITECTURAL DESIGN CLASS

During the COVID-19 lockdown, students lived at home. In 2022, after the pandemic, students returned to live on campus and found the dormitory spaces uncomfortable. The Bangkhuntien Campus dormitory was established in 2008 for postgraduate and undergraduate student residents. Bangkhuntien is a research campus located on the west side of Bangkok, 30 kilometers from the main campus and 60 kilometers from the Sathorn CBD area. A study entitled Comfort Situations in the Dormitory of Bachelor Degree Students: Case of King Mongkut's University of Technology Thonburi,

Bangkhuntien Campus[6] previously highlighted the issue of discomfort experienced by residents in the existing KMUTT on-campus dormitory.

Figure 2. The interior of a two-person room unit in the dormitory at KMUTT's Bangkhuntien Campus

According to a post-COVID-19 survey by students from KMUTT's School of Architecture and Design, significant numbers of on-campus undergraduate student residents complained about the condition of the dormitory. Although the dormitory building remained in good condition, the interiors of the living units and common spaces were no longer relevant to student requirements. For example, a standard triple room was no longer the preferred choice, with students opting for a room for double or single occupancy, but existing wooden furniture pieces for three persons remained in the unit. As can be observed from Figure 2, not only was the furniture outdated, but also obstructive when residents attempted to rearrange rooms. Many on-campus undergraduate student residents believe that the dormitory's interior spaces require serious renovation.

Opportunity

This situation provided an opportunity for the second-year Interior Architectural Design class. The design brief for the second-year interior architecture design class was to design a residential space for living and co-living. In past years, the design project has focused on house intervention, apartment redesign, and dormitory renovation. Accordingly, redesigning the on-campus dormitory is a perfect fit. These second-year students have been living on-campus during their first year, with some continuing to do so afterwards. As the real users of the dormitory, they know the problems, have the ability to solve them, and want to propose design solutions to the university to improve their well-being on campus.

The Project-Based Learning Approach for the Design Class

Project-based learning was introduced to this particular interior architecture design class. Project-based learning is a student-driven, teacher-facilitated approach to learning.[7] As complaints about the dormitory have been made by student residents, they can pursue knowledge by asking questions to ascertain the cause of the problems and explore problem-solving solutions in terms of interior architectural design. By making the on-campus dormitory a site for practicing residential design, students who are real dormitory users can help develop design solutions to improve living quality. The **KMUTT x BKD Dormitory Unit Design Competition 2023** was initiated to advance the learning experience. Bangkok Dec-Con Public Company Limited, or BKD, has been a part of the SoA+D School Committee for the last five years and is therefore invited to collaborate on this project. The product development manager and interior designers at BKD would offer furniture manufacturing expertise, share their comments during the design development process, award the winning scheme, fund the prototypes, and construct the prototype units inside the on-campus dormitory. Student design

proposals and the built prototypes would help the university administration consider potential renovation methods.
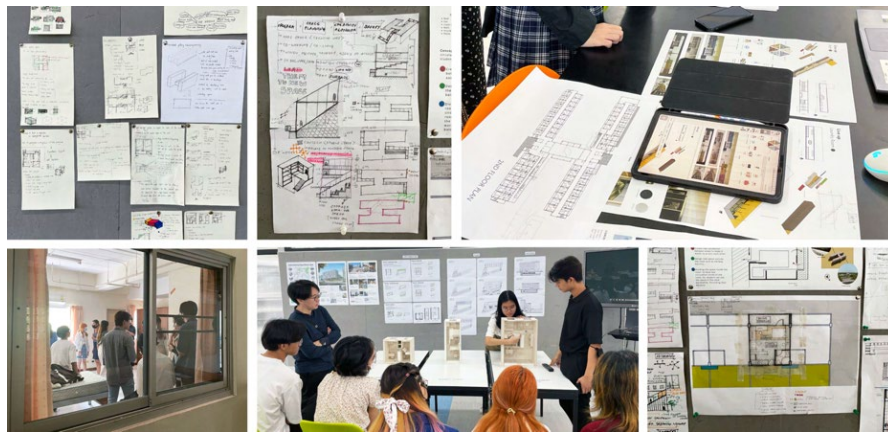
Figure 3. Project-based learning atmosphere for the second-year Interior Architecture students at the School of Architecture and Design, KMUTT

As presented in Figure 3, Project-Based Learning empowers Interior Architectural Design students to become active learners. Students work in teams and aim to design a better dormitory. They are curious and willing to participate in design development by asking questions about their problem-solving approaches. In the dormitory design project, students develop a question and are guided by the design tutors. They learn about materials, furniture manufacturing techniques, construction techniques, budget, and time limitations to build the prototype units by visiting and discussing the project with BKD's research and development team. The student's choice of research and site analysis is a key element of this approach. Students can understand the problem with the dormitory, how to approach it, and the different solutions available to identify the most suitable design approach. They can then discuss and share ideas and design solutions with their peers in a team environment, as well as dormitory staff, to obtain feedback and make appropriate changes before preparing an interior architectural design for the on-campus dormitory as an end product.

Through this approach, students are encouraged to collaborate and communicate effectively, improve individual learning, and acquire self-management skills as much as teamwork. The expected outcomes of this project-based learning are to gain a greater understanding of a topic, deeper learning, higher-level research, and increased motivation to learn.[8] The real-world assignment is a big part of the student's development. After engaging in the KMUTT x BKD Dormitory Unit Design Competition 2023, they progress through collaboration with teammates and tutorial sessions in the design development stage to come up with design solutions. The real-world assignment is designed to bring about a tremendous change in university life.[9] It develops their self-responsibility toward the learning process, raising self-esteem and self-confidence. Academic and industrial collaboration strengthens students through the practice of twenty-first-century skills such as hands-on work, problem-solving, collaborative teamwork, innovative and creative design, active learning and, most importantly, engaging in a real-world assignment.

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to identify requirements and problems
to formulate and develop design solutions
to innovate spatial experience

Renovation of the on-campus dormitory not only focuses on the residential unit but also on common spaces on different levels of the dormitory. However, two of the residential units are planned for renovation under the scope of this collaboration. Renovation limitations are also estimated by students, and the dormitory staff team to minimize wet construction works in the existing dormitory. All parts of the furniture unit are prefabricated at the BKD Factory and assembled in the dormitory, allowing the renovation to be carried out during the semester break, with the prototype units to be completed when the new semester starts. The KMUTT x BKD Dormitory Unit Design Competition 2023 project process is illustrated in Figure 4.
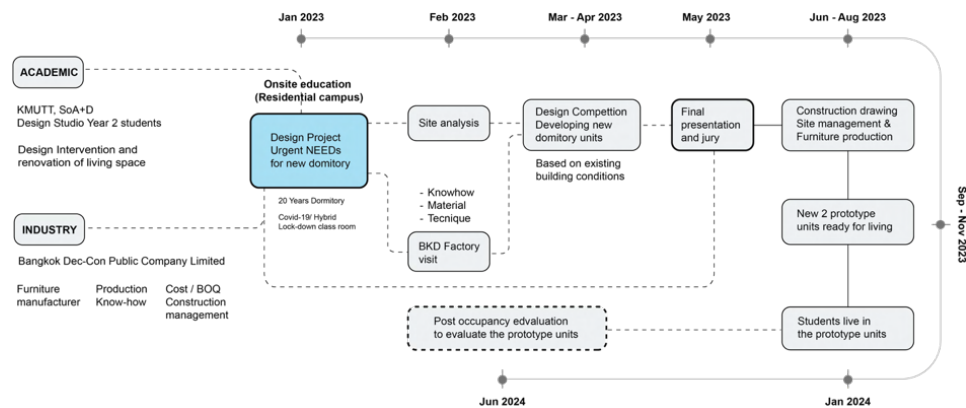
Figure 4. Timeline for the Academic and Industrial Collaboration: KMUTT x BKD Dormitory Unit Design Competition 2023

Winning Design Scheme: The Balance Contrast

Among five design proposals, *the Balance Contrast* by Min Hein Pyae Phyo Aung, Gornrawee Chermue, and Puttawan Singsrihave was awarded the winner of the KMUTT x BKD Dormitory Unit Design Competition 2023. *The Balance Contrast* sees a dormitory as a co-living community that accommodates biologically unrelated residents with comfort. The student team proposes how dormitory spaces can facilitate the coexistence of residents with different personality types, even in the residential unit. The comfort of individuality and togetherness can be achieved through new unit zoning and furniture usage. The two-room prototypes consist of a single-room unit with a kitchen and a twin-room unit, as shown in Figure 5.

A single-room unit with kitchen: Hide and Divide

The students propose dividing a one-room space into different zones: a study zone, a sleep zone, and a cook-and-eat zone. Designing a storage unit as a room partition emphasizes zoning to create a more intimate space for individuals without wasting the room area. The zoning division creates different atmospheres in one room and allows an individual to focus. One side of this storage unit faces a bed, which functions as a closet. The other side contains a bookshelf for a dedicated study area. This study area is more conducive to productivity and focused learning. This casual change positively impacts the overall functionality of the space.

A twin-room unit: Divide and Group

The students create new zoning by combining the same interior programming system to allow interaction between two student residents. Compared with separating all areas, this system enlarges the space, comfortably enabling residents to do activities together or alone. Using a storage unit as a

room partition emphasizes the division between the closet area and the sleep zone. By removing existing closets, a designated study space for two residents is added, amplifying the usefulness of the existing area. This casual change effectively transforms the space into a purposeful and productive environment for study and intellectual growth.
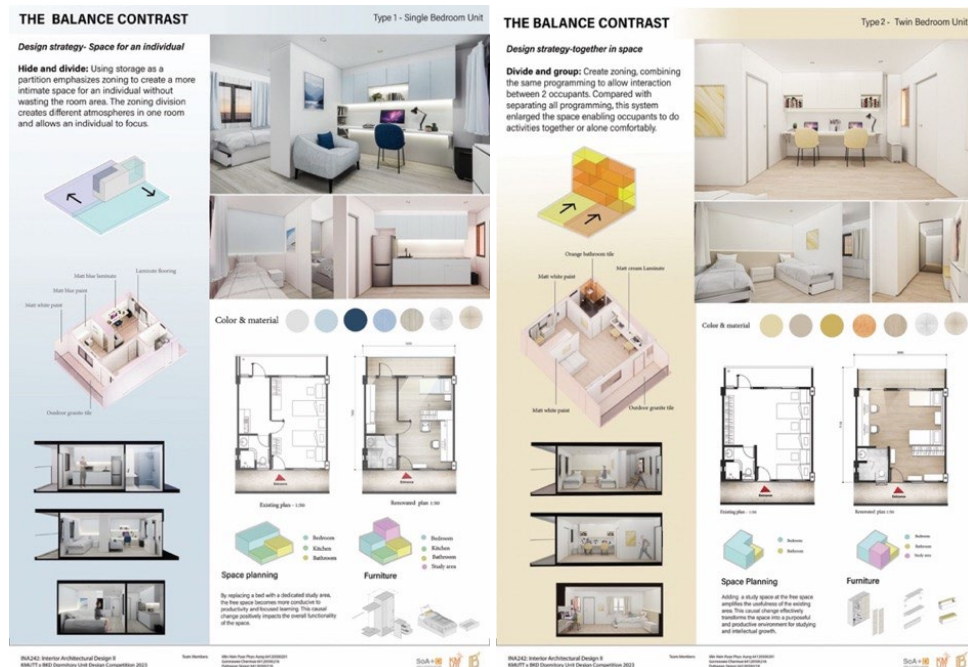
Figure 5. The Balance Contrast, the winning design proposal of KMUTT x BKD Dormitory Unit Design Competition 2023 by Min Hein Pyae Phyo Aung, Gornrawee Chermue, and Puttawan Singsrihave

Renovation Process

The winning design proposal has been developed and built as prototype units at the existing KMUTT on-campus dormitory with consultation and support from BKD. During the 12-week summer break, student teams and design tutors worked together with the BKD production team as shown in Figure 6. The furniture production took place at the BKD Factory to ensure that only limited access was required to the on-campus dormitory. Furniture parts were assembled at the on-campus dormitory units within one week to minimize disturbance to the summer student residents. The prototype units, shown in Figures 7 and 8, were completed at the beginning of the new semester. Students were given the opportunity to oversee the prototype unit to completion to enhance their learning experience and expose them to the scope of careers in interior architectural design.

Figure 6. The renovation process of the two units: a single room with a kitchen and a twin room

Figure 7. Completion of a single-room unit: Bangkok Dec-Con Public Company Limited hands over the new prototype dormitory units to KMUTT

Figure 8. Completion of a twin-room unit: Bangkok Dec-Con Public Company Limited hands over the new prototype dormitory units to KMUTT

Upon completion of the prototype unit, the winning team members were given the opportunity to live, study, eat, and play in the two prototypes. As depicted in Figure 9, Gornrawee Chermue becomes the user of a single-room unit with a kitchen, while Puttawan Singsrihave and her roommate occupy a twin-room unit. A post-occupancy evaluation would be conducted after six months of unit occupancy.

A post-occupancy evaluation would also be carried out by the fourth-year interior architecture design students in the research class.
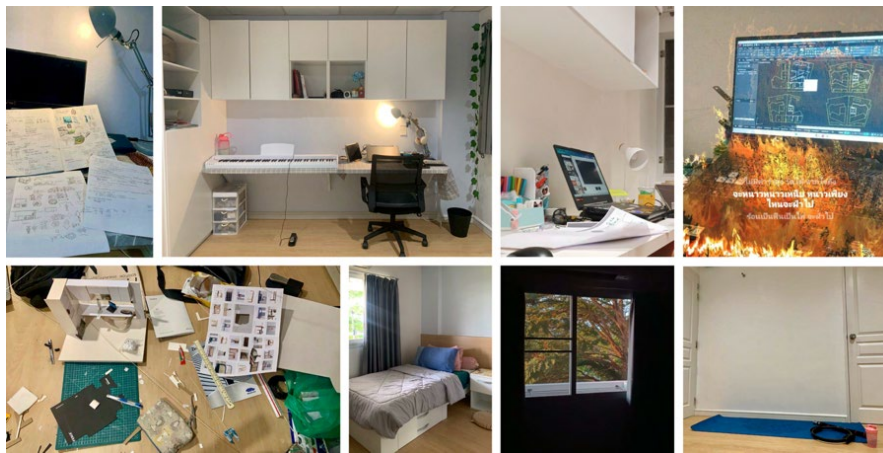
Figure 9. Post-occupancy photograph documenting the use of the two renovated units

Benefits of Collaboration Between Academia and Industry in Undergraduate Studies

1. Relevance to real-world problems: Students gain exposure to real-world challenges and problems faced by industry, allowing them to apply theoretical knowledge to practical situations.

2. Skill development: Collaboration enhances students' skills such as problem-solving, critical thinking, and project management, which are valuable in both academic and industrial settings.

3. Networking opportunities: Students can establish connections with professionals in their field, potentially leading to internships or job opportunities.

4. Access to resources: Industry collaborations often provide access to specialized equipment, technologies, and datasets that may not be available within academic institutions.

5. Career readiness: Exposure to industry practices and expectations helps students become more prepared for their future careers, bridging the gap between academia and the workplace[10].

CONCLUSION

Universities are places for acquiring new knowledge.[11] Industries are expected to provide an environment where knowledge is transferred into practice. Universities should accept the challenges of interacting with students to meet industrial expectations. Effective joint ventures by both the learning institution and industrial partner benefit both collaborators. Knowledge can be put into practice while, at the same time, practice is developed because of collaboration.[12]

For students, the awareness of design skills in tackling a real-world assignment in the early years of education exposes them to the core attributes expected of a professional interior architect. As the project reached completion, the fundamental skills of interior architectural design were also covered: critical thinking, holistic thinking, understanding, visualizing problems, creativity, innovative thinking, and producing design solutions. The project aligned students' views with industry needs. Students were then aware of the professional practices, providing them with important training for the twenty-first-century skills necessary to remain competitive in a changing job market.

From the industry perspective, Bangkok Dec-Con Public Company Limited, as well as other industrial partnerships, are aiming to build skills for their employees. The exchange of knowledge and expertise between academia and industry helps students, teaching staff, and employees develop basic and soft skills. From literacy to life skills, such as willingness to learn, communicate, and work in a team to

solve problems, can be acquired through participation in the Project-Based Learning: KMUTT x BKD Dormitory Unit Design Competition 2023.

In addition to this project, the two prototype units represent the needs of students. The prototype resident units provide a pathway to dormitory renovation. The KMUTT Planning and Development Unit can see the potential benefits in design, cost, method, and assessment of the renovation, allowing the further development of health and well-being in campus life.

ACKNOWLEDGMENT

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LEARNING AND TEACHING IN THE CONTEXT OF BLURRED BOUNDARIES

Author:
MATTHEW ARMITT

Affiliation:
THE UNIVERSITY OF CENTRAL LANCASHIRE (GRENFELL-BAINS INSTITUTE OF CIVIC ARCHITECTURE, UK

INTRODUCTION

The fusion of artificial intelligence in education (AIED) has been featured as one of the most pivotal developments of the century and has the real possibility to transform how architectural education is taught today.[1] Architecture institutions are facing the present-day difficulty of keeping pace with the necessary skills to prepare students for the future of the profession through the inclusion of AI as a transformative learning tool. This digital phenomenon of AIED is not only due to the rapid changes in society but is also a consequence of the change in curriculum in K–12 education through crafting unique, authentic knowledge through the fusion of human and artificial intelligence.[2] The role of AI in can reveal new opportunities but has created blurred boundaries, where new paradigms and educational approaches have now become unclear. The boundaries themselves do not remain a sharp dividing line but are porous, broad patches where the blurring reflects a shift towards a more integrated, flexible, and dynamic approach to learning. These boundaries will become ever more common through advances in AIED and remain the area of opportunity in how architecture education is taught due to the ever-changing relationships between teaching and technology. The research chooses to focus on methods of inquiry into the role of AI within architecture teaching, addressing areas such as predictions of the educational professional contributions that an AI-infused culture will value, the necessary skills necessary for those contributions, and the ways AI will transform learning itself. Today, artificial intelligence emerges as the most disruptive tool of our time, and its role in shaping the future of architecture teaching cannot be underestimated.

THE EVOLUTION OF ARCHITECTURE TEACHING

The origins of teaching architecture have moved through many phases from traditional, craft-based apprenticeships to modern, interdisciplinary, and technologically advanced methods. Starting in the 17th century, the École des Beaux-Arts in Paris (1819-1968) became one of the most influential institutions for architectural education. It emphasised classical architectural styles, rigorous training in drawing and design, and a studio-based approach to learning.[3] By the 19th century, the professionalisation of architecture led to the establishment of more formal architecture schools and programmes. This period saw the development of architectural curricula that included both theoretical studies and practical training. Modernist movements during the early 20th century saw new approaches to architectural education. The Bauhaus in Germany (1919-1933) for example, founded by

Walter Gropius (1883-1969), was particularly influential in integrating art, craft, making, and technology into architectural training.[4] It emphasised functional design, the use of new materials, and construction techniques.[5] A further school set up by Vladimir Lenin (1870-1924) was the revolutionary school of architecture called VKhUTEMAS (1920-1931).[6] It was conceived explicitly as a specialised educational institution for advanced artistic and technical training, created to produce highly qualified artist-practitioners for modern industry, as well as instructors and directors of professional and technical education.[7] The most innovative teaching method developed by key protagonist at VKhUTEMAS called Nikolai Ladovskii (1881-1941) was designing directly in the model where students were not aware of its outcome and the ideas were formed as part of the process of making (Fig. 1).[8]

Figure 1. Some Mass and Weight models produced for the 'Space' module in the workshop of VKhUTEMAS (1925). The image shows the environment where collective discussions took place and captures a range of different models, with a strong emphasis on the force of gravity, using clay. Gelatin silver print, Archive of A.V. Shchusev, State Museum of Architecture (MUAR), Moscow, VKhUTEMAS Collection.

From the early 1940s to the 2000s, architecture teaching evolved from a modernist and technically focused discipline to one that embraced postmodernism, digital technology, and sustainability, reflecting broader cultural, technological, and environmental shifts. During the 1940s-1950s the Post-War era saw a technical emphasis placed on technical skills, structural engineering, and the use of new materials such as steel and concrete. Between the 1960s-1970s, experimental and radical changes saw the rise of alternative pedagogies, and the influence of the 1960s counterculture brought more experimental and interdisciplinary approaches like the Architectural Association (1847-Present) in London.[9]

In the 1980s, postmodernism, and technological integration saw the use of computers in architecture schools become more prevalent. CAD technology became a significant part of architectural training, though traditional hand-drawing skills remained important. During the 1990s, globalization and the digital revolution through digital design and fabrication, and advances in digital technology revolutionized architectural education. Tools like AutoCAD, Rhino, and later, 3D modeling and rendering software became essential tools in the learning of achitecture. The inclusion of sustainable design in the 1990s saw a heightened focus on sustainable and green architecture in response to growing environmental concerns including the integration of sustainable design principles and

technologies into taught curriculia seen through The Centre for Alternative Technology (CAT), dedicated to demonstrating and teaching sustainable development.

Contemporary architecture teaching includes a combination of studio-based design work, technical courses, critical thinking, professional practice, and sustainable thinking through both physical and digital learning. These education shift reflects the broader changes in society, technology, and cultural values, shaping the way architectural knowledge is acquired with more of a social purpose. These changes have been achieved through the integration of digital technologies, offering students opportunities to successfully learn and apply tools such as parametric design software, Building Information Modelling (BIM), virtual reality (VR), and augmented reality (AR).

Through the continued integration of digital technologies in the advancement of architectural teaching, is the role and implementation of AI, Institutions, Schools, and educators have yet to fully address the potential to transform how architecture is taught by offering new tools and methods through the inclusion of AI. In the literature, *Exploring Architectural Education in the Digital Age (2008), Studying Architecture After AI (2022), Modelling AI in Architectural Education (2022),* and *the RIBA Report on AI (2024),* debates regarding AI in architecture teaching have been discussed. Much literature covers aspects of AI in architecture education but does not look at the skills needed for students or the future use of AI in teaching in the context of the future profession. Further to this, recently, researchers have overlooked the future role of ethics of AI in education.[10] However, despite there being some overlaps and common agreements among this literature, no previous study has systematically assessed the consensus for AIED and its role within the teaching of architecture.

This research chooses to focus on key implications for teaching and learning and preparing students in their education for the significant AI challenges that face architecture education and the architectural profession. The research chooses to address three areas: (i) predictions of the educational professional contributions that an AI-infused culture will value; (ii) the design and ethical skills necessary for those contributions; and (iii) the ways AI will transform learning itself and its environments, answering the following question: will AI replace educational creativity and integrity? The methodological approach comes from the author's teaching of AI already. Through observations and conversations with students and colleagues, the research addresses the fundamental challenges and opportunities we face.

BLURRED BOUNDARIES

Changes in education have always existed where we have seen digital technologies enrich learning environments enormously. We have seen classes based on a lecture format as a great benefit of technology-driven learning. Digital lectures, once recorded, are replayed infinite times to infinite participants and provide their content asynchronously at any location. It is not necessary and no longer efficient to watch lectures gathered at one place at a dedicated time. Donald Clark, an expert on teaching methodologies, proposed the concept of 'flipped lessons,' or courses where students watch lectures and use classroom time to apply their content to practice.[11] In this model, a teacher's role flips from instructor to mentor or tutor in an interactive practice, serving as a curator to turn abundance into comprehensible lessons.[12] In this scenario, educators curate content that provides a platform for studying, and teaching become stages for a particular discussion. As a result, students become constructive participants who shape innovation through projects analogous to the format of inquiry-based learning.[13] Freed from a one-size-fits-all pace of knowledge transfer and with AI that can augment missing skills, a class can be diverse, assembled from students with different skill levels.

When knowledge is freely accessible anywhere at any time, the value of knowledge increasingly lies in its authenticity and original contribution. The skills necessary to craft unique, authentic knowledge through the fusion of human and artificial intelligence were coined as a guideline for K–12 education six years ago as the "four Cs": (i) communication, (ii) collaboration, (iii) critical thinking, and (IV)

creativity. Wilson and Daugherty, elaborated on the fusion between humans and AIs: within augmented working environments, communication translates into the skill of intelligent inquiry—knowing how best to ask questions to an AI agent.[14]

Today we see AI technologies as a new paradigm of knowledge that is plural, non-linear, and non-repeatable. Such inclusion sees the role of 'Concept Visualisation' quickly generating high-quality images from text prompts, helping students to visualise architectural concepts and designs rapidly. Through different styles, mood boards, contexts, and compositions for project imagery, students see how a building might look in various architectural styles without manually creating multiple drawings. The role of 'Enhancing Creativity' further inspire students to think outside traditional design paradigms, where idea generation can produce unexpected and novel design ideas that can spark creativity and innovative thinking (Fig. 2).

Creative blocks can be very common for students during the design process, using AI-generated visuals to help find new directions for projects and create visual narratives, students can generate a series of images to tell a story about a building or a space enhancing their ability to communicate design intentions more effectively. Such technology can be enhanced by integrating AI tools with traditional design methods. The role of 'blending' AI with CAD, students can learn to combine AI-generated visuals with CAD models, improving their proficiency in using diverse design tools. Hence, there is growing evidence for the role of AIED to 'foster a transformation of knowledge, cognition, and culture'.[15] However, the implementation of AIED faces several challenges related to ethical concerns and justification of its use as what comes out of AI can only be as good as what has been put into it.

Figure 2. Hsnrgb is an Egyptian American Artist and Designer. Hassan is an architect, interdisciplinary designer, and conceptual artist and has become popular through his AI generative designs thanks to his experiments with Midjourney (Credit: Hassan Ragab)

Ethics in using AI remains one of the most important areas of its use and despite the rapid growth, little is understood about what ethical principles should guide design, development, and deployment of ethical and trustworthy AI in education. One area we are facing is ensuring the technology is leveraged to enhance learning experiences while safeguarding the rights, privacy, and interests of students and educators. This remains important in the use of AI and future-proofing its use. The

commitment to fairness, transparency, and accountability, and a focus on supporting the pedagogical goals of teaching are important. Through fairness and inclusion through bias mitigation, AI can help inadvertently perpetuate biases present in learning, ensuring that AI tools do not disadvantage any group of students. Accessibility is a further area to help ensure AI tools are accessible to all students, regardless of socioeconomic background addressing issues of the digital divide and ensuring that AI-enhanced learning does not exacerbate existing inequalities. Pedagogical integrity in supporting, AI should enhance the teaching process rather than replace the human element of education. The role of educators in guiding, mentoring, and providing context remains irreplaceable, and the implementation of ethical considerations should take place between the educator and student from the beginning of the design journey.

Educating students in the process of using AI and ethics can be achieved through prompt messaging as a way of learning. As we are learning more about what's possible with these systems, it is beneficial for the student to stay curious and begin exploring what's possible with creative prompting. To be clear in allowing students to use AI correctly, we must teach students to break down complex questions if they have a multifaceted question, break it down into smaller, more manageable parts, and provide context when necessary, including background information that can help the AI understand the query better and specify the type of answer needed. There is also the opportunity to use ChatGPT 4 as a tool to develop prompts and then copy them into design programs such as Midjourney. The prompt box is the gateway to the beginning of designing but the thinking behind the question of what is to be designed and whereby the iterative design process should include failed attempts as part of the learning process.
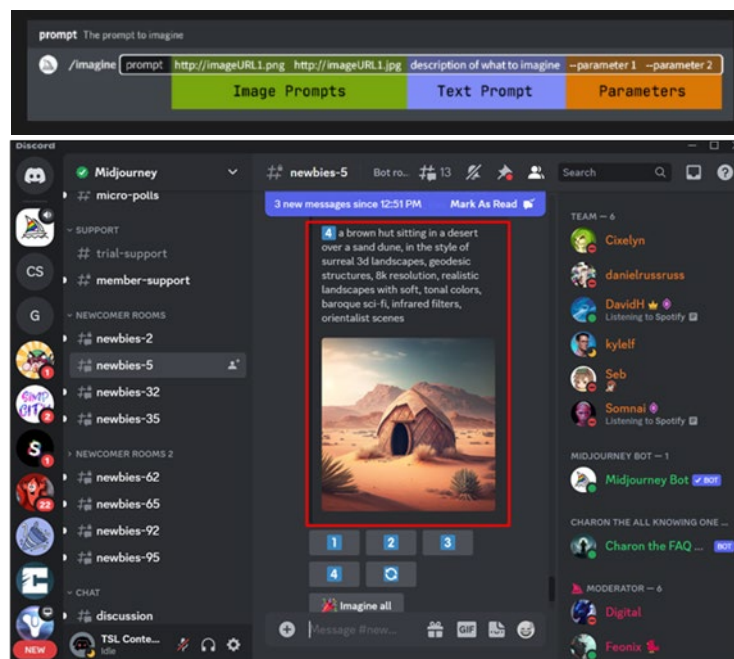
Figure 3. Midjourney interface and prompts to instruction creation.

Anyone student can learn to type commands, yet we should question one's agency when using 3D modelling software. There are levels of proficiency when it comes to using such software. Using generative diffusion software to create, iterate, and design entire visual sets with nuanced prompting techniques mixed with hybrid workflows and craft is a valuable skill of integrated from the very early stages of their education. Students will only get better at using these software's, and soon no one will question the 'skill' involved in using generative AI tools as the gap between beginner and advanced

will become increasingly pronounced.[16] The use of AI can be further used in different areas of contemporary learning through the understanding of critical thinking. AI as a tool could be used to recreate historical architecture or imagine how ancient structures might have looked when recreating historical sites, helping to understand the architectural evolution (ideas) and the context of history. It can further be used to study urban typologies to speculate on new urban forms of cities and towns and better predict how we will live. Similarly, the same can be used to study sustainability using virtual environments and digital twins to achieve a radical reduction in the carbon, energy, water, and waste footprints in student concepts. AI can further help students within their design process through research with tools like AI-powered research assistants providing summaries of difficult subjects, recommending themes, and providing appropriate sources. Such inclusion would help research generation more effectively assist students in their research journey and can further be utlised for AI-based feedback as a tool for assignments, where generative AI can further support the paradigm of teaching delivery.

THE AI-DRIVEN FUTURE

The predictions of the educational professional contributions that an AI-infused culture will value see the effective integration of AI into architecture teaching, where educators must embrace new teaching paradigms and strategies to ensure students are equipped with the necessary skills to thrive in an AI-driven learning environment.

By understanding the capabilities of AIED, students will better appreciate its applications and limitations from the very beginning of the education journey. The most interesting tool now is D5 Render, which already integrates with CAD/BIM modelling systems such as Rhino, Revit, SketchUp, and Archicad. Students can take their early-stage models and apply stylistic iterations in real-time, such as exploring through different material types and different iterations of design ideation. With the prediction of enhancing creativity, visualisation skills, and technical proficiency, AI serves as a valuable tool in preparing students for a technologically advanced and creatively demanding profession. Research by the Royal Institute of British Architects (RIBA) reveals that 41% of UK architects are already using artificial intelligence (AI) on at least the occasional project, and of those, 43% think it has made the design process more efficient.[17] The profession is currently in a research and development (R&D) phase on AI, and educators must navigate these professional considerations thoughtfully, ensuring that AI serves as a beneficial tool that aligns with educational and professional ethical values. The ethical use of AI must involve leveraging the technology to enhance creativity, efficiency, and sustainability while addressing potential risks related to bias, accountability, privacy, and employment for students. At this stage, nothing is quite proven in terms of future efficiency gains, which remain blurred even though the assumption is that they will be major.

Students currently lack the abilities required for these contributions to exist and it is necessary to question the way we think about working with AI and the opportunities it presents. What matters more is where AI is headed, what knowledge and abilities students will need to acquire from it, and how valuable it is to their education. To better support students' toward becoming future architects in a field that is always changing, as well as the realities of its application within the profession, the student's understanding of architectural learning needs to be transformed from the outset where traditional means of education are not lost but 'blended' through AI use.

The ways AI will transform learning itself and its environments see educators as the drivers, and the students who use it. AI is adept at drawing conclusions and connections in design that humans may not be able to, but at the end of the day, it is still a computer. The technology it's not yet a storyteller in the way that the learners can create an iterative design development that will respond to a site or a historical setting. AI currently has no understanding or appreciation of feature importance for a new

design because it simply hasn't been programmed for each brief and site. With fantastical images generated by diffusion software, there is still a paradigm difference between generating a conceptual image and being able to realise it as a sensible structure to be built. The big question, of course, is whether artificial intelligence represents an existential threat to the educational profession and whether it will usher in an end-of-day scenario?

THE COMING WAVE

AI is the most disruptive tool of our time, and we cannot overstate its role in shaping the future of architecture, from the character of our cities to the quality of our built environment. By fostering interdisciplinary collaboration and a culture of responsible innovation, we can harness the power of AI to create a more inclusive, resilient, and sustainable built environment. Will AI replace educational integrity and creativity? The answer is no. Artificial intelligence won't replace our educational or professional integrity or creativity, but it certainly can help us advance our design much 'quicker' rather than 'better'. Subsequently, students need to learn new ways to contribute as professionals by valuing a different set of skills—skills that one will have to learn together with AI, as the use of AI is just another tool to use to generate quicker architecture; it doesn't take away the vision of the student but rather assists it. By embracing AI, we can provide students with advanced tools and insights and prepare the skills necessary to craft unique, authentic knowledge through the fusion of human and artificial intelligence. The integration offers exciting possibilities for enhancing design education and practice. In a fast-moving learning environment, it is truly challenging to predict how architecture will be taught, and these transformational moments of uncertainty or blurred boundaries will allow educators to keep evolving. It's coming whether we like it or not, and we all will need to be on the coming wave rather than behind it.

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DECODING VIRTUAL PEOPLE AND DIGITAL LABOUR IN HIGHER EDUCATION. TECHNOLOGIES, DYNAMICS AND IMPLICATIONS

Authors:
MELANIE CHAN, GURM BACCHUS, JOE LARKIN, DAVID SPARK, CHRIS TILL

Affiliation:
LEEDS BECKETT UNIVERSITY, UK

INTRODUCTION

The Higher Education (HE) sector is facing increasing operating costs associated with recruiting and retaining staff alongside competition in a global marketplace. It is in this context that synthetic media companies such as Synthesia, Hour One and Soul Machines frame the use of virtual people as a means of reducing labour costs by scaling-down the production of content for teaching, learning and support whilst maintaining student engagement. To highlight these issues, this research explores three salient research questions. Firstly, how might staff and students perceive the use of virtual people? Secondly, to what extent will virtual people impact upon human labour in HE? Thirdly, how effective are virtual people in relation to pedagogical and professional tasks and services? By exploring these questions, our research aims to offer a nuanced and context specific account of the opportunities, challenges and implications arising from using virtual people to perform personal tutoring roles, delivering teaching material and administrative tasks.

Research topic

Virtual people can be produced by motion-capture recordings of human movements and speech patterns, or by animating digital imagery. As such, virtual people are enmeshed within a photo-realistic aesthetic that includes facial expression and gestures. They also mimic the human voice and are programmed to speak a range of languages. In some cases, human operators write scripts which are presented by virtual people, but in other cases they are autonomously animated through artificial intelligence programs.[1] Our research questions whether virtual people are more than just software programmes embedded in chatbots or digital assistant devices, since their uncanny resemblance to human beings includes emotive facial expression and voice intonation, which are crafted for commercial purposes to perform their roles, which may displace, augment, or replace human labour.[2] There is much discussion about the use of generative AI in HE settings in relation to professional services (such as recruitment, admissions, and progression monitoring) and the automation of academic tasks such as assessment.[3] However, the interactions between virtual people, staff, and students as the site of performativity and emotional labour is less understood.[4] This omission within current research into technological innovation in HE is significant since virtual people have the potential to fulfil some aspects of teaching, professional and customer-facing roles in HE.

Background

The creation and deployment of virtual people can be placed in the context of neoliberalism, cognitive capitalism and the fourth revolution.[5] The use of virtual people is positioned by synthetic media companies such as Synthesia, Hour One and Soul Machines as offering benefits such as speed, efficiency and convenience at a time when universities have become increasingly structured on business principles. On this basis, the introduction of technological systems in HE, such as virtual people and generative AI systems are linked to competition in the global marketplace (including the rise of private providers) and the increasing costs associated with recruiting and retaining staff.

Current research around the production and use of digital technologies makes the analytical and political move of connecting workers within an international division of labour. Whether they are highly paid, low paid or unpaid these workers are exploited because they generate surplus value[6] This sort of framing encourages an alignment between all producers of surplus labour in opposition to the owners of capital. Yet, we also need to consider gendered and racialised exploitation such as the activities of the digital housewife and the ISlave, who directly generate or otherwise enable surplus value through often unpaid work. [7]

Virtual people are dependent on the affective intensities exploited by creative industries and are central to cognitive capitalism.[8] Synthetic media companies produce proprietary virtual people by digitally capturing actors. While the capability to produce virtual people with a photo-realistic appearance has existed for some time, the task was time consuming. The process starts by scanning a real-life subject in a professional studio. Here an array of motion sensors, scanners and cameras capture images from different angles and poses.[9] A professional render can require days of filming, hundreds of precisely aligned cameras and generates huge amounts of data.[10] By contrast, AI-enabled approaches offered by Synthesia and other synthetic media companies are streamlining the process, so that a photo-realistic character can be created quickly and easily using software templates. In this way, the creation of virtual people is also dependent on the Internet and social media users whose activities the large language models, and other AI systems are based.

In the case of synthetic media companies, digitised actors become stock characters who function in a similar way to digital photographs in image banks such as Shutterstock and Getty Images. Natalie Monboit, Head of Strategy at Hour One in conversation with Helen Todd of Creativity Squared technology podcast, asserts that humans whose likeness is digitised receive a passive income through royalties. [11] In the HE sector, however, whilst there are existing intellectual property regulations (that pertain to research, publication and patents, for example), the issues arising from creating a digital likeness or clone of staff members is unclear.[12]

Our research explores the framing of virtual people as a technological innovation which raises concerns about displacing existing forms of human labour.[13] Although grounded in justifiable concerns for the long-term impact on labour relations, this sort of framing tends to overlook the new and existing forms of work which are required for the creation, development, maintenance, and management of virtual people. Therefore, a more nuanced approach is required to explore the types of labour surrounding the implementation and maintenance of virtual people in the HE sector and more broadly the creative industries.[14] Creative, critical, and emotional competencies are central to interactions in HE and drive innovation, though at present, it is unclear how virtual people might perform in relation to these competencies.[15] It is also important to evaluate how the increasing precarity and casualisation for human workers intersect the drive towards technological innovation as a means of competing in the HE marketplace. On this basis, researching virtual people raises critical questions about which tasks could become automated and how institutions and workers adapt to these changes. [16]

MATERIALS AND METHODS

Focus groups were conducted for this research because they are an efficient way to generate ideas and stimulate debates.[17] Before recruiting participants, we obtained ethical approval from our institution. All participants received an information sheet and consent form which provided details of how their responses would be recorded and analysed to ensure anonymity and compliance with data protection regulations. Our participants were recruited from undergraduate and postgraduate cohorts in the social sciences and humanities and professional services teams including library and information services. On this basis, researchers and participants were 'insiders' and their interpretation of virtual people were shaped by institutional practices, social norms, and academic culture.[18] Four focus groups consisting of between 8-10 participants took place, between September 2023 and June 2024. Each focus group engaged with audio-visual texts featuring virtual people to facilitate discussion and participants also interacted with a virtual person, called Nova, via the Soul Machines website.[19] These audio-visual texts were produced using Synthesia design studio and consisted of short videos (less than five minutes in length) featuring virtual people. To begin with participants were shown a video which was scripted and edited by one of the researchers and presented by a virtual person. In this way, the researcher made informed creative and intellectual decisions about the content. The second video was produced by a researcher using generative AI prompts which required minimal human labour.

The researchers transcribed and analysed the focus group discussions to uncover common themes, sentiments and perspectives. To do so, we engaged in a close reading (line by line) of transcripts and used open coding methods. To interpret the data, we considered the extent to which participant responses aligned with our research questions. Therefore, from an epistemological perspective the interpretative process of data analysis was a form of 'knowledge construction'.[20]

We also considered virtual people as social, cultural, economic and technological phenomena by interpreting the claims made by synthetic media companies via their websites, reports and promotional materials. In doing so, we analysed these texts through the theoretical prism of digital labour[21] to help us understand how they framed the understanding of the discursive field surrounding virtual people.

FINDINGS AND DISCUSSION
Perceptions

Research participants were invited to share words or phrases that encapsulated their initial responses to virtual people. After viewing short videos featuring virtual people, common responses from participants referred to their appearance and included terms such as: uncanny, creepy, fake, spooky, weird, stiff, and scary. Some participants remarked that virtual people had 'dead eyes' or lacked facial expression. As virtual people are based on photorealistic principles, this generates a sense of the uncanny because they attempt to replicate human appearance and conversational patterns.[22] Indeed, striding for realism can result in the uncanny valley effect which creates a sense of unease because face animacy perception is linked to qualities of self-awareness in other humans.[23] In this regard, the photorealistic qualities of virtual people unsettle the boundaries between the animate and inanimate.[24] Establishing the differences between virtual people and human beings was a frequent concern amongst participants. One participant opposed the photorealistic aesthetic of virtual people stating that they would not 'speak to something that impersonated a human' because it is 'a second-rate experience. If it looks like a human, then it should perform like a human.' Therefore, this participant was using the cognitive and communicative capabilities of human beings as the yardstick with which to compare virtual people.

Current research indicates that human-like vocal expression increases the appeal of interacting with virtual assistants such as Amazon's Alexa and Google Assistant.[25] Arguably the technological

capabilities of these assistants have prepared the groundwork for interaction with virtual people. However, several participants commented that the vocal patterns of virtual people were 'robotic' and 'not convincing.' One participant remarked that 'the audio sounds synthetic, like a machine, whilst another stated that 'the voice didn't match the face. I'd prefer an accent or something more realistic.' The lip-synching for virtual people is a complex endeavor, demanding precision in matching mouth shapes with specific speech sounds. While this is separate from speech generation – the words we hear- lip synching requires coordination between the two to produce lifelike results.[26]

These discussions of realism and interaction with virtual people bring together wide and complex topics related to appearance, behaviour and actions. As humans, we talk about realism with the aim of seeking something deeper – a realistic sense of connection. The expression of emotions by virtual humans serves as a pivotal factor in establishing meaningful connections with users. For example, if a virtual character displays authentic facial expressions, body language and responsiveness, humans are more likely to empathise and accept them. Micro expressions refer to subtle and rapid facial movements that communicate complex emotions. These expressions are triggered by specific facial muscles around the eyes, eyebrows, nose, cheek and mouth.[27] Micro expressions make virtual people more relatable by mirroring detailed human emotions. These cues, especially when aligned with verbal communication, enhance the believability of the virtual person, leading to increased user trust and stronger emotional connection. [28]

Labour

Participants commented on virtual people in the labour market and the impact this would have on perceptions and expectations of human workers. For example, one participant stated that because virtual people are constantly available to work 'a human worker 'wouldn't be allowed to be tired.' In other words, the human worker would be regarded by employers as lacking productivity in comparison to a virtual person. One participant said that virtual people are a convenience for employers because 'they don't get pregnant and require time off.' On a similar note, another participant stated that virtual people are emblematic of 'vampire capitalism' because they have no human rights or employment rights. In this context, participants contended that hiring a human worker would seem like a troublesome, expensive and inconvenient option.

It is essential to consider how synthetic media companies function in the context of global power, neoliberalism and the dignity of labour, as they shape, not just facilitate, how such industries function and contribute to new subjective formations.[29] Microworkers are essential to the functioning of AI, the front end of which obscures the labour of many hours of labelling and classifying. This creates a complex division of labour comprised of disparate, disconnected workers which for most is the site of alienation and marginality. Automation and AI technologies will not only generate major disruption in low-paid service sector jobs (such as hospitality and retail); these technological developments will also impact upon middle-class professions such as teaching and healthcare.

Synthetic media companies such as Synthesia and Hour One provide online 'studios' to produce video content using virtual people. These studios are designed for those without programming or desk-top publishing skills. Yet, like many other software interfaces, these studios occlude the labour that makes these systems possible. As one participant remarked in response the systems that generate virtual people, behind this interface, 'There are people who are being exploited.' To illustrate their point, the participant drew analogies with mobile phones, stating that although they are 'the norm' this 'completely invalidates the fact that all of the insides of my phone were mined from somewhere by children.' Virtual people are clearly directly dependent on several forms of digital labour[30] including, information workers (e.g. Programmers and social media users), industrial workers (eg. assemblers working in factories to produce digital devices needed for production, management and use of virtual

people) and agricultural workers (eg. extracting minerals from mines to be assembled in digital devices).

HE Sector

Universities are not immune to processes such as casualisation and precarity. Moreover, digital technologies are framed within the HE sector as a means of reducing labour costs whilst maintaining student engagement and performance. Furthermore, the market for EdTech has increased through the generation of teaching and learning platforms such as Coursera, Future Learn, Multiversity and UpGrad. Taking these points into consideration, the use of virtual people within HE raises a series of question about pedagogy, monitoring student progress and providing pastoral support.[31] One participant stated that virtual people could be used to create generic learning and teaching video content 'like a course welcome, an introduction to a module or an assessment brief.' In these cases, the content 'is not interactive, it's just information.' Similarly, another participant stated that, 'in a couple of years, students sign up and they get a personal avatar of their course tutor to follow them through the course and provide them advice and guidance.' The scenario the participant outlines is already in use at IU university, which has a digital tutor called Syntea which is embedded in their virtual learning environment and acts as a personal tutor. [32]

In lecture theatres, classrooms and offices the presence of a human tutor or administrator is linked to spatial and psychological closeness, verbal and non-verbal cues such as smiling, nodding and eye-contact. As one participant remarked a key part of teaching 'is reading the room and picking up the vibe of the students.' Our participants spoke of the co-present social aspects of studying and argued that engaging with a virtual person would not foster the same sort of community. One participant asserted that 'studying is 'a chance to socialise, meet friends and talk to them, it's a human need.' They added that virtual people will reduce social interaction with other humans, creating psychological problems because 'people will feel lonely.'

At present, academic staff also produce and share content with students using commercial digital technologies (Panopto, Microsoft Powerpoint) to create blended learning experiences. The Panopto lecture capture platform, for example, captures the faces, gestures and voices of academic staff, creating their digital doubles. In this way, a lecturer's existence in physical space and time becomes displaced and entwined with the digital flow of information. The use of Panopto for blended learning purposes became prevalent during the covid19 era and students are now familiar with engaging with digital content as part of their studies. However, the use of virtual people could extend the use of digital content within HE and shift the human labour involved, for example, in teaching, learning and supporting students.

In terms of teaching roles, Shroeder and Craig assert that the development of virtual humans as 'pedagogical agents is exciting, innovative and productive.'[33] As discussed, it is possible that some repetitive, mundane queries surrounding teaching and learning could be automated using virtual people. However, as one participant pointed out there are limitations to the use of virtual people in staff and student interactions. 'I think you could get it to deliver a lecture, but people don't just want it to deliver a lecture. They want to be able to engage and ask questions. I think until it can do that, then it's very difficult for it to deliver anything more than a sort of talk to PowerPoint.'

CONCLUSION

Our research sought to go beyond simplistic arguments that staff in HE will be replaced by virtual people. Instead, the results of our focus groups indicate that professional services and academic staff have considered the ways in which virtual people could be used for transactional types of interactions with students, such as routine administrative questions about their studies or basic assessment criteria.

However, our participants were skeptical about the possibility of virtual people providing academic support for creative discussions or in-depth questioning and debate. Additionally, our participants stressed the social importance of co-present relationships between staff and students in classrooms, workshops and lectures. This project is on-going with plans to conduct further focus groups. It will be fascinating to see what further issues are suggested to this complex issue.

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DRAWING THROUGH EXPLORATION

Author:
MARGOT KLEINMAN

Affiliation:
PRATT INSTITUTE, USA

INTRODUCTION

Constructing Representation is a first year MFA graduate course at Pratt Institute in which the students are introduced to analog and digital methodologies and architectural drawing for the first time. Rather than a traditional drafting course that may focus only on drawing with a mayline and triangle, or a newer version that jumps straight to CAD, this course aims to teach students to reach for the tool that best suits the idea they are trying to communicate graphically. With brief introductions and tutorials of hand drafting, Rhino, Photoshop, Illustrator, collage, precedent images and weekly dialogue, the class is highly drawing and conversation based, constantly challenging the students to communicate through drawing. After an overview, the course leans on teaching a thought and creative process versus prescribing a step-by-step workflow. What are the students trying to achieve and how do they get there? By testing multiple strategies and mixing media, the students begin to learn the strengths of the tools and of their own skill set. Once conventions are understood, how do we intentionally break them? Through what media? Furthermore, instead of a traditional assignment to grade sequence, this course asks the students to evaluate themselves. The process of reflection on their learning process allows the student to tell themselves their strengths, areas for improvement, and seek answers to further questions. The concept of hybrid is present in their drawings, learning, and evaluation.

Course Overview

How do we communicate through drawing? What does it mean to communicate through drawing? What graphic tools do we use to represent an idea? Rather than a traditional drafting or drawing course, Constructing Representation introduces students to analog and digital tools and gives them agency to understand which tool will be most effective for the idea they aim to communicate.

The MFA interior design program at Pratt Institute begins with a "core" year for students in the three year graduate program.[1] This first year is an introduction to the degree program and department, for students without a design background. Constructing Representation is a course required during their first semester. It was previously taught over the span of two semesters, separating analog and digital techniques. This class therefore takes on the challenge of learning to read and create architectural drawings through both types of media simultaneously.

Starting with an introduction to architectural drawing, the students learn traditional conventions of orthographic, perspective, axonometric drawings and diagrams before they move to break those conventions and move to sophisticated storytelling.

Method and Project

The students used The Brant Foundation, located in the East Village of Manhattan, as a case study for the semester long project during the first iteration of the course.[2] The exhibition space occupies four floors, and the students were each assigned one floor as an area of focus. Many studied the building history, variety of uses, and current lighting, material, and construction as inspiration for their drawing focus.

During one of the first classes, the students visited the Brant Foundation with a set of orthographic drawings in hand, yet they did not yet understand how to read them. They were asked to question what they saw, both on paper and in front of them by drawing to inquire. How can drawing be used as a means of investigation? They quickly needed to understand what kind of drawing they were looking at and how it related to the space they were in.

The students questioned what each line represents on the floor plans given to them based on what they can see standing in the space. What is the meaning of a dashed line, solid line, lighter line, or solid hatch? After this investigation, the class learned to draft by hand and created an analog set of orthographic drawings before replicating the process digitally.

THE HYBRID APPROACH

The concept of hybrid was present throughout the class methodology. Through learning, drawing, and evaluation, the course takes an approach with a mixture and combination of tools and methods.

Learning

Critical to the ethos of the class was to have the students draw during every class. Given that the students do not have design backgrounds, many students were hesitant to put pencil to paper. Figure 1 shows an example of a class exercise where we asked the students to draw their room from memory. Without any requirements or specifications of how to approach the drawing, we then had examples for the students to see if they intuitively drew a plan, section, or perspective.
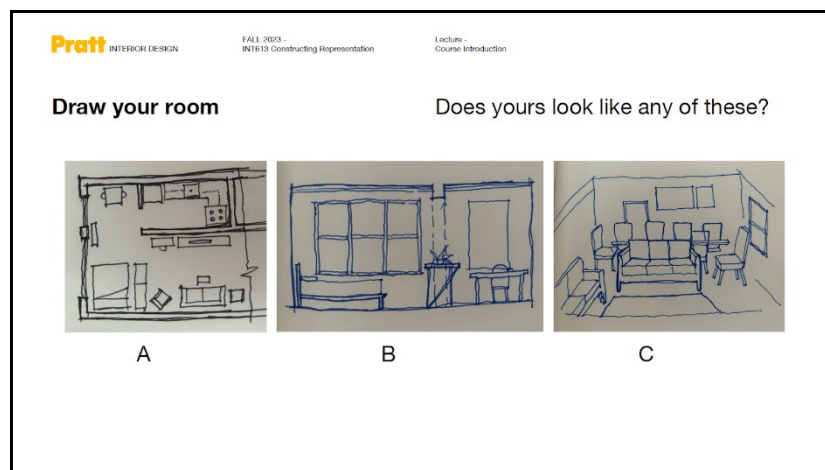
Figure 1. Draw your room exercise in class

Through interactive lectures and discussions, students participated through drawing and dialogue. The method emphasized doing by drawing; as we draw, which line gets the heavier lineweight? Why? How far do we have to be from the drawing to read it properly? What stands out when you stand closer to the drawing versus a few feet back?

Another hybrid was the relationship between words and drawings. As we introduced storytelling, we asked the students to consider which drawing type would best demonstrate their story. Figure 2 shows an exercise in telling the story of how students got to class. A series of steps written with words about a series of actions they took. We then asked them to refer to their drawing toolkit - plan, reflected ceiling plan (RCP), section, elevation, detail, survey, sketch, and photograph. Which form of representation matches best with the sentence described?

For example, to show where someone starts their day, the best drawing may be a floor plan of their living space, or apartment. Distance and travel paths are often communicated in a horizontal plane which leads the storyteller to a plan drawing. We can understand the relationships between the bed, restroom, kitchen, and other spaces to support getting ready for the day. When showing the commute from Manhattan to Brooklyn to arrive at campus, the drawing may still be a plan, but at a more zoomed out scale, because there is a larger area to show. When the story changes to describe an elevation change from outside to the third floor classroom, a section becomes helpful to illustrate the level change.

Figure 2. Words to Drawing exercise

Once the students understood analog drafting, we taught them to translate the same methods to drafting digitally. Using Rhino, the students first created orthographic drawings before moving into 3D modeling. In the same way we reviewed line weights with lead weights, line weights were reviewed in a process of bringing Rhino linework to Illustrator.

Drawing

Hybrid drawing raises the question of which tool do we gravitate towards to communicate an idea most effectively? What mediums lend themselves to representing materiality, light and shadow, use and furniture, or movement and circulation? We use the term hybrid in this context to represent the mixing of tools and medium.

Figure 03 is an example of a student exploring intentionally breaking the conventions of architectural drawing. Given that she understood the conventions of a section drawing, she was able to decide to overlay the perspective to emphasize the long dining table.
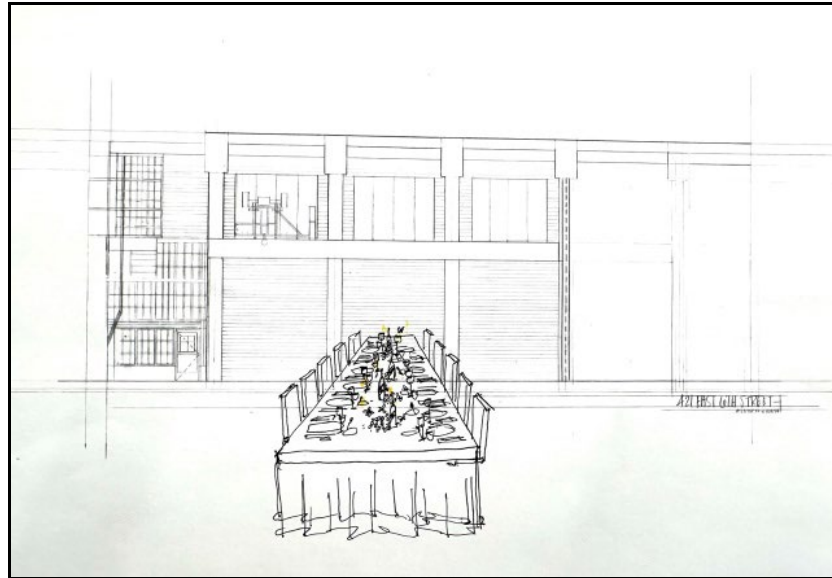
Figure 3. Section and Perspective by Allison Soule

Drawing was also used as a tool of exploration and inquiry. At times, when we do not have the answers to how something is built or how it works, how can we draw the question? Below, Allison Soule uses a similar method in many hybrid approaches. On the left of Figure 4, she uses detail sketches to test her understanding of various elements on the construction drawings given to her. At times, she tests by drawing, and at others she leaves the question unanswered. On the right, she uses digital tools in a similar way to add more information on top of the hand drawing behind. The digital images offer more information about the materiality used, and the graphite behind gives context.
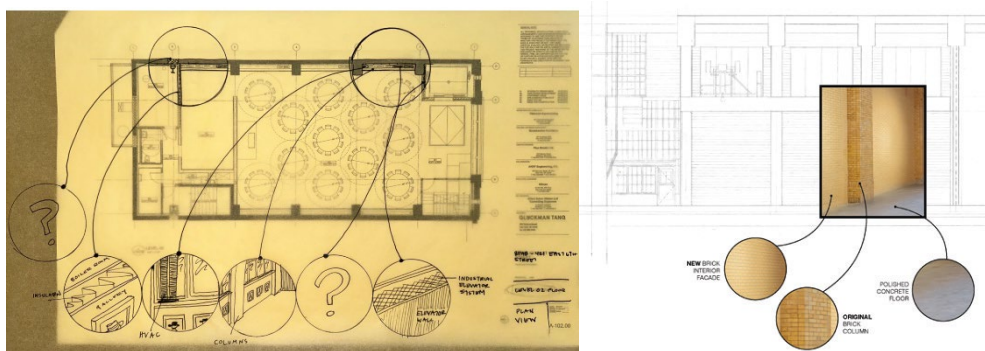
Figure 4. Hybrid drawings used to investigate construction details by Allison Soule

For some students, hybrid drawings allowed them to choose the tools that complimented their drawing strengths best. Figure 5 shows Helen Mohney's section composed of a digital section with her hand drawing layered to give a softness of the natural elements behind the building.

Figure 5. Hybrid section drawing by Helen Mohney

Evaluation

Evaluation of student work is the final method of a hybrid approach. The necessity for evaluations comes not only from the requirement to give a grade, but for the students to understand on a critical level the process of drawing and representation, critique of the process and product, and develop and learn from their peers' work as much as their own. To do this, evaluation was done through peer review, pin up and presentation, and self reflection.

Each project asked the students to reflect, through drawing and writing, on the work. They responded to a series of questions including their strengths, areas for improvement, techniques they wish to push further or a classmate took on well, risks and creative approaches tested, and what graphic tools they used and what the effects were. By taking the time to reflect, we found the students had a great sense of agency and autonomy over their work - they were in control of what they wanted to work on and push further, while also pausing to recognize what was already working successfully.

One student explained, "Everyone had too much on their boards. I think we all need to get more specific about what we are trying to communicate to reviewers in order to present drawings successfully."

Another student described their experience, "I think it was a risk to take the collage approach. I will eventually find my style with this and it was just the beginning and I can't wait to see how it develops in the future…all the research, the vision, and my narrative is there - it's only the ability to execute it cohesively is my struggle. It is a bit disconnected and choppy but this approach is a hard style to take on - thinking about what to include and what not to include."

Figure 6. Final boards of the hybrid drawing project

Another student described curating their work: "Editing myself down from all the different drawing styles we are learning has been a challenge, but helpful in communicating. I have learned to believe that certain drawing styles communicate things differently… how saying one thing in French can insinuate another thing in English. A mixture of different drawing techniques have been necessary to really communicate thinking."
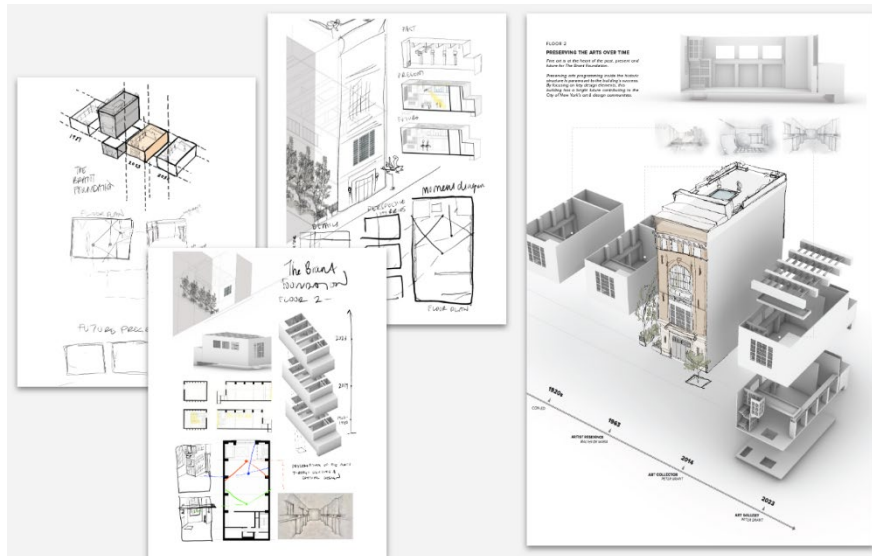
Figure 7. Iterations to the final board

When we discussed designing the final boards, we also discussed the power of drawings to communicate for themselves, without a verbal presentation. A student explained, "If I wasn't there to present my plot, I think that my drawing would speak for itself. I took a risk in only including three perspective drawings and disregarding the rest of the drawings made all semester. I know that to be able to have a perspective drawing, you have to have all of the orthographic drawings modeled so it is a way of presenting it but I only had two major "pieces" to render instead of all the other stuff. I think my drawing demonstrates creativity because of the way I connected the two… it was a more playful way to show the analytical differences."

Course Evolution

The course was evaluated as a whole by the working group that together framed the project trajectories. Members of the working group include Chelsea Limbird, Andrew Brown, Sheryl Kasak, and Gweny Jin. Andrew Brown continues to teach the course with Margot Kleinman, who together continue to evaluate the course and explore how hybrid methodologies continue to evolve.
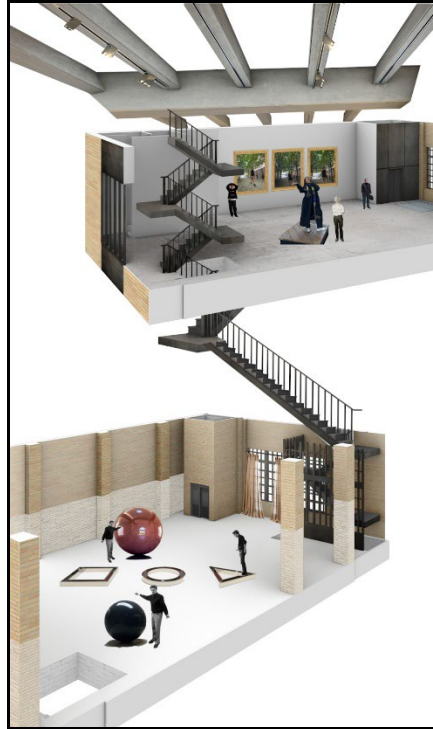
Figure 8. Final Board by Jasmine Tannoury

CONCLUSION

Constructing Representation is a course that takes on the challenge of learning to read and create architectural drawings and drafting mediums to ultimately use drawing as a means of communication. Technology is constantly changing in the field of design, yet the lessons learned from hand drafting are still not transferable to digital drawing. The hybrid approach of analog and digital medium to effectively communicate through drawing allows the students to understand the strengths of each tool and choose strategically. Through reflections and discussion, the students reflect and are in control of their education, with the support of their professors. Hand drafting and professor to student passing of knowledge is no longer the only or best way for students to learn. Instead, learning from one another, self and given evaluation, and development a mixed skillset is critical for a comprehensive understanding. Like how representation continues to evolve, the course will continue to evolve with a pedagogical stance exploring which tool to grab for to communicate through drawing.

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DEVELOPMENT OF SOCIAL AND EMOTIONAL LEARNING CAPACITY-BUILDING PROGRAM FOR THE PREVENTION OF SCHOOL BULLYING: IN INDIAN SETTING

Authors:
HARSHA SHARMA, LATIKA SHARMA

Affiliation:
PANJAB UNIVERSIT, INDIA

INTRODUCTION

"Every action has consequences; sometimes far more pronounced and deep-rooted, and hence it is essential always to be prudent." School is a miniature version of our society. Students from different socio-economic, cultural, and geographical areas converge in an impactful environment to shape their personality through education. This process starts with first impressions, where things get complicated. With such diversity and individual biases, every student is in a race to find their footing in a presumed complex social setting. This is where, sometimes even unknowingly or as merely a fun activity, some students engage in dominant behavior through words or physical strength among others to assert themselves. These acts of Bullying in schools and even other educational and life settings have been observed to have a damaging impact on many students, especially those who are emotionally weak.[1] Bullying is a serious problem that affects the persons involved socially and emotionally.[2] This has caught the attention of numerous nations rigorously working to make school environments bullying-free by implementing various policies and programs to combat the issue. School bullying negatively impacts kids' academic performance and well-being.[3] In India, too, school bullying's negative impact has been felt and reported with many adverse outcomes for both the victims and the perpetrators. Multiple school bullying incidents witnessed in the school have been reported for the severity in the country. A 12-year-old boy was beaten to death by his seniors in the washroom just for bumping into them accidentally,[4] a 14-year boy in Hisar committed suicide after being repetitively verbally abused as "effeminate" by two of his female classmates,[5] and a similar horrifying bullying case brought into attention when the victim ended his life due to persistent cyberbullying about his sexuality on social media, i.e., Instagram.[6] The parents have routinely expressed their concerns and blamed the school authorities and teachers' indifferent attitude, lack of support, and mishandling of the bullying situations in such cases, thereby resulting in extreme consequences. It is because of the perceived lack of effort from school management and teachers and the general social stigma attached to the reporting of bullying incidents that students most often willingly avoid voicing their dissent and succumb to despair. While everybody expects kids to be strong and handle difficult situations, what gets missed is that not everybody is. The general philosophy of shared responsibility is ideally not true in the case of Bullying, as the bully and the victim have two very different states of mind. Only the trusted guidance of teachers and parents and their meaningful actions can help students cope with bullying. The emphasis of this study is to build a

constructive learning program for teachers to play their role in identifying bullying problems and solving them effectively. To achieve this, it is essential to know if the teachers today are ready to solve this problem and how they can do it effectively. It is a very sensitive issue that requires the identification of the problem, sensitization, and strategies. As such, there is a need for capacity-building programs (CBP) which may provide a strong foundation to teachers in showing empathy to understand deep-rooted causes of bullying in specific cases, addressing concerns of both the bully and the victim and, in turn, reducing adverse outcomes and promoting good behavior in schools.[7] Successful bullying intervention programs have been implemented worldwide, such as Positive Behavioral Interventions and Support,[8] a whole school-based intervention program[9,]Classroom Check-up[10] Bully Proofing,[11] KiVa,[12] etc. The majority of bullying intervention programs are designed to train students on how to cope with the situation. It is felt that if the teachers are not trained, only the student training may not have the desired long-lasting impact to bring about the change.[13] Teachers' inefficiency in dealing with bullying situations can make victims isolated and helpless. Teachers' unpreparedness for bullying[14] indicates teacher training[15] to prepare them for early detection of school bullying. Training teachers on anti-bullying strategies has become more vital for the early detection of school bullying.[16] Each country has its dynamics in terms of culture, traditions, and social structure; thus, it is essential to design a program with special consideration of the nation's distinct cultural, social, and educational characteristics and needs of the learner so that they can apply learned skills and techniques effectively. Thus, Social and emotional learning (SEL) can have an impeccable impact on dealing with the socio-emotion problems that arise due to bullying[17] as it helps in acquiring all the necessary knowledge, skills, and attitudes in managing emotions, developing healthy relationships, making responsible decisions, and handling the challenging situation.[18] SEL skills are viewed as an active agent to prevent bullying; therefore, this research paper focuses on designing an SEL-based CBP for bullying prevention in schools and studying the teachers' feedback as active participants.

THEORETICAL BACKGROUND

Several cognitive-contextual learning theories have contributed to promoting the concept of Social and Emotional Learning (SEL). In the 1960s, James Comer inferred from his pilot study at Yale School of Medicine's Child Study Centre that home and school environments shape a child's personality.[19] The learner's observation, focus, and interest determine their attitude, behaviour, and knowledge acquisition. For instance, observing adults or family members performing bullying would automatically develop this behavior among them.[20] The ecological system attests to the importance of the environment in forming a child's personality.[21] The idea is supported by Daniel Goleman's emotional intelligence theory, which states that a child's personality can be shaped.

The concept was later formulated and became popular among educators and students through the active support of a non-profit organization collaborative for academic, social, and emotional learning (CASEL).[22] With the help of attaining five competencies, i.e., Self-awareness, Self-Management, Social Awareness, Relationship Skills, and Responsible Decision-making, personal and social well-being can be attained.

Figure 1. Diagram of SEL Competencies by CASEL

OBJECTIVES

1. To assess the need for the Capacity-Building Program for secondary school teachers to prevent bullying.
2. To develop the Capacity-building program with preventive measures.
3. To identify the areas for improvement in the program's workability.

METHOD

The current study is descriptive. The curriculum development model ADDIE adopted to design the CBP program[23] provides a stepwise approach to streamlining the program's design. The researchers followed an interdisciplinary and collaborative approach to incorporate diverse viewpoints and expertise to create a program that can easily be accommodated in the curriculum.
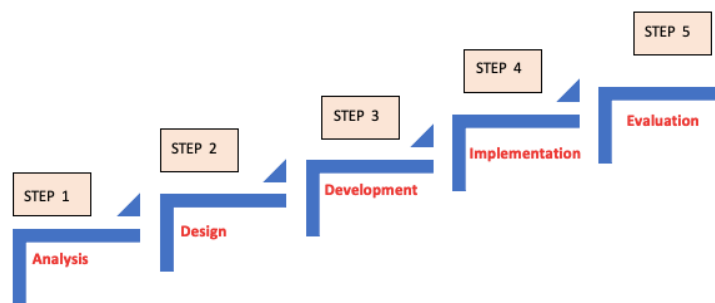
Figure 2. ADDIE Model

Need Analysis

The first stage of CBP is to analyze the need to develop CBP for Indian teachers, carried out through a self-constructed questionnaire. The aim is to get insights into teachers' awareness of the issues, current educational practices to control bullying situations, and their interest in learning coping strategies. 30 CBSE-affiliated schools in Mohali, India, were selected randomly through the list provided by the District Education Officer (DOE). The questionnaire was given to the teachers after

communicating the purpose of the research and assuring their responses would be kept confidential. Out of 600 teachers, 435 responded.

Statements	Responses in %
I have attended anti-bullying training	4.6
Bullying is recognised as a problem in my school	46.6
I often get complaints about the following behaviour in school: Name-calling Threatening Violence Physical Attack Verbal Abuse Sexual Comments Spreading Rumour Embarrassing Someone in Public Mocking others	 64.3 66.7 59.4 68.5 45.6 67.5 59.3 56.4
My school organises bullying sensitization workshops .	38.6
There is an anti-bullying school policy in my school.	52.5
The policy is revised time to time.	48.5
There is a recognised body of students to address bullying issues in school.	46.7
I am confident in detecting bullying behaviour	46.6
I believe anti-bullying training would help me to deal with school bullying effectively.	80.3

Table1. Responses of the survey in the Pilot Survey

Based on participants' responses, 46.6% of teachers considered bullying a school problem—an average of 55.5% of teachers who confirmed the prevalence of various types of bullying. Only 38.6% of teachers confirmed the organization of bullying sensitization programs in schools. 52.5% of teachers said there is an anti-bullying school policy. Still, most were mute when asked about their role and contribution, indicating the lack of participation, knowledge, and intention for its implementation. The growing need for the CBP is reflected in 80% of teachers' positive response to attending bullying prevention programs. Thus, the survey highlights the gap in knowledge and understanding of bullying among school teachers, which was further supported by the majority of teachers by nodding on the need for anti-bullying training to help them detect and deal with it effectively in the best possible way.

Designing and Developing Modules

An extensive review of social and emotional learning-based bullying prevention programs was done. Based on the researcher's understanding of the problem, some modules were shortlisted that were congruent with the Indian education policies and guidelines issued by the Ministry of Education for making bullying-free school.[24] Modules such as Communication Skills,[25] Perspective-Taking;[26] Conflict Resolution Skills;[27] Emotional Regulation Techniques;[28] Gratitude and Kindness[29] would enhance Social and emotional competencies and help them to handle challenging situations effectively. Some videos were replaced with short Indian movies, stories were replaced with Panchtantra to develop Empathy,[30] and poems were replaced with the content available in NCERT books to increase the likelihood of acceptability among participants.[31] India is known for its rich

culture and tradition, and it was clear that the program would be more thorough if this part of Indian history were given its due weight. The selected program's components were later discussed with multiple stakeholders, such as teachers, principals, parents, and professional counselors, for their insights and content validity. The selected modules are as follows.

S.no	Modules
1	Ice-Breaking and Introduction
2	Types Of Bullying
3	Getting To Know Bully, Victim, And Bystander
4	Identifying The Hotspots For School Bullying And Risk Factors
5	Social And Emotional Learning (SEL)
6	Self-Awareness And Bullying Prevention
7	Managing Emotions
8	Social Awareness
9	Empathy
10	Kindness And Compassion
11	Leadership And Bullying Prevention
12	Mindfulness And Gratitude

Table 2. Training Program

Implementation and Evaluation (Try-out)

In the process of securing permissions from the principals of various schools for the pilot study, the researcher came across an exciting opportunity to conduct the session for 300 teachers teaching classes (VI to X) in the various districts of Punjab, for instance, Hoshiarpur, Mohali, Roopnagar, Moga, Bhatinda, etc. These teachers visited for a week for summer teacher training at Sharda Sarvahitkari School, Sec-40 B, Chandigarh, India. It was a welcome opportunity to assess the proposed program's viability and efficiency. The sessions started after management and teachers consented to join the program. Twelve sessions of two hours each on anti-bullying were completed weekly in collaboration with the school head, counselors, and meditation experts. During the session, their responses to the discussions were promptly recorded. During the training, the participants analyzed current education policies, studied current practices worldwide, and provided valuable suggestions to improve the proposed intervention program by applying experiences and knowledge to combat school bullying. They shared that forgiving meditation lightens their minds from unnecessary thoughts and anxiety caused by other's actions. They enjoyed role-play activities, which taught them the sensitivity towards bullying situations overtly. Some of them shared that the discussed situations were experienced by themselves in real life. They also realized their pivotal role in creating an anti-bullying environment in the school.

In addition to the discussion during the session, the participant's responses on the program's effectiveness were collected through self-constructed feedback from Figure 3.
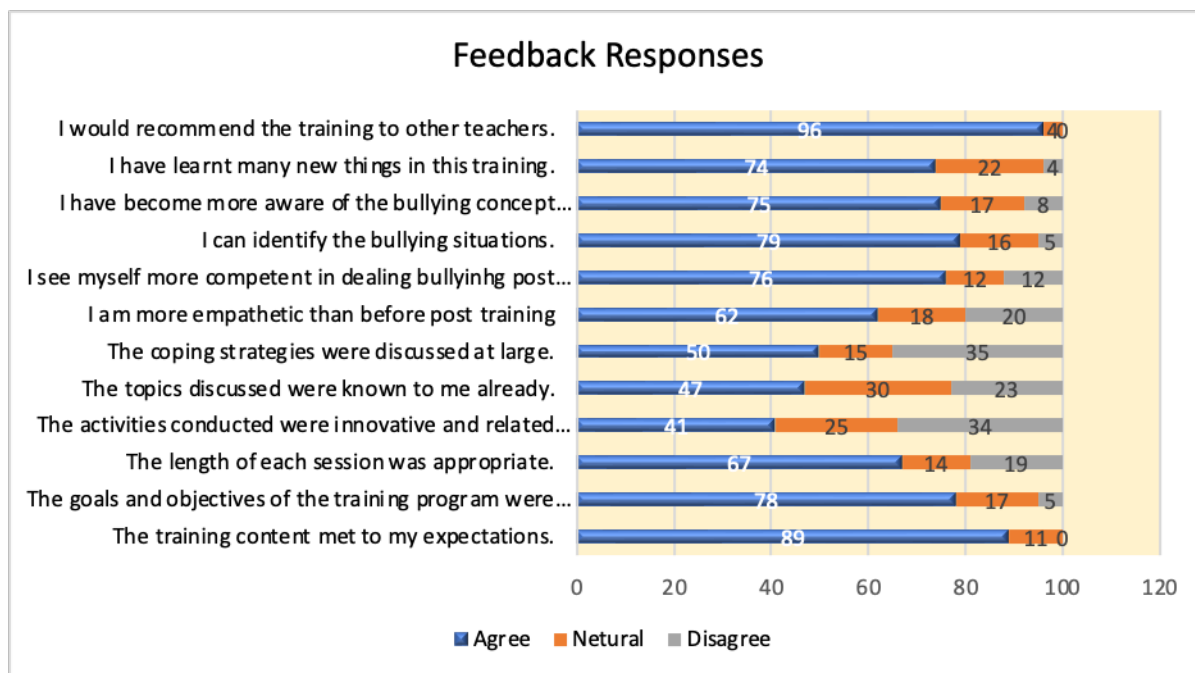
Figure 3. Feedback Analysis

Based on the feedback forms filled out, 89% of teachers felt that the content was relevant to the topic and the language was satisfactory. 78% of teachers found that the program's goal and objectives were clearly defined. Topic-based activities were included to sustain the participant's interest and encourage overt learning to prevent bullying. 76% of teachers believed that the training would enhance their competency in handling bullying situations and enable them to intervene, and 75% realized that they had gained a better understanding of bullying concepts and successfully addressed the myths and socio-cultural blocks attached to dealing with bullying. To improve the existing program, 59% of teachers felt it should include more details about each type of bullying and how to identify them. Further, it was suggested that Cyberbullying should be taken up in detail or a complete session, as it is challenging to determine the bully in this case. 34% believed their ways of addressing the issues were traditional and often failed to get good results, which shows a need for more awareness of innovative solutions among teachers based on individual needs. The various valuable suggestions by the participants showed their active engagement and interest in contributing to making an effective intervention program.

Semi-structured interviews with twenty-five teachers were conducted to develop a better understanding of the improvements necessary for the program. Questions related to teachers' expectations before joining the program, their competency level in handling bullying cases, their plan of action to address bullying situations, the most common strategies to deal with bullying, the challenges they come across in dealing with bullying, and what additional training they seek to deal with bullying effectively were asked to study the need of the program among school teachers. Their responses were transcribed, coded, and analyzed using the Atlas.ti.24 software. The following themes emerged from interviews, as shown in Figure 1.6

Figure 4. Semi-structured interview result from Atlas.ti.24

After transcribing the interviews, the themes of empathy and developing clear communication were highlighted in the analysis of semi-structured interviews. This means that the teachers believe they can win the students' trust through anonymous bullying reports by empathizing with them and communicating effectively with them. Bullying behavior gets worse if the victim does not seek the help of adults because of fear and lack of confidence.

"Values like empathy, kindness, and gratitude should be an integral part of the curriculum to maintain a respectable environment in the school," supported by most of the teachers.

" Some students tend to engage in bullying behavior despite scaffolding."

Teachers believe that some students have inherent qualities of being bullies based on their earlier exposure, experiences, or physical strengths, and they refuse to behave amiably. Teachers expressed concerns about handling such cases with conviction. However, apart from this, this program would help build a safe and healthy learning environment if implemented well. While discussing the challenges to integrating it into the classroom, one of the teachers said,

" Being senior class teachers, we are expected to complete the syllabus, so we don't get a chance to conduct such sessions."

"Sometimes Parents behave strangely and do not cooperate."

"Bullies often backed by bystanders who are being afraid of them."

Teachers appreciated the various coping strategies for bullying, such as empathy, relationship skills, leadership, and conflict resolution. Many teachers have supported adding more techniques and coping mechanisms for cyberbullying to the current capacity-building program. A few educators suggested including more techniques or methods for empowering bystanders to speak up or help the victims of bullying. This would help them to develop a sense of community. They believed that developing anti-bullying behavior is not a stop-gap arrangement; it needs perseverance and continuous efforts of the whole school staff, so such programs should be conducted regularly to develop efficacy in tackling bullying and working towards a healthy school environment.

DISCUSSION AND CONCLUSION

With the help of the study, it was found that 95% of teachers surveyed had never been exposed to any such intervention. They showed interest in learning practical strategies to gain confidence and equip themselves with valuable strategies to control delinquent behavior. This program was designed with the social and cultural aspects in mind, and the participants received it enthusiastically. During the try-out phase, the participant teachers feel that learning about the various actors involved in bullying

increases the possibility of early detection.[32] In this case, the teacher's role becomes crucial to intervene. It was also felt that the universalist strategy might only sometimes be practical in bullying acts, so learning new contextual techniques and ways becomes more vital. They also shared that some teachers often avoid intervening because of the intensity and sensitivity involved. This also highlights teachers' need to gain competence in dealing with challenging situations. The other side of the problem is that bullying is neglected under socio-cultural realities, wherein teasing and name-calling may just be considered routine affairs or light-hearted jokes. Therefore, addressing socio-cultural blocks becomes even more imperative to reduce bullying perpetration. As such, this needs to be discussed with the students and parents, making effective communication even more pronounced in maintaining healthy discussions and rapport for effective intervention.

Teachers discussed the change in their perception and self-efficacy in addressing bullying issues, as they believed such intervention programs could reduce school bullying to a great extent.[33] Studies link a higher level of intervention with higher self-efficacy and empathy.[34] An empathetic teacher is expected to intervene more seriously in bullying situations. Developing Empathy and building social relationships are considered some of the best ways to strengthen the socio-emotional aspect of human personality.[35] This program can significantly improve Teachers' awareness and competency. Participating teachers gave this indication that they were willing to incorporate bullying prevention in their classroom interaction and expressed the need to enhance their competence to handle such situations by adopting a collaborative approach

The interactive teaching approach in the CBP provided teachers with valuable pedagogies and strategies to act as role models, leaders, empathetic friends, facilitators, problem-solvers, etc., for making the classroom environment more inclusive, safe, and democratic. CBP is an active process in which suggestions and feedback are given due importance for improving and successfully implementing it; thus, the valuable inputs provided by the participants will be considered. This program can be replicated by integrating it into a pre-service teacher's course. The program can be implemented on a larger scale by including teachers from different regions of the country. Longitudinal studies can be done to see the program's effect in preventing bullying and change in students' behavior. Thus, sustained efforts are needed not only from teachers but also from school staff, management, parents, and education policymakers.

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TRANSCENDING BOUNDARIES BY INTEGRATING KNOWLEDGE: WORKFORCE DEVELOPMENT FOR SMART SPACES

Authors:
JEFFREY C. SUN, SHARON KERRICK, ANDREW WRIGHT, ADEL ELMAGHRABY

Affiliation:
UNIVERSITY OF LOUISVILLE, USA

INTRODUCTION

Universities, government offices, and businesses have been developing and supporting smart buildings and spaces, which are integrated with a variety of technologies to improve performance, develop new solutions, and offer insightful analyses. This push of smart spaces emerges from government policy, financial savings, safety, competitive positioning, and modernization. But the learning, living, and working about and within smart spaces in terms of design, application, and improvement are largely unknown to many fields, including educators. The extant literature is largely bereft of analysis surrounding the transdisciplinary nature of workforce development applicable to smart spaces. Given the literature gap, this study examines how workforce development programming and be effectively designed and implemented to prepare prospective staff to work in the emerging and complex arena of smart spaces, which integrate multiple forms of technology including Internet of Things (IoT), artificial intelligence (AI), and cybersecurity. Accordingly, this paper offers a transdisciplinary insight about how a team of educators blended the learning, living, and working contexts to develop a workforce trained in AI and cybersecurity to address the growing emergence of the IoT, particularly in smart spaces.

To democratize learning about smart spaces, these educators take a lay-translated view about these spaces from expert panelists in engineering, criminal justice, education, business, and information technology, who collaborated on the educational components of workforce development. The team explains this project by drawing on complex adaptive systems theory to illuminate the complex, dynamic systems at-play when designing and implementing smart spaces. It captures the non-linear interactions, unpredictable behaviors, and the effects of feedback loops. Ultimately, this analysis is possible because we assembled an interdisciplinary team to tackle a real-world matter of developing a workforce prepared to develop and deploy smart spaces, which requires an understanding of the Internet of Things through artificial intelligence and cybersecurity in non-linear ways.

SMART SPACES
Growth, Opportunities, and Value

Smart spaces, which capture rather diverse physical environments such as buildings, offices, and even entire cities, have emerged as emergent design features in contemporary architecture and urban planning.[1] These spaces leverage interconnected technologies, typically infusing features of the IoT,

AI, and cybersecurity, to optimize operations, elevate user experiences, and achieve specific goals of the space.[2]

The features of these smart spaces offer building dimensionality enabling human-space interactions, predictions, and anticipated desires. More specifically, the IoT, which consists of a network of sensors and actuators, collect and exchange data about various environmental parameters. These data contribute to the human experiences of smart spaces by taking real-time data as processed through AI algorithms.[3] Those processed data generate decision points and automate actions such as lighting levels, air controls, security, and scents. For instance, the smart space may draw on AI to adjust HVAC systems based on occupancy patterns to ensure optimal comfort and energy efficiency. Also, the smart spaces often operate with predictive maintenance algorithms, which are similarly informed by IoT data, and these data function to anticipate equipment failures, so appropriate parties are alerted quickly to remedy the matter and ultimately minimizing downtime and operational costs.[4]

Smarts spaces offer opportunities beyond individual buildings. They have the potential to transform entire neighborhoods and even whole cities, especially as evidenced in various urban environments.[5] These communities have leveraged interconnected technologies, and now cities have participated in efforts to optimize transportation systems, enhance public safety, and promote sustainable development.[6] The vision of smart cities, characterized by enhanced efficiency, sustainability, and improved quality of life for residents, is becoming increasingly real as policies and governance have directed efforts in toward this interest, such as the U.S. funded Strengthening Mobility and Revolutionizing Transportation (SMART) grant, which offers a $550 billion allocation contributing to massive improvements to public transit, broadband, highways, roads, and bridges.[7]

Taking these considerations together, the applications of smart spaces highlight four driving forces and impacts solidifying the significant contributions of this technology-design interaction, which are likely to increase. Notably, smart spaces contribute to design efficiencies. As noted, smart spaces aim to optimize energy usage, streamline operations, and reduce costs. Smart spaces also add to the safety and security of spaces. Technologies such as surveillance cameras, access controls, and environmental monitoring enhance safety for building occupants. Smart spaces position organizations using these smart spaces with a competitive advantage. That is, organizations that embrace smart technologies have the potential improve experiences of employees, clients, and operations – especially in terms of productivity, which may differentiate themselves in the market and potentially attract and retain more competitive talent. Finally, the drive for smart spaces may emerge from government policy. Policy adoption and other initiatives, such as federal and state mandates, promote energy efficiency and sustainability in federal buildings, driving the adoption of smart technologies and rethinking expectations for contractors and experiences of building occupants.

Securing Smart Spaces: A Major Challenge

The effective functioning of a smart space is critically dependent on the unfettered flows of data into and out of the space along with the data generated within the space. The vast amounts of data collected by IoT devices, if not adequately protected, present space vulnerabilities and risk through the potential of unauthorized access or misuse. This challenge underscores the need for robust cybersecurity measures and the development of guidelines and regulations to ensure the ethical and responsible use of data within smart spaces.

Given the tremendous value that smart spaces bring, cyber-attacks on their infrastructure are inevitable. Shvedenko, Shchekochikhin, and Alexeev explain through their research that "one cannot discount the desire to use information resources as a means of waging war or destroying competitors, or simply carrying out malicious intent on the part of blackmailers, dictators, or criminals."[8] Indeed, previous research on smart spaces have outlined the information security dilemmas and workforce

training failures as significant hurdles to ensure the efficiency and effectiveness of smart spaces.[9] As researchers have previously outlined, smart spaces consist of design elements and resource constraints placing it at risk, especially given the "heterogeneity of devices, vast attack surface, and device resource limitations."[10]

Protecting these spaces from threats in the cyber realm is essential and monitoring these environments in real time, all but necessitates the use of artificial intelligence. In light of the complex interactions and dependencies, the intersection of AI and cybersecurity present critical and foundational elements that the emerging workforce must learn, develop, and deploy so smart spaces are secure, efficient, and reliable.

THEORY AND RESEARCH METHODS
Complex Adaptive Systems Framework

Guiding an investigation into constructing workforce development pathways and preparation for smart spaces, the researchers of this project drew on complexity theory. Already, computational complexity theory, based on physics and mathematics, is a well established approach to classifying computational problems to illuminate the relational aspects and resource usage of the central matter to examine. At the same time, complexity theory in social and behavioral science has gained traction to study interconnected relationships such as designs and system effects within a smart space to understand the interaction and evolution of the embedded technologies and human guided activities.[11]

Here, we use complexity theory a step further, and our inquiry investigates how complexity theory accounts for the interconnected elements to understand the integrated knowledge elements that prepare a workforce, especially when demand is high and supply is scarce.

In previous studies drawing on complexity theory to examine smart spaces, research has highlighted the theory noting the technical and social elements as interdependent and nonlinear analyses. They have drawn attention to the context awareness, data management, privacy, and security, which blends both a technological design and human engagement. Plus, the interdependence among devices and data sources also are at-play with smart spaces. For instance, a change in one component of the space, such as a sensor, detecting increased occupancy potentially leads to a triggered effect to other adjustments for other systems, particularly temperature adjustments, air controls, lighting, energy consumption, space utilization, and security. Further, these changes demonstrate the non-linearity associated with the data as small changes in a smart space trigger potentially significant effects. For example, a minor adjustment in lighting, which may be adjusted from sensor data, may lower energy savings over time in quite noticeable ways. These effects output the non-linear impact of small interventions generated from the smart space sensors based on human interactions.

A variant of complexity theory that is often employed to understand the deeper relationships between systems and people across various domains is complex adaptive systems.[12] Although much of the literature employing complexity theory is dominated by scientific studies nested in areas such as engineering and computer science, complex adaptive systems has gained traction to interrogate social science and economic research taking a political economy perspective.[13] This approach is useful for this workforce study involving boundary spanning environments such as smart spaces because the theoretical framework tackles elements about the interdependent nature of the environment, the nonlinearity associated with unpredictable and seemingly random outputs, emergence of new properties or effects that occur from larger and even smaller organizations and units (e.g., a seemingly insignificant, small technological sensor with multiple effects), and system adaptions that change and evolve in response to new conditions such as environmental pressures or internal dynamics.

Cross-Case Study

Drawing on the complex adaptive systems framework, this study examines three workforce development projects designed at preparing individuals to address and manage smart spaces. Specifically, these workforce development projects prepared 218 participants to work within cyber protections, AI, and systems development, and they apply learning and development to smart spaces. A cross-case study analysis offers greater insights into contextual differences, functional contributions of the cases, and specific lessons learned applicable to smart spaces.[14]

To gather the data for this cross-case study from the three cases, which totaled 218 participants, the researchers employed several data collection approaches. For instance, the team engaged in monitoring participants through the learning modules, journaling of events and other learning observations, and note-taking in participant meetings and employer engagement activities. Further, the researchers reviewed and revised activities based on participant learning reactions and documented real-time observations throughout the workforce development process of the smart spaces. The researchers also journaled any observations of skill gaps identified during the participants learning as well as any patterns of learning gained or omitted during the experiences. Moreover, if the technology designs or functionality choices and operations reacted to participants in effective or ineffective ways, the researchers documented those experiences to improve the training programs and system upgrades. In short, the researchers constructed the data collection steps as an iterative process of observation, analysis, and adjustment with particular attention to the responsive to learning and functionality to the smart spaces. This approach ensured optimizing resource use and maintaining high levels of operational efficiency in the technology and learning of smart spaces.

Participant Workforce Training Experience

Based on two federally awarded grants, two units within the University of Louisville created training modules that were not for academic credit for three workforce development projects adding a workforce pipeline within cyber, AI, and other technologies applicable to smart spaces. These modules were largely cybersecurity focused with applicability to smart spaces. The modules including database management, security principles & foundations, network foundations, artificial intelligence, privacy/legal foundations and ethics, coding, cryptography, cyber threat hunting, information security, network security, cognitive computing, data mining, cloud foundations, blockchain, forensics, cloud security, IoT, post quantum cryptography, risk analysis, robotics process automation analysis. Participants qualified for a non-degree badge after successful completion of major clusters of knowledge and some qualified for industry credentials after passing a test such as Certified Ethical Hacker, Certified Information Systems Security Professional, Certified Space Security Specialist Professional, Security+, and Certified Information Systems Auditor.

FINDINGS

The data from the various observation points of the cross-case study analyses revealed a theme in which the researcher identified transcending boundaries by integrating knowledge from multiple technological and human interactions, and these transcending boundaries offered an innovative and effective approach to workforce development for smart spaces. This overarching theme was most evident in the way the three training projects seamlessly blended diverse disciplines from cybersecurity, artificial intelligence, project management, IoT, apprenticeships, and community engagement. Collectively, these integrated experience created a comprehensive educational ecosystem that prepares the workforce for the complexities of smart spaces. More specifically, the integration among space/buildings, technology, and human interactions reified effects associated with managing

unpredictability, performing with a holistic approach, and fostering continuous learning as they apply to workforce development for the technological operations of smart spaces.

Understanding and Managing Unpredictability

The workforce development training modules on the cybersecurity effects for smart spaces, particularly those focused on Network Security, Cloud Security, IoT, and Risk Analysis, were intentionally designed to prepare participants to work in the unpredictable nature of smart spaces such as emergent threats from cybersecurity attacks, risk infusion, and uncontrolled environments caused by intervening circumstances. The learning modules included use cases, real-world examples, hack-a-thons, cyber ranges, and other simulations. The participants reported how the experiences supported their ability to anticipate and react to potential vulnerabilities and breaches in terms of expectation setting and speed of responses. As the participants noted and the researchers observed, this type of workforce preparation was essential and well developed to address needs of smart spaces, where the integration of various technologies, such as IoT devices, AI systems, and cloud-based solutions, present a complex and quickly-changing environment. By equipping participants with the skills to recognize and mitigate these threats, the projects fostered a proactive lens to managing the inherent unpredictability in smart environments, as they constantly balanced unexpected or previously unplanned technological and human behaviors.

Performing with a Holistic Approach

The three projects addressed smart spaces with intentionally designed elements taking a holistic approach. The participants were exposed to a comprehensive, multi-disciplinary strategy that moved beyond traditional cybersecurity training within smart spaces. For instance, the learning designs for the participants were based on an integrated understanding of AI, cybersecurity, cloud computing, project management, strategic communication, technology systems (e.g., building management systems, energy management systems), biophilic design, digital twins, IoT, along with conceptual lessons on quantum computing, urban planning, and block chain. Stated another way, this holistic approach is evident in the design and implementation of projects that combine various technologies and methodologies to solve complex problems within smart spaces. Notably, the holistic approach even includes piloting of AI-powered chatbots in public spaces and the remote monitoring of connectivity in residential areas and demonstrating the network grids, so participants have an understanding of the interconnectedness of technology, user experience, and security. These workforce development modules among the three projects are not only technically loaded with lots of training and development in that realm, but they also present the broader implications of technology so participants have a sense of holistic context onto society, safety, and security.

Developing Continuous Learning as a Mindset

Continuous learning is a foundational element throughout the three workforce development projects applicable to smart spaces. The designs of the learning occurred in scaffold lessons and the modules were tiered as building blocks. Further, the experiences emphasized the importance of staying current with the latest technological advancements. The industry certifications even present expiration dates requiring renewal of certification by staying current and relevant to the field.

Moreover, these projects ensured that formative and summative assessments were embedded throughout the learning experiences so the participant had both continuous and reflective learning development. This design allowed participants to apply new knowledge and skills in real-time and receive feedback, and it modeled the learning process for smart spaces – in which rounds of learning led to adjustments or other actions as well as effective and optimal settings. In short, the data

suggested that the learning model for these three workforce development experiences amplified a commitment to continuous learning by enabling participants to see the value of the rounds of learning and development within the modules, for the entire program, and in settings beyond. This continuous learning mindset was key to ensure the technological relevancy, currency, and security of the smart spaces.

DISCUSSION

Using a cross-case analysis, this study illuminated the value of designing workforce development programs about the technological uses within smart spaces to infuse an interconnected lens. The study suggests moving beyond traditional lines of learning technology and other divisions associated with technology in spaces, such as buildings and cities. Instead, this study demonstrates the value of bringing together diverse areas of expertise or fields of study to breakdown complex content and applications into holistic, meaningful applications and deeper learning contexts. Notably, this study shows how the intersection of technology, human interaction, and workforce education in the context of smart spaces presents transcending boundaries by integrating knowledge. As evidenced through this study, workforce development in these technologies requires not only technical skills, but it also a deep understanding of the complex, adaptive systems within which these technologies operate.

The concept of smart spaces, as outlined in the paper, is multifaceted. It encompasses physical environments from buildings to entire cities. At the same time, these spaces leverage interconnected technologies, such as the IoT, AI, and cybersecurity as key technological features to enable the dynamic, responsive environments in these spaces. The extant literature and findings from this study illustrate how these technologies are not isolated technologies or innovations. Instead, they are deeply intertwined, so changes in one area often have significant ripple effects across the system impacting the smart space technology and human experience (e.g., HVAC systems within smart buildings can optimize energy use and comfort levels based on real-time data from IoT sensors).

Drawing on complex adaptive systems, this study contributes to the literature by showing how the dynamic nature of these environments requires a workforce capable of anticipating and managing unpredictable behaviors and interactions in more layered ways than the extant literature suggests. This layered content is particularly important when covering areas about cybersecurity, where the integration of various technologies increases the potential attack onto smart spaces. Further, this study reinforces the workforce development reliance on AI lessons and practice-based experiences. However, this study also connects the AI to comprehensive cybersecurity measures, continuous monitoring, and interdisciplinary case examinations that infuse learning about areas such as strategic communication, technology systems, and biophilic design, along with conceptual lessons on quantum computing and urban planning. Although the interdisciplinary lessons are referenced in the extant literature, the topical coverage, showing the holistic approach and its applications to the unpredictable nature of smart spaces has not been well examined from a workforce development perspective.

CONCLUSION

In conclusion, this study offers evidence for the need to integrate knowledge across multiple disciplines, an approach to accomplish the integrated learning experience so the trained workforce is capable of managing and optimizing smart spaces, and the imperative to have a continuous learning mindset.

NOTES

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[4] Badr Alsamani et al. "Smart Space Design–a Framework and an Iot Prototype Implementation." Sustainability 15, no. **1**. (2023): 1-2; Casado-Mansilla et al. *A Human-Centric & Context-Aware*, 31446.

[5] Nicos Komninos et al. *Towards High Impact Smart Cities*, 1169-1172.

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[8] Vladimir N. Shvedenko, Oleg Shchekochikhin, and Dmitriy Alexeev, "Smart Spaces and Ensuring Their Information Security," in *Smart Spaces: A Volume in Intelligent Data-Centric Systems*, ed. Zhihan Lyu (Cambridge, MA: Academic Press, 2024), 485.

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[10] Changyuan Lin, Hamzeh Khazaei, Andrew Walenstein, and Andrew Malton. "Autonomic Security Management for IoT Smart Spaces." ACM Trans. Internet Things 2, no. 4 (2021): Article 27, 3.

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[13] Amagoh, 2-3.

[14] See, e.g., Ndaguba, Operability of Smart Spaces in Urban Environments, 1169-1172; Raz Radha, Abdullah Tayib, and Ibtisam Mohammed. "Comparative Study to Analyze the Impact of Smart Technology on Functional Flexibility and Space Occupancy." Journal of Building Pathology and Rehabilitation 6, no. 1 (2021): Article 9, 1-3.

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TEACHING CLASSICAL CHINESE LITERATURE IN AMERICA—AN INNOVATIVE, CROSS-CULTURAL APPROACH

Author:
HUAI BAO

Affiliation:
DAVIDSON COLLEGE, USA

INTRODUCTION

Teaching classical Chinese literature, especially the Four Great Classical Novels, in America, is a challenge. The learning and teaching process requires a thoughtful approach that takes into account the cultural and linguistic differences between two cultures. While internationalization of the curriculum is on the trend worldwide, straddling two categories—international students and "home" students,[1] here, I treat "internationalization" of pedagogy as in a cross-cultural setting—a class targeting primarily "home" students. The New London Group developed a new pedagogical model called "Learning by Design," requiring students to feel a sense of belonging in relation to the content being taught and engagement with difference and diversity.[2] Observing my Chinese literature class at Davidson College, I find that internationalization of the curriculum does not run separately from other disciplines or approaches. In Fall 2023, I experimented with a mélange of teaching methods underpinned by the above-mentioned pedagogical framework and its principles. The course proved an unprecedented success as over 30% of the students received a grade in the A range based on their numerous quizzes, exam, and overall performance.

The Analogy or Comparative Method

The analogy or comparative method enables students to form a quick idea of the target text by identifying similarities in terms of genre, style, and/or theme. In teaching traditional Chinese drama, for example, I provided such parallels between classical Chinese plays and Shakespeare: *Romance of the West Chamber* versus *Romeo and Juliet*, *The Peony Pavilion* versus *Hamlet*, The *Palace of Eternal Life* versus *Caesar and Cleopatra*, and *The Peach Blossom Fan* versus *King Lear*. This method, however, only works if the students are familiar with the Western parallels. The tale of Ye Xian from *Miscellaneous Morsels from Youyang*, written by a Tang dynasty scholar, for example, is a much earlier parallel to the European Cinderella and the earliest datable version of the Cinderella story,[3] for which most students demonstrated great skillfulness in their comparative work. The Four Great Classic Chinese Novels—*Journey to the West*, *Romance of the Three Kingdoms*, *Water Margin*, and *Dream of the Red Chamber*—are all comparable with parallels in multiple aspects such as genre, style, theme, and characters. This method also requires the instructor to have a background in comparative literature.

Contextualization

Contextualization aims at providing students with a historical and cultural context to help them understand the societal and philosophical influences on classical Chinese literature. This could include discussions on the dynasties, the philosophical schools of thought, and the social customs prevalent during the period of time when the text was composed. I devoted the first week introducing the Chinese mind, shaped by Confucianism, Mahayana Buddhism, and Daomism (Taoism), as well as folk beliefs. Carl Jung's commentary on the Chinese mind was intriguing to the class, featured by synchronicity or acausality from the Western "scientific" perspective.[4] Students were able to identify human commonalities instead of leaping into oversimplified generalizations on East-West differences when discussing such concepts as *xiao* (filial piety), *wuwei* (non-doing), *yuanfen* (usually inaccurately translated as fate), *yuanqi* (dependent origination), fatalism, and predeterminism. They not only enjoyed how China as a non-Western society offers "alternative" views of self, culture, and society,[5] the learning and teaching process in encouraging students to relate to their own times and discourse communities echoed the move recommended by Leigh K. Jenco toward a "methods-centered approach to cross-cultural engagement."[6]

The Historical Context

In addition to the dynasty timeline and emperors' genealogy, I devoted considerable time illustrating the status quo of the socio-historical context. One example would be the opening chapters of *Romance of The Three Kingdoms*, presenting a turbulent, divided, and unstable, China. The Three Kingdoms period was one of political and military conflict that lasted from 220 to 280AD, following the fall of the Eastern Han dynasty. The three kingdoms were the states of Wei, Shu, and Wu, each vying for control over the Chinese mainland. It was a time of great military strategies, political alliances, and legendary figures. I started from the Western Han dynasty (202-9AD), shifting to the decline of the Eastern Han dynasty (25-220AD), with Wang Mang's reign and civil war in between. I focused on three categories when analyzing the downfall of the Eastern Han dynasty—the successor to the throne and child-emperors, Chinese eunuch culture and the "Ten Attendants," and the warlords rising and their numerous fights. The child-emperors had the empress-dowagers as their regents, who involved consort-kin relatives in the imperial court's business and then eunuchs to take control. The "Ten Attendants," also known as the "Ten Eunuchs," were a group of eunuch-officials in the imperial court who had access to power and influence even over the emperor. The feudal warlords tried to vanquish them, and later, with their retainers, tried to replace the declining Han dynasty or restore it, and hence the Three Kingdoms was formed. Many instructors would usually skip this part for its intricate network or relations, and students could be lost if they were not exposed to the Han dynasty's imperial system and its structured social hierarchy. This is a reason why this novel has never been appealing to American students.

The Selection of Representative Texts

It is impossible to require students to read the novels in its entirety. *Romance of the Three Kingdoms* has a total of 120 chapters, almost each chapter containing references to previous chapters and characters. *Water Margin* has 70 or 120 chapters depending on the edition, where the stories of the main characters are relatively independent. *Journey to the West*, which has 100 chapters, does not begin until the 13th chapter. The *Dream of the Red Chamber* of the Cheng-Gao edition has 120 chapters, where most "stories" are rather incidents, oftentimes sharing the same characters.

Water Margin basically consists of stories of each of the main characters, so it is relatively easy to select representative texts. Students were very fascinated by the stories of Wu Song (chapters 23-32, of the 100-chapter edition).[7] Considering the time limit, I focused on chapters 23-26, when Wu Song

has avenged his brother by killing Pan Jinlian and her lover, Ximen Qing, who collaborated to poison Wu's brother to death, and turns himself in to the magistrate's court. Besides, we should not leave out Song Jiang, the chief of the 108 outlaws. I raised thought-provoking questions in covering chapters 21-22, from Song Jiang killing his concubine, Yan Poxi, in protecting the Original Seven [outlaws] to escaping and seeking asylum from Chai Jin, whose clan has been granted immunity to prosecution by the emperor. The end of chapter 22 is also connected to the start of the story of Wu Song I introduced earlier in the semester, which was still fresh in students' memory. I also covered the death of Song Jiang briefly, which is also the end of the novel, and engaged students in pondering the amnesty and the root cause of the tragedy in the end.

Journey to the West contains four parts: The first part (chapters 1-7) is primarily about the rise and downfall of the Monkey King; the second part (chapters 8-12) introduces Tripitaka, his early biography, and his mission to obtain sacred sutras from India. The third part (chapters 13-99) is the longest part of the novel, about the adventures of Tripitaka and his disciples—Monkey, Pigsy, and Sandy. The last chapter is the closing part about their return to China. While the main storyline was already known to most of the students, I selected two stories from this part from Anthony C. Yu's English translation, one from chapter 27: *The Cadaver Demon three times make fun of Tripitaka T'ang; In spite the holy monk banishes the Handsome Monkey King*; and one from chapters 53-55, about their encounter with the women's kingdom of Western Liang. These two episodes are significantly different from most of their other adventures. The cadaver demon story offers a dramatic turn and contrast between the characters: The deceitful demon is a master of disguise who transforms into a peasant girl, her mother, and then her father, respectively, scheming to approach and eat Tripitaka in order to achieve immortality. Monkey's abhorrence of the demon and loyalty to Tripitaka are ignored and misapprehended by Tripitaka, whose religious piety turns out to be pedantries and obstinacies. He cannot forgive Monkey for taking the three lives disguised by the demon, drafts a letter of dismissal, and breaks up with Money determinedly. Pigsy drives a wedge between Tripitaka and Monkey and Sandy has little sense of presence. Tripitaka regrets in the end when Monkey has been expelled and the demon's former assistant has captured him, revealing the truth to him. While this chapter depicts one of the numerous adventures with demons with a similar storyline, its characterization and satire of religious hypocrisy and naivety makes the story more than a work of fantasy.

For the story of Western Liang, I divided students into groups, each group creating and performing a short play based on these chapters. When Tripitaka and his disciples arrive at this country, the queen proposes marriage to Tripitaka through her Grand Preceptor. The queen is willing to give up her throne to Tripitaka and offer all her wealth as dowry. Tripitaka and his three disciples pretend to accept the proposal but run away, leaving the queen disappointed, embarrassed, and frustrated. As the chapter 54's title summarizes, *Dharma-nature, going west, reaches the Women Nation; The Mind Monkey devises a plan to flee the fair sex,[8]* this is an unconventional "adventure" in the novel. Students were drawn to the human nature through the marriage proposal, the determination of Tripitaka, and the sense of humor of the three disciples.

For *Romance of the Three Kingdoms*, it's hard to find a relatively independent story without references to earlier chapters. I chose to focus on Cao Cao for his complex and controversial legacy and characterization in the novel. A real historical figure and a main character in the novel, he is portrayed as a villain, ambitious, intelligent, and ruthless. I selected two chapters: Chapter 4 shows Dong Zhuo, a powerful warlord who manipulated the puppet emperor, portrayed as a brutal villain. When Cao Cao seizes the opportunity to approach Dong, he attempts to assassinate him with a hidden dagger. The attempt is interrupted as Dong catches him in the mirror. Cao immediately kneels, presenting the dagger to Dong as a gift. The story continues as Cao flees as a fugitive. Chen Gong, the

magistrate who arrests Cao, joins him out of admiration of Cao's sense of justice. They escape to the residence of Lü Boshe, the sworn brother of Cao's father, to seek shelter for the night. While Lü is out to obtain some wine and his family are sharpening the knife to slaughter a pig to prepare food, Cao kills them all, suspecting that they are going to kill him. Worse, Cao kills Lü later, saying, "I would rather betray the world than let the world betray me."[9] This simple chapter with only four main characters contains fully illustrates the multifaceted Cao Cao.

Chapter 72 further discloses the complexity of Cao Cao's inner world. Appreciative of Yang Xiu's talent, Cao Cao recruits Yang as his counsel, and the two form a close relationship, and yet Cao Cao begins to resent Yang Xiu's self-conceitedness and overconfidence in his cleverness. Several incidents lead to Cao's decision to execute Yang Xiu, with the "chicken tendon" incident being the last straw.

I guided students' reading and then had them locate and analyze the seven incidents. While Cao's suspicious nature was already known to them from the first story, this chapter added his jealousy and intolerance of another intelligent individual.

Students appeared to be equally interested in *Dream of the Red Chamber* (also translated as *The Story of the Stone* or *A Dream of Red Mansions*), which is considered the pinnacle of classical Chinese literature. In China, many educated people find it hard to read due to its large scale and panoramic depiction of society, encyclopedic context, mystical and recondite symbolism and allegory, and the unfathomable philosophies. For foreign readers, translations may not capture the nuances, subtleties, and poetic beauty of the original language, making it a most untranslatable work. I used supplementary materials first, such as annotations or critical essays, as well as China Central Television's 1987 TV adaptation. Overall, these measures enhanced the reading experience and helped navigate the novel's complexities.

Selecting representative texts from *Dream of the Red Chamber* poses as a challenge also because most of the subplots were more like daily domestic incidents rather than "stories" as they lack dramatic elements. Most of the main incidents are meticulously documented. Appreciating these chapters would require the reader to have read the entire novel to form a larger picture. As such, I selected chapter 69: *A Scheming woman kills with a borrowed knife; And one who has ceased to hope swallows gold and dies,*[10] which offers more dramatic tension and conflicts and contains a theme the students all found intriguing—concubinage and the ancient Chinese marriage system.

I provided a simplified version of chapters 66-68 to facilitate a quick understanding of the story: Xi-feng, the main character in the story has an agenda when she discovers that her husband has secretly married a secondary wife—Er-jie after Xi-feng's abortion. Her husband, Jia Lian, has two concubines—Patience (Ping'er), who was Xi-feng's maid and confidant, and Autumn (Qiutong), who has been presented to him by his father. Xi-feng seems more tolerant to the two concubines as they do not pose as much of a threat as Er-jie does because Er-jie is not meant to be a concubine, but a secondary wife who can hopefully bring a male heir to Jia Lian while Xi-feng has failed to do so. Ambitious, capable, shrewd, resourceful, and skilled in manipulating situations to her advantage, Xi-feng, on the one hand, appears to be a filial grand-daughter-in-law to the Jian clan's elder, Grandma Jia, and pretends to be welcoming and accommodating to her rival—Er-jie; on the other hand, she wants Er-jie dead, using a "borrowed knife" by playing her two rivals (Er-jie and Autumn) off against each other and instigating a house maid to abuse Er-jie. She also arranged for Zhang Hua, whom Er-jie was previously engaged to, to sue Jia Lian, and a medical doctor to cause Er-jie's abortion. Her scheme worked as the unfrequented Er-jie committed suicide out of despair, and Autumn was blamed for the made-up zodiac sign clash.

Three students created a short play out of the chapter. The whole class were all able to pinpoint the multi-dimensions of Xi-feng's complex inner world. In chapter 69, Xi-feng in the first place was a

victim herself of the male-dominated marriage system where women were treated more like a fertility machine as their main job was to bear a male heir as the continuation of the family they were married into. Being an influential figure in the household, she was suddenly subjected to a massive competition when her husband respectively brought two other women into their life. She wouldn't have had to "kill with a borrowed knife;" the root cause of the evil was the male-centered institutions under the Confucian doctrine.

The Selection of Translation

To select a proper translation, I would first consider how accessible the translation is to a wider audience and how it captures the complexity of the original and maintains its depth while not compromising readers' cognitive habit. For *Dream of the Red Chamber*, I selected David Hawkes and John Minford's *The Story of the Stone*, which is the most popular translation in the English-speaking world, largely because of the successful cross-cultural approach, as it is more of "a dialogue between the original and the translated text, between the translator and his former self, and a learning process both for the translator and the reader of his translation.[11]" Well-researched, it captures and seeks to keep the nuances of the original, orchestrating the artistic appeal equally conveyed through the artistic effects of both the form and content. This is particularly demonstrated in Hawkes' methods in translating the difficult poems connected to the plot.[12] An earlier translation by Chi-Chen Wang tries to be "faithful" using direct translation of the characters' names, such as Black Jade for Dai-yu, Phoenix for Xi-feng, and Cardinal Spring for Yuan-chun. While these English translations seem to have an exotic oriental flavor, it distracts readers' appreciation of the novel. Hawkes and Minford's work, however, keeps romanization of main characters' names while translating the essence of the minor characters' names into easy-to-remember English, such as Patience for Ping'er (ping literally means peace), Autumn for Qiutong, which literally means plane trees in the autumn, and Faithful for Yuanyang, which means Mandarin duck.

Hawkes and Minford's exquisite mastery of English also contributes to the translation. Taking chapter 74 for example, when a woman speaks ill of Skybright (Qingwen) in front of Lady Wang, she describes Skybright as, " □□□□□□□□□□□□□□□□□□□□□□□□□□ " It was translated by Yang Xianyi and Gladys Yang as follows:

> She scolds and carries on in a shocking way on the least provocation.[13]

Hawkes and Minford's translation goes as follows:

> If you say the slightest little thing to offend her, up fly her eyebrows and she will begin telling you exactly what she thinks of you.[14]

The former one is a sense-for-sense translation. While the meaning is roughly correct, it seems rushed by dropping the nuances and thus losing the lifelikeness of the original text. The latter one is a more precise translation by retaining all the nuances and particularly the essence embodied in the movement of the eyebrows, which is a "signature" facial expression of Skybright, and yet it sounds natural to native-English speakers.

CONCLUSION

Teaching classical Chinese literature in the West is an ongoing process of learning and adaptation. It requires sensitivity to cultural differences and a willingness to explore new approaches that resonate with students from diverse backgrounds. Yet cross-cultural barriers are often overestimated; it should not be ignored that humans often share universal experiences and perceiving "otherness" is not as challenging as it seems. Furthermore, American students today are more frequently exposed to the Chinese culture, leading to familiarity and reducing the barriers to understanding. In the meantime, instructors should be more openminded to experimenting new approaches and more confident that

while cultural differences do exist and require understanding, the unnecessary obstacles to collaboration and communication are always created by the tendency to overestimate them.

As a result, when many of the students in my classes expressed a fulfillment of having discovered a world they had never been exposed to and yet could feel a connection by relating to their own lived realities and discourse community, they also reaffirmed that aim of the pedagogical model was to navigate through cross-cultural engagement of the "Other" while reiterating the commonality and harmony in human nature.

NOTES

[1] Catherine Montgomery, "A Future Curriculum for Future Graduates? Rethinking A Higher Education Curriculum for A Globalised World," in *Cross-Cultural Teaching and Learning for Home and International Students: Internationalisation of Pedagogy and Curriculum in Higher Education*, ed. Janette Ryan. (London & New York: Routledge, 2012),171.

[2] Montgomery, 175.

[3] Waley, 226.

[4] Carl Jung, *Psychology and the East* (London & New York: Routledge Classics, 2008), 214-215.

[5] Leigh K. Jenco, 2007. "'What does Heaven Ever say?' A Methods-centered Approach to Cross-cultural Engagement," *American Political Science Review* 101 (2007): 745.

[6] Jenco, 741.

[7] Nai'an Shi, *The Water Margin: Outlaws of the Marsh,* trans., J. H. Jackson, contributed by Edwin Lowe (North Clarendon, Vermont: Tuttle Publishing, 2010).

[8] Cheng'en Wu, *The Journey to the West,* trans. Anthony C. Y. (Chicago, Illinois: The University of Chicago Press, 1977-1983).

[9] Guanzhong Luo, *Romance of the Three Kingdoms,* trans. Charles Henry Brewitt-Taylor (Boston: Tuttle Publishing, 2002).

[10] Xueqin Cao and Gao E, *The Story of The Stone: A Chinese Novel in Five Volumes*, trans. David Hawkes and John Minford (Penguin: London & New York, 1973-1986).

[11] Fan, 150.

[12] Shani Tobias and Lintao Qi, "Literary Translation as Cultural Encounter: Classical Chinese Literature in the World," in *Encountering China's past: translation and dissemination of classical Chinese literature*. (Singapore: Springer Nature Singapore Pte Ltd. 3, 2022), 3.

[13] Xueqin Cao and Gao E, *A Dream of Red Mansions,* trans. Xianyi Yang and Gladys Yang (Peking: Foreign Languages Press, 1978-1980).

[14] Cao and Gao.

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THE FUTURE OF BLACK ART CRITICISM THROUGH BLACK FEMINIST INTERPRETATIONS

Author:
MBALI KHOZA

Affiliation:
RHODES UNIVERSITY, SOUTH AFRICA

INTRODUCTION

It is no secret that historically, art criticism has had a long tradition of tending to focus on, benefit, and centre white male creative practice. By so doing, it has contributed to their hyper-visibility, sustained the myth of the white male artist as a genius, and played a crucial role in raising the rank of their work to masterpieces. More importantly, it has been instrumental in dictating to audiences what a work of art is and should look like—cementing white male creative practice and its trajectory in the art historical canon. With the advent of the feminist movement, feminists began to question and critique the canon's erasure of women in art history. They began designing and developing strategies (through written or visual language) to think about women's work and creative processes. Granted, most of this work was done by white female art critics who failed to address the inequalities within the feminist movement—particularly its biases towards black and brown women whose contributions to the movement were deliberately omitted. To make matters worse, when writing about black and brown women's work, white historians' criticism and interpretation of their work has been unable to identify how it can transcend "its intrinsic political boundaries of 'invisibility' to address the world".[1] To put it bluntly, it has failed to *think deeply about* black and brown women's artists' work.

If an effort to *do* the diversity work that white art historians have clearly failed to do, I propose that we consider how black feminist interpretations of black and brown female creative practice can provide "cathartic, coded and advanced" ways of *thinking about* black and brown women's work that have been extinguished or simply undetected. I intend to make the complexities of black and brown women's work visible. Furthermore, highlight the importance of black feminist art criticisms, its contribution to black feminist creative practice knowledge production, its ability to produce new art historical canons that priorities black feminist creative work rather than simply trying to insert it in a canon that refuses to acknowledge its contribution to art history. However, this is just one aspect of black feminist art criticism. The other is its criticality of the inadequacies and failures of popular mainstream imagery of black and brown women produced by black creative practitioners through various creative practices (written, visual, film, music). Black feminist art critic Michele Wallace insists that black feminist critical theory can be utilised as a tool by black critics to speak freely about these " gaps ". Only then can black thinkers free themselves from doing the endless labour of correcting white art history canons and focus on solving black female creative theoretical problems.

Art Criticism: A Brief Overview

In her essay *Towards a Feminist Theory of Art Criticism*, Joanna Frueh writes that the "function" of art criticism is to "seek truth".[2] What this "truth" is or looks like is heavily depend on the time and space in which these works were made, but importantly by whom. That is say that historically, this so called "truth" as I mentioned in my introduction was favoured certain individual: white men. South African artist Lerato Shadi reminds us that historically (18th -19th) and even in the contemporary, "World history as it stand is a western–centric version, that excludes most of the world". As the center, it is here where notions about art and artistic practice were and continue to be conceptualised. To trace how this history continues to dominate the art historical landscaped one has to simply look at the countless monographs written by white men about white male "geniuses" such as Michelangelo, Picasso, Matisse Jackson Pollock and Any Warhol just to name a few. In her essay *Why Are There No Great Female Artist*?, Linda Nochlin asks, "but where are the female equivalents"? I would like to add a second layer to this question or complicate it by asking, "where are the black and brown female equivalents"? The purpose of Nochlin, is make visible what I think is the deliberate erasure of white women from the canon. I on the other hand want to ask, how feminism can do what Sarah Ahmed describes as "speaking to the other".[3] To speak in this instance is speaking *to* and not a*bout* the persistent burying of black and brown artistic and intellectual canons in art history. Although Nochlin's question was spearheaded by feminist movement and thought, it is of a feminism that was alarmingly "critical reluctant" to redress its definitions of womanhood, specifically who counts as a woman.[4] It is for these reasons that Nochlin admits, that there needs to be "crucial questions of the discipline as a whole".[5] Question that revealed how artistic expression was considered gendered and raced. That white women's work was considered aesthetically different to their male counterparts in Western society from the 19th century even leading into the 20th century. This can be attributed to the conditions in which these women were expected to practice, many where had no access to schools of art and subjects matters that male artist at the time had such as nude models or spaces outside of the domestic environments.

Although the feminist movement was instrumental in excavating women's contribution to the art historical canon, it's in ability to interrogate the notion of what it means to be a "woman" and that womanhood, from a Western perspective privileges middle-class white women, while erasing black and brown women living in the Western and the global South, illustrated how the movement was deeply flawed. This is reiterated black feminist scholar and art critic, Michele Wallace who in her teens remembers "Being feminine meant being white to us".[6] I raise the question of race because black and brown women are doubly burdened by gender, race and class. They, unlike white women, because of anti-blackness have had to experience a second erasure, one that if inflicted by both white men and women. It for these reason that black feminism scholars began to rethink white feminism and its relationship white supremacy. To fill in white feminism gaps, black feminists began to argue that other forms of feminisms need to exist in-order to adequately address this injustice. Black feminism primary objective was to not only unveil how this "historical violence of this erasure" occurs but also provides solutions as to how scholars who are truly interested in engaging and investigation other art historical canons can participate in what Sarah Ahmed calls "doing diversity work". According to Ahmed, only through doing this work can begin to find ways "escape the racism of so many critical theorists". I think it is important to consider what this "escape" might mean philosophically. For instance, how does one practice or performance this escape as an art critic when writing about black expressive culture? How does one overcome the presumption that the writer needs to "escape" racism rather find a "solution" as Toni Morrison puts it in her New Yorker essay, *The Work You Do, The Person You Are*[7]). The solution in this case would be to approach ones writing as form of "rewriting" or "correcting", but rather a "doing the work" and "doing it well" as Morrison father reminders her. In

case of black art criticism, one would have to acknowledge or grapple with what black feminist call "intersectionality" which Patricia Hill Collins and Sirma Bilge defines as an investigation of

"how intersecting power relations influence social relations across diverse societies as well as individual experiences in everyday life. As am analytical tool, intersectionality views categories of race, class, gender, sexuality, class, nation, ability, ethnicity, and age -among others – as interrelated and mutually shaping one another. Intersectionality is a way of understanding and explaining complexity in the world, in people and in human experience"[8]

The above illustrates how intersectionality can be a beneficial tool that is "solution" orientated in multimodal ways. Its complexities, can fuel both readers and writers of artistic practice to pursue how difference matter. In this case its not just "in people and in the human experience" as not every artist and artwork draw from these experiences, but we can consider they are stirred by them in most instances. Contrary to Barthes "death of the author"[9] which argues that "the death of the author is the birth of the reader",[10] liberating both the text and the reader from limiting one's reading of the text from the only the author's which Barthes views as burdensome, intersectionality advocates for a return or at the least an awareness of the author individuality. Plurality is not just in textual and visual works but also in creators and their "social context".[11] Isolating the "context of utterance" for Ahmed is form of repression, one as Nochlin herself recognises has been detrimental the art historical canon.[12]

To avoid reproducing this "problematic shallowness",[13] propose we return to Frueh words about "truth" seeking, by so doing we can begin to examine how intersectionality can and has helped develop "crucial dialects"[14] of textual and visual imagery in artistic practice. We can think about why the differences brought to for by intersectional thinking are transformative, especially within the realm of black and brown artistic practice as well as black art criticism.

Seeking "truth" through Black Art criticism

In this subsection, I muse over why "doing" the work "well" is important and can liberate writers from the trappings of anti-blackness rhetoric. If the function of art criticism it to "seek the truth", then for black art critiques I imagine "truth" is not just a necessary part of the professional but integral to the unfinished project of emancipating black audiences and black art practitioners from the reproductions of monolithic representations of the black lived experiences. Imagery that has played a crucial role in the regression of how black people are seen by both black and non-black audiences. Given that black feminist criticism is interested in intersectionality, it forces us to confront both race and sexuality, within black expressive culture (mass media, visual art etc.). To revisit and ask new questions about the myths that have been imposed on each of these identities. Questions such as, what does "being black" and being a woman in the world mean or look like? How do we move beyond images that continue to frame black women as angry, hyper-sexual and mammy's? Wallace believes we can do this by focusing on the relationship black women have with the "real world".[15] Or what South African writer Njabulo Ndebele describes as "discovering the ordinary"[16] (Ndebele 1986). For Ndebele, the 'ordinary' does something - it liberates black expressive[17] culture from the 'spectacle',[18] which has for long (at least from the context of apartheid South Africa, as his research reflects on Black South African writers) period was fixed on dramatising the violence and tensions between black, brown and white South African's. Reducing every interaction to a narrow binary lived experience: "people and situations are either very good or very bad".[19] Such imagery, is dangerous he explains, because,

"The spectacular, documents, it indicates implicitly; it is demonstrative, preferring exteriority to interiority; it keeps the larger issues of society in our minds, obliterating the details; it provokes identification through recognition and feeling rather than through observation and analytical thought;

it calls for emotion rather than conviction; it establishes a vast sense of presence without offering intimate knowledge; it confirms without necessarily offering a challenge. It is the literature[20] of the powerless identifying the key factor responsible for their powerlessness. Nothing beyond this can be expected of it."[21]).

The above quote, reveals a very pertinent view that I think still needs to be revisited in the contemporary and that is: why seeing the black everyday lived experience from a specific prism, has done black expressive culture a disservice in that it insists that all art produced by black art practitioners must carry some "political" and "expository declaration"). In other words, it must always be framed as 'protest art' or political art'. What Ndebele is asking of us is to insist on thinking deeply about how narratives that are repetitively anchored on 'protest' and the 'political', though useful in certain contexts can leave imagery of the black lived experience weak and empty. Void of any form of authenticity and the many gradations of the black lived experience , what ever it may be for the vast individuals who exist in collective.

When viewed from the lens of the 'ordinary' or 'real world', black expressive culture is then able to "provoke identification" through "observation and analytical thought".[22] I believe, black feminism can help us achieve this for many reasons, primarily, because from its inception it has been rooted in the "refusal of oppression, and a commitment to struggling for women's liberation from all forms of oppression-internal, external, psychological and emotional, socio-economic, political and philosophical".[23] Though there are many feminisms,[24] what differentiates black feminism from these feminisms is its fierce critic of white feminism failure to recognise the double burden faced by black and brown women because of their race, which in my opinion is where its strengths lie. Mainly, because it refuses the notion that we live a post-racial world where visual culture is not being utilised to reiterate long standing insidious racial myths about black and brown people.

What black art critics can learn from black feminism is the ability to quickly identify a variety of rhetoric's could be potentially harmful, sexist, classist and ableist, the list to go on, but that is the advantage of the willingness to partake in intersectional discourses. For instance, rather solely focusing on the negative characterisation of black and brown women in mainstream media. Whose version of the black and brown women experience has been proven time and again by scholars such as Pumla Gqola, Amina Mama, bell hooks, Melissa Harry-Perry, Audrie Lord, is ill informed interpretation of the "truth". For black feminist scholars, it is the responsibility of black art criticism to identify these inaccurate representations of the black lived experience, to critique them and offer alternative ways to think about blackness, brownness, and its countless intersectionality's. This is not to say black practitioners are limited to producing non-fictional works, but they are aware of the consequences of regression within black expressive culture. Ultimately, the goal of the black art critique, is multifold: to critically assess whether the black art practitioner (when and if they choose to produce work on this topic) can grapple with the complexities of racial/sexual[25] politics, most importantly, that they able to move beyond the spectacle, and arrive to a point where their practice is no longer interpreted through misnomers such as 'protest', 'political', or I would like to add 'radical' art. While these misnomers where relevant a particular timespace,[26] Ndebele cautions that if one is not careful they can "devalue" the art and the people it claims to represent.[27]

CONCLUSION

In *Playing in the Dark: Whiteness and the Literary Imagination*, she muses over the act of writing, and comes to the conclusion that it tool "imagine others".[28] While art criticism is not necessary about imagining others but more about one's ability to read and interpret artwork as act of imagining other "things". I am not using the word "things"[29] loosely here, my intention is to bring to the for the complexity of artist practice since the beginning the 20th century where everyday objects became art.

These "things" transformed art criticism as well as the artistic practice as a whole. Artist began to think about the many "things" available to them to express themselves. In turn art critics had to expand their approach to writing about artistic "things". To "imagine" other things as Morrison writes. What black art criticism, through the aid of black feminism, is open up new avenues to render "other things" about blackness and brownness that have been left unsaid. It is about the willingness to create what Morrison calls "intellectual avenues" in the way we write about the layered nature of these experiences beyond their ability to subvert problematic narratives). What art criticism this "new" should offer to us is "attractive, fruitful and provocative" essays about the many "things" black and brown creative practitioners have brought to the table[30]

NOTES

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[2] Joanna Frueh "Towards a Feminist Theory of Art Criticism" In *Feminist Art Criticism: An Anthology* edited by Arelene Raven, Cassandra Langer and Joanna Frueh (New York: Routledge, 1988), 153.

[3] Linda Nochlin. "Why Are There No Great Female Artist?" In *Woman in Sexist Society: Studies in Power and Powerlessness.* edited by Vivian Gornick and Barbara K. Moran. (New York: Basic Books.1971), 1.

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[6] Michele Wallace *Invisible Blues: From Pop to Theory*. (London: Verso.2016),18

[7] Toni Morrison *"The Work You Do, The Person You Are" The New Yorker.* May 26, 2017. Accessed March 2024, https://www.newyorker.com/magazine/2017/06/05/toni-morrison-the-work-you-do-the-person-you-are

[8] Patricia Hill Collins, and Sirma Bilge. *Intersectionality*. (UK: Polity Press. 2020),2.

[9] Roland Barthes "The Death of the Author" in *Image, Music and Text.* translated by Stephen Heath (London: Fontana 1977), 148.

[10] Roland Barthes "The Death of the Author" in *Image, Music and Text.* translated by Stephen Heath (London: Fontana 1977), 148.

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[14] Michele Wallace *Invisible Blues: From Pop to Theory*. (London: Verso.2016), 226.

[15] Michele Wallace *Invisible Blues: From Pop to Theory*. (London: Verso.2016),246.

[16] Njabulo Ndebele. "The Rediscovery of the Ordinary: Some New Writings in South Africa", *Journal of Southern African Studies* 12(2) (1986):143-157.

[17] I use the term 'black expressive culture' as a term that includes all forms expressive culture such as music, literature, and visual art. For the purpose of this paper, term is referring to visual art.

[18] In his essay, the term 'spectacle' refers to the politicisation of the black people everyday life. Many of these 'spectacles' are fixed in the relations of the oppressor and the oppressed in effort to 'educate' the oppressor about the effects, injustices of anti-blackness in the hope that it disgraces the oppressor and convert them into ally's

[19] Njabulo Ndebele. "The Rediscovery of the Ordinary: Some New Writings in South Africa", *Journal of Southern African Studies* 12(2) (1986):144.

[20] Ndebele is writing from a literary context. I would like to travel this to concept to the visual art.

[21] Njabulo Ndebele. "The Rediscovery of the Ordinary: Some New Writings in South Africa", *Journal of Southern African Studies* 12(2) (1986):194-150.

[22] Njabulo Ndebele. "The Rediscovery of the Ordinary: Some New Writings in South Africa", *Journal of Southern African Studies* 12(2) (1986):149.

[23] Anima, Mama and Salo, Elaine. Talking about Feminism in Africa *Agenda: Empowering Women for Gender Equity* No.50 African Feminisms One. (2001) 59

[24] Each of whom aimed addressing forms of oppression that exist a specific context.

[25] As I mentioned earlier these are two of many intersectionalities

[26] And still are.

[27] Njabulo Ndebele. "The Rediscovery of the Ordinary: Some New Writings in South Africa", *Journal of Southern African Studies* 12(2) (1986):149.

[28] Toni Morrison. *Playing in the Dark: Whiteness and the Literary Imagination* (New York: Vintage Books. 1993), 3.

[29] Morrison. *Playing in the Dark, 3.*

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BUILDING AN INNOVATIVE AND ENTREPRENEURIAL CREATIVE DIMENSION IN HIGHER EDUCATION TO MEET THE CHALLENGES OF LEARNING, LIFE, AND WORK IN THE TWENTY-FIRST CENTURY

Author:
RON CORSO

Affiliation:
UNIVERSITY OF SOUTH AUSTRALIA, AUSTRALIA

INTRODUCTION

With the release of the forward-planning document *Enterprise 25: Strategic Plan 2018–2025*, UniSA has sought to benchmark itself not only against leading universities but also against top-performing industries. The aim is to draw consistent inspiration from innovation and achievement across diverse fields. A major commitment has been made to realign UniSA's curriculum to leverage the benefits of interdisciplinary approaches in teaching, learning, and research.

UniSA recognizes that the twenty-first-century workplace demands more than technical expertise—it requires individuals who can contribute to original thinking through collaboration and interaction.[1] As jobs evolve and industries diversify, higher education must adapt by fostering innovative strategies that prepare graduates for this dynamic environment.[2]

This transformation includes dismantling traditional academic silos, which have long defined university culture, in favour of interdisciplinary models. These models integrate collaboration, creativity, and industry-aligned practices.[3] The goal is to equip students with the skills and perspectives necessary to meet the challenges of modernity.

RESPONDING TO THE MODERN WORKPLACE

UniSA's mission reflects findings from significant studies, including the *Review of Australia's Higher Education Sector*[4] and reports by the National Council for Graduate Entrepreneurship[5] These studies argue that restructuring educational models can produce more enterprising approaches to teaching and learning. By aligning curricula with economic and societal needs, universities can create knowledge that fosters innovative economies and facilitates efficient knowledge transfer to industry.[6]

Internationally, debates in higher education highlight concerns about the current emphasis on measurable skills and outcomes, often described as "reproductive education."[7] Critics argue that such models fail to develop students' ability to navigate the complexities of a rapidly changing world.[8] Instead, there is growing support for curricula that emphasize teamwork, communication, resilience, and creativity—competencies often overlooked in traditional education.

Approaches such as design thinking and interdisciplinary pedagogy are gaining traction as effective methods to prepare students for real-world applications. These models encourage cross-pollination

between disciplines, fostering a culture of innovation that reflects the demands of the global workforce.[9]

LIFELONG LEARNING AND CREATIVITY

UniSA is committed to preparing students for lifelong learning, recognizing that careers will increasingly require adaptability to changes in job roles, global mobility, and fluid organizational structures. The university promotes self-directed learning, encouraging students to take an active role in shaping their educational journeys.

To support this vision, UniSA is fostering creativity across disciplines, providing structures that help students develop their imaginative capacities, applying creativity enabling students to adapt to the complexities of modern life, highlighting the importance of integrating creative practices into higher education. [10]

A CREATIVE DIMENSION: CHALLENGES AND OPPORTUNITIES

UniSA is developing a model of education driven by problem-solving pedagogy. This approach emphasizes investigation, cooperation, integration, and synthesis, allowing students to self-direct their learning while fostering resourcefulness and motivation.[11] However, the shift towards creativity-driven education poses challenges, as traditional academic practices often resist such change.[12]

In many universities, creativity is still perceived as the domain of the arts or design disciplines, leaving other fields underutilized in this regard. Edward de Bono contends that education often relies on the assumption that accumulating information will naturally lead to innovation, neglecting the deliberate cultivation of creativity.[13]

This gap is evident in the lack of strategies or models for teaching creativity, even when courses explicitly expect creative outcomes. To address this, creativity must move from the periphery to the centre of education, spanning a wide range of disciplines and becoming a fundamental aspect of academic and professional practice. [14]

OVERCOMING INSTITUTIONAL BARRIERS

Despite widespread rhetoric advocating creativity and innovation in higher education, structural and managerial systems often inhibit these goals. The persistence of "audit cultures," with their focus on prescriptive outcomes, undermines efforts to create environments where creativity flourishes.[15]

To succeed, entrepreneurial and creative thinking must transcend isolated subjects or disciplines. Instead, it should be embraced as a holistic mindset—a way of working and thinking that permeates the institution. UniSA is striving to build a culture of innovation through interdisciplinary research, teaching, and reflective practice, linking these efforts to industry, public policy, and global challenges.

DRIVERS FOR INNOVATION

Globally, organizations such as the OECD[16] and the European Commission [17] advocate for embedding creativity across sectors as a catalyst for innovation. At an institutional level, this approach fosters the development of new ideas that generate value for society. [18]

South Australia exemplifies the need for this shift. As its economy transitions from traditional manufacturing to emerging industries, creativity and innovation are seen as critical drivers of growth. UniSA plays a central role in this transformation, aligning its initiatives with government and industry strategies.

However, history reveals that government rhetoric often fails to translate into practice. Examples such as "The Clever Country"[19] and "The Knowledge Nation"[20] demonstrate the challenges of embedding creative and innovative practices into university-industry collaboration.

The global shift from an "information age," focused on knowledge workers, to a "conceptual age," valuing creative human capital, marks a profound transformation in economic and educational paradigms.[21] Daniel Pink underscores this evolution, emphasizing that creativity, conceptual thinking, and adaptability are now indispensable in all competitive enterprises. Richard Florida furthers this argument, asserting that the transition from an industrial to a creative economy is a choice rather than a natural progression. He highlights the necessity of skills such as adaptability, experimentation, tolerance for ambiguity, and risk-taking in navigating this new economy.[22] These attributes, often latent within organizations, are becoming critical indicators of evolving economic value systems.

The Australian Department of Education, Science and Training has acknowledged this shift, identifying creative capacity as a key economic driver in a global knowledge-based economy.[23] However, the integration of these values within educational institutions remains fragmented. UniSA recognizes that higher education must respond by transforming itself to address complex global challenges through innovative and interdisciplinary approaches.

TRANSFORMING UNIVERSITIES FOR THE CONCEPTUAL AGE

In the context of these shifts, universities must move beyond traditional roles as job-training centers. They must evolve into value-incubators and creators, equipping graduates with the critical thinking, problem-solving, and innovative capacities required to thrive in an unpredictable world. Future education must foster flexible thinking skills, enabling graduates to address unprecedented challenges through creativity and collaboration.[24]

UniSA's commitment to this transformation is evident in its deconstruction of traditional disciplinary silos. The university is cultivating a cross-disciplinary, inquisitive, and collaborative environment designed to foster innovation. This vision aligns with initiatives by organizations such as the National Academy of Sciences and the National Innovation and Science Agenda, which advocate for interdisciplinary approaches to address contemporary challenges. [25]

RESPONDING TO THE CHALLENGE: NEW EDUCATIONAL MODELS

UniSA's approach involves building an inclusive and cooperative culture of learning and research. By integrating creative and design-thinking methodologies, the university aims to foster a culture of innovation that resonates with future industry needs. Programs are being redesigned to incorporate interdisciplinary collaboration, reflective practices, and inquiry-based learning (IBL), providing students and faculty with opportunities to explore real-world challenges.

Classrooms are being transformed into process-rich environments such as learning labs and design studios, shifting the focus from content acquisition to deeper understanding. This pedagogical shift emphasizes students' active engagement in problem-solving and collaborative knowledge creation. By encouraging diverse perspectives and challenging assumptions, students develop the ability to think critically, adapt to new scenarios, and innovate effectively.

ENCOURAGING CREATIVITY AND COLLABORATION

To achieve these goals, UniSA has introduced programs that embed creative thinking approaches across disciplines. The emphasis is on fostering a mindset of adaptability, flexibility, and resilience. For example, the integration of design thinking promotes problem-solving by encouraging students to explore multiple perspectives, frame questions collaboratively, and make perception shifts in their thinking.

UniSA also supports "flipped classroom" models, which centre learning on students' exploration and application of knowledge. This approach aims to produce resourceful learners capable of synthesizing

new information with existing knowledge. It also shifts the academic mission from knowledge dissemination to the capitalization of knowledge for real-world application.[26]

To this aim UniSA has established research themes to address local and global socio-economic needs and they include:

An age friendly world
Unlocking human potential across the community through intergenerational approaches.

Transforming industries
Building industries and economies for the future.

Cancer prevention and management
Taking on one of the world's greatest health challenges with the aim of improving prevention, diagnosis, treatment and patient care.

Society and global transformations
Transforming societies through global citizenship.

Healthy futures
Understanding, treatment and prevention of chronic diseases.

Scarce resources
Developing safe and sustainable practices for managing the world's finite resources; making more with less.

BUILDING A CULTURE OF INNOVATION
UniSA's efforts extend beyond individual classrooms and programs. The university has established initiatives such as "Match Studio" [27] and the Innovation & Collaboration Centre (ICC).[28] Match Studio employs a design-based innovation model, enabling students to engage in experiential learning through collaboration with external partners. This approach fosters creativity and innovative capacity as lifelong personal attributes.

The ICC, a partnership between UniSA, the South Australian Government, and DXC Technology, supports technology-driven incubation and business growth. It integrates expertise from various disciplines, creating a multidisciplinary environment that nurtures idea generation and commercialization. By bridging academia and industry, the ICC equips students and businesses with the tools to address contemporary challenges effectively.

LEARNING FROM GLOBAL MODELS
UniSA draws inspiration from international examples such as Stanford University's d.school and Aalto University's Design Factory. These institutions exemplify how reimagined pedagogy can cultivate innovation skills and deeper learning. They emphasize reflexive thinking and adaptability, equipping graduates to navigate complex professional landscapes.

UniSA's strategies align with these global models, emphasizing the importance of interdisciplinary collaboration, creative problem-solving, and industry relevance. This approach positions the university as a leader in developing innovative educational practices.

ADVANCING THROUGH STRATEGIC VISION

UniSA's strategic plans, Crossing the Horizon (2013–2018)[29] and Enterprise 25 (2018–2025),[30] articulate its commitment to becoming a 21st-century University of Enterprise. Central to this vision is the integration of industry-informed research and curriculum development. The university focuses on addressing "grand challenges" through collaborative research and interdisciplinary engagement. By fostering partnerships with the broader community, UniSA aims to harness collective wisdom to solve complex socio-economic problems.

These efforts signify a shift in the role of academics, who are now seen as change agents breaking down traditional silos. Their research and teaching are increasingly directed toward addressing local and global challenges, emphasizing community connections and practical applications.

BRIDGING EDUCATION AND INDUSTRY

UniSA's focus on fostering creative and cultural economies underscores its commitment to preparing graduates for modern careers. By embedding a creative dimension across disciplines, the university enhances its competitive edge and provides students with unique employment opportunities. Graduates are equipped with the ability to navigate and contribute to diverse industries, reflecting the university's vision of human creativity as the ultimate economic resource.

BUILDING A CULTURE OF INNOVATION AND ENTERPRISE

To build a university rooted in innovation and enterprise, UniSA recognizes the need to evolve a culture that fosters transformation. This process requires embedding core behavioural attributes across both employees and students to reshape the institution's culture and establish a genuine university of enterprise. Achieving this involves understanding how pedagogy can be structured, relevant, and scalable to support innovative practices institution-wide.

A crucial aspect of this transformation is the socializing process, where individuals internalize acceptable behaviours and assumptions that align with an organization emphasizing creativity and innovation. This cultural shift relies on modelling behaviours that promote creativity and innovation, such as combining idea development, problem-solving, communication, and practical action. Enterprise skills—including strategic thinking, intuitive decision-making, and creative problem-solving—are intentionally cultivated.

Innovation is further encouraged through behaviours and activities that shape structures and policies aligned with core values. Resources are dedicated to developing and communicating new ideas and innovative solutions. In such an environment, creativity becomes normalized, and innovative individuals serve as role models within an open, interactive organizational system. [31]

Creativity as Transformation

UniSA acknowledges that creativity in education extends beyond simply "being creative." It emphasizes creativity as a transformative process tied to personal and professional fulfillment. This transformation nurtures an innovative culture that encourages the practical application of intellectual property and entrepreneurial behaviour. The institution integrates creativity and innovation into its practices, ensuring these values permeate the organization, becoming understood, felt, and owned by all stakeholders.

A strategy rooted in this vision is future-oriented, promoting intrinsic motivation through personal freedom and flexibility in goal setting. The university fosters a culture of purposeful disruption, where experimentation, adaptability, and collaboration are encouraged. Organizational support for creativity includes fostering values like empowerment, permission to fail, and shared responsibility.

COMPLEX PATTERNS OF INTERACTION

Fostering a culture supportive of creativity and innovation involves addressing complex patterns of interaction. This culture flourishes under structures that empower teams and individuals. However, transforming established institutions like UniSA requires sensitivity to the challenges of implementing change. Collaborative and interdisciplinary approaches have proven pivotal to significant innovations in history, and UniSA has incorporated these into its *Enterprise 25* initiative.

A key focus has been facilitating collaboration by consolidating teaching, research, and practice into precincts closely aligned with industry. Traditional divisions and schools, previously siloed by discipline, are being restructured to enable seamless collaboration. Academics now identify themselves under broader interdisciplinary themes like Health and Wellbeing or Creative Practice, fostering natural connections across disciplines. This enhances teaching quality, strengthens interdisciplinary collaboration, and accelerates program innovation. [32]

BUILDING CONNECTIONS AND INDUSTRY INTEGRATION

The creation of precincts encourages partnerships with businesses and industry groups, fostering research and academic clusters that inform ideas and solutions. This integration strengthens the relevance of research and knowledge in addressing the needs of end users. By embedding interdisciplinary collaboration into its framework, UniSA positions itself as a hub for innovation and enterprise.

GRADUAL TRANSFORMATION

UniSA recognizes the importance of introducing innovative thinking and practices gradually to avoid disrupting established systems. Like a galleon repairing itself while navigating the world, the university must maintain coherent processes, shared values, and clear direction. Innovative thinking demands flexibility and a willingness to explore speculative approaches, leveraging imagination, ingenuity, and insight.

This process encourages holistic problem definition and diagnosis, fostering comfort with ambiguity and the exploration of unconventional approaches. The resulting new possibilities enrich the university's mission and philosophy, positioning UniSA to address the future challenges of learning, life, and work.

CONCLUSION

In a rapidly evolving world, universities must embrace a greater role in preparing students for the complexities of modern life and work. Knowledge transmission is no longer their sole domain. Instead, there is a growing need for educational experiences emphasizing creativity, innovation, and entrepreneurial thinking. These experiences maximize career opportunities in a world defined by complexity, unpredictability, and uncertainty.

UniSA has responded by integrating interdisciplinary activities, developing degrees, and establishing centres designed to prepare students for future social, career, and lifelong learning scenarios. These initiatives are embedded across faculties, supported by key staff, and integrated into the curriculum.

This transformation positions UniSA as a flexible, resilient institution that emphasizes leadership, entrepreneurial behaviour, and innovation. Through research, experiential knowledge, and a global outlook, UniSA demonstrates a pedagogy reflecting creativity and enterprise. This commitment ensures the university remains a leader in addressing the challenges of Learning, Life, and Work in the 21st century.

NOTES

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TECHNOLOGY ENHANCED LANGUAGE LEARNING IN HIGHER EDUCATION – THE CASE OF THE EUROPEAN PROJECT QUILL

Authors:
ELISABETE MENDES SILVA, ISABEL CHUMBO

Affiliation:
TRANSDICIPLINARY RESEARCH CENTER IN EDUCATION AND DEVELOPMENT, INSTITUTO POLITÉCNICO DE BRAGANÇA, PORTUGAL; INSTITUTO POLITÉCNICO DE BRAGANÇA, PORTUGAL

INTRODUCTION

Numerous challenges arise in our increasingly globalized and technologically advanced society, requiring constant adaptation to new trends and paradigms. Effective communication in this interconnected world is essential, making language proficiency more crucial than ever. Learning multiple languages significantly enhances work and mobility opportunities. While English remains the lingua franca in business, trade, and social networks, mastering other foreign languages deepens one's understanding of the global landscape.

Developing and implementing bilingual or even plurilingual programmes in schools and universities are crucial in education. These programmes ensure that students are well-equipped to meet the demands of a global society and are better prepared for the world of work. Education indelibly goes hand in hand with the digital context that permeates our lives. Blannin[1] argues that using technology (e.g. iPads) in the early childhood setting can provide personal support to the learners that cannot be given in a busy classroom.

The COVID-19 pandemic also made the world adapt to new working and studying conditions, accelerating the need for online use to connect people and communicate effectively. The digital classroom or workspace became then a reality. However, even before this paradigmatic change occurred, several authors had already defended the importance of learning through technology, specifically in language learning. Robert J. Blake contends that "technology, if wisely used, can play a major role in enhancing L2 learners' contact with the target language, especially in the absence of study abroad".[2] Graham Stanley[3] highlights technology's engaging and interactive features as it can provide a source of authentic language, keeping learners motivated to learn and produce more language. Nerzig Kern also explored the integration of technology in languages for specific purposes. The author contends that through technology and digital environments, "learners learn to collaborate and engage in authentic communication in their professional discourse community and access up-to-date information relevant to their profession".[4] Li's work[5] also aligns with this approach, exploring the importance of the online collaborative learning theory as a scaffold for language learning.

It is then paramount to improve the digital literacy of teachers and students to provide them with adequate and proficient learning and working skills so they can face societal challenges. The teaching

and learning of languages for specific purposes thus acquire relevance in a multifaceted labor market, as Kamilla Kraft and Mi-Cha Flubacher[6] contend.

Projects like QuILL emphasize the significance of plurilingualism, including less commonly spoken languages in Europe. These projects promote understanding, valuing, and respecting diverse cultures, highlighting the broader benefits of linguistic diversity in the European context. In addition, the European Union has always struggled to uphold these values, keeping pace with the latest innovation trends to meet language learners' needs. Through its Joint Research Center, programmes like Dig.comp 2.2[7] show evidence of this concern.

The main purpose of this paper is thus twofold. On the one hand, we intend to showcase the intellectual outputs of QuILL-Quality in Language Learning – a European project funded by the European Commission, running from March 2021 until February 2023. The project's three accomplished intellectual outputs (IO) aim to enrich the digital literacy of higher education lecturers to bolster their language instruction in Languages for Specific Purposes (LSP). Moreover, it furnishes higher education language lecturers in LSP with a comprehensive collection of 385 high-quality Open Educational Resources (OER) meticulously identified, tested, evaluated, and validated across 18 languages (IO1). Lastly, the project addressed the escalating demand in the job market for specialized training in LSP coupled with digital technologies, underscoring the significance of IO2 and IO3 as invaluable resources offering practical training recommendations and best practice guidelines. On the other hand, concurrently, we aim to show evidence of the sustainability of the project, highlighting its major strengths and potentialities in the current educational context.

The context: unravelling solutions for Digital Education Readiness

In the wake of the COVID-19 pandemic, and without a warning, the world had to adjust to a new reality where face-to-face encounters were not possible for at least two months or more, depending on the lockdown policies of each country. This paradigmatic change had drastic effects on people's socialization rules, challenging, consequently, all walks of life.[8] The education sector was not an exception. It had to deal with unexpected situations, putting forward unchecked strategies, experimenting with digital tools, assessing the results as time went on, and adjusting whenever needed. This whole new teaching and learning experience unveiled not only fragilities and needs but also strengths and potentialities. The latter highlights the power of digital technologies in a world already driven by many digital tools as an effective means of communication in addition to the capacity to shorten distances and, therefore, bring people together. However, the former emphasizes the still existing frailties related, for instance, to the still short number of people knowing how to use and apply digital technologies effectively. A myriad of technologies makes it somehow difficult to cope with them all. In the face of this challenge and trying to offer solutions to this specific problem, the European project QuILL – Quality in Language Learning (2021-2023) was approved in the scope of the call 'Strategic Partnerships for Digital Education Readiness'.

The project intends to provide higher education lecturers and students with digital technology-based teaching resources to support them in their teaching and learning. Through the QuILL portal, more than 360 teaching and learning resources are readily available, catering to lecturers in higher education across 18 European languages, with a specific focus on Languages for Specific Purposes (LSP). Moreover, the project has developed an online training package designed to equip educators with valuable insights into identifying, utilizing, and creating open educational online resources (OER) for instructional purposes. The culmination of the project's efforts is manifested in its third intellectual output, a publication containing essential guidelines produced collaboratively by project partners, involving experts in language learning and digital pedagogy. We shall look at these 3 IO in more detail next.

Methodology

The QuILL project intends to assist higher education lecturers in languages for specific purposes providing them with adequate and effective information so they can develop digital literacy as far as teaching and learning languages is concerned. The methodology used during the project was grounded on a collaborative approach, with all the project partners involved having a share of responsibilities and work, namely Károli Gáspár University (Hungary), University of Bologna (Italy), Vilnius University Department of Philology (Lithuania), Uni Cuza, Dept of Language Learning, (Romania), Universidad de Cordoba (Spain), Pixel (Italy) and Polytechnic Institute of Bragança (IPB) (Portugal. The latter coordinated the project.

As such, cooperation and collaboration are the key principles defining the main methodologies adopted during the project to reach a common goal, much in line with what Elizabeth argues: "Collaborative capability is only truly put to the test when you make a conscious decision to join with a specific number of other organizations that influence on a particular issue"[9]. Therefore, we developed a common language and used all the partners' expertise to nurture the collaborative process constantly.

From the start, all project members met, discussed and defined the best methodological approaches to produce relevant and consistent outputs. Tasks were distributed fairly, as all partners got the same amount of work to accomplish individually or with another institution. That was the case of IO2, where partners were paired to create the assigned module of the online training package, e.g. Spain and Hungary, Lithuania and Italy, Portugal and Romania. Regarding IO1 and IO3, all partners were assigned similar tasks and aims (60 resources in three different languages, and each wrote one chapter for the publication).

Pixel (IT) had a decisive role in the financial and technical support as it created the manual that has been validated by IPB and collected and assessed the financial reports of the project partners. It also developed the technical infrastructures for the Online Database and the training package and, in cooperation with IPB (PT), created the templates to be used to produce the IO contents, which the partners improved.

All templates were thoroughly discussed, and partners presented improvement suggestions that were always welcome and well accepted.

Research activities were based on collaborative input from all project partners. When assigning the activities, the partner members cleared out possible doubts about their assigned part. Apart from the set transnational meetings, this discussion was done via email or online meetings, if needed.

INTELLECTUAL OUTPUTS: STRENGTHS AND POTENTIALITIES

To our knowledge, when we started this project, QuILL was the first Erasmus + project to deal with digital-based resources and Language for specific purposes in higher education. Consequently, the project produced innovative and original results, as it provided novel ways of exploring and making the best use of OER learning resources in addition to providing useful information and important guidelines in the selection, use and creation of online resources.

One of the most visible results of the project was the construction of a portal, as illustrated in Figure 1. It showcased all outputs. It also represents a springboard for creating a community of practice, where language lecturers and learners share resources, comment about them, or even share their own teaching and learning experiences.

Figure 1. QuILL portal https://quill.pixel-online.org/

Intellectual Output 1 – Database of teaching sources

Intellectual output 1 – a database of teaching sources – was carefully planned and took seriously into consideration its main objectives and target-audience: to have available a wide range of OER resources to assist higher education lecturers in their teaching, providing at the same time learning resources to be used autonomously by anyone (e.g. students, independent learners) who wants to learn one or more of the 18 languages at their disposal. The contents were, in fact, innovative as they catered to specific language domains and European Common Framework of Reference for Languages (CEFR) levels, as well as accommodated a wide variety of topics to be covered in any language for specific purposes syllabi. The fact that all identified resources were assessed, tested and validated by higher education lecturers in a real-life learning context adds innovation and reliability to the project and, more specifically, to IO1. The case studies that are provided in all resources demonstrate how these were (or can be) used in the classroom and how the students reacted to them, followed by important methodological guidelines. By doing this, the project consortium aimed to guide and assist the lecturers with multiple possible ways of using the resources, which can be adopted or adapted by the lecturers who check these resources. An important aspect to highlight is indeed the facilitation of the teaching and learning process by means of innumerable resources for specific purposes and ways of using them. This also represents a wake-up call to the potential of online resources and what teachers and learners can do to make good use of them.

Rather than offering prescriptive solutions, the project aims to raise teachers' awareness about the importance of digital resources and how they can incorporate innovative teaching and learning approaches into their classrooms. By showcasing various methodologies that have been successful in specific contexts and with particular audiences, the project aims to provide lecturers with inspiration and ideas for their own teaching practices. Additionally, the availability of all resources online is a significant strength of the project.

Intellectual Output 2 – Online training package

The second intellectual output provides useful information on identifying, using and creating OER teaching resources, presented in a rather straightforward and non-fastidious way, as illustrated in Figure 2. Lecturers can easily read through the different modules (3) and then test their own knowledge of the subject by taking an interactive test at the end of each module. This is also another innovative input as, on their own and in an expedient way, teachers can learn more about the subject. The case studies provided are also original, as teachers' experiences about selecting, creating and using online resources and tools proved to be trustworthy testimonies that account for the efficacy of guidelines and resources displayed.
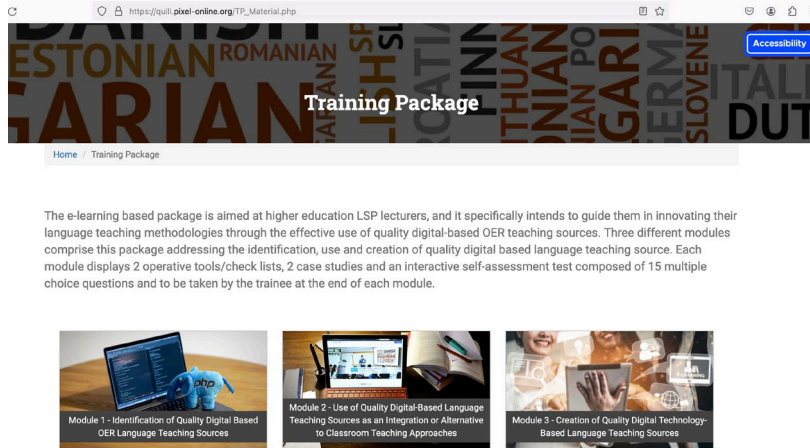
Figure 2. IO2. Training Package

Intellectual Output 3 – Publication

The publication, titled *Implementation of Digital Language Learning Opportunities in Higher Education. Guidelines for Good Practice,*[10] contains important guidelines produced by all project partners, experienced and specialized lecturers in the language learning field and the digital world. It offers a comprehensive overview of the principles and practices that form the foundation of QuILL. It also provides insights into the unique contexts, practices, challenges, and opportunities each partner faces.

The publication is comprised of six chapters, each focusing on the process of language learning through digital resources. Common themes throughout the chapters include "quality", "innovation", and "digital education". The chapters also include methodological and theoretical concepts, suggestions and recommendations, analysis of case studies, presentation of best practices, links to external resources and a vast and reliable bibliography. Figures 3 and 4 display the contents of this work.

Figure 3. IO3. Book contents

Figure 4. IO3. Book contents

IMPACT OF QUILL

This project enabled the contractual partners to gain a deeper understanding of various teaching practices and methodologies in language learning. One of the project's significant strengths was finding common ground in language learning supported by digital technologies. All partners enhanced their collaborative skills, sharing ideas on teaching and learning methodologies developed in their countries that could be adapted to different contexts. The impact of QuILL was not only obvious for all partner members, as they were directly involved in all the tasks carried out. The project's target audience has gained insight into an area that needs constant updating, benefitting from a plethora of useful language learning resources, apart from essential guidelines relevant to the professional awareness of a specific group of lecturers who teach language for specific purposes. Moreover, policymakers at several higher education institutions became more informed and alert regarding these issues, especially when combining the language approach and technology. The open educational resources were welcomed by higher education institutions in general due to the many possibilities they opened across several teaching and learning contexts in today's lecturing environment.

The project's impact on higher education lecturers

The university lecturers have a wide range of open educational resources available on the website, providing a ready-made pool of resources to draw on. Despite being tested by other lecturers, the resources can easily be transferred to different contexts, being adapted to their own teaching contexts whenever needed. The use of digital resources integrated into new methods is also a challenge to more traditional approaches/contents. Consequently, lecturers benefit significantly from this novel approach, based on digital technologies, to language learning and teaching processes. The training package also allows them to develop their digital skills as well as expand the scope of teaching methods and techniques. In addition, the online training package also enables the lecturers to reflect upon their teaching activities. IO3 provides lecturers with useful and important guidelines for their own teaching careers. The set of outcomes constitutes a solid foundation for lecturers to create their own resources following quality parameters, which were confirmed and validated by the project, thus enabling them to navigate the sea of available resources on the internet with more comprehensive and thorough awareness.

The project's impact on higher education students

Students are also provided with digital novelty regarding teaching/learning processes. Students have at their disposal many resources that they can use in an autonomous way, at their own pace. The domains, the CEFR levels, skills and other guidelines provided are also important beacons of how and for what purposes the resources can be used by the students. Students who want to become teachers can also find in IO2 and IO3 significant tips for their training.

The project's influence on other relevant stakeholders

Several agents in the educational context were relevant stakeholders, particularly in higher education, and agents from technological backgrounds aiming to join both aspects. In fact, stakeholders have a wealth of knowledge and insight in this field. Key stakeholders can provide requirements or constraints based on information from their backgrounds that will be important to have when understanding project constraints and risks. In this case, stakeholders realized the impact of QuILL through the outputs. It was an opportunity for them to have access to what is being carried out within the context of Language for Specific Purposes in Higher Education and adapt it to their range and level. Therefore, stakeholders became aware of the importance of providing training for teachers in digital technologies to enhance digital literacy. Additionally, they are equipping schools and higher education institutions with new technological resources to support the implementation of innovative methodologies using digital tools and technologies.

As such, we can infer that the value of the project was understood, and the impact is viewed beyond its immediate results. In fact, some stakeholders demand part of the project be transformed into a formal training activity, thus maximizing its impact in the future. The project has supplied various target groups with evidence-based information useful for transforming everyday processes.

CONCLUSION

Though formally concluded, the QuILL project shows potential for ongoing and future value since it can be permanently updated, and lecturers around the world can not only retrieve from what the website has to offer regarding the abovementioned intellectual outputs but also contribute to making it more complete through the addition of resources in 18 languages, comments on existing ones and participation in the online training package, which is highly interactive and readily available for use. The publication represents a pillar for those who intend to improve their digital literacy in language teaching.

The potential of the project has been publicly recognized by the Portuguese National Erasmus+ Agency, which has recently awarded QuILL with an Honorable Mention in the category of Cooperation Partnerships for the year 2023.

The project aimed to enhance the digital literacy of lecturers and students, equipping them with the skills needed to tackle societal challenges and meet the evolving demands of the job market. From our perspective, these goals have been successfully achieved.

In addition to incorporating 18 European languages, including several less commonly spoken ones, the project promotes a multicultural approach. This undoubtedly enhances understanding and awareness of the current importance of language learning and how it facilitates global communication for various purposes.

This article displayed the project's intellectual outputs, explaining and detailing them in the face of a teaching and learning context based in Europe but with the possibility of expanding to other world regions. The project's accomplished outcomes can enrich the digital literacy of higher education lecturers, especially in Languages for Specific Purposes. The availability of 385 high-quality open

educational resources that have been tested, evaluated, and validated surely provides an opportunity for a wide range of higher education lecturers.

The project also provides an outline of diverse methodologies that have proven valuable in specific contexts, allowing lecturers in several contexts to obtain inspiration for their classroom practices.

One of the most relevant achievements of the project is the technology enhanced approach, which allows the incorporation of free online resources from the Internet in a resourceful and structured way, solidly described in the published guidelines for lecturers, stakeholders and other agents to replicate.

NOTES

[1] Joanne Blannin*, Beginning teaching with Digital Technologies* (Thousand Oaks: Sage, 2022), 88.

[2] Robert J. Blake, *Brave New Digital Classroom: Technology and Foreign Language Learning* (Washington, D.C: Georgetown University Press, 2012), 2.

[3] Graham Stanley, *Language Learning with Technology: Ideas for Integrating Technology in the Classroom*. (Cambridge: Cambridge University Press, 2013), 2.

[4] Nergiz Kern, "Technology-integrated English for Specific Purposes Lessons: Real life language, tasks, and tools for professionals" In Innovations in Learning Technologies for English Language Teaching, edited by Gary Motteram (London: British Council, 2013), 92.

[5] Li Li, *New Technologies and Language Learning* (London: Palgrave, 2017), 11-12.

[6] Kamilla Kraft and Mi-Cha Flubacher, "Multilingualism in the workspace. Issues of space and social order." In *The Routledge Handbook of Multilingualism*, edited by Carolyn McKinney, Pinky Makoe and Virginia Zavala (New York: Routledge, 2023), 369-382.

[7] Rina Vuorikari, Stefano Kluzer, and Yves Punie, Y., DigComp 2.2: The Digital Competence Framework for Citizens, EUR 31006 EN, (Luxembourg: Publications Office of the European Union, 2022).

[8] Gottfried Schweiger, "Introduction. The Global and Social Consequences of the Covid-19 pandemic. An Ethical and Philosophical Reflection." In *The Global and Social Consequences of the Covid-19 pandemic. An Ethical and Philosophical Reflection*. (Salzburg: Springer, 2022). 1-16.

[9] Elizabeth Lank. Collaborative Advantages. How Organizations Win by Working Together. (New York: Palgrave MacMillan, 2006), 12.

[10] Elisabete M. Silva, Sandro Moraldo, Anna Zingaro, Maria Elena Gómez-Parra, Ildiko Szabó, Loreta Chodzkienè, Teodora Ghivirigă (Orgs.), *Implementation of Digital Language Learning Opportunities in Higher Education. Guidelines for Good Practice*. (Bragança: Instituto Politécnico de Bragança, 2023). https://doi.org/10.34620/dadosipb/BBMSQE

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EMPOWERING ONCOLOGY EDUCATION: THE EVOLUTION AND IMPACT OF "E-ONCOLOGIA" IN THE DIGITAL LEARNING LANDSCAPE

Author:
DEBORAH MORENO-ALONSO, CLARA MADRID-ALEJOS

Affiliation:
CATALAN INSTITUTE OF ONCOLOGY (ICO), SPAIN

INTRODUCTION

In 2022, new cancer cases increased by 2.3% to 2.74 million, with a 2.4% increase in cancer-related deaths, mostly in EU member states.[1] Geographic variations and specific regional challenges necessitate a targeted and adaptable approach to cancer education and highlight the need for accessible, quality education around this disease, as outlined in the European Commission's new recommendations.[2]

ICO is a comprehensive public cancer centre covering prevention, patient care, specialist training and research – the first centre of its kind in Spain. It is a public company established in 1995 by the Department of Health of the Catalan Government. ICO comprises a regional network with four cancer centres that collaborate with four university hospitals - Bellvitge, Dr Josep Trueta, Germans Trias i Pujol and Joan XXIII – and 20 other hospitals. ICO works to bring the specialists to where the patient is and to ensure the best healthcare provision possible.

ICO is currently the referral cancer centre for almost 45% of the adult population of Catalonia and has more than 1,000 permanent and temporary staff. Its physicians, nurses and researchers are internationally recognised for conducting high quality research. In 2020, ICO was actively involved in 991 clinical trials – 11 of which were ICO-initiated/led – with 951 patient participants.

Since 1993, our Training Unit has demonstrated expertise in the field of cancer training and education by incorporating innovative approaches to lifelong learning for healthcare professionals and creating e-learning activities.

In 2004, in collaboration with the Universitat Oberta de Catalunya (UOC), ICO launched a web-based, e-learning platform for professionals called e-oncología. It expands the boundaries of traditional training and generates knowledge networks among specialists, teachers and all professionals interested in oncology. Its mission is to create a dynamic environment where oncology specialists, educators and healthcare professionals can foster knowledge networks for the betterment of patient care.

The platform covers an extensive range of oncology disciplines, including medical and radiation oncology, palliative care, nursing, cancer epidemiology, research methodology and nutrition. With initiatives such as the HPV and Head and Neck Cancer Prevention Program, as well as specialised training programs in Geriatric Oncology and Cancer Immunotherapy Care, e-oncología delivers comprehensive education in the field.

In recent years, e-oncología has transitioned into research projects supported by industry and public funding and made strides in innovative content creation. The platform's commitment to customisation for different regions has established it as a global leader in oncology training. With over 81,000 students across the world, and leveraging the expertise of more than 270 professionals to deliver a diverse array of courses spanning over 2300 hours of virtual instruction (some of them accessible in 8 languages), e-oncología is a key player in advancing oncology education and expanding its reach on a global scale.

This paper aims to provide an overview of the evolution of e-oncología (www.e-oncología.org), an e-learning platform from the Catalan Institute of Oncology (ICO) which has been delivering research-based cancer education for more than 20 years. It will detail the factors that have contributed to its success, as well as its international reach and dissemination.

METHODOLOGY

In this section, we will discuss the educational strategies and practices implemented by e-oncología in their oncology training program. We will explore how teaching is tailored to meet the individual needs of students and provide an overview of the various training programs available. Additionally, we will highlight the collaboration with experts, the adaptation to different contexts, and the financial sustainability of the program.

Pedagogical and Teaching Methodology

The pedagogical model of e-oncología is focused on the student, adapting to their profile, interests, and educational needs. From a conceptual point of view, e-oncología offers various educational programs with topics related to oncohematology and related subjects (research, prevention, nutrition and cancer, multidisciplinary, and continuing education). These programs are divided into different levels and formats, ranging from webinars (1 hour in duration) to postgraduate degrees (60 ECTS), including mostly MOOC (Massive Open Online Course) type courses (up to 40 hours).

As for the teaching professionals involved, we have experts and specialists in each subject, not only from the national level but also from Europe and internationally. The experts are the ones who direct and coordinate the program together with the e-oncología team, selecting the topics as well as the appropriate teachers.

Regarding tutoring, academic monitoring, and student progress, we have two types of formulas depending on the type of training and evaluation, previously designed with the course directors and coordinators: proactive tutoring and reactive tutoring.[3] Proactive tutoring is applied to courses with a precise schedule and continuous evaluation, where tutors propose assignments throughout the course, including a final project and/or a knowledge exam. On the other hand, reactive tutoring is limited to courses with an open and flexible schedule, allowing students to learn at their own pace and adapt their learning to their needs, but always with the presence of the expert in case of any doubts or comments. The role of the tutor is essential, as a minimum of 70% of the activities must be completed to obtain certification, surpassing the standard of traditional MOOC models, which usually have completion rates below 40%.[4]

Another important aspect to highlight about the pedagogical and teaching model is the implementation of a Cascade Model.[5]
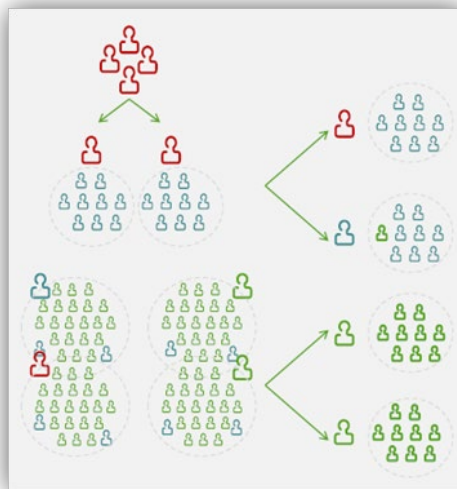
Figure 1. Cascade Model deployment

Figure 1 showcases the Cascade Model, which is used in various courses and training programs known for their innovation and significant impact in their respective fields. The model specifically emphasizes the Train the Trainers[6] edition, which is facilitated by e-oncología/ICO. This edition aims to train professionals who will then serve as tutors for localized versions of the training, allowing for the widespread sharing of knowledge. Expert consultants are also available throughout this process to address any questions or concerns, ensuring the training initiatives are of high quality and effectiveness.

Other relevant methodological aspects of the program
Below are other factors and aspects that have contributed to the success of the program.

Strategic partnerships
Since its inception, e-oncología has been a program led by the ICO, with its professionals serving as teachers in our training courses (approximately 50% of the faculty of authors and tutors in e-oncología are experts from our institution). However, in our pursuit of excellence in our training programs, the remaining authors are also specialists of recognized prestige from other reference centers.
We also have partnerships with multiple national and international universities and scientific institutions.[7] These collaborations include, among others, the partnership with the Universitat Oberta de Catalunya since the project's inception, as well as partnerships with the Spanish Society of Medical Oncology and the University of Girona, among other scientific societies in the field of oncology-hematology at the national level, and partnerships with the International Agency for Research on Cancer (IARC), the Javeriana University of Colombia (PUJ), the Virtual University of Cancer of the International Atomic Energy Agency (IAEA), the Virtual University of Cancer in Africa (VUCCnet), the American Cancer Society (ACS), the National Cancer Institute (NCI), and NGOs such as Cancer City Challenge at the international level.

Adaptation of contents to the environment
In line with the previous point, in order to meet the educational needs of the different institutions we work with, a fundamental aspect of e-oncología's mission is to make quality education accessible to as many professionals and regions as possible. In this regard, one of our strategic lines is to offer our

training programs to countries and regions with fewer economic resources. While initially the focus has been on Latin America, programs have also been implemented in Africa and other European countries with medium or low incomes. To achieve this, it is important to consider that in order to offer quality education that is useful to the recipients in these regions, it is essential, in addition to translating the materials into the students' language, to adapt and calibrate the content to the reality of the country or region, and to have a methodology that guarantees the appropriate dissemination of the content, support from the teachers, and follow-up of the students.

For this purpose, we have developed a methodology based on the following:[8]

- The content is reviewed and/or developed by local professionals who incorporate both specific cultural aspects and the adaptation of procedures to the existing resources.

- Through the exchange between the authors of e-oncology and local reference professionals, a consensus is reached on the final content of the course, incorporating the latest internationally accepted scientific evidence.

- After the first edition of the course, which is tutored by e-oncology tutors, key participants (such as management figures, clinics, or representative teachers from the region, or those with logistical resources and/or personal commitment and dedication) are selected to become tutors for subsequent editions in their region. This is known as the "Train the trainers" model, for which a personalized classroom is provided (see Figure 1).

- At the same time, logistical and/or internet accessibility difficulties in these regions are taken into account, so downloadable materials or offline access are provided to facilitate the completion of the training in printable versions or when internet access is not available.

Research projects in education

In recent years, and specifically since 2016, e-oncología has increased its participation in research projects, some of which are supported by the industry and others by public funds, such as European funds. Initially, our participation focused on being the dissemination platform for the training resources projects, and then moved on to the development of innovative content (such as the EPIMUC project on microlearning in urothelial cancer, supported by Pfizer - Pfizer tracking number 68346785), and currently includes participation in pilot projects involving more than 13 countries, such as the EU4H DigiCanTrain or EU4H-2022-PJ06 "TRANSiTION - Digital Transition and Digital Resilience in Oncology" 2022 (reference: 101101261) projects, among others.

Academic program by areas of knowledge

Likewise, focusing on e-oncología's training program, we can highlight its main lines, which are aimed at specialized, interdisciplinary, and continuous training in different areas:
- Medical Oncology
- Palliative Care
- Oncology Nursing
- Epidemiology and Cancer Prevention
- Radiation Oncology
- Research Methodology
- Nutrition and Cancer

It is worth noting that one of the most impactful and widely disseminated training programs is the Master's in Medical Oncology, which we carry out in collaboration with SEOM and the University of Girona. The majority of medical residents in Medical Oncology in Spain participate in this program, with the aim of homogenizing knowledge and providing a forum for discussion and learning.

Accreditations and endorsements

In relation to the previous point, all of our training programs are accredited by the Catalan Council for Continuing Education of Health Professions and the Continuing Education Commission of the National Health System (09/035488-MD). Additionally, many of our training programs have the scientific endorsement of the corresponding society,[9] such as the Society of Radiation Oncology, the Society of Medical Oncology, the Spanish Society of Clinical Nutrition and Metabolism, among others, which guarantees the quality of the content offered.

Sustainability and financial model

From an economic point of view, there were several premises for the project to be successful[10]:

- Although the ICO is a non-profit institution, the project should not be a financial burden for the ICO and should generate sufficient income to maintain the structure and invest in new content.

- Healthcare professionals (especially the medical profession) are not accustomed to paying for their continuing education. This situation is even more pressing in countries in Latin America or Africa with fewer resources. Therefore, from the beginning, it was decided to try to ensure that students did not have to pay for the courses, thus ensuring that high-quality scientific information reaches as many professionals as possible, regardless of their resources.

- To offer high-quality scientific content, it was necessary to ensure that the authors and tutors were adequately remunerated for their teaching collaborations. To achieve these objectives, it has been necessary to allocate part of e-oncología's resources to fundraising.

The main sources of funding have been:

- Competitive national and international scholarships.

- Institutional agreements: SEOM, IARC, IAEA, ACS, C/Can.

- Educational grants from private companies such as pharmaceutical companies. This allows us to fulfill the aforementioned objectives, be self-sustainable, achieve maximum economic accessibility in all courses, and foster loyalty among authors/tutors, not only through remuneration but also by facilitating academic and teaching growth.

Pedagogical team

In order to meet all these needs of the training program and guarantee the development of content with pedagogical and scientific quality, our team includes specialized professionals, including:

- Project managers responsible for coordinating and managing the training projects from conception to completion. This team includes specialists in pedagogy and educational psychology with extensive experience in the conceptualization of training projects and their scientific dissemination.

- Graphic designer with expertise in digital production and graphic editing of educational and informative materials.

- Academic and scientific direction, with experts in the field of oncology-hematology who ensure the scientific calibration of the programs, such as Dr. Assumpta Company Serrat, an oncologist with over 17 years of experience in e-oncology, and currently Dr. Deborah Moreno-Alonso, who has recently joined the program.

- Program direction, led by Dr. Xavier Bosch, currently Honorary Consultant of the Cancer Epidemiology Research Program at the Catalan Institute of Oncology.

Dissemination and Outreach

In addition to the aforementioned Cascade Model, the sending of newsletters, mailings, institutional communications, social media, participation in conferences, etc., also allow us to disseminate and promote our training programs.

RESULTS

Over the past 20 years, e-oncología has made significant strides in the field of education. We have developed over 2300 hours of educational materials, reaching a staggering 81,000 students from 100 different countries. Our team of experts consists of more than 270 internationally renowned professionals.

It is not only important to highlight the educational impact of our platform, with an overall satisfaction rate of 85%, but also the accessibility it provides to students. We have assisted 95% of our students in securing funding and grants to pursue their courses, ensuring that financial constraints do not hinder their educational journey. Additionally, we guarantee full remuneration to our academic collaborators, fostering a sense of loyalty and commitment to the teaching profession. This, in turn, contributes to the academic credentials of the professionals involved and indirectly enhances the overall educational impact of our institution.

Furthermore, e-oncología plays a pivotal role in transforming the traditional teacher-student model. Our approach emphasizes active mentorship from experienced experts, addressing the individual needs of each student, both academically and personally. The online platform allows for dynamic and prompt responses, taking into consideration factors such as time commitment and other personal obligations.

Our collaborative projects, both at national and international levels, also contribute to the international recognition of our research and development activities. Participation in these projects enhances our visibility, impact, leadership, and institutional internationalization. It fosters educational and research alliances with other organizations and entities, furthering our reach and influence in the field.

CONCLUSIONS

As we discussed earlier, the development and maintenance of our platform have presented various challenges that we have had to overcome in order to meet the diverse needs in areas such as finance, logistics, education, and the ever-evolving field of e-learning.

Currently, due in part to the COVID-19 pandemic, we are faced with a significant number of health-related platforms and educational content, varying in scientific accuracy, quality, and accessibility.[11]

Therefore, innovation and scientific rigor have become crucial tools in securing funding. Additionally, the return to in-person activities after the pandemic poses a challenge as professionals, both educators and students, as well as sponsors, are beginning to explore this modality again, preferring hybrid or in-person encounters over purely virtual ones.[12] This preference may also impact funding opportunities.

Another aspect to consider, indirectly related to COVID-19, is the burden faced by clinical professionals and the non-clinical staff in terms of workload and fatigue. This makes it difficult for them to find time for content development and review, despite the previously mentioned compensation.

Despite these challenges, e-oncología is currently focusing on certifying its academic quality through accreditation systems such as EACCME (European Accreditation Council for Continuing Medical Education) which is part of the UEMS (European Union of Medical Specialists), as well as analyzing and updating our pedagogical model.

At this exciting moment, e-oncología is moving towards the future, aligning with emerging trends and committed to meeting the changing needs of healthcare professionals. Our vision includes the integration of innovative trends in healthcare professional education, such as personalized learning paths, ensuring that the content aligns with advancements in medical treatments and the digital transformation in healthcare. We anticipate future challenges, including the need for continuous learning in a constantly evolving healthcare environment, and we are dedicated to addressing them

with flexible and relevant solutions. Through strategic collaborations with other healthcare institutions and the active involvement of our users through surveys and regular consultations, we plan to achieve key milestones in the platform's development. We embark on this journey with enthusiasm and express our gratitude to our audience and educators for their participation, trusting that the e-oncología platform will continue to be a vital contributor to the ongoing education of healthcare professionals.

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PLACE-HACKING THE DESIGN STUDIO: CONTEXTUALISING WORKPLACE PRINCIPLES IN DESIGN EDUCATION

Author:
SETON WAKENSHAW, JULIE TRUEMAN

Affiliation:
NORTHUMBRIA UNIVERSITY, UK

INTRODUCTION

"Place-hacking' according to Michael J. Rosen refers to the pastime of urban exploring, checking out dilapidated buildings with three types of exploring: urbex (clandestine investigation of off-limit spaces); urban adventure (such as parkour); and infiltration (sneaking into sites).[1]

Imagine using these methods to explore and interrogate the learning spaces we operate within? Taking a different view? Investigating whether they are appropriate? Sneaking behind the accepted and questioning everything we accept as 'fine'. A place-hacking journey of the 'off-limit' principles of design studio spaces, asking the question…….. Are they fit for purpose?

The design of learning environments in higher education should reflect research-driven advancements in practice, both spatially and technologically, instead they often respond to what *exists* rather than what is *required* to enable contemporary pedagogical approaches, academics constrained by limitations in their physical environment to teach at a future-proof level. In contrast, evidence-based workplace design has been clearly proven to improve productivity, staff and stakeholder wellbeing.

Working with local and national workplace consultants, academics at Northumbria University, Newcastle established an active education research lab (ResiDE) where BA(Hons) Interior Design staff and students have trialed workplace environments within their own studios, testing these principles.

A research informed student design project tells the story and begins to propose a set of evidence-based prototypes for implementation, this is the story to ResiDE. The ultimate speculative architect Peter Cook (Archigram) stated "the most memorable or most definitive architecture comes forth at a moment when a set of ideas exists as a form of attack; a retort to another set of ideas………"[2]

Context and Background

Walking through the doors of a University design school you would expect to find physical learning spaces and studios that reflect research-driven spatial design practices. Surely, those spaces would be informed by and follow the latest workplace practice research, in the pursuit of elite learning environments that would engage and excite.

You would assume the above however, as designers our role is to question everything, whether it be the humblest of pens, to the chairs that we sit on, the clothes that we wear to the physical environments that we occupy. With the best of intentions, there will always be room for improvement.

Gensler (Architecture and Design), are very much involved in the design of learning environments and recognise that "education institutions now face many of the same challenges and opportunities as other organizations. Campus buildings and their settings need to perform at a high level, both as evolving platforms for learning and as components of well-defined real-estate strategies."[3] They believe that education institutions are long-lived and they reflect a tradition that impels them to secure their future. "This makes them the natural advocates of sustainability and stewardship. Their focus on learning makes them aware of how the design of the physical environment supports it."[4]

Accepting this critical analysis as a positive enables us to be honest in our analysis of existing learning environments with a view to adaptation that will enable them to perform at a high level for the benefit of all users. It is often easy for those connected to the studio environment to think everything is fine, based upon previous performance and aligned indicators, however things move on, and it is urban explorers as discussed by Bradley L Garret who "harbour no such restrictions to an appreciation of the past. Urban explorers are omnivorous; they quarry and store both material and immaterial records, functional and fantastical memories, rational and irrational histories of places. They create myths about places that, through retelling, become embedded in the places themselves."[5]

Looking through the eyes of the urban explorer we can really interrogate how to improve the methods by which we deliver design education and students experience it. This would create a real symbiosis of the designed physical environment, design education and human behaviours. This is what we did in creating the ResiDE Lab at Northumbria University and this is the story……

The journey to the ResiDE lab began some 12 years ago, we didn't know this was the start of a journey and we didn't really know that we were 'stumbling' across an area of design research ahead of it being coined some years later "Living Office" by Herman Miller, which focuses upon a "human-centred approach to work and the workplace".[6] This of course sounds very grandiose on our part but if we discuss the beginnings, it will clarify our position.

At the time (2007) the Design School had moved into a new building at Northumbria University in Newcastle Upon Tyne UK. Moving from a 1970's building that had housed, evolved and grown with the Design School, it contained those "functional and fantastical memories" for both rational and irrational reason. Was it as great as we remember? Probably not, but as discussed by Stephen Gardiner in response to the Architecture Association it was a "gathering of individuals that was astonishingly striking"[7] and it was loved for those reasons and importantly, the atmosphere.

For many, moving into a soulless new build wasn't necessarily the exciting proposal you would anticipate. There was also the interesting spatial premise of a new build being 're-purposed' before it had even been moved into. However, we had a generic new build (Figure 1) and through many subject group and staff discussions, with creative ideas being thrown around, the new building would evolve into a space that would house staff and students across the three main subject groups, Industrial Design, Fashion and Communication – each group would see their floor plate respond to the specific needs of the subject. That daunting and exciting day arrived, move in day, and we adapted to the new spaces and as is the way in higher education (HE), programmes evolved, student numbers increased and decreased and in the case of the BA(Hons) Interior Design Programme it became solely delivered within the Design School. As a result we required more space with numbers essentially doubling and we would move to our own penthouse studio on the 4th floor, we had arrived! This would house approximately 120 students across three years of the programme and would initiate re-specifying furniture and learning environments appropriate to the requirements of the subject. A great opportunity as designers to embed applied research through original thinking and innovation to continually challenge the profession.[8] This was the start of the journey to ResiDE for Julie Trueman and I.

Figure 1. Northumbria University Design School (on the right).

For a long period we have had a great relationship with the local workplace practice Workpattern, primarily specifiers they have evolved to a lot more than that but have supported us professionally and educationally throughout the last 20+ years, including the employment of graduates. In specifying the new spaces, we were keen to not get lost in a furniture catalogue or predictable furniture suggestions, but really do our research and due diligence to design, specify and create an environment that would consider wellbeing. A place where students would want to gather, learn and feel a sense of freedom and community, whilst moving towards professional behaviours and industry. Embedding workplace practices and harnessing research was an obvious direction, however it is only relatively recently that workplace environments have also focused on wellbeing and how a workplace can be a place where people actually leave healthier than when they arrive in the morning,[9] as discussed by Dave Sylvester in the white paper Building wellbeing into the workplace. We wanted to reference these ideas, experiences, viewpoints and environments in the new studios. Having rejected short term suggestions of furniture that would either date very quickly from a design perspective or wear very badly from a quality perspective, Vitra and Herman Miller (now Miller Knoll) would be the companies we would target, they both offered a great range of products that would complement each other, and they also had long term warranties, we wanted to be sustainable and ensure that the lifespan would see the furniture accommodate many student year groups over a long period of time and have stories to tell. Nearly 15 years later and they are still performing to a high level and have backed up why both companies were confident in their warranties. (Figure 2).
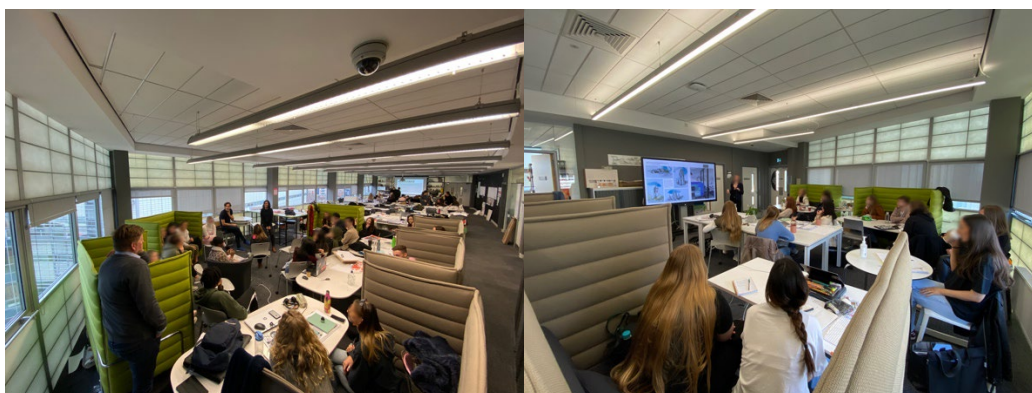
Figure 2. Early iterations of the studio settings and challenging furniture specification.

It is refreshing to reflect upon the discussions that we had some 12 years ago, that involved learning styles and environments that varied for different tasks, but also human behaviours and characteristics, ultimately, we would focus upon wellbeing long before it became a hot topic. More recently (2019) the research carried out by Herman Miller aimed at workplace reinforces the ideas that the workforce and workers are changing, the tools are changing and there is a new landscape of work and as a result they created Living Office[10] (Figure 3) of which many of the settings also aligned to our sense of placemaking for the design studios. Office spaces naturally aligned to studios and workers to students in a programme that had a primary focus on employability.
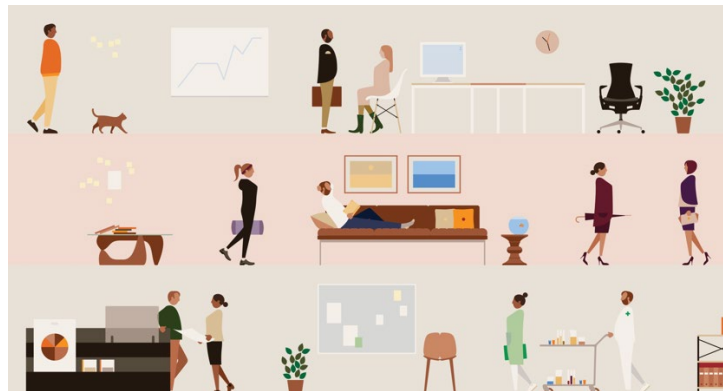
Figure 3. Living Office settings, HermanMiller.

So, back to the 'wear testing', we were able to visit the respective showrooms in London and check out the quality, ergonomic aspects, acoustic factors, gain expert input etc. and ultimately submit a specification that answered our brief. However, out of frustration with the standard method of specification that results in X STUDENTS = X CHAIRS AND X DESKS, we wanted to push this further as commercial interior designers and design an environment that engages students and staff, improves attendance, attainment and progression. All very much current questions and metrics but this was 12 years ago, so we didn't just specify furniture we created specific zones with aligned specific task furniture that enabled students to operate in ways appropriate to their best learning methods and comfort zones – we were creating bespoke learning environments bringing together our knowledge alongside the specifiers – who knew this was going to be such a big thing in workplace design but would take so long to start to engage in education spaces. It turns out that we were trailblazers with our rudimentary studio design, that featured many of the settings and intentions of HermanMiller's Living Office. It will not be a surprise that we faced opposition, we were proposing a new solution to educational environments, fortunately we were supported but we did experience that common feeling where we know that "Design must be brought closer to the centre of the university education model"[11] as discussed by Tsung Juang Wang. This became an underlying reason for pushing our theories around environments and atmospheres.

Method
The first thoughts around the ResiDE project were how we could question and disrupt what is accepted as the norm and appropriate in design studio education whilst engaging research-driven data to ensure that our teaching methodologies and spaces not only inter-connect but are also as current and effective as they can possibly be.
But also, how can we push and disrupt our research methodologies. Could we bring in particular interests that would support our approach to gathering research. Investigating a shared interest in 'place-hacking' or 'urban exploration' became a seemingly abstract methodology, but it was evidently

a legitimate method that would create this disruption. In his 2013 book Explore Everything, Place-Hacking the City, Bradley L. Garrett discusses "So what exactly is urban exploration? In his 2005 book Access All Areas, an explorer who wrote under the nom de plume Ninjaliciopus described urban exploration (colloquially known as UrbEx or UE) as 'an interior tourism that allows the curious-minded to discover a world of behind-the-scenes sights."[12]

Ultimately, urban exploration according to Bradley L. Garrett is the methodology of ethnography, from the Greek a 'culture-writer', working within the global urban exploration community. Rather than writing about events from an outside perspective, he embedded himself in the community to "see how people within it work and play, the rules they give themselves and the stories they tell."[13] How can you get closer to the truth than embedding yourself in the community? This would be our methodology and it would take place through a student design brief, setting context both from a site and experiential perspective but also from a research and currency perspective. The 'ResiDE Lab with MillerKnoll/Workpattern' brief would bring something new, in that it would ask students to design studio spaces for their own purposes based upon their own experiences – the perfect collaboration, structure with 'interior tourism'. (Figure 4)

Figure 4. Place-Hacking the Design Studio.

The project was proposed and accepted for a Northumbria University Enhancement Project, which was created to enhance the student learning experience in 2021-22 and articulated evidence of impact through 'research enriched education'. This supported the project with time through a studio module and also a small amount of internal funding.

Practice (The Brief)

The student brief was as follows; "Reconsider your own learning spaces using guidelines by MillerKnoll (formerly HermanMiller). You will carry out pre- and mid-occupancy studies, testing out the current layout of your own studio in different configurations. Sample furniture will allow you to extend your interrogation of what works best for learning, retaining knowledge, building community and enhancing wellbeing. Above all your design should instil a sense of pride for those learning and teaching within it. The research and design must show evidence of current opinions and predictions of design for education spaces."

"New tools and pedagogies enable learning to happen anywhere, at any time. For campuses to remain relevant, they need to offer something that cannot be found anywhere else—a sense of belonging to a community and an experience of learning enriched through meaningful connections among students, faculty, and administrators."[14] Herman Miller Learning Spaces Sketchbook

Students would work in pairs, of their choice, we have found that this enables a criticality of discussion within the project, whilst mimicking industry practice. This is further supported by the paper Commoning Interior Design Pedagogy, where Olivia Hamiltion discusses the importance of a robust student culture as part of a community approach to spatial design.[15]

Place-Hacked – Speculative student design

As a result of the studio brief it was clear that the studio space had been 'hacked' by our student explorers/placehackers, this enabled us to see how they worked and played within their studio environment and the stories they tell as a result. They utilised the research alongside their own creative design approach to produce a variety of solutions and settings across their studio accommodation, Figure 5 displays the work of one such pair where it is evident that they have worked together from a design perspective but communicated in their own personal method. Their work evidences a rich understanding of the HermanMiller Living Office settings in the context of a spatial design brief set in the context of their studio and further informed by academic staff knowledge and research.

Figure 5. An example of a student pair response.

Moving on, what has become very clear is that when choosing a University the appearance of the Campus affected the decision of between 62 - 80% of applicants in a study by Waite in 2014.[16] Given the huge choice available now and students affected in different ways through covid related experiences this is likely to be even more significant. Following the project, we have continued to implement and evaluate change in our studio, we recognize that this is ongoing and ever evolving, we also recognise the reality that a number of the updates will be carried out by ourselves and this has somewhat slowed the process. However, there are several elements we believe all design studios should feature for the benefit of all users;

• Create a strong brand identity for the programme, giving a sense of ownership.

• Incorporate a series of settings based upon the proposals and the Living Office / Campus research; maker space, collaborative space, seminar spaces, individual workstations, supported through a range of seating options and table configurations.

• Resolve practical issues, in particular, power outlets.

• Dedicated breakout cafe space.

• Biophilic elements and strategies.

• Various lighting options, from task to ambient.

Figure 6. Implemented Brand Guidelines (proposal and resolution)

We have focused primarily on the final year studio space. Both staff and students all agreed that this is better as a separate contained space rather than blending with other students. Their needs and work demands are different to previous levels of study and there was a strong desire that this was addressed and retained.

In semester one of this year attendance and engagement was excellent. We did find however that students have chosen a fixed seat and stayed there for most of this academic year and the majority of their work yet, have asked for tasks and activities that will help them to mix more effectively with students on other tables so there is still work to be done to improve their confidence in shifting positions and settings and embracing agility.

The studio has been well and truly hacked and despite implementing various storage options we are still limited with this so there is a tendency for a lot of mess but on the whole they seem to be comfortable with this... even if staff are not.

CONCLUSION

Moving forward, we can take great confidence from our early ideas and theories and that we pursued them despite objections, they have proven to be both appropriate and successful. The next step of the analysis will be to refine and develop a series of our own settings and spatial planning models that are transferable to other programmes within the design school, but also beyond. We are currently running a post occupancy evaluation survey which will help to inform us further to create a list of our own principles to guide the process. Finally, we must recognise and value the academic's professional practice in addition to their expert ability to teach effectively, it is evidently as important as other aspects of the student experience in creating a positive and supportive studio atmosphere.

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LEARNING FROM LASSO: TEAM SPIRIT AND THE INTANGIBLE IMPACT OF ATMOSPHERE ON STUDIO CULTURE IN DESIGN EDUCATION

Author:
JULIE TRUEMAN, SETON WAKENSHAW

Affiliation:
NORTHUMBRIA UNIVERSITY, UK

INTRODUCTION

Pre-2020, university students learned with security, safety and a degree of predictability in communities rooted deeply in higher education buildings. Covid displaced and dissolved these communities overnight. For design, where a meeting of minds in a creative setting was paramount, students were confined to airless rooms, manifesting within squares on a screen. Boxes within boxes. The slow recovery of confidence is now underway but an understandable ambivalence, increased social anxiety and an ongoing demand for flexible, hybrid learning patterns threaten to reduce the need for physical environments in design education.

While the demise of high street retail required experiential interventions to restore footfall, design education studios similarly need to offer more than just a space to learn. Over 100 years ago Walter Gropius, founder of the Bauhaus, Germany, recognised that a successful learning experience was dependant on more than just the architecture or a radical new curriculum, stating "it was the atmosphere."[1] A more recent worldwide study, 'Designing Design Education', conducted by the iF Design Foundation, proposed that a successful learning environment in design "requires an atmosphere that offers students a safe space and strengthens their self-belief".[2]

Drawing on historical reference to the Bauhaus pedagogy, personal experience of teaching in higher education including reflections of online workshops with the Bauhaus Dessau during lockdown and lessons learnt from the globally recognised feel-good success story of the multi-award winning Apple TV+ comedy-drama *Ted Lasso,*[3] we present three key themes to show how we can empower design students by creating a positive, inclusive atmosphere to ensure personal and professional success.

Community

Prodgers et al[4] reviewed a wide range of literature behind the definition of community in higher education. This included a paper by Carlen and Jobring[5] which considered learning atmospheres of *online* communities. However here we are only concerned with the sense of community that creates and contributes to team spirit and ultimately the atmosphere within which learning takes place. In consideration of this we refer historically back to the most famous and iconic of all design schools, the Bauhaus.

Collaboration and community were key to early Bauhaus philosophy. In the original school of art, architecture and design, the founder and director Walter Gropius spoke about the "unified work of art-

the great structure"[6] created through a pairing of students and teachers, art and crafts. The Vorkurs preliminary program created by Johannes Itten in 1920 was a unique development in design education that has since gone on to inspire foundation programmes and design education globally. Not only did the Bauhaus curriculum have formal content and structure but masters such as Oskar Schlemmer recognised the additional value of extracurricular activities which included extravagant fancy dress parties with costumes designed and made by the students[7] (Figure 1). Proxemics and ergonomics were new fields when the Bauhaus was formed and there was little academic understanding of the relationship of the body within its local environment but within the ground-breaking architecture of the iconic glass facades of the workshop wings of the Dessau building and the Prellerhaus accommodation block where students and Masters lived together, a living and learning community and atmosphere developed that was considered vital to the learning experience.[8]

Figure 1. Costumes of the Bauhaus (source: The Charnel House)

Following the closure of the Bauhaus, many aspects of its philosophy and pedagogy were disseminated and implemented globally. In "Schools of Departure: a digital atlas of design and art education beyond the Bauhaus,"[9] Katja Klaus, research associate and acting deputy head of the Academy of the Bauhaus Dessau Foundation describes the importance of collaboration and "social connections" which were strengthened by "a sense of belonging and a spirit of social cohesion."[10] In previous 'Open Studio' workshops held on site at the Bauhaus Dessau, we demonstrated the importance of these factors through exercises relying on physical proximity, yet only later realised their significance.

The theory of 'proxemics' relating to the degrees of physical closeness, separation and boundaries, was first developed by Edward T Hall in 1966, defined as "the interrelated observations and theories of man's use of space as a specialized elaboration of culture."[11] As part of a workshop at the Bauhaus in 2018, interior design students from Northumbria University, Newcastle UK undertook an exercise to contextualise this further through an understanding of 'the body's place' in the interior. In order to investigate zones of proximity by learning through drawing, students worked closely together deconstructing mental and physical boundaries to produce a series of overlapping, connecting outline images to create a 'body frieze' (Figure 2).

Figure 2. Images from Bauhaus Open Studio 2018: Producing "Bodyfrieze 2018"

During lockdown in 2021, we tried to replicate this as part of a Bauhaus *online* workshop to replicate that notion of 'social connection' and 'cohesion', albeit digitally, but the zoom results highlighted the sense of isolation and separation seen by our students with a clear shift in perceived atmosphere (Figure 3).
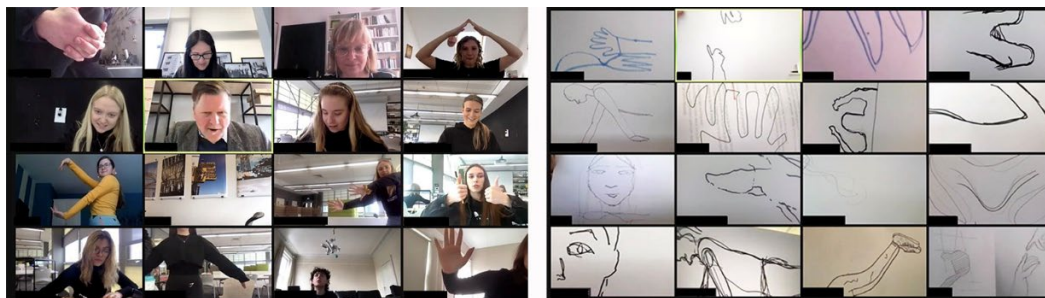
Figure 3. Images from the online Bauhaus Open Studio 2021: Producing "Bodyfrieze 2021"

In a post-workshop focus group using the ethnographic method of video stimulated recall, reflection and dialogue,[12] participants were asked to recall and discuss their emotions to key video prompts screen-recorded during the workshop. This retrospective technique helps participants to reflect on non-verbal gestures and expressions and how they relate to their underlying thoughts where there may be discrepancies in interpretation.[13] Although on screen many participants gave an apparent outwardly positive energy, many of the post-workshop video-stimulated comments referred to a concealed sadness created by the imposed isolation and a sense of loss of their studio community which was enhanced by this online alternative to actually being in Dessau:

"It still felt like I'm not part of a studio or group because we're very far away- I was completely alone at that moment in my room" (Participant 1).

"With covid we have learnt new ways of doing things digitally but it shows that some things can't be fully replicated and be the same experience online. It just shows in the design world, like with studio activity, there's nothing quite compares to it" (Participant 2).

We begin here to relate to *Ted Lasso*, written by Jason Sudeikis and Bill Lawrence.[14] The storyline is based on an American football coach brought to England to manage failing UK football team AFC Richmond, though the message is much more about how optimism, belief and community can lead to success both on and off the pitch. Lasso illustrates the importance of affiliation and bonding which can be difficult to achieve at a distance. In the barber scene in "Man City" (Season 2, episode 8),[15] these bonds are evident not only between the players through the sense of mutual care and support they give to each other in the scene, but also of the actors themselves, as Isaac McAdoo played by Kola Bokinni, cuts Sam Obisanya's (played by Toheeb Jimoh) hair (Figure 4).

Figure 4. Image taken from the barber scene, Ted Lasso "Man City"

In an interview, Jimoh explains that there was no script and it was one of the first times during the pandemic that the cast had the opportunity to be together in the same room without social distancing.[16] The importance of proximity in establishing a sense of team spirit and belonging is clear through eye contact, facial expressions, gestures and the tone of voice used in the scene. One of the over-riding themes of the show is the importance of community and the exploration of how feelings of isolation can be overcome through a sense of belonging. In an academic context, this is supported by "Measure What Matters in Education Spaces,"[17] a report by Herman Miller globally recognised for their research into workplace and education solutions, which considers the design factors and strategies associated with an enhanced student experience. Their findings suggest that overall wellbeing and success are likely to be improved by finding a sense of belonging in a higher education setting – something we believe can be achieved through the establishment and integration of a supportive atmosphere generated within, and by, an effective learning community.

Personalities and personal connections

From those first Bauhaus models of studio learning, design education presents itself as a more fluid way of teaching and learning in contrast to a more structured lecture-driven programme. Students often have full-day access to studios and workshops and longer access through timetabling which by default, creates a community. However, it also allows staff more opportunity to develop a less formal relationship with students with the aim of improving the sense of belonging but also engagement and motivation.

Our understanding of the importance of this was heightened during lockdown where online methods of teaching were immediately implemented and deemed successful in how knowledge was transferred and projects were discussed, but the online atmosphere was flat. We had been removed from our building where trust had been established, creativity was *physically* evident, and a rapport had been built. We return to the Bauhaus where we had embarked on a series of online workshops where the Academy's preliminary module, entitled 'Vorkurs', was delivered for the first time in its entirety online. Through staff and student reflection and feedback we realised that more was needed to create an atmosphere within the confines of the screens that we were all appearing on, in the absence of the iconic Dessau building as host.[18] It became clear that developing a social relationship was as important as an academic one. In order to develop more personal connections with our students we were required to express our personalities beyond what we were used to, so outside of, and integrated with, the Bauhaus module we instigated a series of more informal interim workshops to facilitate students to relax online when faced with the academic challenges of the module and the research academy staff. These were also supplemented with extra-curricular online events such as quizzes, a

celebration of the final year's work and ultimately an online graduation (Figure 5). By exposing more of our own character traits and giving a degree of personal insight, the result was a clear shift in mood and motivation and as hoped, the online atmosphere.

Figure 5. Online 'lockdown' graduation celebration

Research has explored how personality traits in the workplace can be evaluated and considered to improve team success. In Herman Miller's paper for example, *The Psychology of Collaboration Space,* the authors conducted a literature review to evaluate how a better understanding of personality can ultimately improve performance and contribute to successful collaboration, though this was largely focussed on the environmental requirements to support this[19]. Here however, we are interested with the notion of staff personality in particular impacting the atmosphere within the design studio. Back on campus in 2021, we conducted a survey across the entire undergraduate cohort relating to their experience and asked, "how important are staff personalities in creating a positive atmosphere?" Out of ninety-nine responses, one hundred per cent replied "very" (93/99) or "somewhat" (6/99) important.

"Positive staff can create a more relaxing environment and atmosphere where students aren't worried about sharing work and ideas" (student 1).

"If you get along with your tutors the atmosphere is always going to be positive" (student 2).

"The friendly atmosphere created by staff helped me feel more comfortable and therefore confident" (student 3).

"The tutors always were happy and up for a laugh, it really bought a positive atmosphere to the studio" (student 4).

It is easy to be judgemental – to assume that we know our students, what motivates them, what inspires them on the basis of intermittent tutorial interactions or from their general behaviour within a delivered session, and they will in turn naturally be judgemental about us as tutors. In *Ted Lasso*, season 1, episode 8 "Diamond Dogs,"[20] during a tense darts game with Rupert Mannion (football club owner and ex-husband of Lasso's boss played by Anthony Head), Lasso recalls a quote by Walt Whitman: "Be curious, not judgemental" (Figure 6). Mannion pre-judges Lasso on the basis of a close-ended question "Do you like darts, Ted?" and is proven to have underestimated him when Lasso explains that we should take time to find out about others, to show interest and curiosity before going onto win the game because of a long-standing history of playing darts with his father when he was younger. It prompts us, rather than being judgemental of our students, to ask open-ended questions which can instead be more powerful[21] allowing them to elaborate, open up and perhaps by offering more insight into them as individuals they may feel less constrained in our presence. In the context of

design education, in order to establish effective communities, we need to show interest in our students and in turn give them the permission to be interested in us through insight into our own personalities, and by developing a softer relationship with a degree of professional boundary in place, our students have felt more empowered.

Figure 6. Image taken from the darts scene, Ted Lasso "Diamond Dogs"

Environment

A design studio is like the football locker room. It is where highs and lows are experienced, successes are celebrated, friendships are made (and sometimes lost), all on a backbone of learning and self-development. Post lockdown, these positive attributes were largely forgotten and the advantages of hybrid learning were embraced. While established online and distance learning methods have long existed successfully for many programmes in higher education, the post-pandemic drive for blended learning has threatened the need for physical environments in design education. There are many papers that report on the impact of design education spaces on specific measurable factors such as improved student engagement, retention and satisfaction.[22] Others report on the effect that the physical environment can have on more intangible qualities such as sense of belonging, focus, creativity and wellbeing.[23] It is a more elusive task however to measure the environmental requirements that contribute to the learning atmosphere which provides a safe space, one which addresses diverse learning styles and abilities, and offers a comfortable space to work away from home.

Over the course of 2022 to 2023 we began to transform our design studio with the aim of providing this type of space. In the survey mentioned earlier we asked, "How important is the physical environment that you learn in?" Again, one hundred per cent said "very important" (93/99) or "somewhat important" (6/99). Beyond the furniture and layout settings it was important to establish a philosophy that the physical elements related to so we asked for an elaboration through the open-ended question, "What creates a supportive, positive atmosphere for learning effectively?" Only twenty out of ninety-nine responses however referred to the physical environment itself with comments regarding spatial layout, supportive technology or services such as lighting and heating. These largely came from final year students who reported a need for individual versus collaborative space, warm rooms, flexibility and lighting control. The majority of responses centred around peer and tutor relationships, friendly, positive and supportive attitudes, effective communication and feeling valued. This was particularly prominent in the first-year undergraduates who needed to feel welcomed without intimidation or judgement. To address and respond to these comments, we established an active 'test lab', "ResiDE" (Research into Design Education) within our final year

studio and are currently measuring and evaluating many of these elements and their impact.[24] As part of this we asked the final year students to reflect on the answers from all year groups to then draw up a list of principles for our programme with the aim of creating a research-informed personal, educational and professional atmosphere. We now have 10 that we all aspire to, and we return once more to *Ted Lasso* since number six is 'Believe', taken from and inspired by the show itself.

In the series, the iconic 'BELIEVE' sign goes through various events: being a motto to live by as the players enter and leave the locker room, to being torn up in an act of hatred, to ultimately being reassembled by the entire team in the finale (shown in various scenes in figure 7). We have our own 'BELIEVE' sign above our studio doors. Students, staff and visitors recognise it. It is to remind them that their studio is *their* 'locker room' but that it is also more than just a physical space. Throughout the series, we see that the belief that occurs in the locker room is shown to translate out onto the pitch and into the personal lives of the players and coaching team, and this 'environment' and the personalities of the characters are what create the atmosphere in *Ted Lasso*. And they also create the atmosphere in our studio.
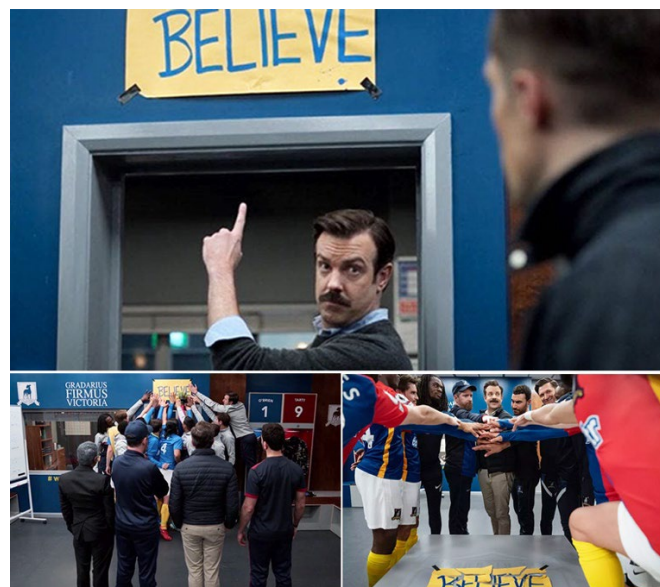
Figure 7. Images of the BELIEVE sign in Ted Lasso (various episodes)

CONCLUSION

In summary, we propose that community, personalities and environment are all equal and valid contributions in producing an effective design studio atmosphere, which takes us full circle back to Walter Gropius of the Bauhaus, who over 100 years ago, recognised the importance of this.[25] Design education studios need to offer more than just a space to learn. We need to consider what additional factors can contribute to this wider requirement and how we can implement, support or enhance them. By doing this we can aim to provide an atmosphere for successful learning to help students reach their potential, and in the best cases, exceed it.

NOTES

[1] Fiona MacCarthy, *All Things Bright and Beautiful: Design in Britain: 1830 to today* (London: Allen and Unwin, 1972), 111.

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[3] Brendan Hunt (Executive Producer), (2020-present), Ted Lasso [TV Series], Ruby's Tuna; Universal Television; Doozer; Warner Bros, Television.

[4] Lucy Prodgers, Elizabeth Travis and Madeleine Pownall, ""It's hard to feel a part of something when you've never met people": Defining "learning community" in an Online Era," Higher Education 85, Issue 6 (2023): 1219-1234, doi: 10.1007/s10734-022-00886-w.

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[7] "Bauhaus Archiv Museum fur Gestaltung," accessed July 18, 2024, https://www.bauhaus.de/en/das_bauhaus/46_leben_am_bauhaus/

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[9] "Schools of Departure: Digital Atlas of Design and Art Education beyond the Bauhaus," Bauhaus Dessau Foundation, accessed June 20, 2024, https://atlas.bauhaus-dessau.de/en

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[14] Hunt (Executive Producer), *Ted Lasso*.

[15] *Ted Lasso,* season 2, episode 8, "Man City," directed by Matt Lipsey, September 10, 2021, Apple TV+.

[16] "Ted Lasso Stars Rewatch Iconic Scenes From Series," TV Guide, April 7, 2023, video, 9:49, https://youtu.be/ZhSf99pXguU?si=nJ14XOLXSjJ0rhfD

[17] Herman Miller, "Measure What Matters in Education Spaces" (Report No. PB2351, Herman Miller UK Research Center, 2019).

[18] "Rooms of Departure: From Teaching Museums to Empty Walls", Julie Trueman, last modified May 17, 2022, https://atlas.bauhaus-dessau.de/en/newcastle-university

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[20] *Ted Lasso*, season 1, episode 8, "Diamond Dogs," directed by Declan Lowney, September 18, 2020, Apple TV+.

[21] "Be Curious, Not Judgmental: A Leadership Lesson From Ted Lasso," Connie Whittaker Dunlop, accessed August 1, 2024, https://www.forbes.com/sites/forbescoachescouncil/2022/04/08/be-curious-not-judgmental-a-leadership-lesson-from-ted-lasso/

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[24] Seton Wakenshaw and Julie Trueman, "Placehacking the Design Studio: Contextualising Workplace Principles in the Design Studio," June 3 2024, video, 20:46, https://youtu.be/5wZ5asjgaLo?si=APj8YPev8pGGdR4G
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EXECUTIVE AND ENGINEERING DESIGN: POLYTECHNIC METHODOLOGICAL APPROACH TO ACADEMIC TEACHING FOR THE BUILDING CONSTRUCTION

Author:
MASSIMILIANO NASTRI

Affiliation:
POLYTECHNIC OF MILAN, ITALY

INTRODUCTION

The study aims to propose a scientific and cultural contribution within the context of the *Rethink Education* with respect to the currently absent of a disciplinary configuration for the *executive and engineering design* matters, at the level of both academic teaching and professional application. In this regard, the study intends to submit and provide the theoretical and operational principles which characterize the academic *polytechnic* methodological approach aimed at teaching and learning the *executive and engineering design* for the building construction in the contemporary and evolved scenario: therefore, the objective of the research is to establish the *executive and engineering design* as an academic and scientific discipline (which can be articulated through educational, specialized and professional declinations), to be presented through methodological references and theoretical tools for learning and application. The *executive and engineering design* is analyzed as a conceptual and practical processing of elaboration directed to the projection, visualization and simulation (in experimental form) for planning, organizing and anticipating the building production and construction (in particular, for complex architectures).

EXECUTIVE AND ENGINEERING DESIGN FOR THE BUILDING CONSTRUCTION: TEACHING AND LEARNING FIELD OF ANALYSIS

The study of the *executive and engineering design* is defined on the basis of the technological culture laid down by the procedures of the *technical* and *integrated design* (as a logical, programmatic and consequential succession, theorized by Walter Gropius, between the *architectural design* and the *product design* phases):[1] this specifies the formulation of the project according to the combination of governance, planning and control functions to guide and lead the productive and constructive operation. The *executive and engineering design*, for teaching and learning purposes, is analyzed as a methodological compartment related to the instances and objectives aimed at the effective feasibility and practical implementation of architecture, especially of a complex character.[2] The field of inquiry contemplates the activities of cognitive acquisition and instrumental processing, planning and coordination, management and control of the contents, procedures and information aimed at the production and construction of the architectural organisms and their parts. On this basis, the *executive and engineering design* is developed through:

● the purpose of formulating and drafting the "devices" capable of guiding the program, organization and management activities of the building phases;

● the procedural guidelines, the methods of conception and drafting of the executive instruments, intended as tools capable of examining and expressing the forecasting and verifying aspects of the effective operability for the on site construction;

● the executive formulation of the project, understood as a field of research aimed at "knowledge" and "action", according to the investigation of the tools supporting the practices of simulation, modelling and anticipation and the "artificial reproduction" of reality, as illustrated in Figures 1 and 2.[3]
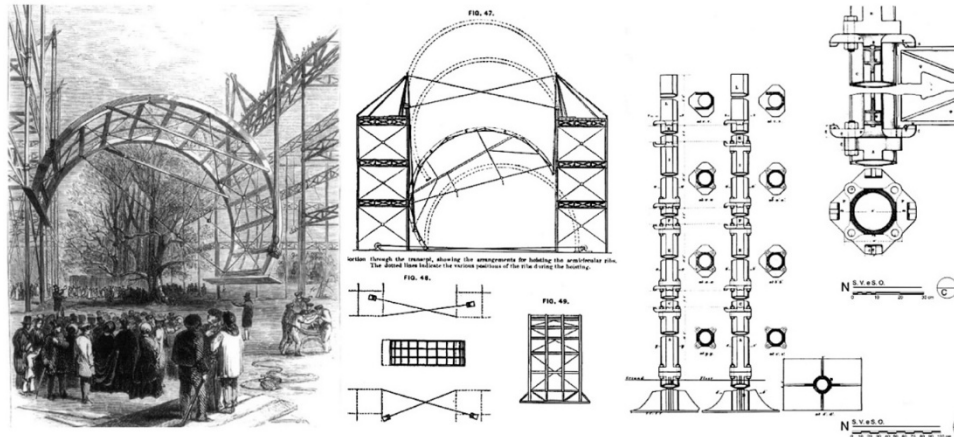
Figure 1. Executive design, construction simulation and "artificial reproduction" of the building systems and phases (Joseph Paxton, Crystal Palace, London).
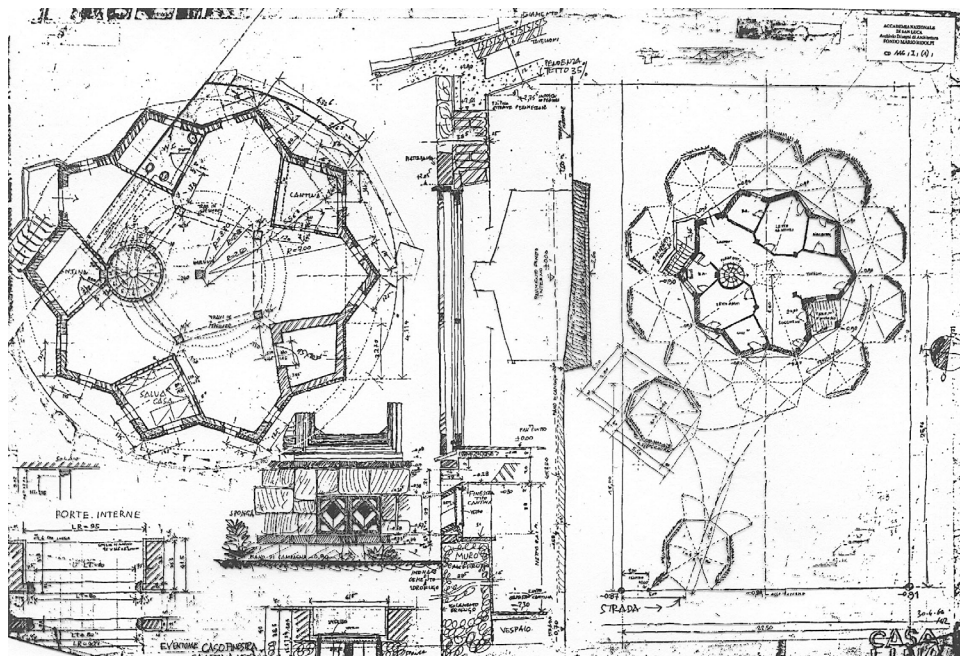
Figure 2. Executive instrument as "anticipation" and "materialization" of the building construction on site (Mario Ridolfi, Casa Lina, Terni).

DISCIPLINARY CONSTITUTION OF THE EXECUTIVE AND ENGINEERING DESIGN

The study around the innovative teaching and learning procedures of the *executive and engineering design* is structured through the *polytechnic* approach (in particular, as declared, applied and experimented at the Polytechnic of Milan) that includes contributions of a theoretical and humanistic nature, at an epistemological and philosophical level, in order to determine the disciplinary consolidation of the technical and application fields.[4] With respect to the sector under examination, in order to consolidate the research, teaching and professional field in the form of a "discipline", the study focuses on the contributions defined by the cultural and methodological conception and approach of the technique: specifically, in the reference to the hermeneutic fundamentals of the *téchne* for the definition of the procedures and tools, both theoretical and practical, aimed at exploring, understanding and acting within the reality.[5] The *polytechnic* approach to the teaching and learning of the *executive and engineering design*, according to the hermeneutic fundamentals of the *téchne*, is directed to the procedures of "manipulation", "modelling" and "anticipation" of the reality (in this case, related to the production and construction).[6] The *polytechnic* approach implies the explanation and application of the methodology aimed at simulating the phases of production and construction through the development of the instruments capable of expressing the real conditions of feasibility, the sequences of the building site, the interaction between the technological systems together with the detection of their performance.[7] The *polytechnic* didactic methodology aims to train technical designers (Architects and Civil Engineers at an international level and, especially, for complex buildings) able of planning and managing, directing and checking the production and construction phases in advance, as illustrated in Figure 3.[8]
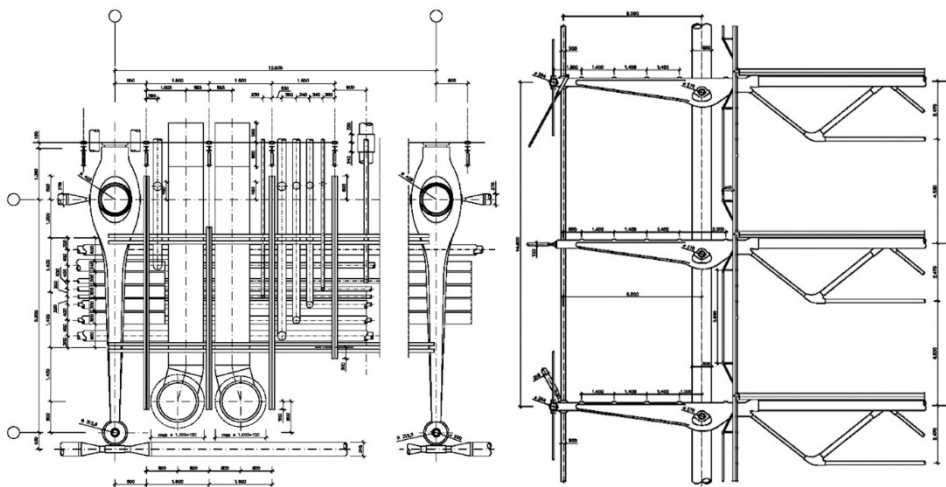
Figure 3. Executive design expressing the real conditions of feasibility and the interaction between the technological systems (Renzo Piano and Richard Rogers, Centre Georges Pompidou, Paris).

Teaching and learning through the theoretical contribution of the *téchne* towards the "unveiling" of constructive reality

The cultural and operative formulation of the *executive and engineering design* takes place as an application of the "instrumental technique", which includes both the revelatory activity and the work of "unveiling" the reality (in accordance with the fundamentals of Heideggerian philosophy), as well as the procedure of "transcendence" of phenomenal, objective and experiential reality, which frames the field aimed at the development of tools and "models" for the "knowledge" and "action".[9] Martin Heidegger's contribution proceeds in the executive explanation of the design as an activity oriented to

"forming" and "reaching" without the "direct experience" or "vision" of the phenomenon, i.e. the construction: this as a method capable of "projecting to a sensitive perception" the conditions and elements of the design, the contents of the reference reality and its specific situations within a processual framework to be visualized "in advance" and without a direct or "experiential" relation.[10] Moreover, the *téchne* establishes the design activity as a work of "unveiling", in accordance with the Heideggerian theory, directed towards "making-present" and "leading out" the knowledge from reality, up to the action defined as *production* and according to the capacity in the *conduction* of procedures and means in accordance with the constructive aims, through:

• the constitution and coordination of the "technical acts", manifested in the relationship between *ratiocinatio*, as the capacity to acquire, rationalize and arrange the contents of productive and constructive nature, and *fabrica*, as the "material activity" directed towards the effective realization;

• the development of the tools and "models" aimed at acquiring the "knowledge" of the reality and take "action", using the "artificial reproduction supports" to simulate the phenomena to be observed which require an intervention.[11]

In this regard, the teaching and learning of the *executive and engineering design* involves the contribution of the *téchne* according to the "promethean" and predictive characters aimed at understanding, analyzing and adapting the reality: the epistemological contribution, in this case, attends in the conception and configuration of the tools aimed at the "knowledge" and operability in the form of the "executive models", expressed as "action schemes" (intended in the form of devices capable of explicating, representing and visualizing the "actions"), as illustrated in Figure 4.[12]
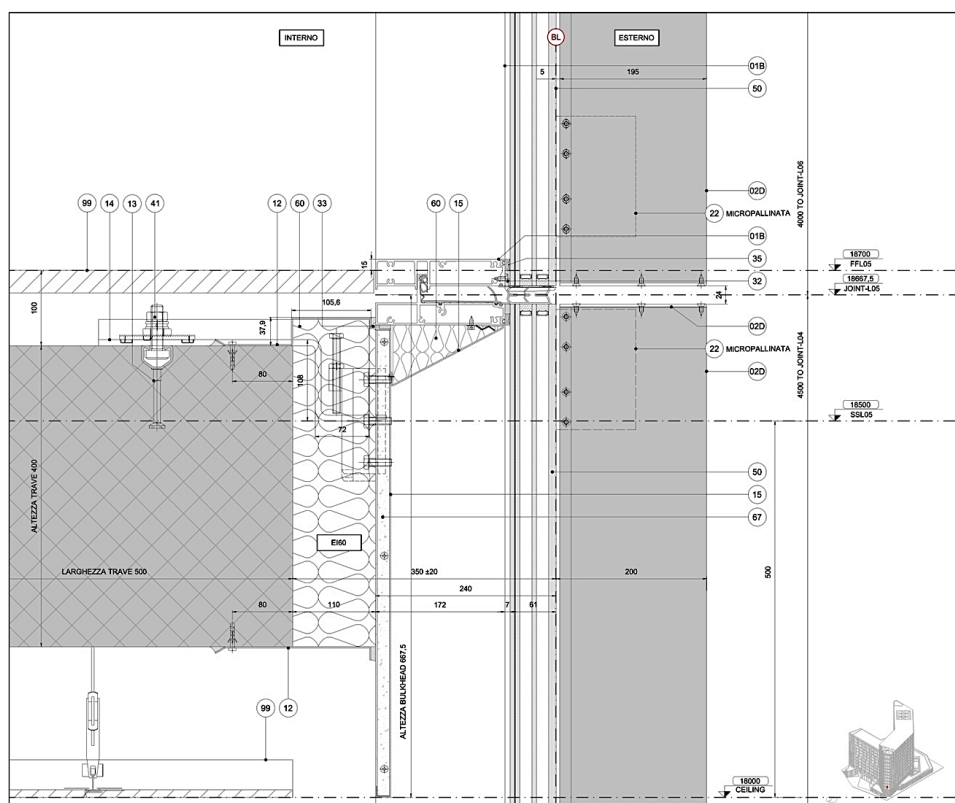
Figure 4. Application of the "instrumental technique" which involves the revelatory activity and the work of "unveiling" the reality (Park Associati, Accenture People Hub, Milan).

Teaching and learning of the procedures of "modelling", exploration and simulation of the *executive and engineering design*

The contribution of the technique, regarding the "revealing" aspect in the procedure of "transcendence" and "artificial reproduction", is aimed at making the constructive reality become present (as opposed to the empirical orientation, namely, without a "tangible presence") by means of the "modelling" process: all these elements allow the productive and constructive reality to be visible and expressible through artificial processes, experimental idealizations, heuristic strategies, linguistic and symbolic mediation. The "modelling" process, in the teaching and learning, is expressed through parameters which can be subject to analytical and operational examination, considering:

• the "model" expressed as a "tangible construction" with a heuristic function, therefore knowing the properties allows one to make predictions on "artificially reproduced" phenomena;[13]

• the "transcendence" process, which is defined as the "projection" practice of "formalization capable of making the experience possible", in advance and without a physical presence.[14]

Moreover, the reference to the Kantian perspective of the "objectification" determines the teaching and learning of the productive and constructive contents through a practice of "formal transcendence" of reality (in the absence of its "sensible presence"), according to:

• the practices of elaboration and exploration outlined in "technological acting";

• the conception and application both of technological and instrumental "prostheses", aimed at the "knowledge" and the "action",[15] and of strategies and devices to approach, "artificially" and "technically", the reality of reference.[16]

The teaching and learning of the *executive and engineering design* as an instrument of "knowledge" (or of "organization of the knowledge of reality") is applied as a practice of "modelling", through the constitution and use of design devices in the form of "interpretative models", as devices of organization, simulation and intelligible "construction" (and not reproduction) of the reference reality.[17]

The definition as an instrument of "knowledge" supports and legitimizes:

• the "poietic" processing (in the Aristotelian sense) based on the assumption and interpretation of data and notions learnt from the reality and, on these fundamentals, leaning towards the "action" by means of the forecasting and planning methods;

• the "exploratory" processing of reality that is determined through practices of simulation with the purpose of replacing the "real event" of the construction.[18]

Teaching and learning of the predictive and "executive models" as "technical devices"

The teaching and learning of the *executive and engineering design*, based on the hermeneutic and philosophical contributions achieved from the Heideggerian, Aristotelian and Kantian conceptions of the *téchne*, focus on the procedures of "schematization", "modelling" and "codified formalization" by means of the "technical devices" (such as the "executive models"). Within this context, the teaching and learning are directed to the configuration of the "models" in the form of both "cognitive artefacts", according to the modes of representation, visualization and simulation (so as to replace the "real event"), and "experiential artefacts", capable of fostering the experimental action and "manipulation" in relation to the conditions of the constructive reality.[19] The epistemological perspective, referred to in the theoretical and instrumental framework of the *téchne*, according to the "transcendental function", also introduces the "predictive" aspect of the "executive models". The "predictive" aspect thus maintains the hermeneutic significance of the executive design process, considering:

• the "executive models" as instruments for the "interpretation" of reality;[20]

• the possibility to conduct checks and to make predictions of the simulated construction of reality.[21]

The "predictive" teaching and learning of the "executive models" is specified through the achievement of the procedures of "rational forecasting" by means of the criteria of representation of the project capable of allowing the analysis, "experimentation" and control (of an indirect type) of the construction. Moreover, the practices of "modelling" and executive simulation are specified through the use of a "scientific language" aimed at directing towards the vision, understanding and real formulation of the project conditions: this by noting the adoption of the criteria of "constructive expression" to represent the geometric, dimensional, physical and operative information. In this regard, the teaching and learning of the "executive models" include the communicative practices of the project through the drafting of "technical devices" to guide the realization.[22] The representation of the "executive models" involves the "construction" of what constitutes the architectural organisms and their parts, assuming:

• a scientific type of language for the "action within the reality", developing the "technical devices" (i.e., the project drawings) as instruments of explanation and prediction, aimed at the knowledge of reality and the subsequent communication of production and construction works;

• the drafting of the operative instructions and informations, ordered in predictive form and in both logical and temporal progression.[23]

CONCLUSION

The study around the innovative teaching and learning procedures of the *executive and engineering design* is developed with the objective of determining a discipline structured through the *polytechnic* approach involving a series of theoretical and humanistic, epistemological and philosophical contributions. These references make it possible to determine the cultural and operational framework aimed at building production and construction through:

• the hermeneutic fundamentals of the *téchne* for the definition of the procedures and tools, both theoretical and practical, aimed at exploring, understanding and acting within the reality;

• the conception of the executive design as a procedure of "unveiling" (with reference to the Heideggerian theory), of "modelling" and simulation, of anticipation and "rational forecasting" of the productive and constructive reality;

• the formulation of the "executive models" as instruments of "knowledge" and "action", in the form of the "technical devices" directed to understanding, exploration and "manipulation" (as "artificial reproduction" of reality) for the productive and constructive contents of the building organisms and their components, technical elements and materials.[24]

Academic and professional training for the *executive and engineering design*

The innovative teaching and learning procedures under consideration address the training, *polytechnic* and academic, professional and operative, of the executive and engineering designer according to the specific characters of the *technítes* (already theorized by Aristotle)[25] and of the *tekton*,[26] through:

• the acquisition of the "poietic" ability to "manipulate", to explore and to "reproduce artificially" the reality – anticipating and simulating the productive and constructive contents and phases;

• the learning directed to the constitution of the constructive contents of the project and of the logical and operational coordination tools capable of guiding and communicating the methods of realization of the architectural organisms and their parts (considering the "prediction" of the time phases and the executive sequences);

• the learning directed at the composition of the project tools (identified as the "executive models", as "technical devices") directed at managing, coordinating and producing the manufacturing and processing procedures;[27]

• the learning directed to identify, govern and establish the logical and "organized" order that structures the architectural organisms and their systemic parts, in a "hierarchical" form, to lead and coordinate, to guide and "materialize" the development of the laying and assembly methods;[28]

• the learning directed to compose the "executive models", identified as tools for planning, examining, experimenting and simulating the production and construction solutions, i.e. as analytical tools, aimed at the "systematization" of the reality through action, or as tools aimed at knowledge, experience and acquisition of the production and construction contents of the project.[29]

Processing and constitution of the executive instruments

The innovative teaching and learning of the *executive and engineering design* considers the methodologies based on the hierarchical and consequential organization of the production and construction contents, i.e. addressing:

• the "systemic structuring" of the architectural organisms and their parts (defined as "structural matrix" or as "localization framing");

• the decomposition into many particular sectors and thematic areas, aimed at examining the overall and progressive development of the architectural organisms and their parts (with respect to the formal, physical, dimensional and constructive conditions); this decomposition leads to the development of a series of "manufacturing plans" developed through the "executive models", capable of anticipating and simulating:

- the constitution of the construction systems, components, technical elements and related technical interfaces, according to the articulation by the "technological sub-systems";

- the hierarchical and sequential constitution of the production and construction procedures;[30]

• the study of the technical interfaces as a work of processing and control of the characters of interaction between the parts of the architectural organisms and of governing both the systems and the execution sequences.[31]

The drafting of the technical interfaces, which integrates the predictive and temporal aspects inherent to the effective building criteria, is affirmed as a procedure of anticipation and simulation of the construction site conditions. Therefore, the study implies the operational planning of the construction phases, in general, and of the "sequence organization" of the technical interfaces, in particular.[32] On this basis, the drafting of the technical interfaces assumes both the contents and the construction tasks aimed at configuring the laying and assembly conditions, according to the rules directed to determining:

• the subdivision of the connection criteria by the "technological sub-systems", so that each executive sequence can constitute a coherent and autonomous section with respect to the application in both temporal and spatial terms;

• the fine-tuning of the "assembly plans", according to the detection of the production and executive phases of the components, technical elements and materials (identified in their morphological, physical, dimensional, functional and structural characters);[33]

• the fine-tuning of the information and indications inherent to the production and executive resources, the means and equipment envisaged, the chronological correlations of the construction contents of the technical project with respect to the reality of the site.[34]

Coordination procedures between the executive instruments

The teaching and learning of the planning and operational coordination procedures of the executive design are determined on the basis of the "executive models" in the form of "framing" or "structural matrix", which define the localization arrangement and the geometric, dimensional and coordinated "texture" of the architectural organisms as a whole, in the main and secondary sectors up to the technical interface sections. In this regard, the *executive and engineering design* is outlined regarding:

• the drafting of the "structural (or localization) matrices" in which the hinges for the framework (in two- or three-dimensional form) are directed to manage the "fabrication plans";

• the drafting of the "positioning plans", as instrumental tools to govern the "modelling" of the "technological sub-systems" and technical interfaces.[35]

The "structural (or localization) matrices" are explained according to the constitution of:

• the dimensional coordination plans and reference plans directed to the geometric, dimensional and operational management of the construction, through the aid of the frameworks (according to the hierarchical arrangements based on the construction systems) necessary for the organization (spatial and timing) of the executive contents;

• the indications regarding the morpho-typological composition, dimensions (general and specific), positioning of the technical and organizational interfaces (complete with the information, general and specific, of the systems, components, technical elements and materials).[36]

The teaching and learning related to the drafting of the "executive models" referring to the technical interfaces involve:

• the definition of the executive references integrated by the "performance specifications", related to the composition of the "technological sub-systems" and the coordination and control through the simulation and anticipation of the methods of implementation on the building site;[37]

• the representation and explanation of the construction sequences for the installation, visualizing the construction sequence of the elements and joining devices, as illustrated in Figure 5.[38]
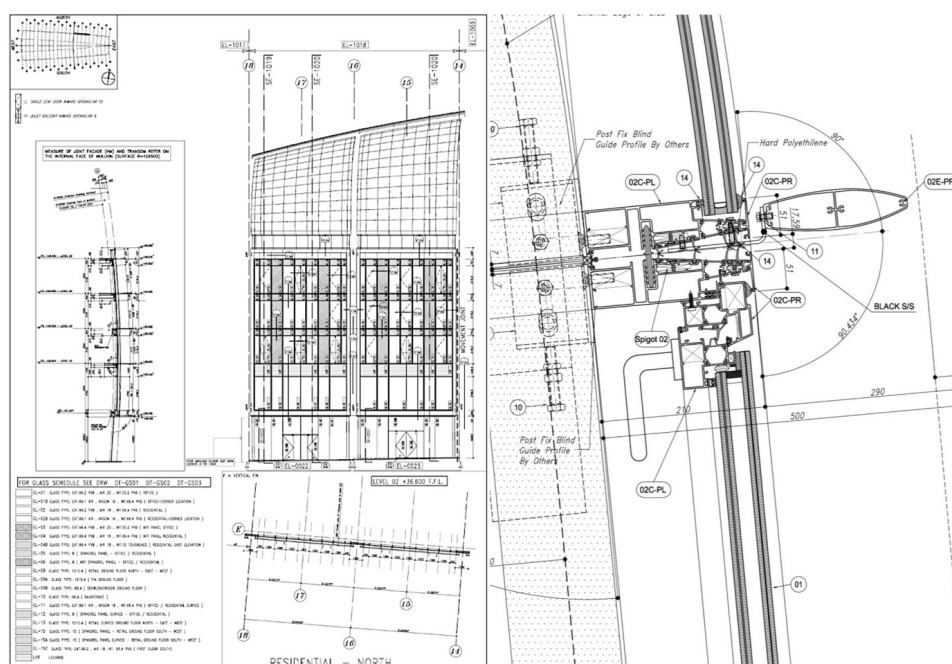
Figure 5. Drafting of the "positioning plans", as instrumental tools to govern the "modelling" of the "technological sub-systems" and technical interfaces (Robin Partington, Park House, London).

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CREATING CULTURES OF INCLUSION: BRIDGING THE GAP BETWEEN WORKPLACE DIVERSITY AND LIFELONG LEARNING

Author:
POONAM KAKODKAR

Affiliation:
UNIVERSITY OF SAN FRANCISCO, USA

INTRODUCTION

The rapid advancement of technology, particularly in the realms of generative artificial intelligence (AI), virtual worlds, and neurotechnology, has ushered in an era of unprecedented change and uncertainty in the global workplace. This transformative period is characterized by unpredictable global events, accelerated technological progress, and shifting workplace cultures, necessitating a reevaluation of traditional organizational strategies.[1]

As organizations navigate this complex landscape, a focus on the human element has emerged as a critical bridge between understanding future work trends and implementing effective strategies. Creating an inclusive culture has become paramount for fostering a diverse workforce and driving positive outcomes.

Research reveals that a holistic definition comprises four related yet discrete elements. First, people feel included when they are treated "equitably and with respect." Participation without favoritism is the starting point for inclusion, and this requires attention to nondiscrimination and basic courtesy. The next element relates to "feeling valued and belonging." Inclusion is experienced when people believe that their unique and authentic self is valued by others, while at the same time have a sense of connectedness or belonging to a group.

At its highest point, inclusion is expressed as feeling "safe" to speak up without fear of embarrassment or retaliation, and when people feel "empowered" to grow and do one's best work. Clearly, these elements are critical for diversity of thinking to emerge. Most organizations need to transform their cultures to become fully inclusive. While an overwhelming majority of organizations (71 percent) aspire to have an "inclusive" culture in the future, many of them fail.[2]

What prevents the translation of these intentions into meaningful progress. Organizations frequently underestimate the depth of the change required, adopting a compliance-oriented or programmatic approach to diversity and inclusion. Cultural change is challenging irrespective of the objective, but it is perhaps even more so when the objective is an inclusive culture. Resistance is common: Those who are currently successful are likely to believe the system is based on merit and change to the status quo feels threatening. Consequently, change toward greater inclusion probably requires more effort than many other business priorities.

FOSTERING INCLUSION STARTS WITH HUMAN CAPITAL
Continuous Cycle of Learning
Facilitating a continuous cycle of learning is essential for driving top-down behavioral change within an organization. By ensuring equitable training opportunities, especially in remote work settings, companies can address the diverse needs of their workforce. Continuous learning fosters an environment where employees are constantly improving their skills and knowledge, which in turn promotes innovation and adaptability. This approach not only supports individual growth but also enhances overall organizational performance by keeping the workforce engaged and up-to-date with the latest industry trends and technologies.[3]

Address Human Capital Challenges
Addressing human capital challenges involves tackling the lack of development opportunities and the need for upskilling. Employees must master job-related skills to remain competitive and effective in their roles. By providing targeted training and development programs, organizations can help their employees overcome skill gaps, thereby enhancing their capabilities and career progression. Investing in human capital development is crucial for retaining top talent and ensuring the workforce is equipped to meet the demands of a rapidly changing business landscape.

People-Centric Strategy
Implementing a people-centric strategy is key to creating inclusive environments characterized by respect, equity, and diversity. Embracing continuous learning within this framework encourages a culture of ongoing improvement and lifelong learning. By fostering such an inclusive atmosphere, organizations can attract and retain a diverse talent pool, which brings varied perspectives and ideas to the table. Prioritizing a people-centric approach ensures that all employees feel valued and supported, which is fundamental to building a cohesive and productive workforce.

INCLUSIVE CURRICULUM DESIGN
Ensuring Learning Materials Reflect Diverse Perspectives and Experiences
An inclusive curriculum begins with the incorporation of diverse perspectives and experiences within learning materials. This approach aims to present a more comprehensive and realistic view of the world, recognizing the contributions and narratives of various groups that have traditionally been marginalized or overlooked. By doing so, learners are exposed to a richer array of viewpoints, which enhances their understanding and empathy towards different cultures and experiences.[4]

Integrating a Variety of Cultural, Social, and Historical Viewpoints
To truly reflect the complexity and diversity of the world, curricula should integrate a variety of cultural, social, and historical viewpoints. By doing so, the curriculum becomes a tool for social justice, promoting equity and inclusion. This integration helps learners develop a more nuanced understanding of global and local issues, encouraging critical thinking and enabling them to engage more thoughtfully with the world around them. Overall, designing an inclusive curriculum is a fundamental step towards fostering an learning environment that values and respects diversity.

ACCESSIBLE LEARNING MATERIALS
Provide Materials in Multiple Formats
Providing educational materials in multiple formats such as text, audio, and video is crucial to cater to diverse learning needs. This approach acknowledges that students have varying preferences and strengths when it comes to absorbing information. Offering content in various formats, ensures a more

inclusive learning environment, accommodating different learning styles and increasing the likelihood of knowledge retention and comprehension.[5]

Utilize Assistive Technologies and Ensure Digital Content is Accessible

Assistive technologies, such as screen readers, speech-to-text programs, and alternative input devices, empower learners with disabilities to engage with learning materials more effectively. Prioritizing accessibility is not only about complying with legal requirements, it is about creating an inclusive learning environment where all learners have equal opportunities to succeed.

Cultural Competency Training

Educating learners on cultural awareness and sensitivity is essential in today's diverse and interconnected workplace. This involves teaching learners about the variety of cultures, traditions, and perspectives that exist globally and within their own communities. Promoting understanding and respect for different cultural practices and beliefs is crucial for cultivating a harmonious and inclusive workplace. This involves creating opportunities for learners to learn about and engage with cultures other than their own, thus broadening their perspectives and reducing stereotypes and prejudices.[6]

Feedback Mechanisms

Implementing systems that allow for anonymous feedback is a critical step towards continuously improving inclusivity. These mechanisms provide learners with a safe and confidential way to voice their experiences, concerns, and suggestions regarding the inclusiveness of their learning environment. Ensuring anonymity encourages more honest and comprehensive feedback, which might otherwise be withheld due to fear of repercussions or discomfort. Regularly reviewing this feedback allows one to identify patterns and areas needing improvement.

Community Building

Fostering a sense of belonging through group activities and collaborative projects is essential for creating an inclusive and supportive learning environment. These activities encourage learners to work together, share ideas, and develop interpersonal skills, which helps to build a strong community feeling within the organization. Collaborative projects can bring diverse perspectives together, allowing learners to learn from one another and appreciate different viewpoints. Additionally, encouraging peer support and mentorship programs can further strengthen connections among learners.

PERSONALIZED LEARNING

In today's dynamic workplace, personalized learning paths are essential for addressing the unique needs and preferences of each employee. Tailoring learning experiences allows organizations to consider individual skills, knowledge gaps, and learning styles, thereby providing a more effective and engaging development process. For instance, some employees might benefit from hands-on training sessions or interactive workshops, while others may prefer self-paced online courses or one-on-one mentoring.

Tailoring learning experiences to align with employees' career aspirations is equally important. Personalized learning paths that reflect an individual's career goals can significantly boost motivation and engagement. When employees see a clear connection between their development activities and their career advancement opportunities, they are more likely to invest time and effort into their learning. By supporting career aspirations through tailored learning experiences, organizations not

only foster a culture of continuous improvement but also demonstrate their commitment to employee growth, ultimately driving both individual and organizational success.[7]

Offering various learning modalities such as e-learning, workshops, and interactive simulations is crucial for catering to diverse learning preferences and enhancing overall employee development. By integrating various learning modalities organizations can create a comprehensive and adaptable training program that meets the diverse needs of their workforce, leading to more effective skill development and greater overall productivity.

This personalization helps bridge knowledge gaps and fosters a culture of continuous improvement. Personalized learning paths ensure that employees receive content directly relevant to their roles, skills, and career aspirations. This tailored approach increases engagement by making learning experiences more meaningful and applicable to each individual's work.

By allowing employees to choose their learning journey, personalized paths foster a sense of ownership and motivation. This autonomy empowers employees to take control of their development, leading to higher engagement levels.

Personalized learning platforms often use adaptive technologies to adjust content based on an individual's progress and performance. This ensures that employees are appropriately challenged, maintaining their interest and engagement throughout the learning process.

Real-time feedback and recognition of achievements are often integrated into personalized learning platforms. This ongoing acknowledgment reinforces positive learning behaviors and keeps employees motivated.

By gathering data on individual progress and preferences, personalized learning platforms can continually refine the learning experience. This data-driven approach ensures that content remains relevant and engaging over time.

Companies implementing personalized learning paths have reported significant improvements in employee retention and performance. For example, Amazon saw a 25% increase in employee engagement after implementing a personalized skills training platform.

Personalized learning paths contribute to fostering a culture of continuous learning within organizations. This culture shift can lead to increased engagement as employees view learning as an integral part of their professional growth.

Personalized Learning Experiences with AI

The evolution of training within organizations is shifting towards providing personalized learning experiences powered by AI, moving away from traditional one-size-fits-all approaches. By addressing individual needs, AI customizes training based on personal preferences and learning styles, thus meeting learners where they are. Tools like VARK, a learning style questionnaire, help identify learners' preferences—visual, auditory, read/write, or kinesthetic—facilitating tailored content delivery that aligns with each learning style. This personalized approach not only improves engagement and retention by delivering content that resonates with learners but also increases their motivation and understanding. Additionally, AI analyzes learner performance data to offer personalized recommendations, thereby enhancing the relevance and engagement of learning experiences and optimizing outcomes.[8]

TECHNOLOGICAL INNOVATIONS AS ENABLERS OF INCLUSIVE LEARNING AND COLLABORATION

Lifelong learning in the future will require a significant shift towards continuous reinvention to navigate the uncertainties of a constantly evolving workplace. This paradigm shift necessitates policies that support upskilling and reskilling initiatives without imposing the constraints of full-time

academic commitments. In this context, embracing promising technologies becomes imperative. Immersive media offers realistic simulations, facilitating practical learning experiences that bridge the gap between theory and application. Additionally, AI-based learning systems provide personalized and adaptive learning experiences tailored to individual needs and learning styles. By leveraging these technologies alongside innovative educational and economic policies, society can ensure that individuals remain agile, adaptable, and equipped with the necessary skills to thrive in the future workforce.[9]

Embracing AI: Rewards and Considerations

Embracing AI in educational systems offers numerous benefits, such as personalized learning experiences customized to individual needs and preferences, which in turn improve learning outcomes and engagement. Enhanced flexibility, achieved through anytime, anywhere access to learning materials, accommodates diverse schedules and learning styles, thus enhancing accessibility and convenience. Additionally, innovative training methods, such as the implementation of cutting-edge training techniques like simulations and virtual reality, foster engagement and improve skill acquisition. The constant transformation and adaptation to evolving trends and technologies ensure that educational and training methods remain relevant and effective over time.

ENHANCED ACCESSIBILITY AND FLEXIBILITY

Breaking down barriers, enhanced accessibility and flexibility in learning remove obstacles to personal development, ensuring learners can engage with content regardless of their circumstances or constraints. Instant access and support through virtual assistants and chatbots offer learners on-demand assistance and guidance whenever they need it. Flexible learning systems also appeal to younger generations who value the ability to work anytime and anywhere, accommodating their preferences for mobility and autonomy. These systems can be multilingual, catering to a global workforce and promoting inclusivity by providing content in learners' preferred languages.[10]

EMPLOYEE RESOURCE GROUPS (ERGS)
Create Support Networks

Employee Resource Groups (ERGs) are invaluable for creating support networks within organizations, fostering a sense of community, and promoting a culture of inclusion. These groups bring together employees who share common backgrounds, interests, or experiences, providing a platform for mutual support and camaraderie. ERGs can play a crucial role in addressing the unique challenges and needs of diverse groups, offering a safe space where members can discuss issues openly, share advice, and collaborate on solutions. ERGs can be powerful catalysts for sharing knowledge and learning among diverse groups within the workplace.

BIAS-FREE TRAINING CONTENT

Developing and delivering bias-free training content is imperative in fostering inclusive and equitable learning environments. Incorporating diverse perspectives and experiences enriches the content, offering learners a broader understanding of the subject matter. Inclusive language and imagery help to create a welcoming atmosphere where all participants feel respected and valued. Through thoughtful curation and continuous evaluation, trainers can uphold the principles of diversity, equity, and inclusion, fostering an environment conducive to learning and growth.[11]

INCLUSIVE LEADERSHIP TRAINING

Inclusive leadership training is instrumental in equipping leaders with the knowledge and skills necessary to cultivate diverse and thriving teams. Through comprehensive education, leaders gain a deep understanding of the significance of inclusion in driving organizational success. They learn to recognize and mitigate unconscious biases, ensuring fair treatment and opportunities for all team members. Inclusive leadership training empowers leaders to create environments where diverse perspectives are valued and celebrated, leading to enhanced innovation and problem-solving.

Several organizations have implemented inclusive leadership training programs to foster diversity and create more inclusive work environments. Google has incorporated inclusive leadership training as part of its diversity and inclusion initiatives, recognizing the importance of equipping its leaders with the skills to manage diverse teams effectively and create an inclusive culture.[12]

Similarly, Comcast has engaged in inclusive leadership workshops to enhance its organizational culture, aiming to provide leaders with the expertise and tools necessary to promote inclusivity within their teams and across the company.[13]

PwC (PricewaterhouseCoopers) has implemented inclusive leadership training programs to support its commitment to diversity and inclusion, helping leaders develop the skills needed to create an environment where all employees feel valued and empowered.[14]

Wells Fargo has incorporated inclusive leadership training as part of its efforts to promote diversity and inclusion within the organization, with programs aimed at helping leaders create a more inclusive environment and leverage the benefits of a diverse workforce.[15]

Rapid7, a cybersecurity company, has invested in inclusive leadership training to strengthen its organizational culture, helping leaders understand the importance of diversity and develop strategies to foster an inclusive workplace.[16]

Additionally, the Arizona Department of Economic Security implemented a comprehensive leadership development program that includes elements of inclusive leadership, resulting in significant improvements in leader behaviors, engagement, performance, and retention.[17] These examples demonstrate that organizations across various industries recognize the value of inclusive leadership training in creating more diverse, equitable, and inclusive workplaces.

CULTURE OF CONTINUOUS LEARNING

Several companies have successfully adopted and implemented a culture of continuous learning, reaping significant benefits in employee engagement, innovation, and overall performance. Amazon has made continuous learning a core part of its culture through initiatives like their Career Choice Program. In this program the company pre-pays 95% of tuition for employees to take courses in high-demand fields, even if the skills are not relevant to a career at Amazon. Another initiative is the Amazon Technical Academy, an internal upskilling program that helps employees from diverse backgrounds transition into software engineering careers.

Google is well-known for its learning-centric culture. The company has a "20% Time" policy through which employees are encouraged to spend 20% of their work time on projects that interest them, fostering innovation and continuous learning. Google also offers a wide range of internal training programs, from technical skills to leadership development. AT&T has made significant investments in employee learning, their "Future Ready Initiative" is a $1 billion program aimed at reskilling and upskilling its workforce to meet future technological demands. The AT&T University is an internal training program which offers courses on various topics, from technical skills to soft skills. Pixar has built a strong culture of learning and creativity. the Pixar University is an in-house professional development program which offers courses in various subjects, from filmmaking to art and creativity. Their Brain Trust initiative is a peer feedback system that encourages continuous improvement and

learning through open critique sessions. IBM has embraced continuous learning as a key strategy, their digital learning platform provides employees with access to thousands of online courses and learning resources. The company uses artificial intelligence to suggest personalized learning paths for employees based on their roles and career goals. Salesforce has integrated learning into its core culture through programs such as Trailhead, a gamified online learning platform that offers free courses on Salesforce products and various business skills. Another program is Futureforce, which provides internships and early-career opportunities, focusing on continuous learning and development.[18]

These companies have demonstrated that investing in a culture of continuous learning can lead to increased innovation, improved employee retention, and better overall performance. By providing diverse learning opportunities and integrating learning into their daily operations, they have created environments where employees are encouraged to grow and adapt continuously.

CONCLUSION

The rapid technological evolution in areas like generative AI, virtual worlds, and neurotechnology signals a transformative era in global work culture, challenging traditional approaches to organizational strategy. In response, an inclusive culture that prioritizes continuous learning, personal growth, and equitable treatment is more critical than ever. By embedding inclusive practices into learning and development frameworks, organizations can bridge gaps in diversity and foster lifelong learning environments that not only accommodate but celebrate differences. Such environments contribute to innovation, employee retention, and resilience against future uncertainties. Moving forward, organizations must embrace adaptive, people-centric strategies that prepare their workforce to navigate and thrive in the complexities of the modern workplace.

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STUPOR ITINERIS. TRAVEL AS LEARNING

Author:
DOMENICO ANTONIO BARBUTO

Affiliation:
UNIVERSITÀ DEGLI STUDI DELLA CALABRIA, ITALY

INTRODUCTION

In contemporary society, cultural diversity has become an increasingly evident and omnipresent characteristic. Migrations, trade exchanges, and modern technologies have made the world more interconnected than ever, leading to a rise in encounters between individuals from different cultures. However, while this phenomenon offers numerous opportunities for growth and cultural exchange, it also presents significant challenges related to mutual understanding and respect for differences.[1]

In this context, intercultural encounters become crucial for promoting harmonious and constructive coexistence among people of diverse origins. Such encounters go beyond mere physical contact, requiring open-mindedness and active attention towards the experiences, perspectives, and values of others. Through these encounters, individuals are invited to discover and appreciate differences, share similarities, and build bridges toward mutual understanding.[2]

Here, travel assumes a central role. Travel, viewed through the lens of slow tourism, offers a unique opportunity to directly experience cultural diversity by immersing oneself in the traditions, habits, and daily practices of the visited communities. During travel, individuals have the chance to overcome cultural and linguistic barriers, confront their preconceptions, and broaden their worldview.[3]

However, for travel to truly fulfill its role in educating encounters, a conscious and responsible approach is necessary. This entails respecting local traditions, being aware of the environmental and social impact of one's travel, and maintaining relationships of equality and mutual benefit with host communities.

Historically, travel has been considered a formative experience. Consider the initiatory journey as a pivotal moment of growth and transition, marking a shift from one status to another. Similarly, the Grand Tour, a formative journey popular among young European aristocrats since the 17th centuryr was designed to refine their knowledge and broaden their horizons.

Another example can be found in the common folk traditions of many cultures worldwide: that of fairy tale narratives. The journey in fairy tales represents a departure from the usual, familiar, and reassuring, a transition that has a therapeutic and formative effect on the hero, who emerges more skilled and mature. Informal education par excellence, the journey in this sense, whether short or long, plays a decisive role in the array of formative contributions each of us receives from everyday life experiences. Therefore, this sort of widespread and peripatetic learning does not occur solely through organized processes in formalized settings but rather throughout existence and, in most cases, without the subject's awareness.

In this brief reflection, we will explore, with the assistance of some case studies, how travel can be used as an educational opportunity to promote greater intercultural encounters and understanding, as

well as mutual respect. A formative, educational, and transformative experience. We will analyze the benefits and challenges of this approach and seek to identify practical strategies to maximize the traveler's experience as a moment of personal growth and human connection.

Travel as Exploration of Cultural Diversity

Every journey is a departure into a new world, yet simultaneously an arrival. This duality defines the essence of travel—it is irreversibly transformative. It is no wonder, then, that travel has often been viewed as a metaphor for the entirety of the human experience. Throughout their journey, travelers find continual parallels to their own lives. Thus, this type of experience transcends its immediate purpose, instigating a lasting and profound change within the individual that endures even upon their return.

In all its forms, travel possesses an inherent educational quality, enlightening individuals to the essential aspects of life—dialogue, exchange, and the embrace of diversity. It catalyzes profound inner shifts, serving as a conduit for change by altering the very fabric of a traveler's identity and connecting them deeply to the other, to the unfamiliar.

Encounters are an integral part of any journey, demanding that travelers relinquish their center and embrace the other with openness and receptivity. The space of encounter is, first and foremost, a mental landscape—a realm of ideas and perceptions. Yet, it also manifests physically, as a shared space for dialogue and mutual understanding among individuals, ethnicities, and nations. This space, rich with tensions and contradictions, emerges from the disorientation and uncertainties born from encounters with otherness. It gives rise to identity crises, calls for deconstruction, and remains forever in a state of construction.

The evolution of travel forms closely mirrors the historical epochs in which they arise. Travel narratives, passed down through myths and fairy tales, have woven themselves into the very fabric of cultural traditions since ancient times.

Extensive ethnological and anthropological research, alongside related disciplines, has illuminated the enduring significance of myth within human thought.

Moreover, on an educational plane, myth carries a profound teleological significance—it perceives reality as an intricately organized system governed by mechanistic order. Jung's distinction between the presumed "archetype in itself" and the myriad archetypal contents—representations, images, symbolic elements, mythical and ritualistic elements—present across diverse cultures underscores this notion.[4]

Thus, the narrative gesture emerges as a potent formative tool, revealing the profound nuances of lived experiences while simultaneously fostering self-recognition and identity awareness. Each personal testimony, in turn, serves as a locus where boundaries are transcended, and intercultural dialogues blossom—forging an open and respectful exchange among individuals of diverse linguistic, cultural, ethnic, and religious backgrounds.

Finally, the significance of encountering the other, within the dynamic fabric of travel, emerges as both a catalyst and an opportunity for self-comparison. It serves as a vehicle for growth and a profound awakening to one's unique essence and inherent value.

These three dimensions allow for the nuanced exploration of every hypothetical testimony, presenting it as an educational opportunity. Yet, this exploration acknowledges the inherent subjectivity entwined with interpretative and categorizing dimensions, inherent to human experience.

Travel thus emerges as a conduit of communication between peoples and a transformative experience enriching the individual. It embodies diverse perspectives, yet for each traveler, it unfolds as an educational odyssey through life's tapestry—imbuing significant inner transformations. Travel is a

departure from many facets that define civilization—origins, accolades, institutionalized relationships, attachments, and the constructs of self and identity.[5]

In the historical context of accelerated multiculturalism, contemporary individuals glimpse positively potential modes of life—truly "new" ones, not shaped by prior historical paradigms. They appear, as genuine "novelties" often do, occasionally extreme or seemingly impossible to integrate into one's life.

Across its myriad forms, travel embodies an anthropological journey—an essential human experience unveiling the depths of self and the richness of others. Reflecting on the theme of travel offers an opportunity to ponder an experience, a practice, a lived reality deeply woven into the fabric of human existence.

The landscape as an embodied path of learning

Background

With its 192 thousand hectares, the Pollino National Park is the largest protected area in Italy.

It extends between the south of Basilicata and the north of Calabria and includes the Pollino mountain group, the highest in the Southern Apennines. The Lucanian side of the Park is divided into four main valleys: the Mercure Valley, the Frido Valley, the Sarmento Valley and the Sinni Valley. The Raganello Valley and the Coscile Valley belong to the Calabrian territory. The Park offers a multitude of enchanting landscapes, with large uncontaminated areas that differ depending on the altitude.

The Park is recommended for those who love trekking and hiking, for those who love direct contact with the most uncontaminated and wild nature, for those who love mountaineering and rafting, for lovers of the most extreme canyoning and for all those who want to discover a solitary and silent territory broken only by the wind breaking through the leaves of the trees, or to taste flavors and sensations that have now been forgotten.

Movement isn't just about leaving one place behind and arriving at another. On the contrary, places accompany travelers in tangible forms such as cultural habits, inclinations, and memories.[6] (Howard, 2015). Even cosmopolitan bodies carry traces of home through objects and artifacts that travelers bring along. Thus, garments, backpacks, books, gifts, and more enable places to connect with one another.

This encounter and the subjectivity involved when a tourist experiences a territory generate a sort of reflected image. This isn't just about the subjective interpretation of a place, as Malvica argues, but it triggers an active mechanism. It involves embodying all elements of the landscape itself—material, immaterial, living, and non-living—that interact with the visitor. This subjective landscape, in turn, plays an active role in the enactment of cognitive and repeated processes.[7]

This phenomenon also manifests in interactions with fellow travelers and through global chains of goods. Globally mobile individuals, with their "inter-placed" lives, transcend the boundaries indicated by their privileged social positions, revealing a heterogeneous distribution of (im-)mobilities.[8]

Methodological approach

The overall research aimed to explore the intersections between tourism, mountain trekking, and lifestyle mobility in the context of Calabria's Pollino National Park.

Semi-structured interviews, from which only a few excerpts are presented here, were primarily conducted in conversational mode along hiking trails and predominantly at refreshment points. Within this "open journey" (note: this definition was provided by one of the interviewees), where the concept of mobility was characterized not only by physical bodily dimensions but also virtual ones (social media, in general), hikers and travelers were guided by specific objectives and ideals within a single journey.

The three central motivations identified within these interview dialogues were: (1) the pursuit of an almost mystical idea of natural landscapes; (2) seeking cultural and authentic experiences; and (3) viewing trekking as an embodiment of environmental sustainability. There is often an overlap between these aspects, and most interviewees, many from extranational contexts, stated that although they chose places outside of social media, these platforms still played a significant role in shaping their images, expectations, and perceptions. The overlap of virtual, imaginary, and bodily mobilities became a focal point of the research, extending the ethnographic field beyond local contexts.

Findings

The fact that many travelers carried smartphones, tablets, action cams, and other digital gadgets demonstrates that information and communication technologies have become intrinsic to contemporary tourism. The diffusion or "spillover" of mobile technologies, what Elliott and Urry termed "miniaturized mobility" to describe the proliferation and impact of increasingly compact and sophisticated digital devices,[9] has now permeated multiple life domains, including tourism and leisure contexts.

While this technology increasingly opens up mobility possibilities and reinforces them, it reshapes social contexts and the experience of places. By enabling the continuity of daily life while "on the move," new technologies can detach travelers from the physical place and embodied experience of travel.

Mobile technologies have become deeply intertwined with travelers' experiences of places. Smartphones, tablets, laptops, and Wi-Fi hotspots have been incorporated into rhythms and daily routines. Free Wi-Fi is a key factor in deciding where to stay, and searching for internet connections is an integral part of tourists' routes and daily routines. The use of mobile media was more frequent, though not exclusive, during breaks along the trails. However, in some cases, the connection became unstable, if not entirely absent, due to associated tensions. Incorporating excursions and visits required necessary and inevitable empathic transmission, albeit virtual and real-time, to those unable to be there in person.

"It's a shame there's no network; it would have been nice to use Facetime. I would have shown him live what he missed. It won't be the same thing tonight." - *Giada, 35 years old, Varazze, Italy*

"What can I say? I am convinced that we should 'disconnect' periodically. A technological 'intermittent fasting.' When I go trekking, I detach myself, thanks also to the landscape around me. But if at the end of the day, I can't send pictures, post something on Instagram, or simply feel 'isolated' from the rest of the world, I won't deny that I get a bit angry and uncomfortable." - *Carlo, 25 years old, Faenza, Italy*

This sort of technological unconsciousness in cases of 'world interruption' instills fear and anxiety since traveling in a digitally framed world means, consciously, that one is always able to be contacted and, above all, to contact others even in 'technologically dead zones.' The smartphone makes us free to wander geographically, and the 'always-on' function means that we are seemingly always available.

"If I don't connect for more than a week, I start to worry in the back of my mind. I am aware of the madness, but I can't help it." - *Mauro, 23 years old, Rome, Italy*

This implies that in our digitized era, where network technologies are increasingly intertwined with embodied subjectivities, the possibility of living outside of media is diminishing. Perhaps there is no longer any place that is truly and genuinely "out there," away from everything, even in the barren and fascinating mountain landscapes of the Pollino massif. The challenge and key to addressing today's media involves an environmental approach, where humans cannot be separated from socio-technological systems and the material environments they inhabit.

Stupor itineris: Flânerie

Another emblematic aspect arises from our existence within a global society of insatiable travelers, where travel has transitioned from an extraordinary experience to an ordinary "routine": "travel has become commonplace, the tourist the standard, and the world a poster on the wall that can be consumed at the price of a ticket".[10]

The mandate is clear: travel. How or where scarcely matters, only that it is done. Inevitably, we find ourselves as globe-trotters storming airports, train stations, and highways, seeking escape from the everyday alienation that grips us. To compound this, the recent pandemic crisis, forcing us to significantly downsize our expectations of "extraordinary" escapes for two long years, has further pressed this 'need', even categorizing it among the psychopathologies of emotional stress.

We consume these experiences with the same rapidity as a meal during a working lunch break. The outcome: having eaten, yet with the melancholy awareness of not truly having savored, relished, or worse, adequately digested. All to the chagrin of industry professionals.

The loss of the essence of travel, the metamorphosis of the world and its places into increasingly impersonal spaces, the advent of technology, and the depreciation of travel's fundamental traits find embodiment in a modern traveler archetype: the tourist. This breed of traveler has wholly overturned the meaning of the journey. Their perpetual struggle against dead time and emptiness, their anxiety for control, the ceaseless and pervasive virtual tether to their home locale, all transform them into serial consumers of locales, devourers of pre-packaged experiences, and, in many respects, experiences already virtually lived. A voyage that swiftly evolves from the extraordinary into a mundane routine.

Augè reminds us that a tourist's joy is directly proportional to the extent to which their planned expectations are met, overshadowing that sense of awe, the essence of the unexpected, of discovery, the imagined, the unforeseen, the hallmarks of true travel.[11]

The genuine traveler, distinct from the mere tourist, emerges as a curious seeker of authentic glimpses, of stories both told and waiting to unfold. In essence, a Baudelairian flâneur, a wanderer who travels "strolling", aimlessly, without a destination, to lose themselves in the locales they chance upon. As the French poet intimates in one of his renowned works, *Les Fleurs du Mal*, this traveler immerses themselves in a context, marvels, yet maintains a necessary distance to narrate the tale.[12]

The concept of the flâneur, initially articulated in 19th-century French literature and subsequently theorized by scholars such as Walter Benjamin, has long captivated the imagination of urban explorers and cultural theorists. The flâneur is characterized as a detached observer of the cityscape, a figure wandering the streets with carefree curiosity, finely attuned to the rhythms and nuances of urban life. This definition resonates aptly with the figure of the anthropologist, the artisan of travels and worldviews nurtured by a spirit of curiosity, marveling, holding justified expectations from a professional ethos, yet also allowing events to unfold. In recent years, scholars in the social sciences have turned their gaze to the flâneur as a lens through which to study the complexities of contemporary urban landscapes, delving into themes of cultural diversity, social inequality, identity formation, and, notably, the rediscovery of travel intertwined with slowness and observation of the social fabric of visited places.

The world still exists in its diversity. Yet this has little to do with the illusory kaleidoscope of tourism. Perhaps one of our most pressing tasks is to relearn how to travel, perhaps in our own surroundings, to relearn how to see.[13]

"The essence of travel is never about distance, scale, or exoticism. The distant, solitary destination does not inherently render travel more authentic. [...] The novelty and diversity of a destination can undoubtedly aid and predispose one to the experience of travel, yet one can return disappointed from extensive journeys to distant lands, just as one can return enthralled from a simple day trip, discovering a hitherto overlooked art treasure, or from the time finally taken for a conversation"[14]

The modern traveler, thus, akin to a contemporary flâneur, not necessarily traversing distant, exotic realms, but immersing themselves in close, participatory observations, for here lies the secret of genuine discovery.

Methodological approach

Within this framework, an ethnographic experience undertaken by the author and select students along the streets, neighborhoods, and outskirts of Cosenza, a Calabrian city in Southern Italy, assumes significance. The fieldwork, briefly outlined, unfolded over six months in 2021, within a diverse urban landscape, focusing on neighborhoods characterized by distinct socioeconomic and cultural demographics. The group's observations, supplemented by archival research, reflective diaries, and informal interviews with city denizens, facilitated a multidimensional exploration of the urban fabric and the lives of its inhabitants. Through the lens of the flaneuse, precisely, we aimed to decipher the complexities of the urban weave and the social dynamics. These observations, analyzed within the academic framework, unveiled a tapestry of spatial segregation and gentrification, underscoring how certain neighborhoods exude affluence and exclusivity, while others languish on the margins, devoid of resources.

Engaging with residents of these neighborhoods provided a unique vista into the intricacies of daily experiences and the coping mechanisms embraced by communities in urban transformations. Conversations with shoppers, street vendors, and community organizers unveiled the myriad facets of urban life and the resilience strategies adopted by marginalized groups. These interactions facilitated a richer understanding of the social and cultural dynamics shaping the cityscape, emphasizing the necessity of contextualizing observations within the theoretical constructs of urban anthropology. Moreover, the fieldwork rekindled the pleasure of cultural and educational meanderings through the urban expanse, from the monumental, storied historic center to the neglected outskirts, contributing to a rekindled awe of the journey far from the typical tourist "hit-and-run" paradigm.

Findings

Beyond contemplating the observed strategies of resistance and resilience within urban communities, which offered poignant insights for pondering collective action and societal metamorphosis, the outcomes also spotlighted the efficacy of a well-structured strategy in enhancing the management and tourist experience of the locale in question. The findings aimed to enrich the understanding of responsible, sustainable tourism, offering fresh perspectives on the intricate interplay between tourism, culture, and urban evolution in modern cities.

It is not merely about rediscovering travel to exotic, far-flung realms, those landscapes where we seek the extraordinary, a sense of life, or our lost home, but about rediscovering travel in "our" places, our city, reclaiming that "nearby" elsewhere, that wonder of the "known" which, in turn, emerges as an unexpected rediscovery.

Thus, flânerie could signify a novel, ever-renewed experience tethered to the quest for a beauty—the beauty of the everyday "unknown"—resurging forcefully through that rekindled awe of the journey undertaken by a sentient body.

"We also require spaces for the body. Spaces where bodies are seen, meet, interact, like the people in Paris leaving the office to swim in the Seine, or in Zurich, where, during lunch breaks, they swim in the lake or skate. This accentuates the relationship between the body and the daily life of the city, bringing our physical selves into the city".[15]

CONCLUSION

Ultimately, travel, beyond its symbolic, mythical, and archetypal functions, stands as one of the most effective forms of education toward knowledge. Knowledge of oneself, of others, and of the world. This knowledge, unlike cognitive understanding, is primarily and fundamentally performative because it transforms our perspective of things.

Becoming a flâneur, a wanderer and observer, travel allows for self-development, expansion, growth in a spontaneous, mature, and open manner. Yet it also shapes the new, the different, the very value of alterity, which needs to be understood and safeguarded. Certainly, in the era of simple travel as displacement, the homogenization of cities, places, landscapes, and the predominantly "managerial" organization of travel, that cognitive and ethical tension of travel tends to dissolve. In contrast, traveling "slowly," getting lost in places, delving into the lived experiences of the populace, undoubtedly carries a higher degree of risk, but it is protected by its evident formative, integrative, and inclusive nature.

Moreover, it is necessary to extract travel from the frenzy of the "distant." Travel allows for encounters and comparisons with alterity even in the "nearby." Visiting landscapes, villages, small and not-so-small towns, secondary and more specialized museums, more anthropological than aesthetic, entering them with the tranquility of allowing oneself to be amazed and surprised by a different experience that expands and enhances.

Another rather complex and critical aspect is connected to the hyper-mediatization of the contemporary world and society as a whole. It is widely known how virtual, imaginary travels, linked to the media, are also a risky experience, increasingly anchoring themselves to an illusory paradigm, at the expense of the real and the relative physicality of encounters, which, paradoxically, while enriching us on one hand, on the other, "loses" us.

Despite everything, today we can and must, in our view, also embrace the very latest technologies, ensuring, however, that they are at our service and not the other way around.

All of this highlights, on one hand, the entry into a "post" society, even concerning travel, and on the other, the possibility of elaborating on the memory of traveling, investigating its functions and forms. In other words, implementing a sort of pedagogy of travel, which through methods, routes, and behaviors, allows us to reaffirm it. Only in this way does travel become a moment and metaphor of formation, its instrument and model. To be studied, investigated, even diachronically, to bring forth, precisely, the meaning of travel.

In an increasingly divided world, education through travel can be a powerful catalyst for a more inclusive, tolerant, and supportive future.

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REIMAGINING LATINA: AN INTENSIVE SUMMER SCHOOL TO IMAGINE SUSTAINABLE URBAN FUTURES, OVERCOMING SOCIETAL BIASES AND BRIDGING PAST WITH PRESENT, IN COLLABORATION WITH NON-ACADEMIC STAKEHOLDERS AND THE LOCAL COMMUNITY

Author:
LUIGI PINTACUDA, THOMAS TRAIL

Affiliation:
UNIVERSITY OF HERTFORDSHIRE, UK

INTRODUCTION

Reimagining Latina is a five-day summer school project that is part of the broader commitment by the University of Hertfordshire (UH) and the Arch+ research group to collaborate with non-academic partners in addressing real-world issues and designing potential sustainable scenarios. The project is funded by the UKRI (UK Research and Innovation) AHRC (Arts and Humanities Research Council) through the Harmonised Impact Funding, a fund intended to promote collaboration between academia and non-academic partners to generate tangible societal impacts.

The partnership with Casa dell'Architettura (CdA) di Latina emerged after several meetings involving Luigi Pintacuda (Head of Architecture at UH), Pietro Cefaly (Director of CdA), and Marco Cappelletti (Architect and CdA collaborator). These discussions focused on envisioning the future for the city of Latina and the garden cities in Hertfordshire. Despite their contrasting urban cultures, these two experiences share several commonalities: both were designed in the early 20th century, aimed to address the relationship between urban and rural areas, and are situated at commuting distances from their respective capitals (Rome and London).

The current state of these areas served as a basis for reflecting on their evolution and the gradual loss of their original concepts. They have expanded without planning that takes into consideration their foundational principles and now seek new identities. The challenge was to "identify possible future developments of the contemporary city: a strategic framework onto which questions, development hypotheses, and projects can be superimposed".[1] Here, the UH Arch+ played a crucial role in partnering with CdA as it is noted that for Universities the collaboration with non-academic organisations (national and international) is key to making progress in the Sustainable Development Goals, fostering community engagement and aligning with local and global.[2] Both institutions are committed to urban studies and strive to create impactful sustainable scenarios and influence governance decisions through a design processes involving all stakeholders.

From an educational perspective, this experience was invaluable for the students who travelled from the UK. It exposed them to an unfamiliar environment. Being free from preconceived notions was particularly beneficial in overcoming the typical bias associated with the city of Latina, which was founded by the Fascists and thus has a politically charged connotation that affects decision-making, dialogue, and the development of potential solutions. Understanding the past without any bias is crucial to avoiding stagnation and enabling the imagination of a different future for the city. UH students helped the citizens of Latina realize that, as Pietro Cefaly noted in an interview, "to look at this city stuck inside, I needed to change my perspective. These projects have brought life to places that didn't have any".[3]

This educational model aims to integrate design, culture, and innovation into urban-scale design processes. By exploring diverse cultural perspectives and engaging with environments beyond the University context – where the pursuit of high grades often overshadows experimentation – this experience challenged students' understanding of the discipline. It encouraged them to appreciate different worldviews, develop empathy, and recognise the interconnected nature of global challenges, thus fostering their development as active and responsible global citizens.[4] The creative freedom within this process transformed the intensity of their work into innovative solutions that they had not anticipated at the start of the week.

Latina: a case study

Latina is a planned city designed by Oriolo Frezzotti in 1932 under the commission of the Fascist regime. It was part of the broader Agro Pontino reclamation project, where marshlands were converted into cultivable land. The attempt to reclaim these marshlands began in the second century BCE by Roman engineers, with the most successful effort before the 1920s occurring in the late eighteenth century under the aegis of Pope Pius VI. Before Prampolini, who led the works in the 1920s, the project failed to conduct large-scale drainage encompassing the entire area. This region underwent significant changes mainly between 1931 and 1941, transitioning from marshes and thick brush to organized fields, canals, and settlements.[5] The reclamation initiative was not only utilitarian but also carried symbolic significance, representing progress, development, and the advancement of civilization during the Fascist regime. A careful analysis of the Fascist intervention is crucial in understanding their misconception of the Agro Pontino. In continuity of a history of failed reclamation attempts, the Fascists regarded the area as an empty one. In particular, Gruppuso highlights how the etymology of the Italian word 'laguna' (marshland) comes from the Latin word 'lacuna,' which means gap or interruption. Gruppuso emphasizes that the Pontine plain was not a lacuna, but the historical product of water management by local populations over centuries.[6] Any analysis, project, or intervention in this area must start from this awareness.

Many planned cities and places built by regimes, regardless of their political orientation, share similarities in their purpose and execution. The most notable example is the Potemkin villages of 18th-century Russia, constructed along the banks of the Dnieper River to create a fleeting impression of a flourishing economy for Catherine the Great and other passing dignitaries.[7] Similarly, Latina can be considered a Potemkin city, designed to demonstrate power, efficiency, and modernity through one of the strongest propaganda tools: the urban environment. This approach, focused on establishing a clear and strong image, aligns with what Lynch[8] refers to as "imageability," or "the quality which gives a physical object a high probability of evoking a strong image in every observer".[9]

Figure 1. The current city of Latina and the two selected sites.

The layout of Latina can be interpreted as an oversized Panopticon, characterized by a radial design that originates from an arbitrary central point in the Agro Pontino. This design blurs the boundaries between the city and the surrounding countryside, an anti-urban concept of the city, promoted by Piccinato's 1929 ideas, suggested that dispersed regional planning could address the problems of oversaturated cities and allow people to live in the countryside.[10] However, such an extensive urban design, built without considering its future inhabitants and on an excessively ambitious scale, inevitably introduced flaws. This rapid process left behind fragments and parts of a city more complex than initially apparent, which warrants careful analysis.[11] Amid these fragments, we still perceive the scars generated by the impact of such process. As Lebbeus Woods[12] observed analyzing layered cities, "The scar is a mark of pride, and of honor, both for what has been lost and what has been gained (…) a mutant tissue, the precursor of unpredictable regenerations." Moreover, Woods emphasized that "Acceptance of the scar is an acceptance of existence." This perspective allows us to shift our focus from the consolidated urban areas, remarkable buildings and defined public spaces of Latina to its unfinished parts. Understanding these incomplete elements is crucial for designing future scenarios for Latina, as it enables us to layer the original city plan with considerations of the broader historical context and recent developments. This approach views urban history as "an interlocutory material that raises unresolved or open questions for those who must continue to design the urban environment".[13]

Nowadays, the challenges posed by Latina differ significantly from the original drivers behind its conception. Initially planned for 15,000 inhabitants, the city's current population exceeds 120,000, resulting in an urban footprint characterized more by sprawl than by a consolidation around the original centre. Where land remains undeveloped, marshlands reemerge, creating conflicts with the built environment. The notion of combating the marshlands is no longer viable; instead, it is evident that marshlands should be viewed as "raw material to be transformed into culture (…) the built landscape".[14] Our role as humans and designers should be that of observers. A variety of actions are

necessary to ensure that marshlands remain wet and fluid, facilitating ecological succession, known in wetland ecology as hydrosere – the transitional process that transforms wetlands into shrubby fields and eventually into woodlands.[15] While the approach to landscaping should be more attuned to the marshland environment, the approach to the consolidated city should reflect, and perhaps challenge, the original concept of Latina. The rigid grid of streets and buildings should evolve towards a more fluid public realm, incorporating nature-based solutions and informal public spaces through a bottom-up approach. This would enhance livability, improve physical and mental health, foster community engagement, and create adaptable public spaces.[16]

The idea of addressing and reimagining these scenarios involved developing comprehensive sustainable design proposals for the 21st century. This effort, undertaken during a summer school, aimed to enhance communication by making the proposals more accessible to the general public and stakeholders. Additionally, the goal was to create a "physical and visible representation" of a process that might otherwise be "unintelligible".[17]

DESIGN PROPOSALS AND SCENARIOS

The two sites chosen for the students to develop their design proposals were selected based on theoretical and speculative reflections on contemporary Latina. Both areas embody elements of Latina's DNA. One is an unfinished area, landlocked by roads (hard accessibility) with limited soft accessibility options for pedestrian users, where the marshland, reminiscent of the Agro Pontino before settlement, reappears and needs to be integrated with the contemporary urban fabric and uses. The other is an established urban axis, Viale Mazzini, that connects the Court to the main square, a clear manifestation of Frazzotti's concept. Viale Mazzini, originally designed for cars, is an empty space that could now be repurposed as a place for people. The design proposals were conceived as radical responses to the limitations of each specific area, aiming to initiate critical consideration and debates among the administration, the community, and various stakeholders about the possibilities within the development and growth of Latina.

Viale Mazzini: A Figurative Reclamation of the Marshes

The design proposal draws direct inspiration from the site conditions and the "feeling" it generates, given the original design intent of imposing power through urban design as an instrument used by the Fascist regime methodology.[18]

Figure 2. and 3. Axonometric view of the Viale Mazzini proposal and a view towards the Court building.

The project proposal is to turn the original design intent for Viale Mazzini "upside down", creating an area, and a series of spaces and events, that generate a sense of belonging, community, and liberation, rather than a sense of dictatorial oppression. The proposal calls for a figurative (metaphorical) reclamation of the marshes – calling for the reclamation of nature through the consideration of urban conviviality and urban programming as catalysts for developing and improving the lived experience of Viale Mazzini. The main concerns the design proposal attempts to address can be summarized as: Opposing the imposing nature of the existing Fascist dictatorial urban/architectural language; Considering the missing "human" element and "sense of place"; Addressing the indifferent dominance and importance of the vehicle over the pedestrian experience; Replacing (inserting) the missing link between the programmatic placement of space and related urban function.

Through the identification of the main concerns, the project directly intends to defy and contest the very nature of the existing architecture and urban design through the introduction of enigmatic, and organic, urban structures along the avenue. The design proposes the insertion of a completely new pedestrianized landscape, identifying a series of three different zones – Residential, Educational and Social Mediation. These identified sections have been established by studying and understanding the programmatic organization of the buildings along the avenue. The three zones are connected through a densely populated landscape of greenery and vegetation, which along with the insertion of the new organic circulation allows for events to take place that are specific to each particular section (zone). The proposed landscape is further manipulated to allow for the existing north-south vehicular connections to remain.

Perhaps some comparison can be drawn to the plan initiated by the Paris mayor Anne Hidalgo in 2019, whose goal was to make 50 per cent of the city's surface permeated and covered in vegetation by 2030.[19] Part of this proposal was the new "urban forest" that has recently been completed at Place de Catalogne near the Gare Montparnasse railway station, which shows the complete transformation through reconsidering the existing vehicular routes, and introducing substantial greenery within the previously austere, empty hard landscape that lacked a sense of place.

Figure 4. and 5. Viale Mazzini: Current state and a view of the proposed project.

The insertion of this new green strip in Latina would celebrate the possibility of reconnecting the city with a space that can allow for different levels of public engagement and activity, providing a platform for continuously changing events to be played out. The design proposal envisions an area that celebrates human lived experience, offering a place where couples can daydream, parents can stroll with pushchairs, kids can skateboard after school, local farmers can sell their produce, and inhabitants can feel liberated.

Urban Marshlands: Memory of the Landscape

The concept 'Memory of the landscape' considers how the environment contains the memories of history and culture from events, human interactions and site evolution. This is ingrained into Latina's landscape both in natural form (through the history of the wetlands) and man-made (the Torre Potina high-rise building). The project proposal for the 'Memory of the landscape' within Latina was broken down into 3 key themes: urban intervention, landscape intervention and public intervention which allows for a layered, holistic development strategy that first understands, then enhances, and finally activates the site in a manner that will be ecologically responsible, aesthetically pleasing, and socially engaging.
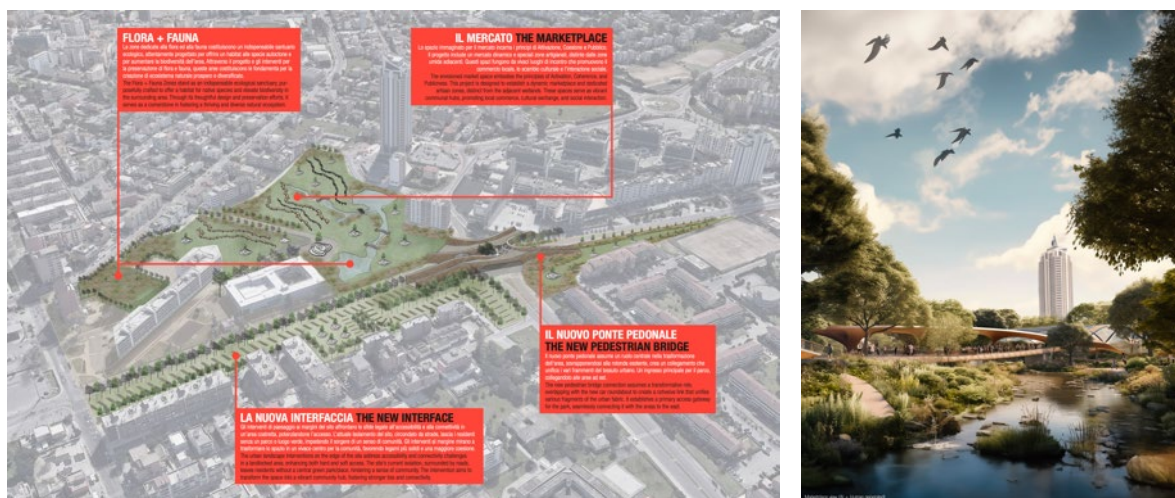
Figure 6 and 7. Axonometric view of the Urban Marshlands proposal and a view towards the Torre Pontina

Urban Intervention: Conclusions on the existing accessibility and connectivity were that the site is landlocked by roads (hard accessibility) with limited soft accessibility options for pedestrian users, therefore making it feel both isolated and disconnected at the same time. Coherence of the site was considered low even though amenities are relatively accessible, the area lacks a community hub, leaving residents without a central gathering place to foster a sense of belonging.

Landscape Intervention: Leveraging the ideas of "Resilience", "Stability" and "Sensibility", the landscape intervention will revitalize the wetland area, ensuring its ecological integrity while making it adaptable and relevant to the current community needs. The aim was to utilize one of Latina's most expansive green spaces, contributing to the city's overall urban ecology and providing essential recreational opportunities.

Public Intervention: Utilizing principles of "Activation", "Coherence" and "Publicness", and considering the importance of "participatory" design practice as put forward in Participatory design practice, event(s) and the activation of public space,[20] the project's aim was to create a dynamic marketplace and artisan zones separate from the wetlands, serving as vibrant communal hubs, promoting local commerce, cultural exchange, and social interaction.

Figure 8 and 9. Design strategies for Urban Marshlands.

Based on the study and consideration of the three themes, the proposal is to create several different zones on the site that integrate the site's landscape and focal points to Latina. The first is an ecological sanctuary - "Flora + Fauna"- a zone that will provide a vital habitat for native species to flourish and which will enhance the biodiversity of the area. The second zone will see the establishment of a Landscape Community Park, which is envisaged as a vibrant green space that will foster social interaction and which will offer a variety of recreational activities for residents of all ages. This will also offer a unique opportunity for visitors to explore diverse ecosystems, encounter local wildlife, and learn about the importance of wetlands for environmental sustainability. A large area towards the eastern side of the site will be transformed into a marketplace, with a strong sense and focus on placemaking, it will be more than just a place to buy and sell goods; it will become a community hub where people gather, interact, and strengthen neighborhood ties. The fourth zone will see the creation of a series of new pedestrian bridge connections which will take on a transformative role, overlapping with the new car roundabout to create a cohesive link that unifies various fragments of the urban fabric. It will establish a primary access gateway for the park, seamlessly connecting it with the areas to the east of the site.

CONCLUSION OR THE WAY AHEAD

The outcomes of the summer school have generated significant interest within the local community and among various stakeholders. The council, particularly through the Councilor for Planning and Territorial Development Policies, has expressed interest, noting how these explorations open potential scenarios for underutilized areas. It has become evident that universities possess unique resources and capabilities, providing expertise, informing policies, and promoting sustainable development.[21] In this context, "Reimagining Latina" is part of an initiative that links academia with non-academic partners to design sustainable scenarios in alignment with the United Nations' 17 Sustainable Development Goals. Specifically, SDG 11, which aims to "make cities and human settlements inclusive, safe, resilient, and sustainable," advocates for sustainable urban development worldwide.

The projects developed in our research on the future urban development of Latina took a radical approach, yet carefully considered and addressed the critical questions posed by the city, in direct alignment with the UN goals, while also being mindful of the city's significant historical development ideals. Their academic and open nature, tailored to meet the specific needs of the community, fostered debate and served not as definitive solutions but as potential foundations for future proposals, or perhaps as questions capable of informing policy.[22] This marks the first step in a broader collaboration

between UH and the City Council, as we are already working together to plan new summer schools aimed at defining other pieces of the complex puzzle that is the city of Latina. The goal is to extend this experience to similar urban environments in the UK, finding cross-solutions for different places in various countries. Lastly, from a pedagogical standpoint, this experience is invaluable for the students, allowing them to step beyond university boundaries, engage with real-world challenges, and grow as thoughtful designers and conscientious global citizens.

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ART FOR WELLBEING: PRACTICE ENGAGEMENT

Author:
REBEKAH DEAN, MELANIE WYNYARD

Affiliation:
STEPHENS HOUSE AND GARDENS, MUSEUM, LANDSCAPED GARDENS, UK

INTRODUCTION

During the last 15 years, wellbeing has become a key component within the UK Adult Community Learning sector and beyond, this has led to a growth in public demand for adult community teaching and learning in traditional creative disciplines.

This study explores how drawing combined with activity of walking, addresses wellbeing, through an adult community learning workshop. Fostering a hybrid of disciplines, taken from the fields of Fine Art, and Andragogy, the study explores how the activities of walking and drawing enable a teaching and learning environment which responds to site, using socially engaged practices, as methodologies for creating knowledge in the teaching and learning space.

The study will suggest that it is through an amalgamation of disciplines, that the workshop becomes a hybrid of adult community teaching and learning and a facilitation of wellbeing.

OBSERVATION

Consider the sound created by someone drawing. The sound of marking a 2D surface with graphite or charcoal, gently applying pressure against the tooth or grain of the paper, building up pattern, with marks and repetition, creating a rhythm of intent, stroking the paper's surface, forcefully making space, drawing out thinking, expressing experience. The relevance of my description is to suggest that in the moment of mark making, something intrinsic to care of self is happening; soothing, comforting and ameliorative.

WELLBEING

The 'Walking and Drawing' workshop is an adult community learning initiative, in a non-profit partnership with Stephens House and Gardens. This grade two listed mid-Victorian museum building is set back from a bustling, urban main street in London, and has a history dating back to the thirteenth century.[1] The workshop responds to this site using the traditional discipline of drawing, and the socially engaged practice of walking. It fosters a hybrid of disciplines, taken from the fields of Fine Art and Andragogy; to enable a teaching and learning environment which privileges the experiential as a methodology for building knowledge in the classroom, and enables wellbeing.

 The workshop evolves out of a project known as Art for Wellbeing, which I developed in 2018 as a series of courses for Barnet Southgate College in North London.[2] Art for Wellbeing builds on my work with the UK non-profit community mental health association, Mind-In-Enfield, where I had been a commissioned artist and tutor since 2008.[3] Mind is a UK national and regional non-profit

mental health organisation, who promote a set of five evidence-based objectives devised to improve wellbeing, and were developed by the think tank, the New Economics Foundation.[4] These evidence based objectives, which are, connect; be active; take notice; keep learning; give, were created on the back of a 2008 Government publication researching Mental Capital and Wellbeing, and are known as the Five Ways to Wellbeing. This research became a point of reference in which public awareness of wellbeing has been advanced throughout the UK over the last twenty years.[5]

DRAWING

During my ten-year commission with Mind-In-Enfield, and under the guise of the Five Ways to Wellbeing, I saw a growth in local public demand for learning in the traditional discipline of drawing. Why was this? Learners were not enrolling to improve their chances of becoming a professional artist, nor were they making plans to sell their artworks, they were enrolling because they wanted to enjoy a creative activity with other adult service users. Once embedded into the everyday, drawing becomes an embodied and experiential process. My thinking is that drawing becomes the work of the imagination, the drawing process pulls a narrative, through reflection it unfixes a set way of thinking. As I lay down marks upon a 2D surface, as I bring new marks into being with pencil, charcoal or any medium, I am taking my thinking and imagination a step outside the everyday reflective processes.

I believe that everyone can draw, all we need is to give ourselves permission to play, to dream, to pretend. As a performance and visual artist, these elements exist in my own creative practise and research, I am particularly interested in how the artmaking process becomes therapeutic without being or becoming art therapy, as an artist who makes work that discusses the body as site of representation, and who uses the body as a vehicle to explore the boundary between artist and audience, I am challenged by the idea of whether or not the artmaking process in terms of learning, becomes a kind of therapy. To respond to Mind-In-Enfield service user's call for learning in drawing skills, I devised a series of embodied drawing techniques aimed at improving their observational skills. Incorporating Mind's advocated objectives from the Five Ways to Wellbeing, learners experienced a progression not only in their drawing abilities, but also reported feelings of calmness, tranquillity, and a change in attention span. I remember one learner in particular commenting on how they felt that the drawing activities seemed to "take them outside of themselves".

Since the independent work with Mind in Enfield and Barnet Southgate College, against the backdrop of the world recovering from a pandemic, wellbeing has become a key component within the Creative Arts and the Adult Community Learning sector in the UK, with a national Creativity and Wellbeing week becoming a regular Calendar event.[6] Even within Higher Educational institutions such as the University of Glasgow and University of East London, academics have developed their own research and resources on the topic of wellbeing, funding projects such as *WalkCreate*, a research project developed during COVID, which works with communities to explore how creativity and walking improves wellbeing.[7]

WALKING

The 'Walking and Drawing' workshop at Stephens House and Gardens relates to my creative practice both as an artist, and a Curator. I curate the biennial Arts Council England funded Sculpture Trail, 'The Sky is Moving Sideways', which was developed during Covid. As the world started to emerge from the pandemic, the trail became a way of re-engaging artists and audiences in local culture. In the safety of an open-air sculpture trail which required viewers to walk outside in the fresh air, audiences could remain at a safe distance.

As a practitioner, I use the activity of walking as method for sustaining my creative practice, the act of putting one foot down in front of the other seems to embody a kind of line making in my mind, as I

walk forward, my line making leads me towards a possibility; the pattern and repetition of mark making is very similar to the action of walking, and a decision making exercise, with a clarity that is very different to the response to the plain of a canvas, or the surface of paper. Going for a walk helps me to think, and for me, walking is drawing, and drawing is walking.[8] My walking practice was developed out of a personal need to calm restless thinking. As a neurodivergent artist and thinker, I need time alone to observe and manage creative experiences; to become more attuned in my decision making, the activity of walking draws my attention, with each step that falls to meet the ground, thought catches in the internal landscape. In July 2016 I performed a spoken word *Walking as Reading and Memory* for the Walking Women event, Somerset House, London.[9] The piece performed the eighteen questions from the Adult ADHD Self-Report scale, using walking as a strategy for living and working with neurodiversity.[10] This was later published as a postcard book by the same name.[11] The title *Walking as Reading and Memory* comes from a quote in the book Wanderlust by the writer, journalist Rebecca Solnit.[12]

SITE

Being attached to a cultural centre dedicated to nature and the rural landscape is the backbone of the 'Walking and Drawing' workshop, particularly after COVID, there is a real need amongst adult learners to experience vision and hope, in company with each other, and as a socially engaged activity.

Whilst the workshop combines the activity of walking, and the discipline of drawing, as a method for creating knowledge in the workshop studio, it also uses cultural and environmental elements from the site of Stephens House and Gardens, to foster and build knowledge into the learning space. With a walk time around the gardens at a steady pace, taking no longer than 15 minutes, or 20 at a slower, wandering pace, the activity allows for a deep dwelling with nature. In a paper presented to the museum on Landscape and Heritage, it discussed the topic of 'Dwell Time' in relation to community engagement. The paper reflected on visitor feedback comments concerning the gardens, some saying that they found it improved their "mental health", others said that the gardens were important for wellbeing, and that it was a tranquil place to come and relax and be reflective. The paper's data also demonstrated that visitors who dwell or linger for two to four hours in the gardens, found it conducive to experiencing feelings of happiness.[13]

The 'Walking and Drawing' workshop extends within a timeframe of two and half hours, and the learner's engagement with the activity of walking the gardens, is critical to how the workshop unfolds in the learning space, both experientially, and as a socially engaged activity for creating knowledge. In a twenty-twenty-three learner workshop survey, respondents expressed their feelings about what they found satisfying with regards to the walking aspect of the workshop. Some said that it was reviving and exciting to find beautiful fallen leaves and organic objects from the gardens, whilst others found that being in silence with the calming effect of trees was satisfying. The survey findings support the 'Dwell Time' paper above, that to spend a considered and specific amount of time in nature is therapeutic and ameliorative for improving mood and providing time and space to think.

Walking and Drawing Workshop

The pattern and repetition of walking facilitates a deeply personal experience of connection with nature and each other, it prepares our thought life to enable pondering and thinking, against the backdrop of a different kind of landscape, and builds into who we are as human beings. This action of walking becomes a tool for establishing a compass point in the teaching and learning, and a preparation for opening the thought landscape of the group, facilitating critique and decision-making

skills back in the learning space. The workshop enables adult learners to engage and renew creative critical thinking skills, and share their thought life, through walking and developing drawing skills. The groups walk this heritage site together, as part of the learning. By facilitating activities that foster the adult learners' own lived experiences at the core of the teaching and learning, therapeutic relationships develop and grow, both with each other and with nature, these become the methodologies by which knowledge is created in the classroom.

The walking activity of the workshop creates an investment amongst the learners in relation to the site, it facilitates a group knowledge, which changes with each workshop, and the learner's lived experience. The workshop is not about achieving a high level in drawing skills, nor a product, it is purely about expanding learner's own observational skills, and building confidence into their personal way of seeing, it encourages them to express their experience of walking and drawing, using group discussion and individual critical skills in the workshop studio, at the end of each session. How does the workshop use drawing to become a socially engaged activity? Workshops always begin with the group stepping out into the landscape, in pairs, or all together, they walk to find something satisfying from the landscape to bring back and draw. Gathering objects is a socially engaged practice, it's not carried out in isolation, but a shared activity. Throughout all seasons, there will be unique and compelling objects to find in the landscape to draw. The venue's arboretum; the rockery; bog garden, and wooded areas, these are intimate green spaces, where learners can stop to collect fallen leaves; flower blossoms; twigs or stones. The activity of gathering objects from the landscape, becomes the first concrete learner experience of the session, and begins not only the learning in drawing, but also the building of learner relationships. In their situation of curiosity, of questions about what the workshop will entail, learners are sent out firstly with each other, to gather the materials needed, for the learning of observational drawing to take place. Out in the open air, and within the safety of the site, risk taking happens, as learners share the physical act of looking for earthly treasures together, and in the context of andragogy, they also gather each other. Considering the research by US Educationalist, David Kolb on experiential learning, the workshop progresses out of the learner's own anxiety and a desire to learn a new skill, it utilises adult learners' rich and broad lived experiences, applying the principles of experiential learning. Through the learner's own endeavour and being in a state of 'not knowing', against the backdrop of a site dedicated to nature, enables a shift and a revolution in learner thinking. As they transition from believing that they lack the skills to draw, to recognising that drawing is about process, and not about creating realistic, photographically composed outcomes. Through the concrete experience of looking for found objects from the gardens, the teaching and learning has already begun, and the gardens become a collaborative and reflective learning space. In this way the drawing begins a socially engaged activity, as learners start to scour the landscape for that special object to make sense of.[14]

Most of the adult learners who arrive at the Walking and Drawing workshop, express that there must be a right way and a wrong way of drawing. Added to this, many convey that they "can't draw", and are fearful of having their creativity judged, but they have been enticed onto the workshop because of the enjoyable and convivial activity of walking at Stephens House and Gardens. Few have formal arts training, and those that do have an arts education, are looking to revitalise their drawing skills. Both types of learners assimilate very quickly the element of play against the backdrop of the site, which transforms imaginations and invigorates creativity.

After walking, we arrive back in the learning space and dive straight into the issue of tackling the fear of drawing. With our earthly delights displayed down the centre of the worktable, I gently lead learners through two-time bound exercises, devised specifically to prove that everyone can draw. By removing individual judgement and control and inviting learners to not look at what they are drawing,

but to build trust in their bodies, that their hands and eyes do know what they are seeing. This activity proves immeasurably that everyone can draw. Adult learners absolutely love this exercise because it becomes like a magic trick and infuses the session with a sense of play and spontaneity. Blind line contour drawing is an exercise used by artists, and it becomes tacit learning, a fun activity for adult learners, because they can't quite believe that the body knows visual information, without the conscious mind knowing first. Through hand eye coordination, everyone develops a comprehension of the importance of risk taking in relation to the body, and learning, and the notion that there is no wrong or right way to draw.

As learners start to trust their observational skills and develop a sense of alteration in their own way of seeing, they are sent out into the landscape, using their handheld devices, to find viewpoints that they like the look of. Through the active fostering of socially engaged practices like walking and drawing, learners become more and more connected to each other, and the landscape. Synchronisation happens automatically, as the group falls into unison as they walk, and empathy levels in their bodies rise. Often the classes are like watching dance, as they forget themselves, and focus on the act of creating.

In a workshop activity that invited learners to use their voice as the tool for drawing out expression, as opposed to a pencil, learners created deeply powerful forms of sound between each other and with the landscape. The action was devised out of a personal element from my artistic practice, that of spending too much time alone to make new work. This self-observation led me to create the workshop activity, 'Humming with the Judas Tree'. The group joined me in the experience of humming with the beautiful Cercis Siliquastrum, The Judas Tree at Stephens House and Gardens. They were invited to look up at the tree, with intention, and to close their mouths to hum any sound that they felt was satisfying and acceptable to make. As our intent compelled us, a note arrived and sound gathered a rounded resonance, and we became the voice of one note. The experience was more than I could have imagined, as some learners were moved to tears, others to laughter. There was a real deep connection with nature. Learners recognised that what they were doing was using their voices in a public space to connect with the trees, the landscape and each other. It became a deeply personal experience as connection was taking place both internally and externally. At the end of the session one student shared with me that a close friend of theirs had died, and this was the first moment that they had had to truly express the loss and the grief.

CONCLUSION

This study has explored how a Walking and Drawing workshop enables wellbeing within its teaching and learning space in relation to a site dedicated to nature and heritage. Showing how a synthesis of elements taken from the field of Andragogy, and that of the field of Fine Art, enables adult learners to become the creators of knowledge in the classroom, thus presenting the workshop as a hybrid of adult community teaching and learning.

NOTES

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PEDAGOGY THAT RUNS THE CURRICULUM THAT RUNS THE WORLD

Author:
HIRONA MATAYOSHI

Affiliation:
YOKOHAMA NATIONAL UNIVERSITY, INTERNATIONAL STRATEGY ORGANIZATION, ENGLISH EDUCATION DIVISION, JAPAN

INTRODUCTION

The famous Welsh educationalist, Professor Emeritus Dylan Wiliam once said, "*A bad curriculum well taught is invariably a better experience for students than a good curriculum badly taught, pedagogy trumps curriculum. Or more precisely, pedagogy is curriculum, because what matters is how things are taught, rather than what is taught*".[1] Professor Wiliam's quote demonstrates the process of a global security curriculum impacting the autocratic perilous world. Curriculum is a predetermined answer of two distinct hybrid characteristics of either the desirable (better) or undesirable (worse) outcome, which is the dichotomy between the goals of both educational capitalism and political authoritarianism conflicting for the economic soul.[2] Both the Japanese depopulation and the Covid-19 crises have provided practitioners with curriculum alternatives including "Homeroom" scheduling models without dealing with physical boundaries but aspiring toward virtual "freedom" to slim-down operations.[3] Recent campus orientation introduces disciplinary fields on-line before students arrive on-campus with personalized guidance or a "home button" as well as providing students with events, notifications, and conferences for the purpose of a "unified regulatory agenda" for cross-disciplinary engagement. However, while the author was upgrading her "Homeroom" curriculum ideas, she stumbled upon the United States' expanding horror of the trumped "1776 Curriculum".[4] In this research, the author will compare and contrast the desirable versus the undesirable pedagogical curriculum that is interconnected with the 1776 Curriculum[5] (revised from the 1776 Commission)[6] that mirror's the late Shinzo Abe's cult-indoctrinated[7] revision of the "Fundamental Law of Education"[8] that has covertly influenced hybrid horrors of theocratism.[9]

THE DESIRABLE HOMEROOM (WORLD)

The Freedom Writers Foundation Director, Erin Gruwell once said, *"I realized if you could change a classroom, you can change a community, and if you change enough communities, you can change the world",[10]* which depicts the dichotomy of propaganda with perception over perspective.

Figure 1. Original Recruitment Record

Yokohama National University's (YNU) International Strategy Organization English Education Division unifies quality while navigating five departments, student recruitment, evaluation, and supervising homeroom, proving both Wiliam's and Gruwell's theories.

In Japan, professors recruit highly accomplished high school students. The relationship between the universities and the high schools is based upon alumni relations with the corporate mentality of a single firm.

Figure 2. Original Home Room Schedule for Grammar & Events by Hirona Matayoshi

YNU uses homerooms to provide students with the knowledge to survive university for four years with the orientation of introducing class schedules, the process of registering for classes, contact procedures, Web syllabi and On-line class tutorials, exam weeks, department expectations and notifications, while scheduling students with future reskilling extra-curricular events, and activities.

The following chart below shows the range from the **S** to **F** marks:

The Japanese Grading System					
Letter Mark	Characters	Pronunciation	Translation	Percentage	Inference
S	優	*Yu*	Superior	90-100 %	X
A	秀	*Shu*	Excellent	80-89 %	△
B	良	*Ryo*	Good	70-79 %	◎
C	可	*Ka*	Acceptable	60-69 %	○
F	不	*Fu*	Unacceptable	50-59 %	X

Figure 3. Japanese Grading System[11] by Hirona Matayoshi

The highest achievable score is A (89%), prioritizing superior students excelling beyond the lecture content in university, affecting transcripts (GPAs) with national perspective. However, one must keep in mind that the Ministry of Education (MEXT) is doing its best to sustain the workforce during depopulation while Japan incorporates students into the "mission".

THE MISSION:

Referring to a quote from Annie Lennox's Eurythmics band 80's hit song "*Missionary Man*": *"The missionary man he was following me. He said, stop what you're doing get down upon your knees, I've a message for you that you better believe, don't mess with a missionary man!"*[12]

The gifted actress-physicist, "Hedy Lamarr" never received appraisal for inventing Wi-Fi and Bluetooth[13] but marked "Top Secret". During her time, information traveled through the Christian missionary "spies"[14] to manipulate perception over perspective (espionage) through theocratic platforms as operators[15] for their handlers as a "church (committee)[16] commission".[17]

REVISED FUNDAMENTAL EDUCATION LAW: THE ALGORITHM OF HOME CHURCH

An original definition of Christian missionaries is the following: *They ran self-entitled[18], theocratic imperialists[19] with massively inflating egos[20], collectively acting as "divinity", and socio-sabotaging through subordination.*

Officials discovered[21] Abe's[22] spouse and relatives[23] (Taro Aso)[24] were syncretical (Family Federation for World Peace and Unification "FFWPU or Moonies", "nominal" Catholic, and educated through the Anglicans "Rikkyo University or St. Paul's")[25] with affinity to merge, discredit, and infiltrate the "mass" so to speak.

The author once worked for private Rikkyo University (Anglican) and the national Osaka University Graduate School when outside cults were infiltrating the student clubs luring students into their debts. Professors had to disperse these clubs in both private and public universities with academic procedures as fierce as Harry Potter's Severus Snape's lightening rod to purify grounds. Bewildered Professors were faced with invisible handlers directly connected to funds behind the scenes (hidden homeroom), and this may sound like a whistle-blow but it's not even close to the damage that Snowden leaked to compromise the lives of his fellow American operatives. It's more juicy and fruitful for the inquiring mind.

The perception of the Japanese Anglican Church[26] is confusingly referred to as an "United Church"[27] consisting of both Catholic and Reformed in Communion making Anglican membership as FFWPU convenient. The cult played with confusing titles shapeshifting from the Unification Church (Moonies), then to the Holy Spirit Association of World Christianity, and to the FFWPU, attempting to corporate merge (desecrating both "British" Anglican and "Vatican" dioceses)[28] using "AIDMA[29] and SCAMPER"[30] algorithms to establish their lair.

Roland Hall's AIDMA (Marketing Step Process)	
A	Attention
I	Interest
D	Desire
M	Motive
A	Action
Alex Faickney Osborn's SCAMPER (Marketing Method and Step Guide)	
S	Substitute
C	Combine
A	Adapt
M	Modify
P	Put to other purposes
E	Eliminate
R	Rearrange/Reverse

Figure 4. Based Upon Hall's AIDMA Process and Osborn's SCAMPER Method by Hirona Matayoshi

CORPORATE DEVIL'S DESIRE

The Japanese Anglican mission began with the Ryukyu Kingdom (Okinawa) in 1846, through Commodore Matthew Perry who spread the Christian mission throughout Japan.[31] An ex-imperial soldier, the late Bishop Michael Hinsuke Yashiro (ordained civilian ambassador to the UK) led the Japanese Anglican Episcopal Diocese. Later, established Kobe International University (KIU) in 1963[32] and went independent from the British Anglican Diocese in 1972.[33] Yashiro's youngest son, Takeshi Yashiro[34] inherited the Japan Anglican Episcopal Diocese's desire and whose family-controlled Rikkyo University.[35]

At Kenyon College (Ohio), Takeshi converted to the FFWPU, returning politically nepo-planted as the President of KIU. After retirement, he established the "True World Foods Company" that runs the world "Sushi market" until he dies of cancer in 1993[36] succeeding cult AIDMA and SCAMPER motives as the "missionary man".

With the above algorithms as a pilot test in Japan,[37] Abe's administration arranged the perception to "Make Japan Great Again",[38] resurrecting theocratic imperial exploitation over perspective with patriotic compliance while exfoliating education-practitioner-power to indoctrinate the youth[39] with Aso's nephew's owned Dwango, Niwango, Nico Nico, and Kadokawa corporation's[40] Web Master Hiroyuki Nishimura's[41] "4 Chan far-right (FFWPU) outlet"[42] perspective.[43] The US-evangelicals fell for the reversed propaganda[44] with the same pseudo-Christian mission rearranging the perspective to "Make America Great Again".[45]

The FFWPU[46] was founded by North Korean born Reverand Moon[47] shaped by Lottie Moon's espionage[48] (who died in Kobe, Japan) to be the reincarnation of a fabricated embodiment to evangelize and trump[49] himself[50] as divinity.[51] The cult[52] used nepotism, like Abe[53], placing nepo-cronies into Christian-leader positions under North Korean privy for mission accomplished in domestication.[54] After Moon died in 2012, his "All-American" sons, Paster Sean Moon[55] became commander of the off-shoot "Rod of the Iron Ministries" handling the AR-15 assault rifle (rod) with his brother Justin Moon (CEO of Kahr Arms) organizing the MAGA-cult into the insurrection of the capital in Washington, DC (2021) preaching, "God was Victorious that day"[56], with a "38th parallel" vengeance.

1776 CURRICULUM: SUBORDINATING UNDER THEOCRATISM[57]

Curriculum can be Theo-pedagogically unified with applicable[58] manipulation[59] by shifting titles,[60] to revise perception,[61] so the origin becomes obscure.[62] The "1776 Commission"[63] was intervened by the Biden Administration, while evangelicals countered Biden's move, reviving the "Church Commission" to substitute the "1776 Curriculum"[64], originating from the revised Japanese Fundamental Law of Education.[65]

THE PLOT THICKENS: "HOLY SEE" THE HANDLER

The Opus Dei's operative "Cowboy" Kevin Roberts (President of The Heritage Foundation) and the architect of "Project 2025"[66] is said to be the next "alternative" after Trump's "Agenda 47" seals borders, home education, and secures a one-day election for the United States under the Grand Old Party (GOP).[67] To really understand the homeroom curriculum so to speak, one would be urged to check the "Agenda 47"[68] which is a platform that clearly "unites" states' future perspective with a "one-party authority" to fire teachers and principals alike who "do not comply" to "GOP" agenda.[69] Just like a move in the game of chess with the revised Japanese Fundamental Law of Education, checkmate.

The reader might think, how is all this connected to the author who was educated through the diverse following religious institutions: Ryukyu Shinto, Anglicanism, Roman Catholicism, Methodism, and

the Catholic Dominican Order nuns (growing up a royal skeptic)?

We'll, first refer to George Carlin's quote: "*Religion has actually convinced people there's an invisible man living in the sky…he has a special place, full of fire…. where he will send you to live and suffer…'til the end of time! But He loves you…and needs money! …*".[70]

To put it quite bluntly, the author's father was a *professor emeritus* at Kobe International University (KIU), retired, and all the variety of missionaries kept following the author, even though she kept throwing salt over her shoulders with Quantum Linguistics and Physics.

Luckily, the author's father warned her that she wouldn't want to work at KIU to at least clear her name. The power to comply to "Japan incorporated" under a "one-party system" within institutions is a powerful harmonious tool. The author always makes sure that she teaches her students to trust Physics instead and to rather be immune to "isms" in her homeroom because the "opus" is an unreliable and invisible perspective.

THE 1955 SYSTEM (ONE AND A HALF PARTY SYSTEM)[71]

When the late Prime Minister Abe was assassinated, it was a wakeup call just like George Carlin's quote above. The "spiral of silence" went flushing down the nervous system while inoculating citizens to acknowledge monetary corruption from within the false prophecy of "Grandeur" with the double taxed physics.[72] In result of the recent 2024 General Election,[73] the Liberal Democratic Party (really conservative) significantly lost the election while citizens hope to reinstall a rather "Innovative Democratic Conservative Japan" instead. To give the new LDP Prime Minister Shigeru Ishiba credit, he's LDP's Snape even though he is not next of kin and will be exchanged for a woman in the near future, known for being one of Abe's protege (covert FFWPU).[74]

Politics (Homeroom) in Japan is contradictory because right or left is meaningless. All parties are one huge coalition of the same type of institutionally unified homogenous individuals, who are hereditarily related to nepo-cronyism. After WWII, the American occupation with the CIA established the "1955 system" (one and a half party system)[75] or one-party rule as the Liberal Democratic Party (LDP) with the confusing acronym perspective. Although, the CIA complicates perception for everyone but to give them credit, they made sure Japan couldn't return to their "old grand" ways for the time being, but nothing is a predetermined perspective in physics and handlers works in weird ways.[76]

On the surface, it seems that Japan has ten parties: The Liberal Democratic Party (LDP Conservative), Constitutional Democratic Party (CDP Liberal), Japan Innovation Party (JIP or Isshin Libertarianism Conservative populism), Komeito (NKP Buddhist Conservative cult), Democratic Party For the People (DPP Conservative), Japanese Communist Party (JCP Communism), Reiwa Shinsengumi (Progressive populism), Sanseito (Ultraconservatism), Conservative Party of Japan (CPJ Ultranationalism), and the Social Democratic Party (SDP Socialism).[77]

As you can see above, the curriculum syllabi choice seems to be diverse, but really there are only four possibilities in the algorithm: LDP, CDP, JIP, or DPP (They exchange positions within the clique so it's one huge coalition party that really doesn't like each other but found a "tolerance" to work with each other.), and the rest are all quasi parties that no one attends.[78]

For example, the LDP enjoys their coalition with the Komeito Party like they enjoyed the funding from the FFWPU, sucking hard-earned citizen blood taxes into their pockets.[79]

The Komeito is a cult named "Soka Gakkai" who call themselves a "clean party" like the LDP refers to itself as the "Liberal" Democratic Party when they are really "conservative" in contradiction. They build schools all around the world "evangelizing" Buddhism (*de'ja vous*)[80] while being a member of the United Nations Economic and Social Council since 1983 (like the FFWPU, oh, how all "handlers" love money)[81] preaching their oddly liberal-covert-conservative perception of Buddhism[82] while

violating Article 20 of the Constitution of Japan which clearly states the separation of religion and state.[83]

At times, the CDP, JIP, and DPP break away from their normal coalition with the masters of the LDP and Komeito when pressured by the public. Hence, the reader may understand why the 2024 General Election outcome centered upon the three CDP, JIP, and DPP coalition instead of the LDP was simply a calculative move because they didn't want "another cult" for it lacks elegance for Japan's "Imperial" conservative image to mess with "missionary men".

RESTORATION OF JAPAN'S IMAGE

In Japan, people only go to Shinto shrines and Christian Churches for weddings (the religious perspective of dealing with life), Buddhist temples for funerals (a religious perspective of dealing with death) as just a "faithless - traditional - ceremony" with an occasional curious horoscope check for the New Year but that's about it. At Shinto shrines, citizens clap twice then ring the bell and bow once to tell the "gods" they paid ten yen in the donation box just like Buddhist temples expects one to drop the coin in the donation box without a clap while visitors recognize surveillance cameras above and within the box too. These "isms" are corporations that make money without being taxed and citizens bite their lower lip while being threatened to the bowels of burning hell.[84]

Japanese society has been questioning the "freaky" LDP-Komeito alliance for years and this FFWPU was the extra strand of straw placed on the overly taxed donkey's back in collapse. It takes "a lot" to make a Japanese individual fall away from the ever so charming LDP and the public provides taxes to credit the magnificent LDP for keeping "Japan Incorporated" according to the constitution. The betrayal was when those taxes were misused by the profound LDP for the public but used to fund political hereditary families who own corporations who refuse to raise wages, as their homeroom agenda. Like the late Carlin would say, *"There's a reason"*.[85]

THE KICK TO THE BUBBLE

Citizens above Generation X (those in their 50s) witnessed the economic bubble burst when they were teenagers. In the 1990s, teens saw their sisters and brothers drinking from the golden glass fountain of Don Perignon waiting for their turn to taste capitalism at its best. Instead, Generation X witnessed the collapse of the champagne glass pyramid in the mirage of 1991 without swallowing a drop of those refreshing bubbles.[86] Generation X lost everything with the burst passing down their legacy to their following generations witnessing their parents, grandparents, and grandchildren in economic struggle. Japan is no longer the tech savvy that it was back in 1980's through 1990's. It was unfortunate that the hereditary corporate excellent LDP conveniently forgot that "so tiny reality" of the acceleration of economic stagnation with the January 17, 1995, Great Hanshin Earthquake (magnitude 7.3) killing over 6,400 people in devastated Kobe, Japan without a resolution in devastation.[87]

In economic stagnation in 2007, the public discovered that the LDP gambled away 50 million yen of citizen pension records. The LDP lost both Upper and Lower Houses to the DPP who established a coalition with other choices to oust the LDP for betrayal of the public while scrambling to rebuild the pension transparency record by annually sending individual records to the citizens in assurance.[88]

The DPP ruled after the LDP betrayal until March 2011 with the Tohoku Fukushima Earthquake and nuclear meltdown foretelling the downfall of the Abe Administration. It was a trust factor waiting for a resolution for the lost decades (almost 5 decades or 4 generations)[89] of repeated hereditary betrayal passed down to today's Generation Alpha with a tax burden as a birthday present.[90]

On October 27, 2024, the General Election of the House of Representatives was held while the LDP – Komeito coalition lost the Lower House to the so-called Liberal - "Conservatives" CDP, DPP, and JIP

with checks and balances in reminder that this is Japan and Japan is Shintoism (life) not Buddhism (death). Japan worships the "Rising Sun" not some common "moon". However, to give credit to the LDP'S new Prime Minister Shigeru Ishiba,[91] he seems to be cleaning Homeroom. Which kind of puts the reader in a perception of what is the insane definition of conservative homeroom perspective?

Well, true democratic capital-conservatism, in Japan, is the carefully calculative choice (paradox) out of "nothing" or a coalition to sustain the unwavering 1955 system that provides "alternative choices" in a one-party rule, when in need (the homeroom was well planned for a national public emergency) that oddly "proved democracy actually exists" in Japan which the skeptic-author is proud to announce thank you CIA for the system of 1955.

Tongue in cheek, the U.S. has a two-party system that seems to have failed their calculative alternative (Democratic Party "homeroom" solution) because just like the LDP, they were taking the citizens perception for granted in perspective.[92]

Japan's Homeroom is the perspective of the "classy" citizens. The perspective is similar to the British phrase "Keep Calm and Carry on" and is similar to UK's tight upper lip perspective to "Mind the Gap" from the tolerant citizens waiting for solutions with a cold side-gaze. Japan's hereditary politics is a mirror of the 2024 US Presidential Election outcome in homogeneity. The key is to learn to calculate resolutions for "Homeroom" alternatives for true democracy. The difference between the USA and Japan is that Japan has a unified education system that reversed the 2024 General Election outcome in Japan.[93]

CONCLUSION

Fortunately, the purified LDP[94] "homeroom" admitted to corruption.[95] Citizens are dispassionate with divided affinity discrepancies with scamming homeroom perception (affirmation, unity, and conformity). Thus, universally running a reversed pedagogical-curriculum objective these days.[96]

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HOW DO WE MAKE? CRAFTING MEANING THROUGH MAKING

Authors:
AANYA CHUGH, HANNAH DEWHIRST, AND JENNIFER MEAKINS

Affiliation:
UNIVERSITY OF KENTUCKY, USA

INTRODUCTION

In the design disciplines, methods of "making" are often varied and challenging to quantify in typical research terms (qualitative and quantitative, for example). However, through a cross- and transdisciplinary lens, activities and processes centered on making can be powerful explorations of spatiality and tools for change and dismantling hierarchical power structures.[1] It is possible to view making as a spectrum of processes operating at various scales, ranging from pedagogy to creative practice, and encompassing physical, psychological, and societal realms. This paper aims to expand definitions beyond material practice to one of culture and belonging, specifically focusing on interior design education, which has historically prioritized professionalism over making processes.[2] Centered around an ethics of care philosophy, it outlines distinct interpretations of the term's potential in designing physical environments. Some projects explore ideas of craft, using physical and digital processes to challenge conventional ideas about making and fabrication, architectural design labor, gender roles, and pedagogy. While the physical artifact may be material, things like labor and the roots of material processes are often immaterial. Other projects approach making as a form of embodied research. Mindfully carving out space for reflective practices, we aim to "make room" for new identities and perspectives within a historically marginalized design field. From pedagogical practices of unstructured making to critical and feminist pedagogical values of self-actualization and belonging, the possibilities of expanding ideas of creating and crafting move beyond any one discipline or method. These processes operate at various scales, from the self to the broader community.

How do we Make?

As three educators within a single academic program, we have a unique perspective to reflect on the pedagogical practices that serve a larger programmatic vision in distinct yet often overlapping ways.
As outlined in Figure 1, making can be viewed on a sliding scale. On one end, it is a series of physical and digital processes often rooted in Craft, challenging conventional ideas about fabrication, design labor, gender roles, and practice. On the other hand, "Making Room" emphasizes making as a form of embodied research, linking the "body's activity and cognitive development in learning," going beyond accreditation standards and testing requirements to contribute to intrapersonal and interpersonal sense-making.[3] Our collective pedagogical approaches thus exist and shift along this continuum.
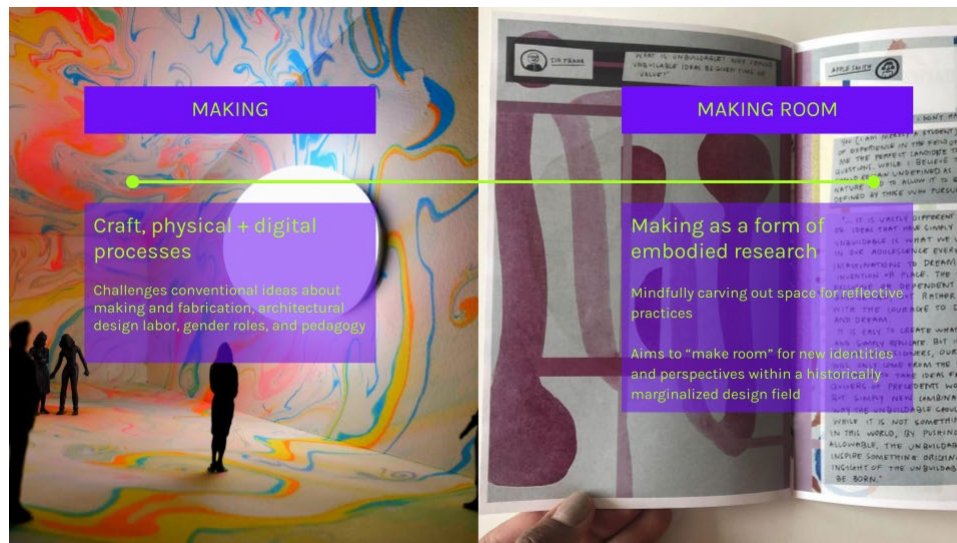
Figure 1. Making as a Gradient

Navigating a Complex World through Empathy

Each of us has found our way to making through a variety of attempts to counter what we saw as a limiting binary of formalism vs. anti-formalism; on the one hand, a focus on the formal architectural object, and the other, a theoretical critique of existing systems. A strong formalist approach might emphasize the building as a singular object, which is ontologically inscribed as a set of a priori qualities within it and in relationship to other objects.[4] On the other end of the spectrum are existing cultural and economic forces that shape buildings and urban form. This approach attempts to understand design as a result of the forces that act upon it and is a systems thinking approach primarily manifested through mapping social, economic, and cultural flows. We see both approaches as critical to understanding the complex political reality of any design project, situating our work as the in-between. Our approach involves an exploration of a slower, embodied design process that integrates a profound comprehension of self and others, both at the individual level and within the larger systems inherent in design projects, the larger assemblage of differing parts, systems, and concerns that go into the design of a building.[5] Spatial and embodied research allows students to investigate the effects of things and spaces upon human experience and the necessity of human experience to affect space. Craft and material processes investigate making things but also making room as a critical reflective act of care, as evidenced in a traditional quilting practice. A modern version of this might be Jeff Wall's "Morning Cleaning,"[6] where the artist cleans the floors of the Barcelona pavilion and, through this act, highlights the labor that goes into any work of art. Whether through direct collaboration or shared experiences, students are taught to approach design by focusing on "matters of care" beyond their disciplines and experiences.[7] Maria Puig De La Bellacasa writes about this entanglement, calling this "a web of systems and influences" where interventions cannot be seen as isolated or independent.[8] This ecofeminist ethics of care philosophy involves thinking about self relationally as a part of a larger ecosystem with numerous human and nonhuman stakeholders. Similarly entangled, the diagram in Figure 2 illustrates the intersection of various research methodologies and practices while centering empathy as the principal component that connects all approaches.
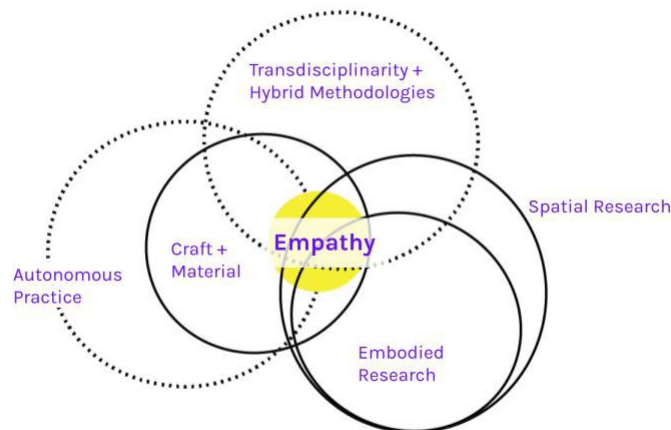
Figure 2. A new lens centered on Empathy

Slowing Down

Physical and experimental making is an integral part of the design process, not simply because we, as designers, aspire to build physical spaces but because they necessitate developing a voice. Experimentation begets discovery, which requires slowing the making of "production" models in favor of an iterative process of both making and observing. Students and designers can focus on how they relate to their work by engaging in a design process that incorporates hands-on physical making. Through this "slow" approach to making and discovery, an inquiry into methods and processes emerges, often becoming one with the physical output and then expanding outward. This allows for more free exploration of value systems, empathetic connections to others, exploratory methods of making, materials, and experiences of space. The writer Jenny Odell, author of the best-selling book "How to Do Nothing: Resisting the Attention Economy" spoke to a 2020 class of architecture graduates about design as an act of "orchestrating attention: someone who can create the lenses with which we can see a completely different reality."[9] When examining design through this framework, the feedback loop between the brain, hand, and work acts as a driver rather than a predetermined idea of what design "should be." Embedded within and emergent from this model of thinking are ideas of time, labor, and cost, and not without personal interest, excitement, and intuition. This also applies to observation and the act of uncovering something: organizing and reframing what exists in new ways while exposing the hidden dimensions of labor within the work. A pedagogical reframing of design is an ongoing process that requires practice, care, and maintenance.

Transgressing Disciplinary Boundaries

Making can also be a way to address typical disciplinary limitations in architecture and design, including areas such as accreditation, licensure, industry, development, and capitalism, where design operates as just a minor factor in the overall process. (Figure 3) Unlike architecture, interior design has less of a historical, theoretical framework[10] and has been typically seen as subjective, irrational, and feminine.[11] Instead, interior design education has "historically served to legitimize and professionalize interior design practice" to distinguish "qualified practitioners from 'untrained' amateurs."[12] Since its inception in the early 1900s, it has moved from its decorator status to the exploration of conditions of interiority. This term defies categorizing its scope as a physical "inside" bound by walls, as outlined by scholar Liz Teston in her text *Public Interiority: Exploring Interiors in*

the Public Realm. Instead, Interior Design's role is to design "places for people to occupy"[13] and focus on the human experience.[14] This prioritizes phenomenological experience over a cartesian understanding of space, which relies on our senses to comprehend the world around us.[15] The architect Florian Idenburg has similarly observed conditions of interiority as a feeling over a thing, asking us to "...regard the interior not as a space created by protective surfaces and moods, but rather as a porous field defined by realms and structures. Otherness will trickle in, and a productive contamination will ensue."[16] Architecture and Interior Design pedagogy can thus benefit from collaborative and cross-disciplinary interactions that create effective overlaps between disciplines and interests, going beyond traditional limitations.
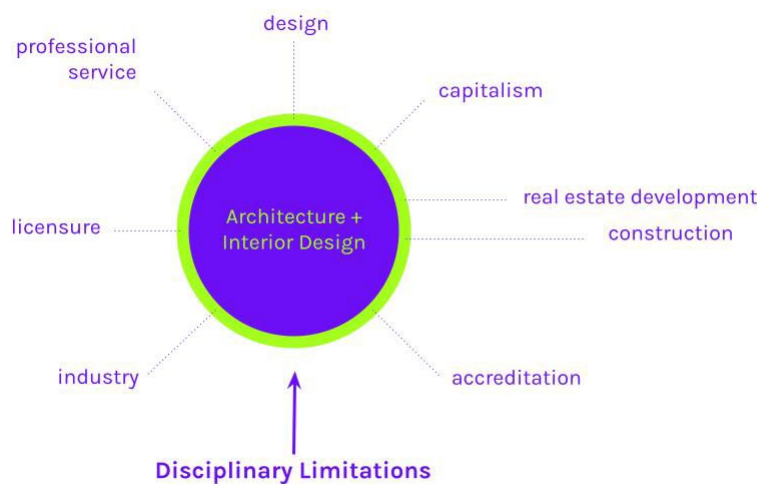
Figure 3. Design is a factor in something larger

PROJECT EXAMPLES

In the following project case studies, we aim to demonstrate our approaches through diverse and intersectional studio prompts. This dialectical relationship is evidenced through our Knowledge Development Matrix, shown in the diagram below. (Figure 4) In this framework, the projects move fluidly between collective knowledge and knowledge of self – across a range of making things, making spaces, and "making room." This framework establishes a way to situate our pedagogies within an intersectional dialogue.

Figure 4. Knowledge Development Matrix

Case Study One: Lexington Children's Museum

The first project "makes room" through its unique transdisciplinary model. As a design studio between Interiors and Product Design, students had to work with a complex collective of stakeholders while also considering themselves and their peers. Undergraduate students were tasked with re-envisioning existing exhibits for a local children's museum. Since much of architecture, product, and interior design is a complex collaboration, a course objective was to understand that the notion of the architect as the master builder isn't the reality of how projects happen beyond the academic studio. Through co-design and community research, students openly engaged with children and parents of the museum to learn more about their specific needs and desires. Exercises like storyboards helped center the user throughout the process. (Figure 5) Each interdisciplinary team of students then designed a specific exhibit that would become a part of a larger public exhibition through which the community could participate and provide feedback. The design process in the studio moved between conversations with key stakeholders and physical fabrication, organized through an iterative feedback loop borrowed from IDEO's Design Thinking framework.[17] The students also spent considerable time inhabiting the museum space, talking to its customers and understanding their concerns. Cultivating these social relationships throughout the process helped disarm the typical hierarchies seen when researchers enter a field environment, where the researcher typically holds most of the control.[18] Students were also asked to reflect upon these experiences through writing. Many expressed self-consciousness and concern about being perceived as an outsider or as patronizing due to differences in personal circumstances. Working with numerous stakeholders is a collaborative, transdisciplinary endeavor involving considering both the individual and the collective.

Figure 5. Storyboard Exercise exploring how the user is centered throughout the design process

Case Study Two: Materialized & Interiors Workshops

The second case study utilized participatory design through both material and nonmaterial realms. "Materialized" was a fruitful interdisciplinary collaboration between Graduate Interiors students, Textile Fine Arts students, and student Choreographers & Dancers. Students worked together in multidisciplinary teams to design, fabricate, install, and activate, through movement, three site-specific sculptures over the semester. Navigating multiple disciplines - design, dance, choreography, and contemporary art - presented numerous opportunities for translation and conversation through embodied processes. Students were free to navigate ways of making and expressing "self" while being asked to fabricate at full scale, choreograph three performances, and meet a deadline: a public performance for over 250 people. (Figure 6) Not only did this studio teach our students about navigating adaptability and collaboration in relationship to personal expression, but it also taught us, as professors, about collaborative teaching methods. The "canon" of any one discipline could not exist within a disciplinary bubble, and each of the three disciplines involved was allowed to define itself in relationship to one another, much akin to how artists and designers collaborate in practice. This collaboration often resulted in overlapping fabrication processes and an understanding of the body moving in space. It was an eye-opening experience for many students whose skills extended beyond the discipline they had originally defined themselves within.

Figure 6. Choreography and Material Exploration Combined

Case Study Three: Lamp Studies for a Future Interior

To move closer to the scale of the body and materials, this two-day first-year interiors workshop used Japanese paper-marbling, paper folding, lighting, and photography to develop and frame new experimental possibilities for space. Through a narrow, prescribed set of prompts (marble the paper, cut the paper, fold the paper, add scale figures, photograph the space), a diverse body of work was produced across the studio. Because the initial parameters of this two-day workshop were narrow, students could leave behind their fear of experimentation. Instead, they focused on decisions about interesting color combinations and lighting techniques that would highlight certain aspects of their objects to which camera angles would trick the eye into believing this was a full-scale space. Importantly, they also began to understand that improvisation, as connected to techniques of making, can bring about chance encounters or "happy accidents" or "a mistake you think is worth repeating (an act of discovery)." This succinct workshop model provided a moment when experimentation was allowed entirely, with the collective atmosphere supporting acts of self-empowerment. This workshop was an exercise in "orchestrating attention"[19] through the collective moving through an exercise together, a shared experience resulting in joy, beauty, and connection. (Figure 7)

Figure 7. 2-Day Interiors Workshop

Case Study Four: Reframing Narratives in Design and Material Culture

The seminar *Revisionist Histories: Reframing Narratives in Design and Material Culture* sought to educate the students on inequity in interior design by uncovering less visible designers and their corresponding social histories. First, students explored their own identities to develop an understanding of other's marginal narratives. As Erica Buchanan-Rivera states in their book *Identity Affirming Classrooms*, "To form connections with others, we must first have a sense of self."[20] The course thus included opportunities for students to explore themselves and how they relate to the world around them. Through cultivating this self-awareness, students could extend their understanding of others and engage more effectively with difference. The class's final project was an autoethnographic "zine," a handmade, self-published book exploring issues of identity and relationships to power. This personal practice of connecting with both the self and others through a physical artifact allowed for the creation of what the scholar Alison Piepmeier calls "embodied communities," or "affectionate connections," a form of intimacy between an author and a community of readers, one "…made possible by the materiality of the medium.[21] (Figure 8)

Figure 8. Final Zine Assignment

Case Study Five: Contested Sites-Body, Space, and Architecture

In the *Contested Sites: Body, Space, And Architecture* design studio, the objective was to establish a language of understanding around the role and possibility of the body in both architecture and politics. Elisabeth Grosz, the feminist theorist, wrote in Refiguring Bodies that "The body has been regarded as a source of interference in, and a danger to, the operations of reason."[22] This highlights the way the body and mind, or the body and objectivity, have been separated, which, especially in Western society, has led to the body, particularly those that aren't white, male, cisgender, and heterosexual, to be treated as entities to control. The studio employed narrative inquiry research and critical pedagogical methods, first through fiction, to expose students to the experiences of others. This process has been found to increase empathy toward marginalized or disadvantaged groups, such as women.[23] To address the role of the body in space, students analyzed and generated imagery of several different "architectural sites" in feminist dystopian fiction, dystopian reality, and their own bodies. (Figure 9) In this last project, students applied what they had been learning about the experiences of others to reflect on their own experiences, how their body engages with the world, and how it creates or challenges space. In Figure 9, the student is wearing the object they made, a constructed wooden armature that limits movement, to represent two different ethnic and racial experiences visualized through a mesh fabric in contrasting colors. The corresponding drawing required them to describe, in "architectural language," the spatial implications of their experiences.

One student recalled, "In relating to the body, it's as though I have skin which is not chosen for me, which constantly creates false narratives relating to my appearance for those around me. This "skin" might not represent my identity culturally, yet existing in only American spaces has created a blurred, unclear view on my own personal identity." The students opened themselves up to vulnerability, with many addressing issues of identity and mental health. This self-exploration and reflection introduced the architecture studio to the process of making a wearable object and the possibility that looking at the self is a valid part of the design process, one that supports making room and building empathy. A reflection on the self in this way fosters a relationship between the body and space, hopefully changing the student's perspective once they move back to a larger scale or different design problem.
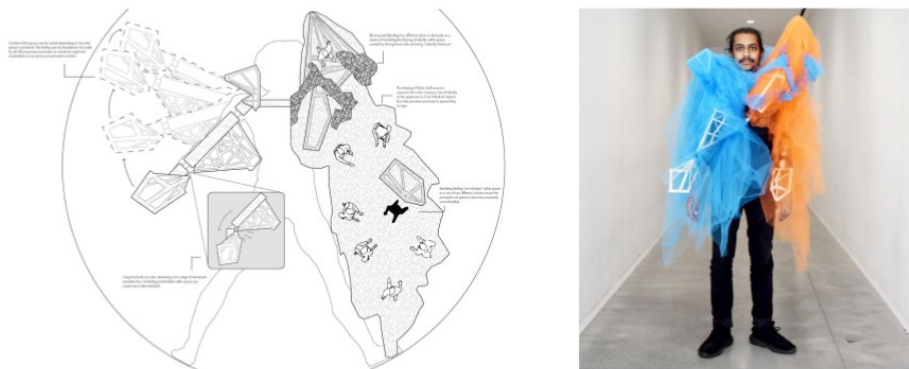
Figure 9. Wearable Space and Self

CONCLUSION

The projects shared help demonstrate how making can be seen as both a practice rooted in additive material exploration but also as a subtractive carving out of the traditional tools, techniques, and pedagogies used to create space for new identities and a greater sense of belonging. These approaches vary from more individual practices to the collective. The Knowledge Development Matrix (Figure 4) highlights how these approaches can shift along both axes, resulting in diverse strategies. From the collective work of a cross-disciplinary studio to the self-reflective wearable project, the entwined mind-body relationship opens or makes room for multiple ways of knowing and being human. Most importantly, these approaches can be interrelated. Perhaps it is possible to create new questions through overlaps, acknowledging the pluralistic and messy reality of how design truly happens. The pedagogical tools we deploy will vary across courses and levels for each of us. Still, referring to different forms of making allows for an adaptable, flexible, and empathetic approach to teaching across many disciplines.

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ENABLING STUDENT SELF-MOTIVATION IN AN ONLINE LEARNING MODEL

Authors:
BHASKAR SINHA, PRADIP PETER DEY, MOHAMMAD AMIN

Affiliation:
NATIONAL UNIVERSITY, USA

INTRODUCTION

Self-motivation is a prerequisite for self-learning, and that is a critical component of effective learning. Self-motivated students are more likely to engage genuinely with the course content, persist through challenges, and achieve the desired educational goals. The notion of self-motivation implies a determined internal ambition that drives individuals to pursue goals and tasks without external encouragement. In an educational context, self-motivation is important as it determines how students view learning and how that impacts their overall success in the academic space. It should be self-evident to all mature learners that learning has an intrinsic value, in addition to other possible values, in areas such as problem solving, employment readiness, and so forth.[1] The shift towards online asynchronous learning has created the need for empowering students to become self-motivated learners. In this setting, where absorbing ever increasing available material and knowledge formation needs to happen rapidly, creating a self-motivated learning platform is essential for learner lifelong growth. This research outlines strategies to foster motivation and self-directedness in students and proposes some best practices for a learning framework that empowers and encourages learners to self-direct and optimize their individualized learning habits. By embracing this framework, learners can embark on a transformative journey of self-motivated learning, unlocking their full potential and navigating the ever-changing landscape of technology and knowledge with confidence and agility. This goal-oriented design includes understanding the importance and the value of learning, resource optimization, creating personalized learning paths, opportunities for reflection, creative problem solving, curiosity encouragement, and interaction improvement. Peer collaboration supporting continuous feedback mechanisms are encouraged. Using the latest technologies, this study explores strategies and practices that educators can use to enable and enhance student self-motivation in learning. Drawing from theories of motivation and empirical research, this research argues that creating an environment that fosters autonomy, competence, and relatedness can significantly increase student self-motivation.

This ongoing effort also includes the power of Data Analytics and Artificial Intelligence (AI) platforms to propose a technology enriched learning framework that includes the latest information on AI effects on academia. This will empower students to navigate the ever-evolving learning landscape with confidence and competence. This framework will also help the students to meet the current technology enriched workforce requirements of the industry. By implementing these features in an online learning platform, educational institutions can cultivate a culture of self-motivated learning,

leading to empowering students to assume responsibility of their education, pursue an enhanced lifelong learning habit, and succeed in the current digital age.

IMPORTANCE OF FOSTERING SELF-MOTIVATION IN LEARNING

Self-motivation is an essential component of driving students to engage with educational content, persist through challenges, and achieve their goals. Unlike outside motivation, which relies on rewards, self-motivation comes from within, urged by personal targets, natural inquisitiveness, and a craving for self-advancement. Educators play a crucial role in fostering self-motivation, which leads to deeper engagement and long-term academic success. This study explores strategies for fostering self-motivation in students, focusing on promoting autonomy, building competence, encouraging relatedness, and cultivating a growth attitude.

Psychologists Deci and Ryan suggested that self-motivation is entrenched in the notion of self-determination.[2] According to this concept, three basic psychological human desires must be satisfied for self-motivation to flourish: autonomy, competence, and relatedness. Autonomy is to feel in control of one's own goals, actions, and performance. Competence is the need to gain proficiency and understand how to achieve desirable outcomes. Relatedness is the need to feel connected and associated with others. When these necessities are met, students will experience the intrinsic drive, where the activity itself is inherently satisfying, rather than any external motivation, which is driven by outside incentives and recognitions. These characteristics are the keys to success in the student's journey to acquire knowledge and to eventually become self-learners.

Use of technology to foster self-motivation in learning is a powerful tool. In the rapidly evolving landscape of education, traditional and emerging technologies play an increasingly leading role in fostering self-learning among students. Self-learning, the ability to acquire knowledge and skills independently, is essential for success in the 21st century. Technology offers tools and resources that empower students to take charge of their own education, develop critical thinking skills, and engage deeply with the material. This research is an initial exploration of how technology can be used to foster self-motivation, leading to self-learning, with a focus on personalized learning platforms, access to information, interactive tools, and the development of digital literacy.

CREATING A SUPPORTIVE SELF-MOTIVATING ENVIRONMENT

A supportive self-motivating environment is crucial for fostering independent self-motivation and learning, thus encouraging students to take responsibility for their education. Such an environment provides the resources, guidance, and motivation necessary for students to explore topics at their own pace and according to their individual interests. Key elements include access to diverse learning materials, personalized feedback, and a culture that values curiosity and critical thinking. To create this environment, educators should offer a variety of resources, such as books, online courses, and interactive tools, catering to different learning styles. Providing opportunities for self-assessment and reflection encourages students to monitor their progress and set personal learning goals. Additionally, fostering a growth mindset within the learning community is essential; students should feel comfortable taking risks, making mistakes, and learning from them. Teachers play a vital role by acting as facilitators, guiding students in their learning journeys while allowing them the freedom to explore independently. Encouraging collaboration and discussion among peers also enhances the learning experience, as students can share knowledge and perspectives. In a supportive self-learning environment, students are empowered to become lifelong learners, equipped with the abilities and self-assurance to navigate the complexities of the ever-changing workforce landscape.

Best practices to create such self-learning environments require instructors and content creators to focus on student-centered curriculums with personalized learning paths. Students should be able to

navigate their own individualized education journey. This promotes and enhances internal motivation to learn, as opposed to being driven by expectation of forms of recognition. Interactive learning material in this self-learning space goes a long way to stimulate students as they self-navigate through their learning process. AI can play a crucial role by taking the student to the next level based on the acquired competence in the previous step.

One of the significant ways technologies foster self-learning is through personalized learning platforms. These platforms use algorithms and data analytics to customize and fine tune educational content to the needs of the specific individual, the student's preferences, and their learning pace. Examples include platforms like Khan Academy, Coursera, and Duolingo, which offer adaptive learning experiences that adjust to a student's progress. This personalization helps students stay motivated, as they can learn at their own pace and focus on areas where they need improvement. By allowing students to choose their learning paths, these platforms foster a sense of autonomy, a critical component of self-motivation and self-learning. The internet provides unmatched and powerful access to vast amounts of information, enabling students to explore topics of interest beyond the classroom. With just a few clicks, students can access online libraries, educational videos, tutorials, and research papers on any subject. This access empowers students to take control of their learning, explore topics in depth, and develop a multi-layered grasp of the material. Moreover, the availability of Massive Open Online Courses (MOOCs) from institutions like MIT and Stanford allows students to learn from world-class educators at their own pace. This democratization of education through technology breaks down traditional barriers and makes self-learning more accessible to a global audience. Interactive tools and games are powerful technologies for fostering self-motivation and self-learning. Educational applications and platforms often incorporate game features, such as interactive quizzes, leaderboards, etc., to make learning more engaging and enjoyable. These provide immediate feedback, allowing students to see their progress and areas for improvement. This approach not only makes learning more enjoyable but also encourages students to take ownership of their education by participating actively in the education process.

In addition to providing access to information and personalized learning experiences, technology also fosters self-motivation by helping students develop digital savvy abilities. Digital mastery or being a technology savvy student is the ability to effectively find, understand, and use material online. This is essential in the modern world. By navigating various digital tools and resources, students learn to critically assess information, discern credible sources, and utilize technology to solve problems. Educators can support the development of digital literacy by integrating technology into the curriculum and encouraging students to use digital tools, such as AI, responsibly. This not only enhances their self-learning capabilities but also prepares them for the demands of the digital age.

SETTING CLEAR GOALS AND EXPECTATION

Motivation for self-directed learning is increasingly essential in today's fast-paced world, where continuous education and skill development are necessary for both personal and professional growth. Unlike traditional learning environments, where a teacher or institution provides structure and guidance, self-learners must take responsibility for their own educational journey. In this context, setting clear goals and expectations becomes a cornerstone for success. Without these, learners may struggle to stay motivated, measure self-progress, or achieve meaningful outcomes. This effort explores the importance of articulating clear goals and expectations for self-learners, the process of establishing them, and the benefits they bring to the self-learning journey.

According to Locke and Latham's Goal-Setting Theory, specific and challenging goals are more likely to result in higher performance compared to vague or easy goals.[3] For self-learners, who do not have the structure of a classroom or a teacher, goals serve as a compass, guiding their efforts and helping

them stay on course. Without clear goals, self-learners may find themselves overwhelmed by the sheer volume of available information. The internet offers vast resources on almost any topic, but without a clear sense of purpose, learners can easily become lost or distracted. This focus is crucial for maintaining motivation, as it gives learners a sense of progress and achievement.

In addition to setting clear goals, establishing realistic expectations is equally important for self-learners. Expectations influence how learners approach their studies, manage their time, and respond to challenges. Unrealistic expectations can lead to frustration, burnout, and even abandonment of the learning process, while well-calibrated expectations enhance persistence and satisfaction. Realistic expectations involve understanding that learning is a gradual process that requires time, effort, and resilience. Self-learners must recognize that they will face obstacles, make mistakes, and need to revisit material before mastering it. This awareness helps in setting expectations about the pace of learning and the challenges that might arise. This is particularly relevant in the technical field of computational design and programming, where iterative efforts are necessary to grasp the topics.[4] Unlike traditional learners, self-learners do not have immediate access to instructors for guidance. They must be proactive in seeking out resources, whether through online forums, instructional videos, or peer networks. Understanding and planning for these needs are crucial for avoiding frustration and ensuring a steady learning progression.

The process of setting clear goals and expectations involves a structured approach that can be broken down into several key steps. First, self-learners need to identify their long-term objectives. These are the overarching goals that will guide the entire learning process. Long-term goals should be aligned with the learner's personal or professional aspirations. For example, someone looking to advance their career in data science might set a long-term goal of acquiring a certification or becoming proficient in specific data analysis tools. Once the long-term goals are established, the next step is to break them down into smaller, short-term goals that are actionable and serve as steppingstones toward achieving the long-term objectives. Specific, Measurable, Achievable, Relevant, and Time-bound (SMART) goals are a widely recommended strategy for both short-term and long-term objectives.[5] In addition to setting SMART goals, self-learners should also establish clear expectations about the process and challenges involved. This includes expectations about the time required to study each day, the difficulty level of the material, and the resources they will need. Setting clear goals and expectations offers numerous benefits that enhance the self-learning experience. One of the primary advantages is improved focus and efficiency. With clearly defined goals, learners can prioritize their efforts and avoid distractions. This focus is particularly important for developing self-motivation, where learners must navigate a vast array of resources and potential distractions. By concentrating on specific objectives, learners can make more efficient use of their time and energy. Another benefit is the ability to measure progress. Clear goals provide benchmarks that allow learners to assess their achievements over time. This is especially important in self-learning, where there may be no external validation or feedback. Regularly reviewing goals and measuring progress helps learners stay motivated and adapt their strategies as needed. For instance, if a learner realizes they are falling behind on their short-term goals, they can adjust their study plan or seek additional resources.

Setting clear goals and expectations also promotes accountability. In a traditional learning environment, instructors and peers provide external accountability. However, in self-learning, accountability must come from within. When goals and expectations are clearly defined, learners are more likely to take responsibility for their education and make themselves accountable for their progress. This self-discipline is crucial for maintaining momentum and self-motivation. The self-learning journey often involves overcoming challenges and setbacks. When learners have a clear understanding of their goals and realistic expectations about the difficulties they may encounter, they

are better equipped to persevere through tough times. They can draw motivation from their long-term objectives and the progress they have already made.

Finally, establishing well-defined goals and expectations contributes to a feeling of achievement and satisfaction. Every time a learner reaches a milestone or accomplishes a short-term goal, they experience a sense of accomplishment that reinforces their motivation. This positive reinforcement is helpful for sustaining long-term engagement in the learning journey. As students continue to achieve their goals, they become increasingly confidence in their capabilities and develop a greater sense of self-ability, which further fuels their motivation to learn. Research by Locke and Latham has shown that goal setting can significantly enhance motivation and performance.[6] The process of setting goals encourages students to take responsibility for their learning and gives them a clear direction to pursue achieving their objectives.

In conclusion, setting clear goals and expectations is critical practice for self-learners. Goals provide the direction, focus, and motivation necessary to navigate the self-learning journey, while expectations shape how learners approach their studies and respond to challenges. In an increasingly complex and aggressive-paced world pace, the ability to set clear goals and expectations is a crucial skill that empowers self-learners to take responsibility for their education and achieve their aspirations.

PROVIDE FEEDBACK AND RECOGNITION

Feedback and recognition are essential elements in furthering self-motivation in learning. These two related components not only help learners measure their progress but also provide the necessary encouragement to continue pursuing their educational goals. In self-directed learning environments, where students often operate without the immediate guidance of a teacher or instructor, the role of feedback and recognition becomes even more critical. This paper explores how feedback and recognition contribute to self-motivation in learning and discusses effective strategies for integrating these elements into the self-learning process.

The role of feedback is to enhance self-motivation by providing learners with information about their performance and progress. The article "The Power of Feedback" state that feedback is a powerful influence on learning and achievement.[7] It helps learners identify their strengths and weaknesses, guiding them on where to focus their efforts. In a self-learning paradigm, where external feedback is limited, learners must rely on various forms of feedback, such as self-assessment, peer review, and digital platforms. Effective feedback should be detailed, precise, timely, and useful. It must provide clear guidance on what aspects of performance need improvements and how to achieve them. They are more valuable than general praise. Timely feedback ensures that learners can immediately apply the insights gained, which helps in reinforcing learning. Constructive feedback focuses on improvement rather than just pointing out mistakes, fosters a growth outlook, and encourages learners to view challenges as opportunities for growth rather than as setbacks. Moreover, feedback adds to the development of self-regulation skills, which are critical for self-motivation in learning. Zimmerman emphasizes that self-regulated learners set goals, monitor their progress, and adjust their strategies based on the feedback they receive.[8] This cyclic process of planning, monitoring, and reflecting allows learners to stay motivated and engaged in their learning journey. In self-learning environments, tools such as quizzes, progress trackers, and reflective journals can serve as valuable sources of feedback, helping learners stay on track and maintain their motivation.

Recognition is another key factor in fostering self-motivation in learning. Recognition, whether it comes from external sources or is self-generated, provides learners with a shot-in-the-arm feeling of success and reinforces positive behavior. When learners receive recognition for their efforts, it validates their hard work and encourages them to continue striving toward their goals. External

recognition, such as praise from peers, mentors, or even digital badges from online courses, can significantly boost a learner's confidence and motivation. Self-Determination Theory[9] suggests that recognition gratifies the basic psychological need for competence, which is essential for intrinsic motivation. When learners feel competent, they are more likely to be self-motivated and to engage deeply with the learning material. Self-recognition, or the ability to acknowledge one's own achievements, is equally important in self-learning. Celebrating small wins, such as mastering a difficult concept or completing a challenging task, helps maintain momentum and motivation. Self-recognition can be facilitated through reflective practices, such as keeping a learning journal or setting up a reward system for achieving milestones.

Integrating feedback and recognition into self-learning can be achieved through a combination of strategies. Digital platforms often incorporate feedback mechanisms, such as instant quiz results, progress bars, and performance analytics, which provide learners with real-time insights into their learning. Peer-learning communities, online forums, and study groups can also offer valuable feedback and recognition, creating a sense of community and shared progress. For self-motivation, it is important to actively seek feedback and create opportunities for recognition. Setting up regular self-assessment checkpoints, participating in peer review activities, and using digital tools to track progress are effective ways to ensure that feedback and recognition are consistently integrated into the learning process. Additionally, learners should make it a habit to reflect on their achievements and reward themselves for meeting their goals, fostering a cycle of positive reinforcement.

In conclusion, feedback and recognition are integral to fostering self-motivation in learning. By providing clear, constructive, and timely feedback, learners can better realize their progress and adjust their learning strategies accordingly. Recognition, both external and self-generated, reinforces a sense of accomplishment and competence, further augmenting the motivation to learn. For self-learners, actively seeking out feedback and recognizing their achievements are essential practices that contribute to sustained self-motivation and success in their educational endeavors.

ENCOURAGE AUTONOMY AND RESPONSIBILITY

A powerful technique to enable self-motivation in students is to foster a sense of autonomy. Autonomy in learning allows students to make choices about their educational activities, and this leads to a sense of responsibility and ownership for their education. Teachers can promote autonomy by providing students with options in their assignments, encouraging independent projects, and allowing students to set personal learning goals. For example, a study[10] in 2008 found that students who were given choices in their homework assignments reported higher motivation and performed better academically than those who were not given choices. However, autonomy does not mean that students are left entirely to their own devices. Educators should guide and support students in making choices that are beneficial to their learning. Providing a structured environment with clear expectations and feedback is crucial. The balance between autonomy and structure helps students feel confident in their ability to make decisions while knowing that they are supported.

BUILDING COMMUNITY OF LEARNERS

A community of learners enhances self-motivation in learning. By encouraging collaboration, mutual support, and shared goals, such communities help learners stay motivated and engaged in their educational journey. In self-directed learning environments, where learners often lack the traditional structured educational settings, building a community is particularly valuable. This research explores how creating a community of learners contributes to self-motivation, the benefits it offers, and strategies for fostering such communities in self-learning settings.

Self-motivation is often determined by personal ingredients, such as curiosity, goals, and the satisfaction of overcoming challenges. However, external factors, including social interactions and the support of others, can significantly enhance the intrinsic motivation. According to Vygotsky's Social Development Theory,[11] learning is inherently a social process, and interaction with others plays a critical role in cognitive development. In a community of learners, individuals can share knowledge, exchange ideas, and offer encouragement, which can help sustain motivation over time. A learning community provides learners with a feeling of belonging, which is vital for maintaining motivation. When students are part of a community, they feel connected to others who share similar goals and challenges. This connection fosters a supportive environment where learners can discuss difficulties, celebrate successes, and provide mutual encouragement. In turn, this sense of belonging can reduce feelings of isolation and frustration that often accompany self-directed learning, making it easier for learners to stay motivated and persist in their studies.

Building a community of learners offers several key benefits that contribute to self-motivation. One of the most significant benefits is the opportunity for collaborative learning. In a community, learners can engage in discussions, share resources, and collaborate on projects, which enhances the learning experience. Collaborative learning not only deepens understanding but also provides diverse perspectives that can stimulate new ways of problem analysis and problem-solving. As learners work together, they can also hold each other accountable, which helps maintain motivation and commitment to their goals. Another benefit is the availability of peer support and feedback. In self-directed learning environments, feedback is often limited, and learners may struggle to assess their own progress. A community of learners can provide valuable feedback, offering constructive criticism, suggestions for improvement, and positive reinforcement. This feedback loop is essential for self-motivation, as it helps learners identify areas for growth and recognize their achievements.

Communities also provide opportunities for social learning, where individuals can observe and learn from the behaviour of others. Bandura's Social Learning Theory[12] emphasizes the significance and impact of observation and imitation in learning. In a community, learners can observe the strategies and successes of their peers, which can inspire them to adopt similar approaches and stay motivated. Additionally, seeing others succeed can reinforce the belief that success is achievable, further enhancing motivation.

Fostering a community of learners in self-directed learning environments requires intentional effort and the use of appropriate tools and strategies. One effective approach is to create online platforms or settings where learners can connect, share information, and engage in constructive discussions. These platforms can serve as virtual meeting spaces where learners can form study groups, participate in peer review activities, and collaborate on projects. For example, online learning communities on platforms like Reddit, Coursera, or LinkedIn groups can provide valuable opportunities for interaction and collaboration. Another strategy is to incorporate social elements into learning activities. This can include group assignments, discussion boards, or peer feedback sessions, where learners are encouraged to interact and support each other. Instructors or community facilitators can play a crucial role by moderating discussions, organizing events, and encouraging participation. In addition to online platforms, in-person or hybrid learning communities can also be highly effective. Local study groups, workshops, etc. provide opportunities for face-to-face interactions, which can strengthen the sense of community and support. These gatherings allow learners to build relationships, collaborate, and learn from each other in a more interactive setting.

Building a community of learners is a good strategy for augmenting self-motivation in learning. By fostering collaboration, peer support, and a sense of belonging, communities help learners stay motivated, engaged, and committed to their educational goals. The benefits of a learning community extend beyond motivation, offering opportunities for deeper understanding, diverse perspectives, and

valuable feedback. In self-directed learning environments, where learners may lack external structure and guidance, creating and participating in a community of learners can be the key to sustained motivation and success. Collaborative learning strategies are particularly effective in fostering relatedness. Group projects, peer tutoring, and class discussions can create a sense of community and shared purpose among students. According to Johnson and Johnson,[13] cooperative learning experiences, where students think and brainstorm together to achieve common goals, lead to an increase of self-motivation and academic achievement. These collaborations help learners understand the importance of their learning to their lives and the lives of others, which can further enhance their internal self-motivation.

Teachers play a significant role in fostering relatedness. Building positive relationships with students, showing genuine interest in their lives, and being approachable can make a significant difference in students' motivation levels. When students are convinced that their teachers care about them and believe in their potential, they are motivated further to succeed.

GROWTH MINDSET

Carol Dweck's concept of a growth mindset is the belief that abilities and intelligence can be developed through effort and persistence.[14] This mindset is linked to self-motivation, and students with a growth mindset are better equipped to face challenges, learn from criticism, and persevere in the face of setbacks. They show greater motivation and improve academic performance compared to one with a fixed mindset, those who believe that their proficiencies are static.

Educators can cultivate a growth mindset in students by praising their effort rather than their ability, encouraging resilience, and emphasizing that failure is a part of the learning process. Dweck found that students who were taught to have a growth mindset performed better than those with a fixed mindset.[15] Educators, by encouraging a growth mindset, can help learners develop the resilience and determination needed to stay motivated in their learning.

COMPETENCE FOR SELF-MOTIVATION

Competence is the faith and confidence in one's ability to succeed, is another factor in self-motivation. When students feel competent, they take on challenges and persist by viewing them as opportunities. Students need to feel that they can succeed in their academic endeavors. To enhance students' sense of competence, educators can set achievable yet challenging tasks, provide constructive feedback, and celebrate progress.

One effective strategy is to use formative assessments, which are assessments that are used to follow student learning and provide constructive feedback. Formative assessments benefit students by clarifying where they stand in their learning process and, going forward, what steps they need to take to improve. According to a study by Black and Wiliam,[16] formative assessments can significantly enhance student motivation and learning outcomes by helping students recognize their strengths and opportunities for improvement. Educators should build competence by setting achievable goals, providing constructive feedback, and celebrating students' progress. Formative assessments, which offer ongoing feedback rather than just a final grade, are particularly effective in building competence. By designing opportunities for students to experience success and receive positive reinforcement, educators can boost their self-confidence and motivation.

In addition to feedback, the concept of "gradual support" is helpful in building competence. This involves providing students with measured and continuing support structures that help them accomplish tasks they cannot yet do independently. As their abilities increase, the support is gradually decreased, enabling them to become more autonomous learners. Students should be set up for success, and instructors should help them and ensure that they succeed. Gradually, they will succeed on their

own. This method allows students to experience success and build confidence in their abilities, which is crucial for self-motivation.

CONCLUSION

Enabling student self-motivation in learning is a complex process that involves encouraging autonomy, competence, connections, goal establishment, and a progress-oriented attitude. By creating an educational space that meets these basics, educators can help students develop the internal drive to engage deeply with their learning, overcome challenges, and achieve their academic goals. While traditional motivators such as grades and recognitions are important, the genuine means to lasting academic success lies in fostering the motivation of learners. Educators in academia should prioritize and emphasize these fundamentals and adopt these practices, providing students with the support to becoming self-learners. Fostering self-motivation in learning involves creating an environment that promotes autonomy, builds competence, fosters relatedness, and cultivates a growth mindset. By implementing these strategies, educators can help students develop the internal drive to engage deeply with their learning, overcome challenges, and achieve their academic goals. The cultivation of self-motivation is not only critical for academic success but also for fostering lifelong learning and personal development. Technology has transformed the educational landscape, providing powerful tools and resources to foster self-learning. Personalized learning platforms, access to vast amounts of information, interactive tools, and the development of digital literacy all contribute to creating an environment where students can take charge of their own education. As technology continues to evolve, its role in promoting self-learning will only become more significant, empowering students to become lifelong learners and equipping them with the skills necessary to thrive in a rapidly changing world. By harnessing the potential of technology, educators can foster a generation of self-motivated, independent learners ready to meet the challenges of the future.

CONTINUING RESEARCH USING AI AND OTHER EMERGING TECHNOLOGIES

The objective of this work is to, hopefully, begin a widespread study into new teaching-learning paradigms in an academic world that has been modified by emerging technologies, in particular the impact of AI. The challenge facing educators is to understand ways to promote self-motivation in learners. Some proposed continuing research areas are the following:

Evaluate Emerging Technologies and Platforms: Traditional education uses a standard rigid system, where all students follow the same blueprint and progress at the same pace regardless of their individuality and their unique strengths and weaknesses. AI and other available technologies are enhancing this traditional educational model by enabling educators to customize educational content to the specific needs of each student. Technology products can evaluate student's performance and adapt the curriculum accordingly. This ensures that students receive the individual support and challenges they need, furthering and fostering their ability to become self-learners. This developing and exciting area needs further research and support.

Determine Approaches to Personalize Learning Goals: Traditional education uses a one-size-fits-all system, where all learners follow the same setup and progress at the same pace regardless of their individuality and their unique strengths and weaknesses. AI changes and improves this educational model by customizing educational content to the specific needs of each student. Machine learning algorithms analyse a student's performance and adapt the curriculum accordingly. This ensures that students receive the support and challenges they need, furthering a better understanding of the content.

Creative Ways of Using Leading-Edge Technologies to Establish How Learning Happens: This initial effort focusses on some of the promising program inclusions, due to AI, which may encourage

and motivate learning in learners. Some best practices to follow for this hypothesis must be articulated further. These may include the time required for learners to reflect and to think critically and logically about the topic. These need to be facilitated and the necessary environments created by educators, content providers and facilitators, thus assisting the learners to assume responsibility for their own learning. Herein lies a critical area of study in an online learning environment: how do we motivate learners to want to learn, versus want to achieve a goal, the goal being getting a degree.

Leverage Social Media and Virtual Infrastructures to Promote Self-Learning: Students today have access to many AI tools. The traditional mechanisms of evaluating and grading student submission are ineffective and mostly obsolete. Essays, reports, discussions, etc. can be created with AI easily and with little effort by the student. Tests, quizzes, and exams structures also require rethinking to evaluate student learning fairly and accurately. Recommended further research will create a new paradigm for assessing student learning methodologies.

Expanding Interdisciplinary and Global Academic Collaboration with Technologies: AI has increasingly become interdisciplinary, with researchers in fields such as computer science, neuroscience, psychology, linguistics, and more working together. As AI technologies advance, academia will see greater collaboration between these disciplines to address the broader challenges of AI. AI facilitates global collaboration among researchers, educators, and learners. Through AI-powered translation, video conferencing, and collaborative tools, academics from different corners of the world can work together seamlessly. This interconnectedness leads to the exchange of ideas, cross-cultural perspectives, and the acceleration of global research efforts.

Accessibility and Inclusivity: AI-driven translation products are breaking down language barriers and enabling diverse students from different settings to use educational material in their preferred languages. Speech recognition, text-to-speech conversion tools, etc. are advancing the notion of self-learning for students with varied forms of disabilities. These platforms can offer assistant and real-time help to ensure the possibility of promoting the self-learning capabilities and contribute to the learning process, irrespective, and in spite, of their disabilities and limitations.

Best Practices for Designing Education Content: AI can significantly contribute to maintaining and improving the quality of education. It can be employed to measure the effectiveness of teaching methods and course contents through data analysis and feedback collection. This continuous feedback loop allows institutions to make data-driven improvements and ensure that the education they provide remains relevant and effective.

Ethical and Social Implications with AI: While the impact of AI in academia is mostly positive, there are some grave ethical concerns. Issues related to privacy of personal and unauthorized data, algorithmic bias, and the apprehension regarding job security among educators must be carefully understood and addressed. Academic institutions must prioritize transparency, fairness, and responsible AI usage to mitigate these challenges. Academia must also be at the forefront of addressing these implications of AI. Recommendations to guide the responsible development and deployment of AI technologies will be studied.

ACKNOWLEDGEMENT

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ENABLING CHRONICALLY ILL STUDENTS' PARTICIPATION IN SCHOOL THROUGH ROBOTS

Author:
SOPHIE GAUGL

Affiliation:
UNIVERSITY OF VIENNA, AUSTRIA

INTRODUCTION

Ever since the pandemic, digitalization has increased rapidly, especially in the field of education.[1] In recent years, scientists and educators have made advances in enabling chronically ill students' participation in school. To be more precise, initiatives like ABILITI have intended to seek solutions for students whose illness hinders them from physically attending school. In fact, a concept was devised where chronically ill students could, despite their physical absence, participate in day-to-day classroom activities by means of a robot that was equipped with a camera and microphone, and that was able to move around in the classroom.

Based on the previous research, this paper aims to analyse the influence of the abovementioned telepresence systems on the learning outcomes and mental health of students with an enduring sickness. To achieve this pursuit, a literature review was conducted, and an individual working in the field was interviewed.

After elaborating more on the initiatives that intend to enable chronically ill students' participation in school, positive effects, as well as areas for improvement, will be outlined.

LITERATURE REVIEW

The following section will focus on the status quo of chronically ill students, with a focus on students with an enduring sickness in Europe. Furthermore, the following two subsections will shed light on initiatives that intend to assist individuals who cannot attend school; namely ABILITI, the overarching network, as well as "Life happens wherever you are", an Austrian project.

Status quo

As a result of various illnesses, such as oncological diseases, heart problems and other maladies, children may experience hospitalization. Due to this, they are excluded from their day-to-day life at school, which, in turn, prompts deficiencies in their learning outcomes.[2] Furthermore, as interactions with peers and teachers at school are vital to develop social skills and other competencies such as confidence, students who are hospitalized for an extended period of time experience a decline in their social skills.[3]

In the EU, around 520.000 students[4] are treated at a hospital due to a chronic illness. Considering this number, it becomes evident that the need for strategies to enable school participation for chronically ill students is demanding attention. Therefore, various initiatives have been created to support the aforementioned students.

Overarching project – ABILITI

The first initiative that this paper will shed light on is ABILITI, which stands for "Avatar Based Interaction and Learning in Times of Illness", and is an Erasmus+ project in Austria, Belgium, Denmark, Estonia, and Spain.[5] Through the use of telepresence systems such as avatars and resources for teachers to appropriately engage with the technology, they intend to create methods to include chronically ill students in everyday school activities.[6]

On their website, they provide teachers with various resources, such as a handbook on how to include telepresence systems in teaching, and a toolbox that encompasses assessment tools to reflect on the potentials and limitations of the aforementioned technology.[7]

In their transnational analysis report, ABILITI states that telepresence systems successfully manage to enable chronically ill students' participation in lessons as well as extracurricular activities, leading to enhanced learning outcomes and a decreased feeling of isolation.[8] Furthermore, the three key factors in assessing the advantages and disadvantages are outlined, namely "privacy, set-up and handling, and cost".[9]

Life happens wherever you are – an Austrian initiative

Another initiative that this paper will focus on is called "Life happens wherever you are". As a part of the overarching ABILITI concept, this Austrian project, encompassing a cooperation between the Medical University in Vienna, the company "Die Berater", the Medical University in Klagenfurt and the Vienna hospital school, aims to equip chronically ill students with little robots called avatars.[10] Through this measure, the project partners want to ensure that pupils who are unable to attend school can still participate in everyday classroom activities and social interactions with their peers.[11]

The project was launched in November 2020 and in the meantime, approximately 20 avatars were distributed to students in need.[12] The aforementioned avatars are endowed with a one-way camera that facilitates the pupil to see the classroom, a microphone that allows the student to speak, and humanoid features such as eyes that can display different emotions. Furthermore, differently colored lights simplify the communication of specific needs; for instance, a blue light signifies that the student should not be called on as they require undisturbed time on their own. For the sake of personalization, the students can decorate the avatar, for instance by sticking eyelashes on it.[13]

Apart from its implementation at schools, the avatar is also employed in tertiary education to ensure chronically ill students can pursue a degree at university. For instance, the University of Vienna has decided to use an avatar for one of its students enrolled at the Institute for Geography. By expanding this project beyond the level of primary and secondary education, a valuable step towards ensuring inclusive education for everyone – as documented in the sustainable development goals[14] – is taken.

Furthermore, similar projects cumulated under the umbrella of the overarching initiative ABILITI can be found in other countries. To be more precise, the Belgian organization Bednet follows a similar aim by facilitating live streams between students who are too ill to attend school and their respective classrooms, supporting approximately 1000 children in need each year.[15] Outside of the ABILITI network, avatars have also been employed to aid chronically ill children, namely in Norway, Sweden, Germany, and the United Kingdom, where around 1200 avatars have been distributed,[16] depicting a non-negligible demand for telepresence systems in primary and secondary education.

RESULTS

Considering the previous sections, considerable positive effects were found. On the one hand, the usage of telepresence systems enhanced the learning outcomes of chronically ill students, and on the other hand, it improved their mental health. The results are based on both general findings from

previous research, as well as hypotheses about the planned implementation of a telepresence system at the University of Vienna.

Learning outcomes

Overall, it can be said that it became evident that telepresence systems enhance the learning outcomes of chronically ill students who are unable to attend school. To be more precise, owing to the fact that the pupils can still attend school virtually, they are able to learn at the same pace as their peers, avoiding falling behind on the lesson plan. In a case study, it was revealed that a 10-year-old patient with a brain tumor was, due to the usage of her avatar, able to complete the school year as the best student in her class.[17]

Further research also depicts the enhanced learning results in chronically ill students who utilize a telepresence system. To be more specific, with hospitalized students who do not employ an avatar, it was observed that they are at a higher risk of developing learning difficulties, cumulative absences from school, and overall educational deficiencies compared to their peers.[18] While pupils may still experience learning shortcomings due to the severity of their illness,[19] if this tendency is counteracted by telepresence systems, their access to education is increased, allowing them to learn through different channels, such as the visual and auditive channels.[20] In the case of students with an anxiety disorder, it was reported that the usage of telepresence systems facilitates certain learning activities, such as group activities and presentations since these activities tend to feel more manageable for the affected student if they can complete them virtually.[21]

In the case of the student at the Institute of Geography at the University of Vienna, the planned implementation may be meant to enhance the learning outcomes in order to enable the affected student to complete their degree. More precisely, instead of relying on the sparse number of online courses offered by the university, the student could participate in on-site courses by means of their avatar, engaging in group activities and full-class discussions with their colleagues, and delivering presentations.

Mental health

Apart from the learning outcomes, the usage of avatars also ameliorates the mental health of affected individuals. Due to the fact that they are not alone in their hospital bed or at home, but instead integrated into lessons and everyday school activities such as breaks and excursions, their sense of isolation decreases drastically.[22] To be more precise, as they are connected with their peers and teachers through the telepresence systems, a sense of belonging is created, thereby reducing their distress and anxiety and enhancing their motivation to participate in lessons.[23] This connectedness is especially achieved through the participation in extracurricular activities, enabling them to develop friendships and participate in activities such as book fairs, choir rehearsals, prom, and religious functions.[24]

Moreover, the employment of a telepresence system has proven to facilitate the process of returning to school after the treatment of the respective illness is completed.[25] More specifically, owing to the fact that the students virtually remain in touch with their peers and teachers and continue to participate in lessons and everyday school activities, school is perceived as something they are used to, thereby reducing their anxiety when transitioning back into in-person school.[26]

In the case of the student at the Institute of Geography at the University of Vienna, the planned implementation of a telepresence system may be meant to improve the mental health of the affected student by allowing them to foster peer relationships. Furthermore, it is conceivable that the patient may participate in campus events such as parties, graduation ceremonies, and excursions, allowing a sense of normalcy despite their home-boundness.

Finally, it can be said that the usage of telepresence systems allows students to return back to school more seamlessly. Since they experience a feeling of connectedness and are able to stay in touch with their peers, reverting back to the physical classroom after their illness has been cured becomes simpler.[27]

DISCUSSION

As can be seen from the results, the usage of telepresence systems revolutionizes the school experience for chronically ill students. Instead of being isolated in hospital rooms or at home, which can take a toll on both their learning outcomes and their mental health[28] they are enabled to participate in lessons, breaks, and even excursions. The following two subsections are intended to outline the potentials of a school of the future, where telepresence systems are normalized, as well as areas for further improvement.

The school of the future

Considering the abovementioned results, telepresence systems provide chronically ill students with a new perspective, allowing them to regain their access to lessons and everyday social interactions at school. Therefore, envisioning a school of the future where these avatars are more normalized becomes fathomable.

To be more precise, current developments point towards an increased use of telepresence systems for students who require one.[29] In the educational system of the future, it becomes conceivable that every school could own a quota of telepresence robots in order to quickly distribute them to their pupils if one of them falls ill. One may even go as far as to say that these avatars could also be employed to support students who have to stay at home for shorter periods of time, for instance because of an infection that requires them to isolate themselves.

In the present, telepresence systems still have some aspects that may require further improvement, more precisely, persisting technical difficulties. For instance, issues related to the Internet connection or the transmission of the video and audio have occurred while the avatar was in use.[30] Moreover, when moving in the classroom, some students have reported that their telepresence robot tends to crash into objects or even individuals.[31] Furthermore, it is noticeable that in some cases, students who utilize an avatar experience bullying by their peers.[32] In an idealized future, these negative aspects would both be resolved – for instance by technical improvements that are carried out on the robots, as well as preparatory classes on how to interact with telepresence systems, both for the students and the teachers.

Overall, however, telepresence systems have proven to be a suitable tool to enhance the school participation of chronically ill students who are hospitalized or homebound. Therefore, they play a role of paramount importance in the school of the future due to their potential for fostering a more inclusive environment in which everyone can have access to education.

Areas for further improvement

Despite its effectiveness, some aspects of the telepresence system that is currently used in Austria leave room for further improvement. For instance, the avatar could be funded by health insurance instead of relying on financial support from companies.[33] This measure would allow for a more flexible distribution and a simplified procedure for those who require an avatar.

Furthermore, as telepresence systems currently mainly focus on children with physical diseases such as cancer and long COVID,[34] it may be an option to broaden the scope of the avatar to also support students who cannot attend school due to mental illnesses. Especially considering the fact that over

2500 school-aged children in Austria are residing in mental hospitals,[35] these individuals could be supported more through the employment of avatars.

Another aspect that may be expanded on is the usage of telepresence systems in tertiary education. Since according to the sustainable development goals,[36] every human being has a right to pursue a degree in an inclusive environment, employing an avatar would be a feasible measure to fulfill this right for students who are not able to attend in-person university. Currently, only a singular avatar is planned to be utilized for this cause, namely at the University of Vienna.

Finally, in order to ensure competent handling of the avatars, telepresence systems should be a mandatory part of pre-service teacher education, as well as a topic in professional development courses.

CONCLUSION

In conclusion, the aim of the present paper was to accentuate initiatives to enable the participation of chronically ill students in school. This pursuit was achieved by conducting a literature review as well as an interview with an employee of the company "Die Berater", whose function is to distribute avatars to pupils in need of them. It can be said that telepresence systems have proven to be an effective way of enabling chronically ill students' participation in school. Based on findings from previous studies, it can be argued that the learning outcomes and the mental health of affected children are significantly improved as opposed to those who do not employ telepresence systems to participate in school.

While there are still some areas for further improvement, the findings imply that telepresence systems shape the school of the future, fostering an environment of inclusion and education for everyone. Further research may focus on the effectiveness of telepresence systems in tertiary education as this field has – at the present date – not been the subject of extensive research despite its potential to improve the learning achievements and mental health of chronically ill university students.

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THE DIGITAL PARADOX IN ARCHITECTURAL DESIGN: THE AVOIDANCE OF A PROCESS OF IMITATION OR MIMICRY, GESTURES, OR MAKE BELIEVE

Author:
DAVID MORTON, JAMES CHARTLON

Affiliation:
NORTHUMBRIA SCHOOL OF ARCHITECTURE, NORTHUMBRIA UNIVERSITY, UK

INTRODUCTION

The architectural design studio is a learning environment, where analogue skills play a significant role in the exploration of a design problem and therefore its solution. The representation of a design problem and potential solution involves understanding and articulation, within which conceptual design and illustration are two inseparable acts for most students. Illustrating and model making enable iterative stages of a design solution in two- and three-dimensional forms. Particularly in the early design stages, as an analogue technique, illustration allows for rapid iteration and testing of design exploration. It can convert tacit knowledge into explicit knowledge, articulating design ideas. The use of physical models allows two-dimensional ideas to be formed and create a three-dimensional visualisation of the design. The downside is that a new model needs to be made for each iteration. CAD requires fixed geometrical points in order to create a digital model. Some people claim that this limits freedom of form. However, all building designs should have an underlying geometry, and CAD demands a discipline that ensures it will occur.

In this study the term 'Computer Aided Design (CAD)' is used as it correctly defines representation of a design in digital format that includes three dimensional lines and points in space, but not object-oriented models. Therefore, the term 'CAD' includes sketchUP, AutoCAD and not Building Information Modelling (BIM) such as Revit as this includes imbedded object-oriented data. Advances in these earlier three-dimensional object-oriented CAD systems have resulted in the emergence of Building Information. Unlike entity-based CAD, where the series of 'lines or three-dimensional objects on the screen have no relationship to one another, object-based CAD is coded to represent real-life building components with embedded data and share a relationship with each other'.[1]

THE NEED FOR REALIGNMENT OF THE DESIGN PROCESS IN THE STUDIO

The aim of this study is to analyse the effect of CAD on the design processes of architectural students, to understand when and why CAD is used, during what stages of the design process, and its relationship with analogue activities. This will provide guidance for teaching architectural studios to support the students' knowledge on the application of methods and navigation through the design process. There has been a general assumption that CAD has represented a shift in how students view, analyse, and develop design ideas. There is a notion that students' design processes are becoming re-prioritised, but previous research has not really examined this assumption.

Prior to this study, there had been limited research that focused on student approaches to design processes. The literature review established that although published research projects have attempted to capture activities in design and creative problem solving, they have not mapped and analysed the design processes of architecture students through assessment of both analogue and CAD, nor examined when and why particular methods could be applied, nor the coherence of the processes.

This study addresses the gap in knowledge by evaluating the design processes of 16 master's students in architecture. Through interviews, observations, and documents, findings have been collated to gain an original understanding of the effect on processes and products. To support this study, the research was framed around understanding the students' design processes by examining the occurrence of analogue and CAD methods in their design exploration.

Early Pedagogic Studies of the Design Process:

Affording context to the analysis of the design process models is crucial to gaining understanding for the field of design process research. Essentially the design process is conceived as the stages undertaken to move from an idea to a product and is reflective across design disciplines – 'it is an evolution of ideas, that will lead to an end result, it is a journey that has a number of stops and detours along the way'[2] and which researchers have attempted to capture within a model. However, there is substantial disagreement concerning how designers undertake this process. Within architecture, the design process has been generally regarded by educators and theorists as non-linear, suggested: 'the assumed linear progression of design process pays little heed to the non-linear, recursive and cyclical nature of the creative project investigation and design development'.[3] This viewpoint is supported by Kowaltowski, who also highlights how the creative design process is not linear or didactic, but cyclical and iterative.[4] However, Abdelhameed states that although a design process may be cyclical (in terms of iterative steps), there are 'distinct stages within the design process that may be reconsidered and then reapplied in terms of a new hybrid reiterative step towards design resolution'.[5]

Creativity, as a concept, is particularly problematic; historically, it has been misinterpreted as a cognitive process that is limited to a few 'divine' individuals who have been blessed with unique talents. It has also been associated with the artistic disciplines, such as painting, sculpture, and poetry. Although these interpretations have been challenged as extant literature suggests that anyone can be creative and, in any subject,[6] authors highlight that the term has been so overused,[7] and applied to so many contexts, that its meaning has become diffuse and misinterpreted.[8]

Gerlenter argues that many schools of architecture still 'teach the subject as a language',[9] akin to some sort of code, based on universal principles, such as: rhythm, proportion, scale and balance. Armed with this knowledge it is believed by teachers of architecture that their students can solve an architectural problem. Gerlenter asserts that this belief is fundamentally flawed, as it gives the impression to the student that this is 'where their investment ends and that there is no creative input required'.[10] This pedagogic method is also questionable as this language is usually taught independent of its application. There has also been an over-reliance on precedent, rather than concentrating on design complexity and creativity.[11] In the traditional studio environment '… priority is given to design-as-product, rather than to design as a dynamic and interactive process'.[12] Students talk of working blind, or at best intuitively; consequently, their process is either erratic, directionless, or they become reliant on guidance from the tutor as students are increasingly unable to solve new problems, only ones that they have seen before, as a rote activity. Watson argues that students have little opportunity to attain an understanding or an expertise[13] in how they undertake their own design activities.

DESIGN PROCESS MODELS:

Understanding stages of design enquiry and navigation Occurrences of why CAD and analogue methods are utilised in the design process by architecture students.

Researchers, educators, and commentors on the application of CAD within the architectural design process have expressed concerns that it is perceived as a tool for presentation and not for design. This narrative appears to originate from tutors who have a limited knowledge of its application, having often been educated themselves in the use of analogue methods. On the other hand, there is legitimate disquiet that students may just adopt standard components from CAD libraries, rather than design specifically for the particular studio project. It is therefore not surprising that, throughout the design process, students were mostly driven to use CAD to produce visualisations of their schemes. Nevertheless, while CAD depictions are frequently used throughout the design process to aid the communication of schemes, the generation of visualisations can also act as a mechanism for students to analyse and resolve design ideas. Therefore, CAD visualisation should not just be an output for students, but an opportunity to conceptualise and resolve scheme development more rapidly and accurately compared with analogue methods. This proposition does not align with the use of CAD by the students within this study, but the proposed method shows CAD being increasingly used where students desire exploration of their design ideas in a dimensionally accurate CAD environment. The digital activities allow for quicker testing and retesting of iterations once the CAD model has been created, generating the potential for a detailed understanding of design solutions. Thus, conceptualisation, resolution, and coordination are key gains for students choosing CAD for design development, as well as visualisation. The use of CAD for conceptualisation and resolution of design ideas also allows students to achieve a more thorough understanding of their design proposals. Beyond its visualisation capabilities, CAD permits integrated and immersive opportunities in the design resolution, allowing students to experience iterations rather than it being merely illustrative.

The primary reason why the students used analogue methods in site analysis and initial brief formulation in the initial months of the study was that they indicated a preference to start with analogue methods to gain an initial understanding of site and brief before adopting CAD methods. While it might be expected that the students would become more engaged with CAD, actually, throughout the design process, they continued to use analogue methods, and CAD did not become a means of conceptualisation and resolution of design ideas and testing the design brief. Only in the last month was analogue replaced by CAD methods. It could be argued that analogue methods compensate for the lack of skill in CAD to conceptualise and resolve design ideas and remove designer block. Thus, the students experienced periods of indecision where analogue modes were short and used as a method to quickly assess an idea without formal commitment to a CAD model. In the data, the students noted that analogue methods were a swift way of confirming a design idea before moving into CAD for it to be formalised.

The effect of CAD, in parallel with analogue methods, on the design process of architecture students.

The established patten of architectural education assumes that visual conventions consider different scales to visualise design ideas, interpret them, and create representations. Clearly, traditional architectural educational models used analogue methods for design exploration. It has been shown that as CAD was introduced, tutors expressed concern that it would inhibit creativity and therefore advocated CAD as merely an opportunity to enhance visual output. Nonetheless, the increasing use of CAD represents an opportunity to shift from traditional views to a new way of developing and analysing. The current situation is that tutors are rather ambivalent to students' methods, as they are

primarily concerned with the product. Thus, there is little teaching of design process connected with the studio. Moreover, there is an assumption that students will just be able to use CAD, but this is not true. The evidence from this study demonstrates a great variation in students' facility with the technology, which can lead to a wide range of quality in their building designs. There needs to be more debate on methods in architectural design, and a shared vision on how CAD should be taught and used. With the appropriate use of analogue and CAD methods, students can gain a greater understanding of their design ideas through the exploration of form, space, and structure. Furthermore, the ability to effectively navigate through an architectural design process is regarded as being one of the most important attributes for architecture students to possess. CAD allows for an integrated design resolution, which is not so easy with analogue methods, allowing students to fully engage with iterations rather than merely illustrating them. This provides a more efficient and informative approach to testing design ideas. The resulting thematic analysis and timelines set out in the study provide clear direction on when, what, and why students use analogue and CAD methods. It has not really been considered previously that when analogue methods are intermixed with simulation afforded by CAD, even early in the process, students gain a more comprehensive understanding of their designs and can navigate a process with greater ease. Nevertheless, while early adoption and the continuing use of both methods is considered as a positive to the design process, an over-reliance on CAD methods can distance students from the physical realities, displacing their learning and inhibiting design progress. Therefore, it is desirable for students to use a blend of analogue and CAD techniques to navigate through their design processes. Also, while the advantages of CAD are clear, its use is based on student confidence, with students who are more skilled having the option to apply it earlier and more extensively in the design process. Students lacking these skills become hesitant, reducing the available time to move between different methods of exploration. This again draws attention to the need for students to be effectively taught about and supported in the use of CAD, to give them confidence in its application and knowledge about its use.

Techniques and procedures: Data Analysis

This study used thematic analysis to analyse interviews with students to understand the effect of using CAD in the design process. The use of thematic analysis as a method of evaluation in 'methods used in processes' has been deemed very valuable in gaining detailed understanding through the 'identification of common themes within qualitative data'.[14] This approach will be adopted to gain a comprehension of 'why' the students use CAD alongside more traditional methods of exploration, such as sketching or analogue model making the recognition of themes can then be made across the dataset, allowing a comprehension of exploration.

Thematic analysis focuses on 'identifying, analysing and interpreting themes within qualitative data'[15] and as such is the most appropriate approach for this study. The following steps within the process of analysis outlined below demonstrate the transparency of the researcher in 'formulating overarching themes from the data'[16] collected from participating students within the study.

Findings: Thematic analysis and Establishing activities

Activities have been established as a result of thematic analysis based on the monthly interviews carried out throughout the study. Terms generated as part of the thematic analysis (described in Chapter 4) are used to identify and extract phrases from the interviews relating to design process activities and the context in which they were undertaken, which are then further analysed and grouped in regard to similarities, to produce a definitive list of sub- and primary activities undertaken by the students. An example of this process and the resulting sub- and primary activities is shown in Table 1.

TERMS [VARIATIONS]	SUB-ACTIVITY	PRIMARY ACTIVITY
• Site [visit / survey / analysis / model / notes] • [Terrain / Physical / CAD] Model • [Historical / Digital] Maps • [Historical / Digital] Photos • Researching site [history / information] • Analysis of the [site / terrain / landscape] • [Notes / sketching / sketches / painting(s) / drawing(s) / illustration(s) / photos] of the [site / terrain / landscape]	• Site visits • Visual recording of the site • Researching site information (digital and historical maps, photographs, events, history, etc.) • Use of analogue and CAD methods for data capture and analysis of site	ANALYSING THE SITE
• [Accurate / accuracy / coordination of] [plan / section / elevations / proposal / scheme / drawing information / CAD model] • [CAD visualisations / renders] of [proposal / scheme / building(s)] • [Sketching / sketches / painting(s) / drawing(s) / illustration(s) / diagrams / physical models] of [proposal / buildings / scheme / technical / structural]	• Accuracy and dimensional coordination of proposal • Use of CAD to visualise proposal • Use of analogue methods to create representations of the proposal • Visualisation (CAD or analogue) of technical or structural details • Exploring materiality via analogue or CAD methods	VISUALISING THE PROPOSAL
• [Exploring / explored / developing / developed / designing / designed / working on / worked on / conceptualising / conceptualised] the [massing / scale / form]	• Conceptualisation and exploration of the principles of form, scale, and massing using analogue or CAD methods • Creation of initial massing models (CAD or physical)	THEMING FORM, SCALE, AND MASSING
• Structure • Envelope • [Technical / structural] details • [Materials / materiality / finishes] • [Technical / dimensional / structural] coordination • Alignment • [Technical / structural / building / energy] performance • [Lighting / performance / environmental / energy / sustainability] strategies	• Alignment of overall scheme and technical detail(s) • Technical coordination of structure with building form • Exploration of materials • Developing and exploring technical and structural details • Building performance assessment (energy, structure, etc.) • Schematics for the constructional and environmental strategies	INCORPORATING TECHNICAL RESOLUTION
• Exploring [ideas / designs / concepts] • [Sketching / sketches / painting(s) / drawing(s) / illustration(s) / diagrams / physical models] of [ideas / buildings / scheme / design(s) / concepts] • [Creating / developing / building / modelling] CAD model(s)	• Using CAD or analogue methods to develop and explore design options based on existing information • Create models (CAD or Physical) to synthesise work to explore design ideas	EXPLORING DESIGN IDEAS

Table 1. Example of Terms, Sub and Primary Activities from thematic analysis

The study established five common stages of an architectural design process: understanding, definition, synthesis, analysis and evaluation, and presentation. Through the review of existing

models, the study established that earlier stages of the design process were focused on activities of data gathering, analysis, and formalisation of the design problem (understanding), before structuring the problem to explore the relationships of problem and solution and allowing for a response to the problem (definition). Later stages of the design process focused initially on synthesis activities to inform the 'solving process' in order to influence the design development, before undertaking a stage of analysis and evaluation, with the aim of developing and refining the problem in parallel to ideas for a solution. The final common stage in architectural design process models considers the presentation and communication of ideas and solutions.

In considering these the definition of these stages and the activities established from the thematic analysis, it is possible to align primary activities with stages, as shown in Table 2.

STAGES	ACTIVITIES
STAGE 1 - UNDERSTANDING Nature of thinking and reasoning mechanisms, (data gathering, analysis) central issue to the 'design process	Formulating the brief
	Analysing the site
	Appraising the context
	Illustrating and modelling the site
	Establishing a schedule of accommodation
STAGE 2 - DEFINITION Structuring the problem, explore the relationships of problem and solution	Verifying data from site and context
	Organising spatial planning
	Reflecting on brief, site, and context
	Theming form, scale, and massing
	Illustrating and modelling initial notions
STAGE 3 - SYNTHESIS Pre-structuring a design problem informs the solving process	Responding to the site
	Relating to the context
	Developing the spatial principles
	Exploring design ideas
STAGE 4 - ANALYSIS & EVALUATION Developing and refining the problem in parallel to ideas for a solution	Visualising the proposals
	Testing the design ideas
	Resolving the scheme
	Assimilating technical issues
	Contextualising the design
STAGE 5 PRESENTATION Communication of ideas using traditional projected conventions of plan, section, and elevation, including conventions and fundamental pedagogies	Relating the proposals to society
	Envisioning form and spaces
	Incorporating technical resolution
	Co-ordinating the visualisation

Table 2. Alignment of Activities with Stages within Design Process

Proportion of analogue and CAD use

In establishing an understanding of the design process undertaken by each student studied, it is important to also establish the adoption and application of analogue and CAD methods used throughout the design process, the proportion of this use, and their relationship to design stages and activities for each individual student. The proportion of analogue and CAD methods used in design stage activities can be established from the analysis of design work undertaken and work produced each month, together with data from the monthly student interviews. In doing so, a general proportion of analogue and CAD use resulting from an examination of work produced and interviews with students, was established for each month and aligned to each activity, providing insight into the relation between methods used and activities and stages undertaken.

DESIGN PROCESS STAGE	DEFINITION
UNDERSTANDING	Understanding in the architectural design process is defined as 'nature of thinking and reasoning mechanisms. (data gathering analysis) central issue to the design process'
DEFINITION	Definition in the architectural design process is defined as 'structuring the problem… to explore the relationships of problem and solution and allowing for a response to the problem to generate a potential solution'. Definition in the architectural design process is defined as 'a way of thinking based more on the simultaneous multiplicity of hypothesis – prediction. However, it must still be formulaic and follow a methodological rigour'.
SYNTHESIS	'pre-structuring (a design problem) informs the 'solving process' in order to influence the design development outcomes'.
ANALYSIS & EVALUATION	Analysis & Evaluation in the architectural design process is defined as further 'developing and refining the problem in parallel to ideas for a solution'. 'inquiry between two states (that of problem and solution) which are both converging and diverging in the direction of process'.
PRESENTATION	Presentation in the architectural design process is defined as 'communication of ideas using the traditional projected conventions of plan, section and elevation, including foundation issue, conventions and fundamental pedagogies'.

Table 3. Design process stage and definition

CONCLUSION

Gaining an understanding of the application of CAD and analogue methods within the design process in architectural education.

For over 30 years, architecture students have been increasingly using digital equipment. Yet, this is against a complex background that is not necessarily based on increasing the efficiency of their design processes. The Fourth Industrial Revolution has engendered a pervasive use of digital technology. Young people are at its forefront, with a range of activities from social media to gaming. There has also been pressure from practice for students to use CAD as a means of obtaining employment. This can be seen as the first stage of introducing Building Information Modelling into studio projects, which may morph into Building Information Management, with the dangers of sacrificing design quality for building production. There has also been contradictory advice from tutors, with some still supporting [17] Lawson's (1998) statement that CAD is merely Computer Aided Drafting. This presents an inconsistent picture for use of analogue and CAD in architectural education, which is confusing for the students. It is therefore not surprising that the results of this study show that the students adopt erratic sequencing in their design activities that leads to unreliable development of their projects.

The study also highlighted the advantages of conceptualisation of the design by working with an intrinsically accurate digital model and established that students could benefit from applying CAD beyond visualisation. Therefore, the use of CAD can integrate the previously separate activities of conceptualisation and visualisation into a single model. In doing so, it enables development of the design and its visualisation at multiple scales. One of the complicated processes in analogue is the repeated need to move from the general to the particular and back again, in a reiterative pattern, as this requires new drawings for each iteration at both scales. The CAD model can be used at any scale, and as previously stated, has the flexibility to adjust to each iteration. In addition, the exploration of form, space, and structure, amongst many other design layers, can be accessed and experienced by students and brought together at any scale. Thus, the use of CAD enables the process to blend the generation and interpretation of design ideas. Nevertheless, teaching CAD requires new approaches that consider its effect on the design process. The tutors need to advise how and when analogue and CAD should be used. They should also not assume that somehow the students will acquire all the necessary skills. It is clear from the study that some students are considerably more proficient in CAD than others. There are also variations between the systems. So, CAD teaching is necessary beyond its application in the design studio. In this way, it is suggested that the students will be able to better organise their design processes, complete activities in a timelier manner, and have the potential for higher quality products. Yet, in addressing the adjustments required in education, the study has shown that there has been a lack of research and production of formal guidance. Before this research, it seems that there were no studies that considered that analogue and CAD might be used together, and the relationship of these methods to the design process. This research has identified the importance of students navigating the process, gaining awareness about planning it, and resolving the concept of designer block. The findings suggest that the current focus on CAD by some educators as merely a visualisation tool inhibits student progress and reduces the potential value of using a virtual CAD model as a means to explore, test, and resolve design ideas, it is now timely to re-think this mindset and combine the previously separate activities of conceptualisation and visualisation.

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BRIDGING ACADEMIA AND INDUSTRY: USING REFLECTION TO ENHANCE INTERNSHIP EFFECT ON STUDENTS: INSIGHTS FROM THE SHENKAR TRUE EXPERIENCE PROGRAM (STEP)

Authors:
ROEI ZERAHIA, MICHAL PHILLIPS-BERENSTEIN, MICHAL PAUZNER

Affiliations:
SHENKAR. ENGINEERING. DESIGN. ART., ISRAEL. HEBREW UNIVERSITY OF JERUSALEM, ISRAEL

INTRODUCTION

Academia's role is to educate and provide students with knowledge. Still, in many cases, students graduate without practical experience in their field of study, as most academic institutes devote their time to courses that help students acquire knowledge. As the world and workplace are in continuous flux, bridging the gap between academia and industry prepares students for work.[1] Academic internships decrease this gap by allowing students to become acquainted with the industry during their studies to better understand what their future will look like.[2]

Internships are a transitional experience between school and work providing students an opportunity to integrate academic learning and on-the-job experience.[3] In Kolb's Experiential Learning Theory, experience is a core element in the learning process as "knowledge is created through transformation of experience."[4] Thus, internships are an experiential pedagogy.[5] Reflective observation is one key mode of transforming experiences and is a widely recognized pedagogy, especially in experiential learning.[6] Reflection draws meaning from the experience and develops learning.[7] It can occur during activities (reflection-in-action) or by stepping back from the experience and analyzing it from afar (reflection-on-action).[8] Internships encourage reflexive processes facilitating self-knowledge and identity development[9] and prepare students for the school-to-work transition,[10] and are, therefore, a pedagogy of interest for internship effects.

Internship programs in Israel are a developing practice in higher education. A study on internship programs in Israel revealed that five years after completion, students who participated in internship courses had higher employment rates and salaries than those who chose not to participate.[11]

Internship in Shenkar

Shenkar is a public multidisciplinary higher education institute in central Israel, offering bachelor's and master's degrees in engineering, design, and arts. The Shenkar True Experience Program (STEP) integrates structured, supervised internships into the academic curriculum, related to students' majors or career goals. STEP provides practical experience, enhances education, and prepares students for professional careers. These internships are available to second-year graduate students across twelve

bachelor's degree departments, requiring 120 hours over one semester, earning four academic credits instead of financial compensation.

STEP involves collaboration between students, Shenkar, and host organizations. Students apply theoretical knowledge in real-world settings, gaining new skills and insights into their chosen profession. Shenkar supports students through faculty supervision, learning objectives, and academic curriculum alignment. Host organizations offer mentorship and practical training while benefiting from students' fresh perspectives.

STEP includes two pillars: host organizations accepting interns for a semester and an academic course with a structured syllabus. Students complete assignments and finish with a presentation or report reflecting students' experiences and demonstrate their learning outcomes. Final grades are equally weighted between mentors' and lecturers' assessments. Figure 1 outlines the internship process
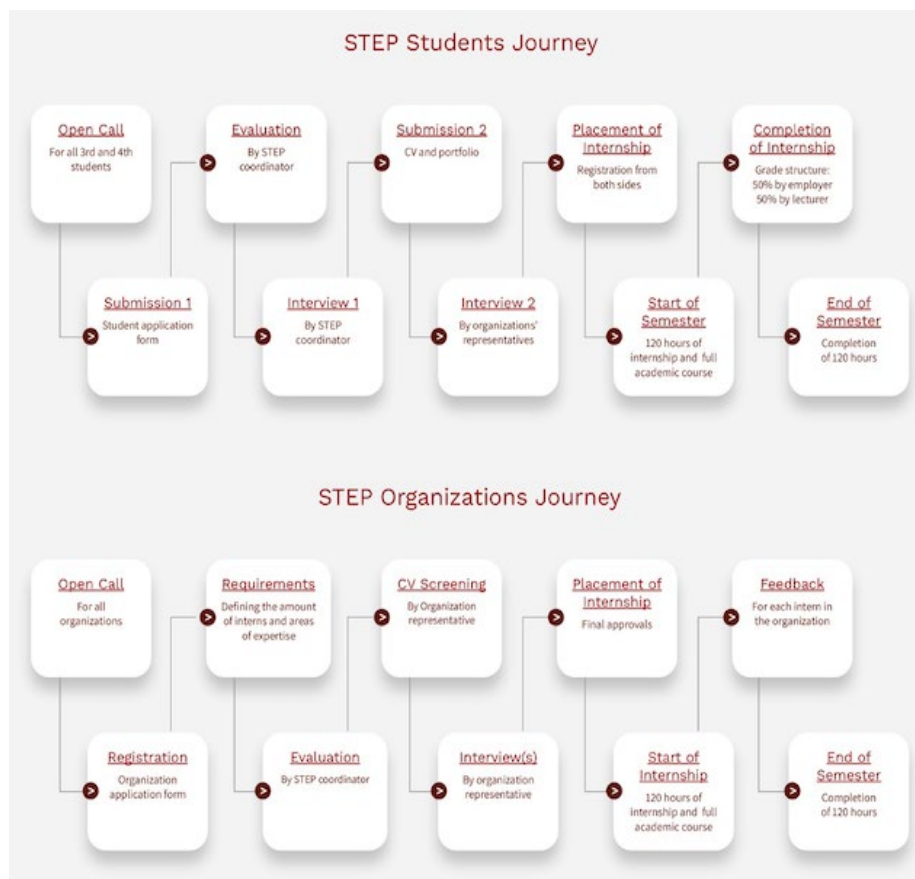
Figure 1. Flow of internships in STEP, students and organizations

RESEARCH OBJECTIVES

STEP has recently become part of Shenkar's academic curriculum. The nature of learning in these courses is fundamentally different from other academic courses, as are the teaching methodologies and outcome assessments. Consequently, there is a need to study students' experiences and the effectiveness of training for employment matching their education. This study's goal was to assess students' improvement in competencies and skills during internships, alongside preparedness for the job market. Four desired outcomes of the internship course were defined for transitioning to the workforce: occupational self-efficacy, occupational identity development, twenty-first-century skills,

and problem-solving strategies.[12] The second aim was to evaluate how reflective processes enhanced self-learning throughout the internship.

METHOD
Participants and procedure

Participants were 233 students from ten departments enrolled in twelve STEP courses during three semesters of the academic year of Fall-2022-Summer-2023. There were four, three, and five courses in the fall, spring, and summer semesters, respectively. Only three of the four Fall semester courses were included in the study. As seen in Table 1, 66.2% were female, 45.1% were from the Faculty of Engineering, and 54.9% were from the Faculty of Design.

	Fall semester	Spring semester	Summer semester
Number of courses	3	3	5
Number of interns	62	72	99
% of Faculty of Engineering	30.6	44.4	38.4
% of Faculty of Design	69.4	55.6	61.6
% of female students	64.5	62.5	68.7

Table 1. Participants' background

Students in the STEP courses were asked to answer questionnaires as part of the course requirement at the beginning of the class and weeks three, nine, and twelve. Follow-up questionnaires were sent four and twelve months after the end of each semester (see Table 2).

Time (weeks)	Fall semester	Spring semester	Summer semester
0	Pre-test	Pre-test	Pre-test
3	Reflection	Reflection	Reflection
9	Reflection	Reflection	Reflection
12	Reflection	Reflection	Reflection
14	Post-test	Post-test	Post-test
14 + 4 months	Post-test	Post-test	Post-test

Table 2. Research procedure

At the beginning of each semester, students were randomly assigned to the experimental (reflection) and control (non-reflection) groups. During the Fall and Spring semesters, one class was assigned to the control group. During the Summer semester, students were randomly assigned to the control group. The preliminary analysis pointed to possible bias due to one class consisting of multidisciplinary art students, who are not representative of typical STEP participants. Therefore, during the summer semester, 25% of each class was randomly assigned to the control or experimental group.

All 233 students answered the first questionnaire, and 33.5% were randomly assigned to the control group. While the control group was guided toward reflective processes concerning their internship, the questions focused on using generative AI tools in the academic courses. The response rate of the researched groups to the first, second, and third reflection assignments were 80.6%, 81.9%, and 82.6%, respectively. The response rate to the end-of-course questionnaire was 70%, with the control

group comprising 30.7%. The response rate to the 4-month follow-up was 79%, with the control group comprising 33.2%.

Instruments

Pre-test questionnaires

Participants' backgrounds were requested regarding their gender, age, department, academic year, degree, mother tongue, and whether they were currently working. They were also required to enter the last four digits of their mobile phone number to identify and connect future responses to the same student.

To assess occupational self-efficacy, the short version of the Occupational Self-Efficacy scale was used (e.g., "I can meet personal goals on the job").[13] Answers were indicated on a five-point Likert scale, ranging from 1 (not true at all) to 5 (true). A mean score was computed for each participant (M=4.29, Sd=.04, $C\alpha$=.86, N=233).

The Occupational Identity Scale was adapted from the Hebrew translation of the Vocational Rating Scale.[14] The Hebrew version[15] comprises forty items (e.g., "I have a clear picture of my work-related abilities and characteristics"). A group of five vocational psychology experts and lecturers teaching and evaluating the STEP courses selected the ten most relevant of the forty items. The eighteen items selected by three or more experts were included in the questionnaire. Participants rated the degree to which they agreed with the items on a scale from 1 (strongly disagree) to 5 (strongly agree). A mean score was computed for each participant (M=3.7, Sd=.18, $C\alpha$=.87, N=233).

Self-assessment of the twenty-first-century skills included fourteen skills found to be critical in the workforce by organizations concerned with higher education (e.g., "Original and out-of-the-box thinking"). Participants were asked about their perceptions regarding the development of these skills during their academic studies.[16] For the present study, eight skills deemed most relevant to STEP were selected. Participants rated their degree of capability for each skill on a scale from 1 (can't perform) to 5 (can perform very well). A mean score was computed for each participant (M=3.90, Sd=.08, $C\alpha$=.83, N=233).

Problem-solving strategies were assessed by six items (e.g., "I put in a lot of effort in analyzing the problem"). Participants were provided with a list of strategies and asked to rate the extent to which they used each strategy on a scale from 1 (rarely) to 5 (almost always). A mean score was computed for each participant (M=3.77, Sd=.08, 8=.80).

Mid-semester reflective assignments

In addition to the previous background questionnaire, participants reported the number of hours completed in the internship so far. Reflections were constructed using open-ended and closed questions, linking directly to the learning process and the semester's course content.

The first reflective assignment was an open-ended question asking participants to describe onboarding to their new work environment and getting to know the organization and team. They were asked to relate to their experiences of uncertainty and adjustment, what helped them cope, and what could assist them in a similar situation in the future.

The second reflective assignment was an open-ended question requesting participants to describe a task they coped with that demanded independent learning. They were asked to identify any missing knowledge or skills and the ways they acquired them. Finally, they were asked to reflect on what they learned about themselves during the process.

In the third reflection assignment, participants were asked to consider their internship experience and how they would respond if asked during a job interview to relay two positive things they learned about themselves and two things they should improve.

End-of-course questionnaire

The end-of-course questionnaires were identical to the pre-test questionnaires. $C\alpha$ for the scales was .90 for occupational self-efficacy, .87 for occupational identity, .89 for twenty-first-century skills, and .83 for problem-solving strategies (N=162).

Four-month post-internship questionnaire

To increase the response rates for the four-month follow-up, the questionnaire was shortened and included four items regarding their work search competencies (e.g., To define what sort of job I am looking for; $C\alpha$=.86, N=233) and eight items regarding their perceived improvement in twenty-first-century skills (e.g., To learn on my own new and complex things; $C\alpha$=.92, N=233).

RESULTS

To compare the internship's effect on the participants, a paired t-test was conducted for all four scales. The results showed an increase in the mean score of all four scales (see Table 3).

	Beginning-of-internship		End-of-internship				
	M	Sd	M	Sd	t	p	Cohen's d
Twenty-first-century skills	3.86	.73	4.08	.77	-3.13	.002	.24
Problem-solving	3.73	.75	4.04	.75	-4.25	.000	.33
Occupational identity	3.64	.68	4.27	.66	-4.49	.000	.35
Occupational self-efficacy	3.86	.64	4.43	.63	-3.28	.001	.25

Table 3. Difference in scale scores before and after the internship course
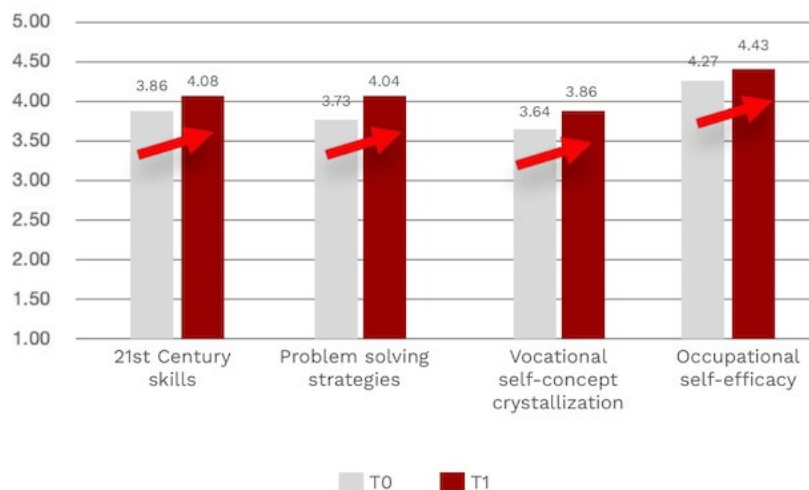
Figure 2. Scale scores before and at the end of the internship (N=162, p<.002)

Repeated-measures ANOVA compared the reflection and control conditions for each scale at the beginning and end of the semester. Despite the randomization, the scores of the twenty-first-century skills scale were significantly higher for the reflection group than the control group at the beginning of the semester (M=3.70, Sd=.73 and M=4.24, Sd=.59, respectively), and the interaction was significant [$F(1,160)$=4.20, p=.01, η^2=.064]. The difference between the two groups at the end of the

semester indicated that, while scale scores for the control group decreased during the semester (*M*=4.12, *Sd*=.90, Δ=-.12), the scores of the reflection group increased (*M*=4.07, *Sd*=.70, Δ=+.37). Figure 2 shows the difference in the scores at the two time points for the reflection and control groups. The three remaining scales did not yield significant results. For the problem-solving scale, the reflection group had increased scores at the end of the semester, from *M*=3.98 (*Sd*=.68) to *M*=3.36 (*Sd*=.76), while the control group scores remained the same (*M*=4.08, *Sd*=.74 to *M*=4.02, *Sd*=.75, *p*=.08). Figure 3 shows the reflection assignments' effect was significant on the perception of twenty-first-century skills (*p*<.001) and marginal on problem-solving strategies (*p*=.08).
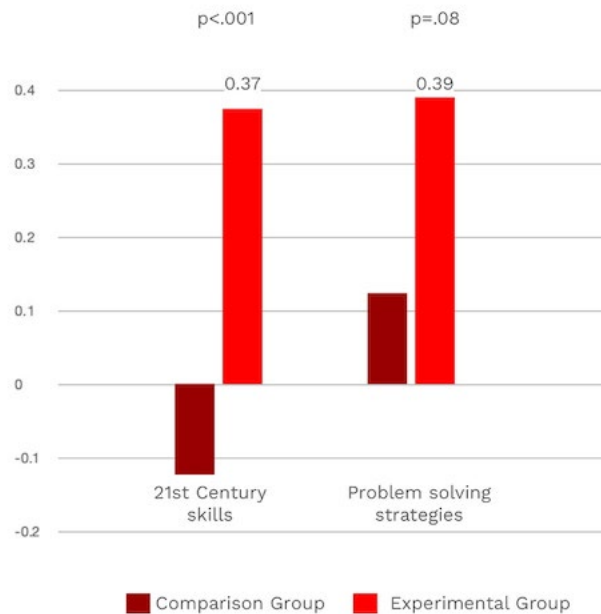
Figure 3. Differential effect of reflection on self-perceptions before and at the end of the internship (N=162)

Qualitative analysis at end-of-course

A t-test for each group was conducted to assess the effect of the reflection assignments four months after the end of the course, with 135 students replying to all qualitative and quantitative questionnaires (beginning-of-course, end-of-course, and reflection assignments for the reflection group). Although the reflection group's scores were slightly higher, the results did not reveal significant differences between the control and reflection groups in work search competencies (*M*=3.47, *Sd*=1.11 and *M*=3.65, *Sd*=.90, respectively) or the perceived improvement of twenty-first-century skills (*M*=3.34, *Sd*=1.20 and *M*=3.56, *Sd*=.93, respectively).

The end-of-course reflection included the question: "What positive skills or qualities have you discovered about yourself during the STEP course and internship experience?" with 89% of the participants responding. A thematic analysis was conducted by an independent expert. The five most common themes were: 22% mentioned an improvement in their ability to learn independently or understand tasks quickly; 13% recognized their good interpersonal relations and teamwork skills; 11% noted an improvement in their ability to expand their professional knowledge and connections within the professional field; 10% mentioned their ability to manage time effectively and perform well under stress and pressure; and 9% reported a strengthening of their occupational and general self-efficacy.

DISCUSSION

Internships are an important bridge between academics and industry. Ensuring the effectiveness and long-lasting effect of the internship in this transition is a central aim of internships, particularly since they may be a one-time opportunity. The pedagogy of reflection is an important method to enhance this experience.[17] This study aimed to test online reflection assignments as a means of enhancing students' experiences during and after their internships.

The results indicated that all STEP participants showed a significant increase across all four scales (twenty-first-century skills, problem-solving skills, occupational identity and occupational self-efficacy). These results align with previous research that has ascertained the development of self-perceptions during internships.[18] Notably, students' natural growth processes may be another underlying process due to the maturity and experiences students undergo as they advance in their studies.

Random assignment to the control and reflection groups aimed to detect the effectiveness of the reflective assignments on self-perceptions. The results indicated that the effect of reflection was most significant on the perceptions of twenty-first-century skills, marginal on problem-solving strategies, and non-significant on occupational identity and occupational self-efficacy. Four months following the end of the course, no effect of the reflection intervention was detected.

Interestingly, although there was not an explicit inquiry regarding twenty-first-century skills, in the open-ended questions, students highlighted skills that reflected their perceived improvement in these areas, including creativity, improvisation, resilience, and innovation, among others. These skills are the most highly ranked occupational competencies in today's literature.[19] Figure 4 presents some of the students' quotes.

Figure 4. Student quotes regarding twenty-first-century skills

The effect of the reflection assignments, specifically regarding twenty-first-century skills, could be attributed to the nature of the first two reflection tasks (coping with uncertainty and independent learning). Additionally, the prevalence of twenty-first-century skills in the course curriculum directly or indirectly may have contributed to the reflection effect. Conversely, self-perception and personal development were not usually part of class discussions. This points to the importance of strengthening reflective assignments through class discussions. Bowering et al.[20] emphasized the importance of staff supporting and guiding reflective activities. Another explanation may be attributed to possible differences between effective reflective tasks for skills vs. self-perceptions concerning the content and construction of the assignments, which could induce effective self-perception learning processes. For

example, Naidoo and Naidoo[21] followed the development of science teachers' self-efficacy over 15 weeks using a weekly journal, with changes only occurring from week 5, suggesting a slower process despite deep, constant reflection. While reflective pedagogy is widely regarded as effective and important, particularly in experiential learning, it is important to acknowledge the numerous challenges students may face when engaging in reflection. These challenges include cognitive skills deficits, emotional barriers, cultural and linguistic obstacles, among others, which necessitate diverse methods of engagement and support to fully harness the benefits of the reflective process.[22] The intervention in our study, however, did not address the potential challenges students might encounter when completing reflective tasks.

Three main limitations were encountered. Firstly, for undetectable reasons, the randomized selection did not obscure the differences between the groups. Secondly, our sample size was limited, restricting our ability to analyze the effect of gender and differences between faculties. Previous studies have shown that reflective pedagogy affects male and female students differently.[23] Furthermore, the reflection assignments were conducted using the Monday online questionnaires. While this method was convenient, other ways to encourage reflection might be more effective in a classroom setting. Additionally, administering questionnaires in a large class setting may have impacted the depth of student reflection. Lastly, during 2022-2023, the STEP program included twelve different courses, of which eleven were sampled, each with different lecturers and varying internship experiences. This introduced many intervening factors, which could have influenced the outcomes.

CONCLUSIONS AND FUTURE RESEARCH

The results supported the importance of internships as a milestone in student development and transition to the workforce. All participants in the STEP courses reported increased self-perceptions across all four scales. The reflection assignments were mainly related to twenty-first-century skills. This may explain why the perception of twenty-first-century skills benefited the most from the reflection intervention. Therefore, designing reflection tasks around specific competencies may be particularly effective in enhancing those areas. Moreover, adding reflection activities at strategic points throughout the learning process could significantly enhance the effectiveness of the course and internship experiences.

Future research should closely examine the connections between the content of the courses, internship experiences, and methods and content of reflections, while also exploring different settings for reflection. For instance, the effects of various digital tools used for reflective tasks could be compared to see which are most effective. Lastly, in the current study, the reflections did not receive any feedback and were not used for the students' further development. Future research should investigate the impact of providing personal or automated feedback to see how it enhances student growth.

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IN *A|THE* FIELD

Author:
BRIDGET KEANE

Affiliation:
UNIVERSITY OF MELBOURNE, AUSTRALIA

INTRODUCTION

One of the core practices of many disciplines including landscape architecture is that of 'field work'. Generally field work is considered through the frame of site visits or site analysis. But there is a potential creative duality to situating these practices in relation to 'field' - where Landscape Architecture is a field of study and at the same time orientates towards 'field' as a place or places where disciplinary approaches play out. At once both 'in the field' denoting a place and 'in a field' referring to a disciplinary context. This paper explores ideas of field and field work as moments where the intersection of knowledge and disciplinary practices are co-informed by the field (environment, ecology, relations). With the idea that emphasising this intersection offers alternative teaching practices – that deliberately set out to conflate, complexify and construct meanings between 'the field' and 'field work'. This paper will discuss teaching approaches in a landscape architecture design studio that proposed agent-based processes to design new systems and processes that work across field/field dualities to open disciplinary possibilities and orientations of learner and teacher, designer and project. Though this paper reflects specifically on landscape architectural education, it seeks to offer processes that may be useful to other disciplines particularly those that engage in place-based curricula aiming towards "eco-literate citizens who reflect upon their impact on their own environment and value the reduction of their ecological footprint".[1]

Field in landscape architecture and beyond

Landscape architects work directly with land, water and living materials. This approach is distinct from other design disciplines as it prioritises what is already there. Practices of working with the landscape emphasise ways of seeing equally to ways of acting. Extending from these ways of seeing within the discipline there are diverse techniques of observation, apprehension and responsivity derived and combined from multiple lineages including gardening, botany, geography and architecture. Design is articulated though and from these frames by processes of "site-reading and editing".[2] The inherent intertwining between landscape and technique means "to define what landscape is, is also to define the means by which to transform it in practice".[3] Where the mode of site investigation informs the mode of modification and design.

At the same time practices of fieldwork, for example inhabiting, observing and recording temporal and ephemeral changes are often part of landscape architectural curriculum in and beyond the studio and fieldwork is sometimes used interchangeably with the term 'site analysis'. Yet despite this parallel use, site as a frame of reference can be a too narrow lens. This is especially true when site is delineated through property lines within a set of defined boundaries responding to a single client or

brief. A focus that is often reflected in design studio project briefs. So, emphasising field over site is a deliberate move that offers an alternate way of thinking about the relationship between the place and the disciplinary forms of action. To reorient from site to field is an act of redefinition that enables field-like ways of acting. Where "'to field' is more contingent, responsive, and depends on flowing, pervasive conditions, clouds, indeterminate edges"[4]. Field introduces a wider, looser geographical field of influences and communities to be taken into the project. Setting in motion alternate modes of forming project-based learning within the studio and by extending the field of the studio itself.

FORMING FIELDS – THE DESIGN STUDIO

The reorientation of field from working 'on' to learning 'in'[5] was instructive to developing two Landscape Architecture studios that explored similar techniques across both face to face and online teaching. A design studio is a particular mode of project-based learning discussed by Schön as focused on practicing and forming "knowing in action".[6] The studios were 'vertical' with students combined from first year of the Master of Landscape Architecture and final year of the Bachelor of Landscape Architectural Design and were held at RMIT University 2019 and 2023. Studio classes were scheduled once per week for four hours with a group of around seventeen students in each studio. The geographic location the studio was South-West Victoria, Australia, on the lands of the Eastern Marr people.[7] One studio was fully online, and the other was blended with some students attending in person and others online. The requirement to deliver online during Covid-19 restrictions meant that fieldwork was expanded to encompass practices that could also be conducted at a distance and across multiple methods, for example, archival research, mapping, and virtual site visits.

The development of individual student projects was scaffolded through open ended investigative processes. These processes connected through and into the field allowing for discoveries and emerging relationships to shape the project scope and brief. Each student defined their own project and 'sites' of action within this dynamic. An approach that draws from Lave and Wenger's concept of situated learning where the learner, learning processes and the field (or world) "mutually constitute each other".[8] The studio was also framed as a collective learning environment in which students and their projects could interact, overlap and inform each other. A series of activities guided the design process. Creating sequential but overlapping aspects of field-working to stimulate and help build projects that resulted from the interaction between student, class, teacher and field, summarised below:

• *Field-working agents* – understanding a species as an agent in the field.
• *Co-creating the field* – identifying places of connection and importance in the wider field
• *Relating and unfolding* – linking places to design moves and relevant communities
• *Projecting into the disciplinary field* – reforming student and practitioner agency, creating agencies.

These activities are unpacked in the following sections, drawing on student work to illustrate the processes and outcomes and then reflected on in more general terms.

Field-working agents

The process of exploration began with each student selecting a species that could be found in the south-west geographical area. The species did not need to be endemic to the area, just one that could be located anywhere across the region. The species was understood as an agent, a living and dynamic lens through which the larger area could not just be examined but constructed through relational connections.

This approach was informed by contemporary explorations on the more-than-human. In particular, Anna Tsing's *The Mushroom at the End of the World: On the Possibility of Life in Capitalist Ruins* where tracking a mushroom enables the narration of a series of interconnected stories and *Pig 05049*

1:1 by Christien Meindertsma. A multi-year project investigating a single pig numbered 05049 and the many places and products that traces of the pig could be found. Each of these references traces one species with very different disciplinary techniques (respectively anthropology and art) representational approaches and outcomes. Both projects offer an imagining of what 'field' might be if explored and designed beginning from the perspective of another life form.

In the work of Emma Croker the species, Acacia Melanoxylon (Blackwood) is traced. Firstly, by drawing the lifecycle and reproductive processes of the plant seen in Figure 1. Extending further to explore the relationship between geology, soil and time in Figure 2 to consider the proliferation of Acacia over time. Further drawings referenced Richard McGuire's *Here*[9] and considered the differing human relationships with the plant from pre-colonisation to today in a comic graphic style. Building outward from the species to a field formed by many agencies, relational, living and undergoing different states and rates of change shown in Figure 3.
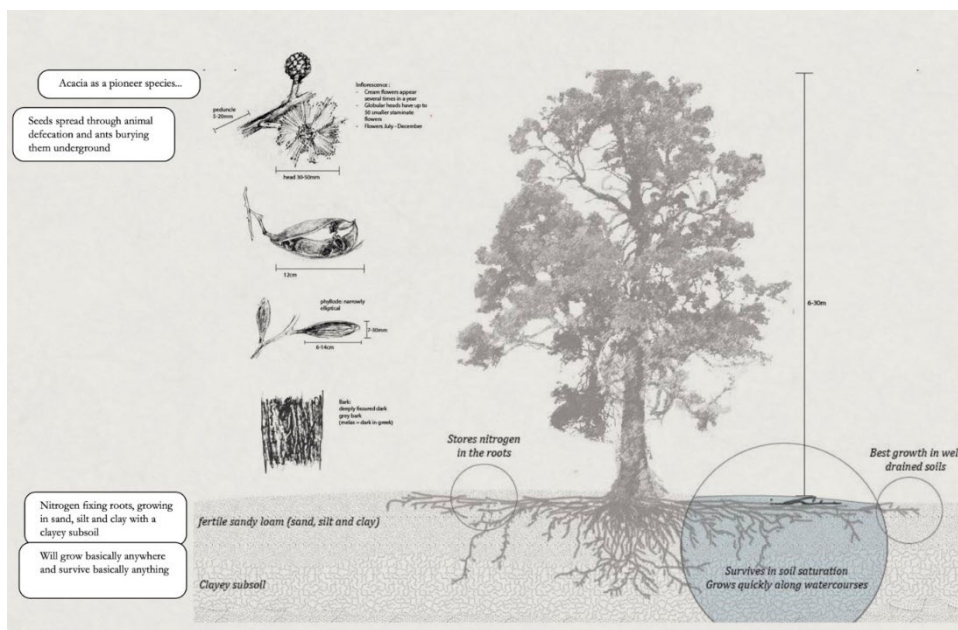
Figure 1. Acacia Melanoxylon drawing. © Emma Croker
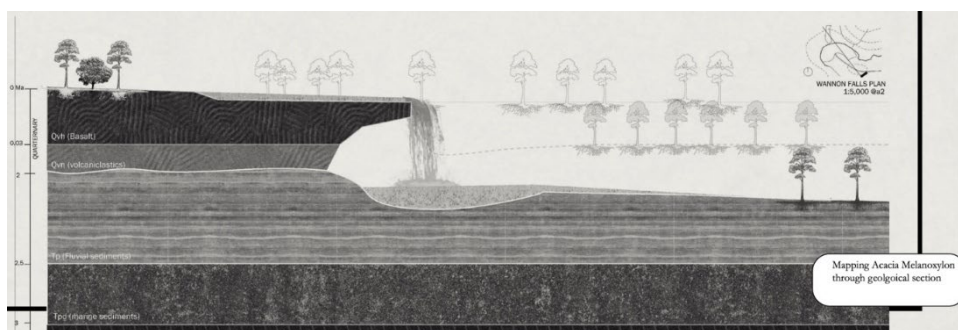
Figure 2. Mapping Acacia Melanoxylon through geological section. © Emma Croker

Figure 3. Field as determined from Acacia Melanoxylon. © Emma Croker

Co-creating the field

As the agent is followed and tracked and the field is determined by what is explored rather than property or other boundaries, as Tsing notes, "following them takes me on a wild ride—trespassing every boundary".[10] In this stage, other dimensions and influences begin to be rendered visible by mapping the relationships of the species to physical structures, policies and land use practices.

The question of boundaries informed Hazel Francis's project exploring the Salt Lake Tussock Grass. By drawing out the growing process in sections seen in Figure 4, Hazel discovered that what was most important occurred beneath the surface, tracing seed formation through to perennial growth. Finding remnants of this at-risk species close to a designated RAMSAR wetland[11] initiated a questioning and critique of the RAMSAR wetland convention protections for this site, arguing that the area of coverage needed to move beyond the water to encompass the specificities of plant growth and distribution in Figure 5, including for the Salt Lake Tussock Grass.
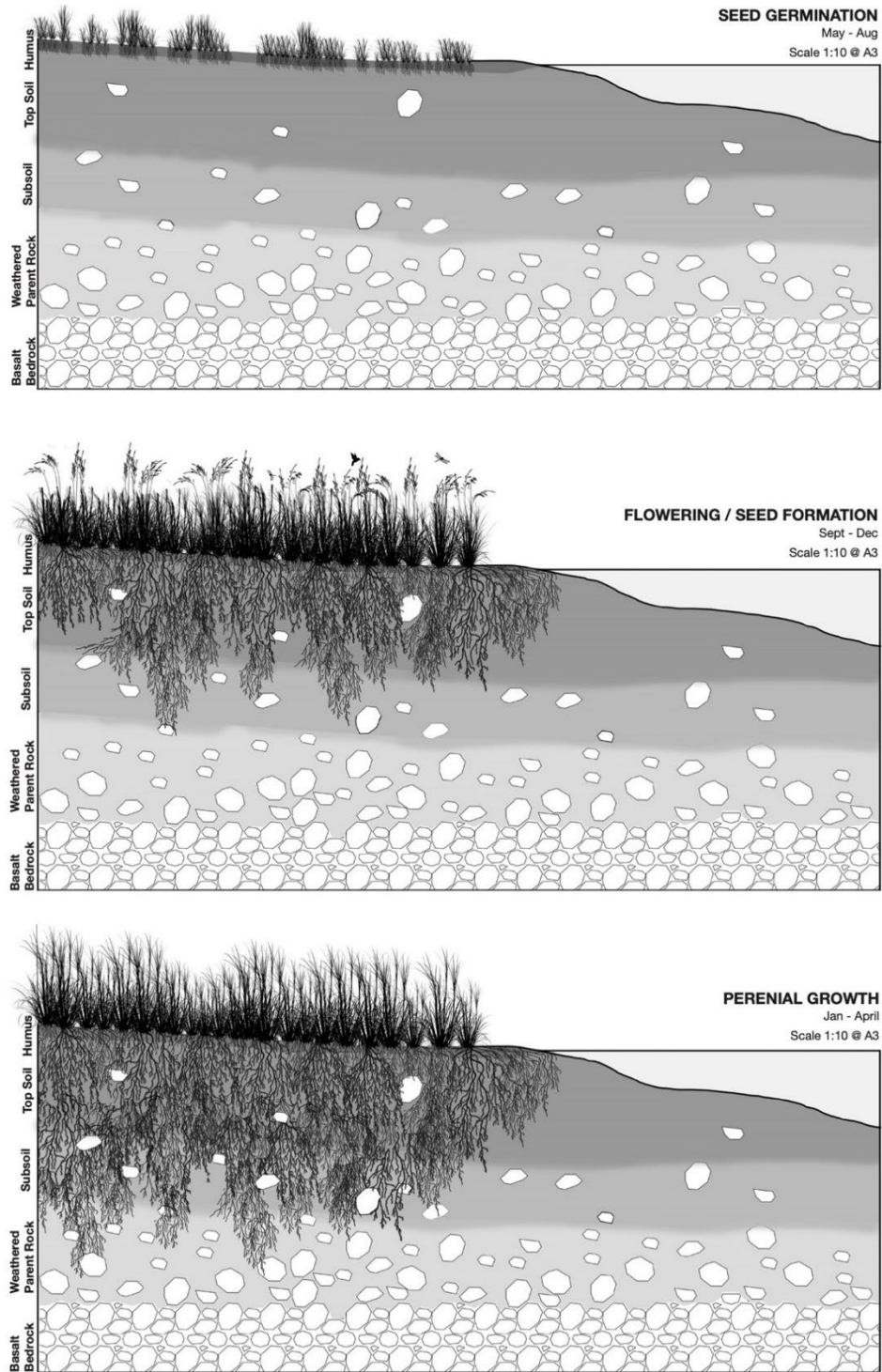
Figure 4. Salt Lake Tussock Grass. © Hazel Francis

Figure 5. Salt Lake Tussock Grass and Ramsar wetland. © Hazel Francis

The project brief emerged as a way of connecting the specificities of the grass to larger existing edges and institutional designations – a multilayered field. A design approach of complicating boundaries was developed, resonating with Arturo Escobar's assertion that boundaries can connect as well as divide[12]. In responding to the potential of the species, Hazel developed a set of subtle fence interventions seen in Figure 6 that prioritised the growing habits of the Tussock Grass and that connected with a range of community and landholder activities scheduled across the seasons. Resulting in a thickening of the boundaries, extending wetland area and infiltrating into the surrounding area physically and programmatically, as seen in Figure 7.
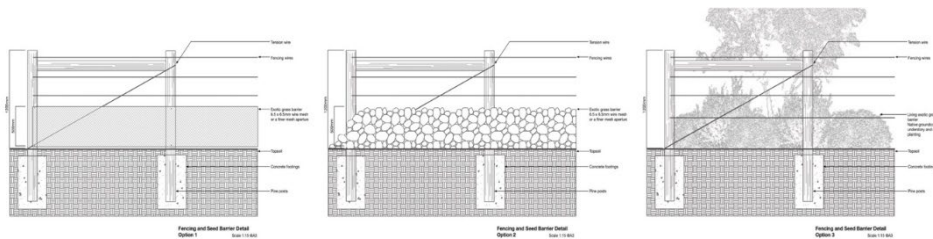
Figure 6. Fence typologies. © Hazel Francis
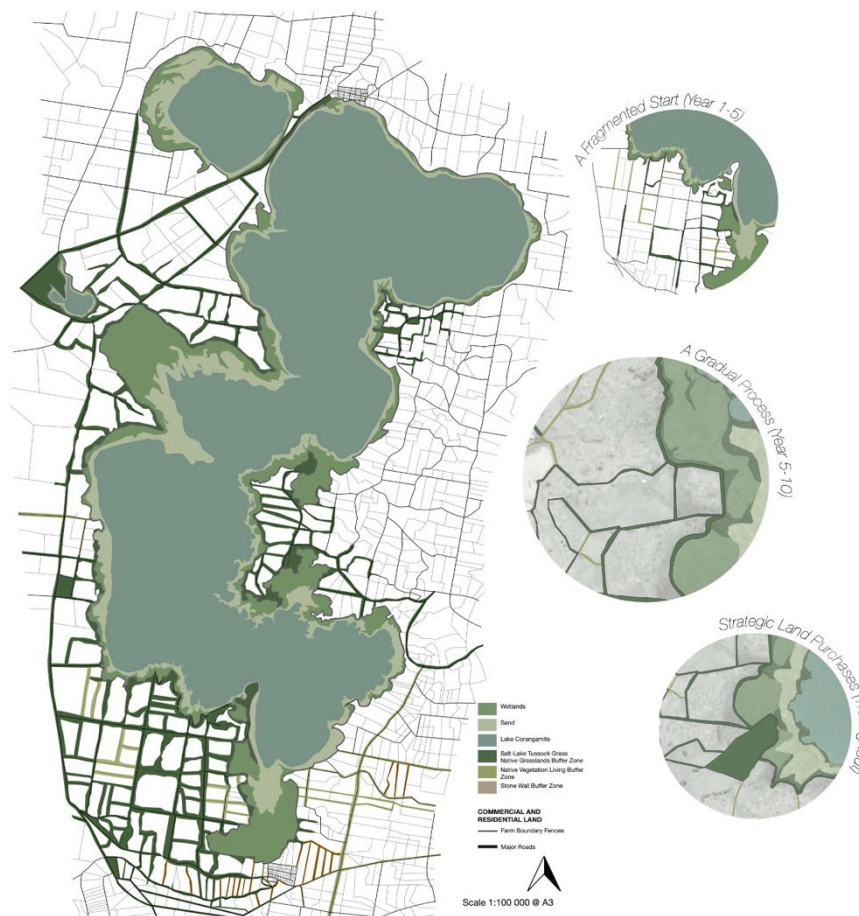
Figure 7. Thickened boundaries and programs. © Hazel Francis

Relating and unfolding

As the projects began to unfold, they became more complex. At this stage students began to question how to articulate their role. As working within the field does not lend itself to easily defined design responses, part of the challenge as identified by Wolff that to "recognize that sites embody plural stories turns site design into a dilemma. Architects, landscape architects, and urban designers are trained to make specific proposals that assume predictable consequences."[13]. The studio asked students to be in the somewhat uncomfortable position of working with the loosely defined and unpredictable as their own specific agency began to emerge along with strategies to communicate the project. Support for this moment was anchored by emphasising in teaching the reciprocal movement between species and field through exemplars and models of projects and practices to assist the formation their own agendas.

In her project Weilu Chen chose to design into multiple places within the field. Through exploring the relationships between fungi and other species seen in Figure 8. Weilu came to ideas about decomposition, a demonstration of the conceptual and investigative overlap possible when engaging with living matter. The operations of the fungi offered a conceptual device for design – one engaged with change and transformation. Expanding the project brief the student chose to ground action at different locations in the field outlined in Figure 9, to create a distributed network to support processes of de- and re- composition in areas of ecological damage along a waterway.
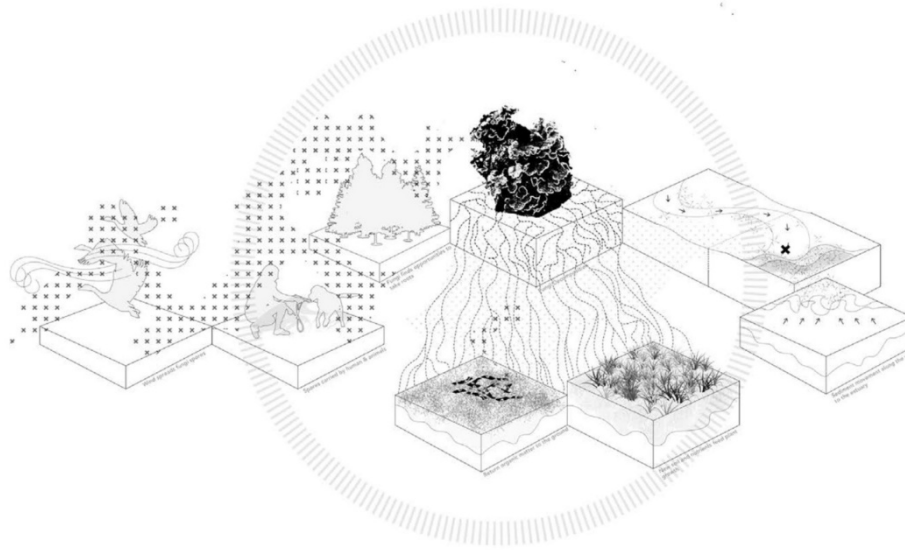
Figure 8. Fungal relationships. © Weilu Chen
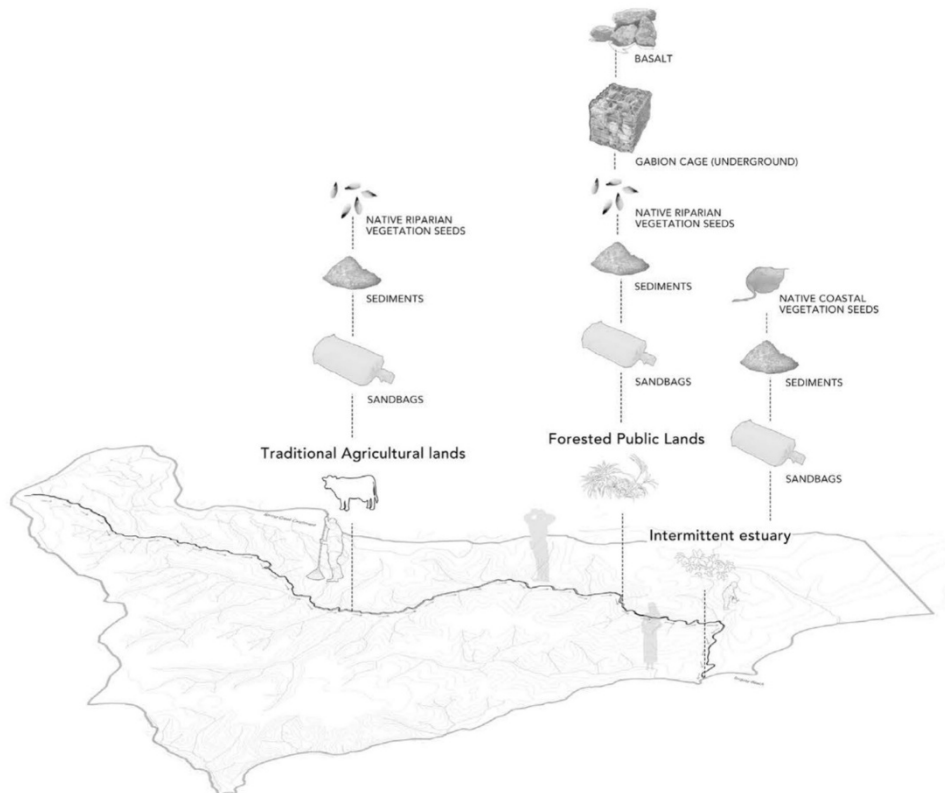
Figure 9. Distributed interventions. © Weilu Chen

Finding multiple points of leverage to navigate between different owners, users and places and with somewhat undetermined outcomes requires a sensitivity to time and process and the design of representational strategies to communicate the potential impact of the design moves over time, this fuzzy but rigorous thinking is seen in Figure 10.
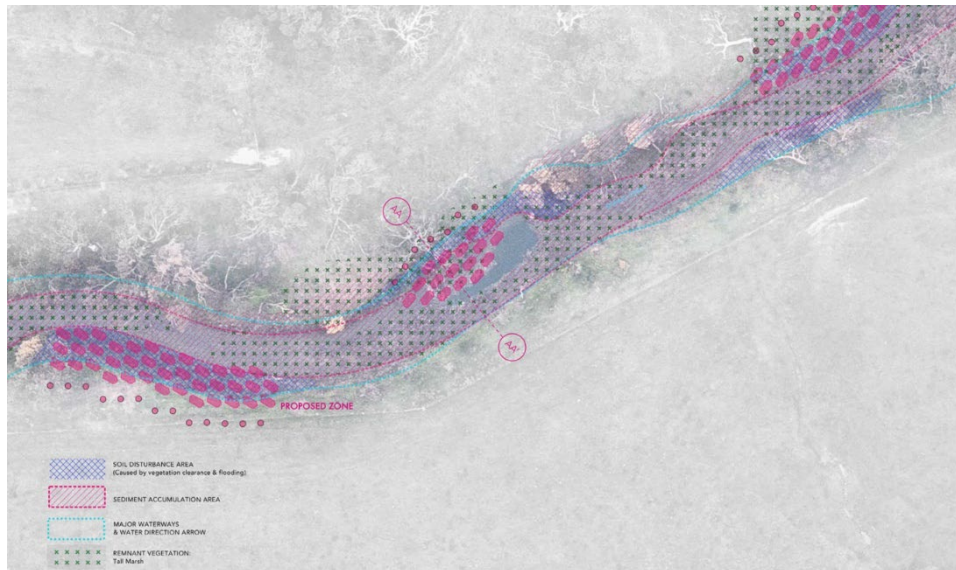
Figure 10. Interventions and time. © Weilu Chen

Relating and unfolding

In parallel with students forming their projects as a series of relationships radiating from their species investigations. They were projecting their ideas into the disciplinary field and beginning to think about their future identity as a creative agent. As the studio progressed discussions of the designed outcome also began to include framing of the role that was being created by the student and linking to specific outputs and forms of communication. These forms included mappings, pamphlets, conventional drawings, recipes, field guides and schedules. The students' projects discussed above begin to define their own agency and reflect aspects that they believed were important, mapping potential agencies beyond the studio and into modes of professional practice. Rather than responding to a set, bounded condition. In this way the dual nature of field allows for a consideration of provisional and uncertain conditions where procurement and formation and communication are including as key aspects of the design process.

This part of the sequence of activities made effort to encourage "them to interrogate the architect's *capacity as an agent for change*".[14] Italicised to emphasise that that the term architect could be interchanged with other professions or disciplines. This positioning relates beyond disciplinary concerns to recognising the student, project and studio within a contemporary context of climate change and associated demographic, land use and environmental shifts in the region. Given that climatic and professional uncertainty will be the reality for these students this aspect of project is an important process and relates to urgings in built environment disciplines (and others) that to respond to the needs of society new types of jobs and identities may need to be invented[15] along with new types of teaching models and approaches.[16]

AGENCIES AND ORIENTATIONS – TEACHER AND STUDENT

So far, this paper has walked through a series of activities that engage student interest and exploratory skills using agent-based explorations. Demonstrated through examples of student work as proof of concept. The orientation from site to field also alters the relationship between the student and the teacher. The role of the teacher is associated into this model of thinking and working. Where the teacher is not seen as outside the field, rather is implicated within, operating by responding and

coordinating. This thinking aligns with Mewburn's reinterpretation of Schön through actor network theory where the teacher is seen as one of many actors within the design studio.[17]

In this sense, the role of the teacher becomes about identifying possible connections, making associations, thinking through project framing and assisting in forming arguments. To extend beyond to consider the ways in which the project might be realised by assisting to identify communities the project might serve and what institutions or bodies might be sources of funding or support. It also means broadening the field to incorporate inclusivity, for distance, accessibility and engagement as well as flexible framing of deliverables and their forms of expression aligning with Universal Design for Learning principles.[18] A type teaching that deliberately establishes connections between disciplinary norms and conventions and assessment requirements balanced with what will be unknown project types and forms that emerge.

Within this learning field, emphasizing collective processes becomes important in developing peer to peer engagement. This engagement emphasised sharing, recognising individual enquiries and avoiding competitive comparisons to encourage the development of project in relationship to others (species, students, design outcomes, conditions). Careful arrangement and discussion of the collective knowledge and interactions formed by the students and their projects also formed part of the final presentations and exhibition. Considerable effort was also required to manage feedback sessions and interaction with reviewers. Creating an environment that can respond to and take into consideration varying degrees of difficulty and customising feedback relevant to each project and student. Reflecting the effort and value of project formation through assessment design and developing criteria and rubrics that recognise capabilities for multiple forms of practice and trajectories into work.

CONCLUSION

Situating ourselves in the world as learners and teachers in multiple ways often means occupying more than one position at once in both space and time. The complexities that Tsing revealed by following the mushroom, the proliferation of "a rush of stories cannot be neatly summed up"[19] also becomes a challenge in untangling teaching through this dual notion of being simultaneously in the field and in a (disciplinary) field. Similarly, the student projects discussed in this paper are just a few of the many variations of projects that emerged within the studios. sharing a series of interrelated activities to enable and enhance dual field-work practice have been shared and discussed. Through following agents to co-create the field then Relating and unfolding to policies, practices and communities and finally projecting into the disciplinary field create future trajectories.

Reciprocal relations established through these activities enabled a flexibility of learning where the connection between the field of action and disciplinary field are conjoined. Cutting across boundaries, stakeholders and locations agent-based processes were designed to encourage multiple perspectives and chains of investigation. Fieldwork was framed to encompass and form relationships between the historical record, artefacts, maps, visits, observations and creative interpretations and forms of knowledge. The studio was placed in the context of project-based learning, informed by situated learning where positioning the student and teacher within an uncertain field enables open, contingent type of learning. Further extensions to this approach could encompass co-creation where students could inform the regional location and other operations of the studio. There is also room to further extend student agency by emphasising and supporting students to building collectives and interrelated actions.

Increasing uncertainty around climate change and the future of work mean that the relationship between disciplinary modes of action and the field in which they work are evolving. Designing curriculum that prioritises student choice and agency will become increasingly important as we look towards a future that will be characterised by fluid, changeable conditions with multiple

contingencies. Exploring the potential of the confluence of these fields opens possibilities for students and teachers to map out new techniques for working with the world and with each other. To inform ways in which new trajectories for disciplinary agency and types of action are conceived in landscape architecture and beyond.

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USING WHATSAPP TO SUPPORT PRESCHOOL TEACHERS' HYBRID ROLES IN TEACHING, LEARNING AND RESEARCH

Author:
HUI WEN CHIN

Affiliation:
NORTHEASTERN UNIVERSITY, USA

INTRODUCTION

Today, preschool teachers balance varied roles as educators, lifelong learners and research participants. In Singapore, managing these roles can be especially challenging. After all, local early childhood educators have especially long work hours—even longer than counterparts in prosperous Asian cities like Hong Kong, Shenzhen and Taipei.[1]

While new government policies mean that local preschool teachers will enjoy a five-day work week beginning in 2025,[2] current industry mandates mean that many local preschool teachers still work six-day weeks as most preschools must stay open on Saturdays. In-person meetings for professional learning and research activities can thus put an undue burden on local educators, taking a toll on their teaching work.

Therefore, this paper examines how to leverage preschool teachers' funds of knowledge to support their hybrid roles in teaching, learning and research at one university in Singapore. The article draws on data from a larger two-cycle action research project where WhatsApp was used for dual purposes: to facilitate peer-to-peer learning and support data generation. In this study, funds of knowledge were defined as cultural knowledge and skills, which support wellbeing.[3]

Positionality

My understanding of preschool teachers' hybrid interests has been shaped by my lived experiences. In my current role as an early childhood education instructor at a local university, I have heard student-teachers express a desire for more child-feeding professional learning opportunities (i.e., training, coaching and resource sharing beyond their degree requirements).

Student-teachers and I have also seen how child feeding is under-researched in the Singapore context, with most literature on food education coming from the West. I heard both pre- and in-service educators express a desire to participate in and support further research. However, their busy teaching schedules often precluded such personal and community development efforts. As an early career instructor—who quite recently also worked as a preschool teacher in the Singapore context—I could relate to their struggles. In my time as an early childhood educator, I faced similar challenges.

Context

The university where I work caters to both traditional (full-time students, under the age of 25) and non-traditional university students (part-time students usually older than 30 years). The organization places particular emphasis on practicum teaching experiences and experiential learning. Accordingly, preschool teachers connected to the university have ample vernacular knowledge and funds of knowledge derived from diverse lived experiences.

In the university context, these valuable "knowledges" could be readily leveraged for research and to develop child-feeding professional learning opportunities. Responding to the needs of learners—many of whom are working adults—the university also often relies on online modalities for course delivery and communication. They are familiar to preschool teachers associated with the university—both current students and alumni—who were engaged as participants.

FIRST CYCLE RESEARCH

To respond to the research question, "How can preschool teachers' funds of knowledge be leveraged to support preschool teachers' hybrid roles in teaching, learning and research?", I engaged twelve preschool teachers as first cycle participants. I gathered data through interviews with the preschool teachers, observations of preschool mealtimes, and document review of preschool menus.

To analyze the data, I coded the interview transcripts, observation field notes as well as documents concurrently and manually. I used process coding and values coding across all three data sources. Thematic analysis revealed that participants had specific social funds of knowledge, which aid them in cooperating with adults (e.g., co-teachers and instructors), supporting the children in their classes, and benefiting both adults and children. I saw how preschool teachers valued learning from their peers in other classrooms. They were tactful communicators, eager to share information. Indeed, for the second cycle action step, they requested a forum for peer-to-peer learning.

I also saw how the participants demonstrated strong digital fluency. I further noticed that despite my frequent prompts for participants to liaise with me solely through my university email (to comply with initial Institutional Review Board specifications), participants habitually replied to my emails with WhatsApp messages. This made it necessary for the participants to resend messages—first via WhatsApp, and then, again via email—which was cumbersome and inconvenient. Considering the technological familiarity of the participant group, I decided to facilitate forum discussions via a WhatsApp chat group in the second cycle to reduce redundant and repetitive communications.

Strengths and limitations of WhatsApp use

Strengths

Based on extant research, as a tool for qualitative data collection, WhatsApp offers numerous strengths and affordances. To start, with 2.78 billion users worldwide,[4] WhatsApp is familiar to many participants. It may be the most popular social media tool in the higher education context.[5] This means that participants are likely to be well-acquainted with the application's functions, supporting easy, comfortable interactions.[6] It is also free-to-download and free-to-use. Excluding the cost of Wi-Fi, there are few financial barriers to participants' use of WhatsApp. With no set time limit to WhatsApp-enabled interactions,[7] the mobile messaging application can enable ongoing communication, or "perpetual contact" with participants.[8]

In addition, WhatsApp is accessible through portable mobile devices. So, it also enables spatial and temporal flexibility in data generation. Researchers and participants can engage with the application wherever and whenever they choose, utilizing as much or as little time as they wish. This means that researchers can gather data even with time-pressed participants,[9] like local preschool teachers. What is more, social media platforms like WhatsApp offer multimedia functions, which enable diverse

forms of data to be generated (e.g., written text, emojis, web links, photographs, audio and video content).[10] Additionally, as intimate and controlled groups, WhatsApp environments may be seen as "safe spaces" for communication.[11]

WhatsApp enables facilitators to be attentive to busy participants' needs by providing time-conscious options for learning and data generation.[12] Moreover, it assists researchers in caring for more reserved participants, who might find interacting via WhatsApp less intimidating than via face-to-face meetings.[13] Some participants may feel that they can be more honest in digital conversations as they are not in the physical presence of other people.[14]

Limitations

Yet, ethically, collecting data—especially sensitive material—via WhatsApp can raise issues of privacy and confidentiality.[15] Each affordance that WhatsApp offers is also accompanied by attendant challenges. While asynchronous digital discussions are convenient, they can interrupt spontaneity and conversational flow among participants.[16] While WhatsApp's multimedia functionality enables a wider range of data to be collected, it can also support superficial interactions. For example, use of emojis—rather than lengthier text—sent in response to a post may indicate inattention to the WhatsApp feed.[17]

With digital methods, the mediated nature of the interaction means the researcher never really knows with whom they are interacting. The individual who consented to participation in a study may not be the same person who uses the account at the time of data collection.[18] Furthermore, while many people are routine users of WhatsApp, it may not be familiar to all people in all contexts. There are nations where Short Message Service (SMS) is more popular.[19] Use of digital technology can open the potential for technical difficulties.[20] Also, constant contact between researchers and participants is not always desirable. WhatsApp's push-notifications may provide an ongoing distraction for participants, causing intrusion into their daily lives.[21] Even so, this challenge may be to an extent mitigated using WhatsApp's Mute function.

SECOND CYCLE ACTION STEP
Action step goals and objectives

Still, taken together, first cycle data and the extant literature suggested that a WhatsApp chat group might be helpful as part of the second cycle action step. The purpose of the action step was to construct and pilot a WhatsApp community forum for preschool teachers. The goal was to leverage preschool teachers' social funds of knowledge to inform child-feeding practices. The objective was for them to gather additional viewpoints on their personal child-feeding challenges.

Action step activities

For the action step, preschool teachers exchanged their personal reflections on child-feeding matters with peers in the WhatsApp chat group for eight weeks (from early July to early September 2023). During that time, I monitored the WhatsApp chat group, acting as a content moderator and discussion facilitator. I provided guidelines on acceptable messaging within the group to establish a shared culture among those in the community.[22] When conversation stalled, I included new prompts to promote information exchange. I included four main types of prompts: Community Questions (questions that the participants had shared with me personally, which I redirected to the WhatsApp chat group), Research Musings (questions inspired by the extant literature), Multimodal Postings (questions based on videos, images or audio content), and Housekeeping Clarifications (explanations of how to engage with the WhatsApp chat group).

Action step evaluation

In the second cycle, I engaged eleven preschool teachers as participants. Their pseudonyms were Ray, Bear, Teacher T, Bunny, Hedgehog, Tony, Giraffe, Nann, Whale, Lion and Coffee. To assess the WhatsApp chat group's effectiveness, I generated second cycle data in the following ways: (a) review of WhatsApp chat logs; (b) semi-structured interviews; (c) mind maps; (d) review of participants' personal reflection documents; as well as (e) field notes and analytic memos.

To prepare the WhatsApp chat logs for analysis, I exported them fortnightly—directly from the application—in PDF format. Over an eight-week period, this created four chat log documents. In the second cycle, I coded the data using process and emotion coding. Thematic analysis revealed that participants found the WhatsApp chat group helped them in balancing hybrid roles. All eleven participants who completed the full action step reported an intention to continue using the WhatsApp chat group, incorporating it into their existing routines. In addition, post-action step, participants reported knowing more about balancing hybrid roles. Changes to participants' confidence in their own child-feeding decisions were also evidenced in the second cycle data. As I facilitated learning through the WhatsApp chat group, some participants moved from feeling safe to thinking bravely and then acting confidently as educators at preschool mealtimes. The WhatsApp chat strengthened their teaching.

FINDINGS

In connecting the study's themes with the extant literature, three findings emerged to address the overarching research question: (a) enhancing the achievability of balancing hybrid responsibilities; (b) leveraging participants' social funds of knowledge; and (c) creating a safe, trusting WhatsApp environment.

Enhancing the achievability of balancing hybrid responsibilities

Findings indicate that using WhatsApp in a tethered approach (both as an educational tool and medium for data collection) can make balancing hybrid data generation, learning and teaching roles appear more achievable to preschool teachers. This achievability was aided by the spatial and temporal flexibility, and multimediality enabled by WhatsApp, as well as the discussion prompts that I shared through the eight-week implementation period.

Spatial and temporal flexibility

Participants mainly accessed WhatsApp via portable mobile devices. Thus, they could participate in the chat group any time, while on-the-go, making data generation seem realistically possible. A participant with six years of teaching experience, Coffee, shared how it was convenient to participate in the WhatsApp chat group "on the way to work." As suggested in prior research,[23] being able to contribute on their own schedules reduced the risk of participant burnout. Participants were in constant contact with the mobile messaging application. Hence, it was preferred over websites (traditionally accessed via larger laptops and private computers). Another preschool teacher, Bear, highlighted the importance of WhatsApp always being "on hand."

Multimediality

Participants' ability to post and process non-text content (e.g., short-form video clips and emoji-based reactions) via WhatsApp further reduced the burden of participation. Participants saw sharing and engaging with such multimedia content—especially asynchronously—as particularly useful. Lion, a teacher with ten years of experience, explained that watching videos shared on WhatsApp was "convenient." A peer, Tony, added that exchanging videos and pictures was "fun."

Participants also liked WhatsApp's reaction feature. It was a fuss-free way to acknowledge and affirm peer responses. Use of emojis is often thought to quickly foster emotional connection.[24] Bear pointed out, "It's great that now WhatsApp has that reaction feature? So, sometimes, instead of replying, I can just give a thumbs up [emoji]." Giraffe, a practicum student with six months of experience, echoed the view, sharing that double tapping on the reaction button meant that it did not "take very long to participate" in the group chat.

Conversational prompts

My conversational prompts also added to the overall workability of data collection. The prompts—especially the Community Questions—acted as scaffolds. They made generating data on a breadth of subjects seem achievable to participants. A participant with three months of practicum experience, Whale, stated, "Having a set of questions [prompts] helped facilitate my thinking process." Giraffe added that the prompts pushed participants to "cover a wider range of topics." With prompts, composing detailed responses felt less overwhelming. Through this project, participants started to see taking part in learning and research/data generation as something practical, which they could incorporate into their busy work lives.

Leveraging participants' social funds of knowledge

In this study, I collected data from preschool teachers, a group—which as I discovered in the first cycle—had strong social funds of knowledge that enabled them to get along with other early childhood educators. This facilitated smooth, warm and friendly digital conversations. Participants were uniquely well suited to interaction via WhatsApp, and able to avoid miscommunication even with the dearth of body language and non-verbal cues available on the digital platform.

To illustrate, participants were quick to praise each other. They peppered their comments with exclamations like "Great insights!" and "Amazing advice & tips!!" In addition, participants were careful to credit their peers in the WhatsApp chat group for sharing helpful information. For instance, one participant, Teacher T credited her peer, Tony for sharing an infographic from Pinterest featuring a "set of phrases to support children' at mealtimes." Whenever possible, participants voiced hearty agreement with their peers. Prior to articulating her views on picky eating, a curriculum specialist, Hedgehog said, "I agree with Bear in this :)." They were also eager to thank others for their contributions. Expressions of appreciation often preceded the sharing of resources. Lion stated, "Thanks for sharing everyone :) I chanced upon an Instagram account, which I feel is rather interesting as a mom-of-two curates recipes for her toddlers. It's kidfriendly.meals :)." Overall, participants were liberal with their expressions of approval. They often used emoticons to punctuate sentences and communicate a sense of camaraderie. Participants' strong social funds of knowledge lubricated conversation and enabled teachers to seamlessly combine their research and learning responsibilities.

Creating a safe, trusting WhatsApp environment

Participants' kind words and empathy for one another made the WhatsApp chat group feel like a safe space for sharing personal stories. Participants generally trusted that they could be honest about their opinions within the digital chat group. Coffee affirmed, "I think we have created that very safe community in the WhatsApp group."

Accepting silence

As I facilitated discussions, participants' emotional safety was top of mind. One way I fostered a sense of safety was by being accepting of silence and conversational pauses. Through Housekeeping Clarifications, I reassured participants that it was natural for the WhatsApp chat group to have quieter periods; they need not feel guilty about commenting only sporadically. After all, even reading can be a valuable form of learning. Indeed, Hedgehog admitted, "I do enjoy learning about different practices. So, it's engaging for me, even though I haven't really posted much. But I actually read through a lot." Building mutual trust can take time.[25] When participants knew they were not being pressured to post constantly, they felt more accepted and secure, and better able to balance their hybrid responsibilities.

Shared leadership

Throughout the eight-week discussion, I also reassured participants that I did not have all the answers. This, combined with my unintimidating positionality (as a younger, early career instructor), enabled participants and I to develop peer-like relationships for shared leadership. As a younger woman, early career instructor, and former preschool teacher, I could relate to the preschool teachers in this study. Like the participants, I have navigated child-feeding struggles. I used self-disclosure of these struggles to support participants in feeling safe to share. I leveraged my positionality to narrow the power distance between myself and participants. It enabled more open sharing than might have otherwise been possible. Participants felt especially safe and comforted as I reminded them that they could lead the conversations. Bear said, "I appreciate how you told us that we can also be the ones asking questions." This emboldened participants, enabling a frank exchange of views. Bear added, "I think the ideas or the opinions that I've sent to the group chat, they are the most honest I've been in expressing what I feel. I haven't been able to communicate this with my colleagues."

Willingness to be vulnerable

Peers were willing to be vulnerable with one another. In the WhatsApp group chat, participants felt they could even share their less-than-perfect practices. Coffee felt so safe that she "didn't worry about being correct." Whale added that sharing "not so ideal feeding practices" could be the "most impactful" to participants' teaching and learning. Indeed, the security and rapport participants felt with me as well as their peers in the WhatsApp chat group enabled the generation of rich, authentic and impactful responses as data. Also, it enabled meaningful peer-to-peer learning experiences for the participants.

CONCLUSION

In summary, this study reveals how WhatsApp can enhance the achievability of balancing hybrid responsibilities (in teaching, learning and research) among preschool teachers due to its flexibility and multimediality. This achievability can be further supported using prompts. After all, preschool teachers have strong social funds of knowledge (e.g., praising, crediting, agreeing and thanking), which can be leveraged for smooth WhatsApp interactions, empowering preschool teachers to easily combine their research and learning responsibilities. Creating a safe, trusting WhatsApp environment by accepting silence and sharing leadership supports honest exchanges and willingness to be vulnerable among preschool teachers, enabling collection of rich data and deep learning (which, in turn, strengthens teaching practices). Given that in Singapore, many preschool teachers are trained at polytechnics and private technical schools—rather than universities alone—the next steps are expanding WhatsApp-based research and learning opportunities both in and beyond universities.

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EXPLORING THE PERCEPTIONS OF STUDENT TEACHERS FROM A FREE STATE PROVINCE UNIVERSITY IN THE UTILIZATION OF e-PORTFOLIOS DURING TEACHING PRACTICUM

Author:
NDOYISILE MAJOLA

Affiliation:
CENTRAL UNIVERSITY OF TECHNOLOGY, FREE STATE, SOUTH AFRICA

INTRODUCTION

Technological advancement in the teaching led to challenges which required student teachers to utilize modern skills during their teaching practicum. Some educational institutions argue that graduates in the teaching profession lack suitable soft skills to meet the expectations of those institutions. These educational institutions are currently applying skills such as self-management, teamwork, problem solving, communication skills, and application of IT and numeracy in their programmes.[1] Jeremy and Todd state that student teachers still face challenges during their teaching practice period due the scarcity of digital devised.[2] These challenges include, some student teachers who are enthusiastic and passionate about their new careers which include applying modern methods of teaching but often meet contempt and refusal from the mentor teachers.[3] The overuse of technology at the expense of delivering the content and over-reliance on PowerPoint as a learning resource and thus overlooking the course and workbook.[4] The student teachers lacked technology skills and proposed that they must be acquainted with technology skills.[5] Finally, there are issues that need clarity in relation to the e-Portfolio which serve as a challenge to the students as well as lack of clarity in the relationships between technological tools available for learning delivery and their links with ethics and pedagogy and/or teaching and learning.[6]

This study focused on two major events, namely the readiness of technology in South Africa and the emphasis in the utilization of e-Portfolios as a means of evaluation. Regarding readiness of technology in South Africa it is critical because technology is rapidly spreading across the world. Scholars use Technology Readiness Levels (TRL) as a type of measurement system to assess the maturity level of a particular technology whereby each technology project is evaluated against the parameters for each technology level and is then assigned a TRL rating based on the projects progress.[7] It is thus, important for the South Africans to be ready for the transformation in technological environments. Technology readiness must be viewed as people's propensity to embrace and use new technologies for accomplishing goals in the workplaces.[8] Furthermore, South Africa's readiness for technology is enhanced by the schools and universities motivating them to utilize online teaching and learning, e-learning, and many ICT integrated strategies.[9] It is therefore of vital importance for student teachers to be ready to participate in online learning during teaching practicum by compiling the e-Portfolios.

The emphasis in the utilization of e-Portfolios as a means of evaluation stems from the development of educational technology.[10] Mollo describes the-Portfolio as an electronic collection of evidence that shows the student's learning journey and relates to the student's specific academic field.[11] The e-Portfolio is a *web-based* interface that houses a portfolio and the collection of electronic evidence assembled and managed by a user and comprises of self-assembled evidence demonstrating, students' knowledge, skills, and abilities.[11] In conclusion,[12] McLoughlin and Lee view the e-Portfolios as an excellent tools for facilitating students' reflection on their own learning, within an academic course or program.[13] Transformation in higher education in terms of the use of technologies in teaching and learning in global trend provoked a need to re-think how to restructure the student teachers' pedagogy.[14] Consequently, the utilization of e-Portfolios became common in the courses offered in departments of higher education whereby student teachers are expected to compile an e-Portfolio to demonstrate competencies required to gain teaching certification or qualification.[15] Due to these technological developments in teaching and learning, it became essential to utilize the e-Portfolios as an alternative method of summative assessment to enhance student teachers' technological pedagogy during their teaching practicum period.

The e-Portfolios is important because it promotes critical thinking and support the development of technology literacy skills of the student teachers.[16] The e-Portfolios provide student teachers with technological competencies that enable them to cope with current demands of teaching and learning in the digital classroom.[17] The e-Portfolios can help student teachers to develop new or deeper learning, which results in academic success. The e-Portfolios can be shared with the acquaintances to showcase the students' achievement levels.[18] The e-Portfolios promote collaboration and feedback among students, peers, and instructors. Students can share their portfolios with others, allowing for collaborative projects, discussions, and knowledge sharing. This collaborative aspect fosters a sense of community and encourages students to learn from each other's experiences and perspectives.[19]

THEORETICAL FRAMEWORK

This study is embedded on Marr and Poggio's theoretical framework called Education with Technology (EwT) which emphasizes education and maintaining that technology provides a method for the implementation of some aspects of education.[20] The failure of the world education planners to recognize the real trends of potentialities of the computer presence has several social outcomes such as the impact computers may have on inequalities in education. To eradicate these inequalities in education, computers can be used as a powerful tool to break down these barriers.[21] The study followed this theoretical framework because of its impact on the utilization of computers by the student teachers who must be compliant to the real trends of modern world that is characterized by technology and internet.

METHODOLOGY

I followed quantitative research design methodology because it involves the utilization and analysis of numerical data using specific statistical techniques which enabled me to obtain answers that are related to the main question of the study. Furthermore, a positivist approach was followed to assist in determining patterns of relationships among the participants which helped in making accurate findings. A survey was developed and used to collect data from the participants who were all doing Education IV. To ensure that the questionnaire eliminates other possible causes in the research findings the research was internally validated. Internal validity is defined as the extent to which observed results represent the truth in the population studied.[22] The final version of the questionnaire

consisted of participants' gender and 26 items organized into six themes. The questionnaires were completed in the lecture hall at the university. It used a five-point Likert scale of agreement with the variables ranging from Strongly Agree (5); Agree (4); Neutral (3); Disagree (2); and Strongly disagree (1). Open-ended questions were asked to obtain additional information about the topic of the study

DATA ANALYSIS

The participants consisted of 150 of the 640 students who were registered at the selected university, doing Education IV. They were randomly selected because of simplicity and lack of bias. When selecting the participants the researcher assured them that their participation was voluntary and if they felt that they didn't want to continue they were free to stop from participating. They were asked to be honest in their responses and not to feel intimidated by my status as a lecturer. The participants were given 30 minutes to complete the questionnaire. About 200 questionnaires were prepared and handed out, but only 150 were properly completed while the remaining 50 were submitted either blank or same response for all the questions in the questionnaire e.g. all **neutral** or all **agree**. The positive response to the questionnaires was because I was in the lecture hall with them. The researcher personally administered the questionnaires, transcribed, and analyzed the responses. In analyzing data, the inferential statistics was used by utilizing the findings from the sampled data to generalize and draw conclusions about the population.[23] Furthermore, the t-test technique was used to compare 150 participants' perceptions. The data collected through the questionnaires and open-ended questions was organized and presented in tables and then analyzed statistically using such statistical methods, and percentages. Tables were generated from the questionnaire so that the essence of the interpreted information can be presented systematically. Responses to the open-ended question were also organized and interpreted.

FINDINGS AND DISCUSSIONS

Participants in the study are reflected in that table below:

	Males	Females	
	N	N	
Total participants	72	78	150

Table 1. Participants

Table 1 above reflects the number of participants according to gender who participated in the study. Out of 200 questionnaires handed out, 150 were correctly completed. The total number of the participants, which is about 75%, was satisfactory for this study.

The participants' level of understanding of e-Portfolio

The results about the participants' level of understanding of e-Portfolio during teaching practicum are reflected in the tables below:

	Strongly agree		Agree		Neutral		Disagree		Strongly disagree	
	F	%	F	%	F	%	F	%	F	%
My level of understanding the e-Portfolio during teaching practicum was not impressive	18	12	22	14.6	28	18.6	54	36	28	18.6
My level of understanding the e-Portfolio during teaching practicum was very exciting	30	20	54	36	51	34	12	8	3	4.5
The utilization of the e-Portfolio was very frustrating	24	16	34	22.6	48	32	31	20.6	13	8.6
The utilization of the e-Portfolio was very rewarding	21	14	68	45.3	41	27.3	15	10	5	3.3
I am presently knowledgeable with the use of e-Portfolio	59	39.3	58	38.6	21	14	7	4.6	5	3.3
I am still not knowledgeable with the use of e-Portfolio	8	5.3	9	6	20	13.3	47	31.3	66	44

Table 2. Level of understanding of what is e-Portfolio during teaching practicum

Table 2 enquired about the participants' level of understanding of what e-Portfolio during teaching practicum is. About (18.6%) of the participants strongly disagreed that their knowledge of the e-Portfolio is not impressive while (12%) of the participants agreed that their knowledge of the e-Portfolio was not very impressive. Another (36%) of the participants agreed that their level of understanding of the e-Portfolio is very exciting. The narrative that the participants' level of understanding the e-Portfolio is corroborated by the literary evidence that indicates South Africa's readiness for technology which is enhanced by utilizing technology at its schools and universities. These institutions are motivated to utilize online teaching and learning, e-learning, and many ICT integrated strategies for teaching and learning.[24]

	Strongly agree		Agree		Neutral		Disagree		Strongly disagree	
	F	%	F	%	F	%	F	%	F	%
The utilization of the e-Portfolio helped me to successfully develop professional skills.	70	46,6	57	38	15	10	3	2	7	4,6
The utilization of the e-Portfolio helped me be able to successfully reflect on my teaching ability	55	36,6	60	40	28	18,6	2	1,3	5	3,3
The utilization of the e-Portfolio helped me to improve my ICT skills	39	26	70	46,6	28	18,6	7	4,6	6	4
The utilization of the e-Portfolio helped me to improve my administrative skills	51	34	61	40,6	28	18,6	3	2	7	4,6
The utilization of the e-Portfolio helped me to realize enhance teaching and learning	48	32	60	40	28	18,6	8	5,3	6	4

Table 3. The e-portfolios contribution in the development of skills and abilities during teaching practicum

Table 3 shows the contribution of the e-Portfolio in the development of skills and abilities to the participants during teaching practicum. About 46.6% of the participants strongly agreed that the utilization of the e-Portfolios during teaching practicum contributed to the development of their professional skills and a mere 6.4% strongly disagreed that the e-Portfolios contributed to the development of their professional skills. These results suggest that e-Portfolios made a greater contribution to their professional development. Furthermore, 32% of the participants strongly agreed that e-Portfolios assisted them to successfully reflect on their teaching and learning abilities while 5.3% disagreed. This notion suggests that most students are compliant with the latest technological developments which exist in many sectors, including education sector.

	Strongly agree		Agree		Neutral		Disagree		Strongly disagree	
	F	%	F	%	F	%	F	%	F	%
I believe that there can be room for improvement in the utilization of e-Portfolios during teaching practicum	73	48.6	43	28,6	20	13,3	8	5,3	6	4
The e-Portfolios are not effective and there is no way that they can be improved	12	8	8	5,3	26	17,3	39	26	65	43,3

Table 4. A room for improvement in the utilization of e-portfolio during teaching practicum

Table 4 depicts the participants' perceptions about whether there is room for improvement in the utilization of e-Portfolios during teaching practicum. About 48.6% strongly agreed about this notion whereas only 4% had strongly opposed this viewpoint. In contrast only 8% of the participants hold a strong view that e-Portfolios are not effective and there is no way that they can become better while about 17.3% are expressing a neutral viewpoint. This viewpoint suggests that the university must address some of the challenges that were highlighted by the participants. As the system of utilizing the e-Portfolio is new, it was expected that during the process challenges might emerge. It is thus important for the university to identify these challenges and provide remediation.

Responses from the participants about open ended questions. Most participants agreed that the e-Portfolio utilization during teaching practicum was useful.

CONCLUSION

The study revealed that students' perceptions on the utilization of e-Portfolios was worthwhile because it provided major contribution in their professional being. It also improved their skills and abilities in the utilization of ICT and teaching abilities. They concurred that the university must continue with the utilization of e-Portfolios.

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PERSONALISED LEARNING AND DEVELOPMENT WITH PARENTS IN THE LOOP: HOW INTEGRATING GENERATIVE AI IS ENHANCING CHILDREN'S LEARNING AND ENABLING DIRECT PARENTAL CONTRIBUTIONS

Author:
DEV ADITYA, PAULDY CJ OTERMANS

Affiliation:
OTERMANS INSTITUTE, UK. OTERMANS INSTITUTE & BRUNEL UNIVERSITY LONDON, UK

INTRODUCTION

Undoubtedly AI is revolutionising the world and is having a significant impact on our daily lives. Through qualitative research, it was shown that within the education sector, AI has helped teachers design more activities and provide better assignment feedback.[1] Other research show the impact of AI which has seen a drastic improvement within education.[2] AI-driven learning apps can provide in-home learning which can be an informative and educative way for children to learn. There has been a great deal of research into the effects of AI in education,[3] but limited has been carried out especially on early childhood education. 17 studies globally from 1995 to 2021 were reviewed and results showed that AI improves children's learning ability and promotes creativity and literacy skills.[4] Due to its popularity, schools have started to implement such AI into their lessons. Some examples of AI applications in education are intelligent tutoring systems for special education, natural language processing for language education, educational robots for AI education, educational data mining for performance prediction, discourse analysis in computer-supported collaborative learning, neural networks for teaching evaluation, affective computing for learner emotion detection, and recommended systems for personalization.[5] Others show that AI engagement in primary school classes is slowly becoming familiar, but more training within AI is needed.[6] AI within lessons, such as interactive learning through chatbot, can be seen to be helpful and informative and has a positive implement towards students' learning.[7] AI in education can help students learn in non-judgement zone, through chat boxes between AI and individuals, children can feel less hesitant and more confident to ask questions they are struggling with. This is something that will not be given in classroom that has a group of students. It can be argued however, will AI give the same level of impact that a teacher provides in classrooms.

This debate can be a major concern for parents who are sceptical regarding AI in education. However, AI can provide more direct answers which will enable the children to learn freely, this is seen evidently through 5-year-old in a kindergarten in Hong Kong[8] as over the 6 weeks they learnt through AI, children enjoyed the company of these AI-generated apps and confirm its help. Whether it is providing extra assistance for children's enquiries, or teaching children about a topic from the bottom, through AI generated apps, children can continue learning anywhere at any time. However, AI is still

a debatable topic amongst parents. Chinese parents were worried that their children might become too reliant on the apps and would want the app to give away all the solutions or provide them with all the answers.[9] Thus, although these apps were seen as informative and use, most parents were worried that children may lose self-critical evaluation during learning.

Another challenge which parents' questions is whether AI-generated apps teach the right content and provide appropriate answers to the children. Public AI tools such as 'Chat GPT' are at times providing mistakes and information may not always be fully reliable.[10] This has led to the assumption AI is not 100% accurate, and parents being worried when children become reliant on using AI-generated learning apps. It was found the parents who were younger and more educated showed more scope to learn about the uses of AI-generated educational apps for children.[11] However, it can be seen across parents, the younger and more educated parents amongst AI-educated apps, were more willing to allow their kindergarten children to experience AI-educated apps.[12]

AI-generated platforms like Teddy AI[13] would be seen as an easy form for children to learn and communicate more effectively. An app similar to Teddy AI was developed known as KidSpace, in using an AI-generated educational character named Oscar.[14] Parents thought this app was much more useful and better compared to computer-based games, as it contributed positively towards their children's learning.[15] Results from the interviews showed that the parents thought that the app was more engaging because of the verbal interaction between Oscar and the child. Oscar kept asking questions to engage with the children.

This study aims to further clarify the viewpoints from parents regarding the AI in education through a parent-dashboard which allows parents to track their children's progress and specifically choose what the AI should teach the children. This is an impactful way for parents to be comfortable for children to use an app which allows children to be engaging within their studies whilst making it playful and effective for them.

METHODS

Participants

A total of 22 participants took part in the focus groups; the majority identified as male (14; 63.6%) and eight (36.3%) identified as female. In terms of ethnicity, 7 (31.8%) identified as Black-African, 6 (27.3%) as Mixed-White & Black Caribbean, 3 (13.6%) as Mixed-White & Black African, 2 (9.1%) as Black-Caribbean, 2 (9.1%) as Any other Black, 1 (4.5%) as White, and 1 (4.5%) as Asian-Indian.

Materials

Semi-structured focus groups were used as this method of generating data encourages participants to express their views and opinions whilst providing the opportunity to probe and ask follow-up questions and, consequently, generate rich, in-depth, and detailed data.[16] The focus groups were conducted online via Zoom and video recorded, and the duration of each focus group is provided in Table 1.

Focus group number	Duration
1	00:50:21
2	00:53:01
3	00:57:11
4	00:45:35

Table 1. Duration of each focus group.

The focus group covered topics such as technology for learning and the use of AI for children's learning. This was followed by showing the participants the Guardian Dashboard after which their views were discussed. Example questions include: *What do you think of using Artificial Intelligence for your child's learning?*. After this, participants were asked to complete a short survey via an online Google Form about their views on the usability and valuation of the tool. The usability part consisted of the SUS scale[17] which is a Likert scale aimed at assessing 10 statements about usability and reliability where parents could indicate to what extent they agreed with each statement from 0 (strong disagreement) to 4 (strong agreement).

Procedure
This study was approved by the institutions' Research Ethics Committee (Ref:44739-LR-Nov/2023-48206-2). While signing up for the focus groups, participants were presented with a participant information sheet and an informed consent form. Participants were informed that they could withdraw their participation at any point, should they wish, and that no penalty would be applied. For the survey, participants were informed that their data would remain confidential and for the focus groups their data would remain anonymous. At the end of the study, participants were thanked for their participation, received a debrief form, and got a £10 Amazon voucher.

Data analysis method
Focus groups were transcribed verbatim and analysed using thematic analysis by applying a six-step approach.[18] Using this approach, familiarisation with the dataset took place, followed by open-ended coding, and theme generation. This led to 3 themes. The survey data were analysed using Microsoft Excel.

RESULTS
Three themes were identified in the thematic analysis. Theme 1 was "Parents opinions on utilising AI for their children's learning," which is defined as parents' impressions of AI in general and their opinion about using AI for their children's learning. Theme 2 was "Parents views on the Teddy AI Guardian dashboard application " and is defined as impressions that parents had about the Teddy AI Guardian dashboard application before and after the app was demonstrated. Theme 3 was "Parents' suggestions for improvements of the Teddy AI Guardian dashboard application" which are parents' views on how to improve the app.

Parents opinions on utilising AI for their children's learning
This theme explored parents views on technology and AI in general and specifically their role to their children's learning. Most of the participants were positive about the use of technology.

"I think technology is good and currently technology is everywhere. technology is also making change easier. So my perception about technology is a good one, is helpful because it can improve and use it in a good way" (P20, FG4, l.76-79).

"I feel like this AI for our children is great but we should not really replace human teacher. The AI should be used to augment our children's learning but I think AI generally is really useful for children's learning'' (P9, FG2, 243-246).

In general, participants were enthusiastic about using artificial intelligence to help their children learn. Participants discussed the importance of technology, emphasising its impact on all aspects of our lives; however, they established a requirement for children to use technology at the appropriate age.

"Using technology for my child's learning is very ok, it can be incredible in every aspect" (P14, FG3, I.l40-141).

"I think is something great and powerful to me because moving to 21st century technology is everywhere, navigating daily the games and the activities make it easier for us" (P11, FG2, I.138-140).

Participants also discussed how much technology can improve our lives by teaching us new things, as well as the increased potential that people can have by taking additional courses using technology to improve their employability.

"A lot of these graduates are not able to handle the situation I think education is the key. learning these skills from the platforms so technology is a quality aspect that contribute in effective learning" (P16, FG3, I.123-128).

Some participants also discussed the benefits of technology in terms of improving and speeding up the learning process, as well as ideas for how AI can improve their children's learning in specific areas of interest.

"I really love using a tablet for my kids learning and also using AI and also videos like treated like cartoons and they like what they see and most times it cause their attention" (P1, FG1, I.73-77).

Majority of parents were positive about the use of technology. They believed that technology had been an important part of our lives and could influence every aspect of it. They believed that AI could greatly benefit everyone, particularly children's education because it can improve children's ability to learn and comprehend a subject. Some participants emphasised the importance of technology for young graduates, who can use it to look up courses to add to their portfolios and improve their chances of getting hired. However, they expressed their concern about the minimum age for a child who uses technology.

Parents views on the Teddy AI Guardian dashboard application

This theme investigated parents' perspectives on the Teddy AI Guardian dashboard app. After the facilitator demonstrated the Teddy AI Guardian dashboard app, the majority of the parents were keen about the application:

"I like this Teddy AI, I like the fact that is a nice help for children it also gives you room for exercises, you ask questions and it can give you answers" (P9, FG2, I.536-537).

Some parents expressed their excitement about the Teddy AI Guardian dashboard app, believing that more people should learn about it while spreading the word regarding it.

"I know with this my child can go a long way in terms of making a sentence or talking to someone my child would know" (P15, FG3, I.492-495).

Some other participants expressed their enthusiasm about the parents Teddy AI Guardian dashboard app and the control that the app provides to parents in order to monitor protect and enhance their children's learning experience during using this app.

"The introduction of AI comes with a parent app I love this aspect of it. I have the opportunity to go back and see what AI has been teaching my kids well that's quite impressive. It's kind of a way helping these kids with their learning. They learn playfully which means they play while learning and this makes the whole thing more interesting, I love it" (P17, FG3, I.540-547).

Some parents highlighted that the app could help their children learn faster and the importance of audio-visual learning that is enhanced by the Teddy AI Guardian dashboard app.

"Planning the child learning with the AI and also the child speaking, and because of the sound makes the learning earn very easy" (P4, FG2, I.504-509).

Other participants expressed a desire for multi-language support in the Teddy AI Guardian dashboard application.

"I think the application itself is a good idea using the guardian dashboard and seeing it seems friendly you know with the voice and the teddy; kids love teddy. Some parents may not be able to use it in English they want to use it in their own language so their kids can also learn how to speak on their own language" (P20, FG4, I.299-305).

Everyone was optimistic about the app and seemed delighted about its potential for supporting their children's learning through the parent's input. They also like the ability of tracking their children's progress which will help the child improve in all subjects.

Parents' suggestions for improvements of the Teddy AI Guardian dashboard app

This theme explored parents suggestions for improvement for the Teddy AI Guardian dashboard app. Some participants suggested children to learn together in groups while using the app.

"I was thinking if there is a way of connecting more parents and children like an online classroom structure where we can all interact with Teddy AI and learn with AI" (P16, FG3, I.600-605).

Some other participants suggested to add other languages in the Teddy AI Guardian dashboard app.

"Our children need to use it to learn different languages which could be French, Spanish, German, Italian" (P11, FG2, I.524-527).

Another participant asked to add other topics such as ballet or sports.

"I would love to introduce topics I know my child likes, like ballet" (P9, FG2, I.538-539).

"As a parent my responsibility is to guide him how to achieve his dreams, so I would like to add topics around sports" (P7, FG2, I.473-474).

P7 also suggested introducing teddy AI at school.

"Can the school system incorporate it in the use of AI in school? With this Teddy AI app, this can go a long way to facilitate in teaching process" (P7, FG2, I.623-624).

P3 suggested daily limitation so a child can master a topic before they jump into a different topic.

"For example, you are to learn numbers today and that is what they need to learn throughout the day and then make sure they master it. Then move to other topics such as vowels, colours" (P3, FG1, I.453-457).

Parents saw a lot of potential in the guardian's dashboard effectiveness. Some parents suggested study groups in which children could use the app together. Other suggestions involve acquiring knowledge in specific steps and tracking progression so that a child can only move on to a different level or topic if the child has mastered the one is currently studying.

CONCLUSION

Personalised learning from a young age is even more valuable to enable a robust foundation and the ability for children to grow cognitively. Few solutions exist apart from direct parent and tutor-led interventions which are limited to a few hours a week. Furthermore, parents want high involvement in their children's early stage learning and development. This is not possible especially in families where both parents work. Generative AI can be inserted into children's learning products to provide personalised learning and direct parental involvement at scale. In this study, two apps using generative AI; Teddy AI and Teddy AI Guardian Dashboard were used to test personalised learning capability for children under 7 years and parent participation in their learning and development journey. Four online focus groups with 22 parents across the UK were conducted where parents used the Guardian Dashboard and saw its use in the Teddy AI app. Results showed that they found the Generative AI enabled personalisation and ability to prompt to be part of the learning journey extremely useful. Furthermore, they found the Guardian Dashboard easy to use, appreciated the

analytics the Guardian Dashboard provided, and overall found it beneficial for being part of their children's development.

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DRAWING OUT: THE EXPLODING (ART) SCHOOL

Author:
BENJAMIN HALL, JO HASSALL

Affiliation:
LEEDS BECKETT UNIVERISTY, UK

In the post-pandemic university, *hybridity* has become a widely touted norm. The term implies agility around methods of learning, though is often limited to either in-person or on-line delivery. Despite the claim, hybridity is never truly so, and is compromised further by a framework of centrally enforced metrics which divide teaching into inflexible categories based around time or subject scope. A more radical form of hybridity proposed by Colin Ward and Anthony Fyson was a pedagogic *dynamite* which would 'explode' the school into the urban environment.[1] Their solution was environmental education, or 'streetwork', a learning approach that identified "rich reservoirs of possibility in the everyday".[2] As part of a two-week project *Drawing Out*, staff and students from BA (Hons) *Illustration* at Leeds Beckett University decamped from the studio to an open stall in the middle of Leeds Kirkgate Markets. In keeping with Ward and Fyson's approach, the residency actively invited these hybrid overlaps and their associated opportunities for learning. *Drawing Out* encouraged experiential encounters that would not have been possible had we been on campus: cultural conversations, a pirate radio station interview, and a visit by indigenous artists from the Amazon. Each experience offered the students (and staff) new perspectives on their learning. Drawing critically upon the project, we will present a reflection of what took place, advocating for further 'explosions' across academia in order to foster more meaningful opportunities for learning inside and outside of the institution.

From 26th February to 7th March 2024, students and staff from BA *Illustration* at Leeds Beckett University relocated their studio to an empty stall in the middle of Leeds Kirkgate Markets. The idea was an impulsive one: this would be called *Drawing Out*, a project where we would spend two weeks on location doing just that; drawing out. There wasn't a plan or an expectation, just preparation: we would assemble materials, commit to an activity and see what happened. The *Illustration* course often used the local market as a rich cultural opportunity for learning, taking regular trips as part of modules which explored narrative. It is a unique site within Leeds as Penny Rivlin and Sara González write:

"Kirkgate Market is a spectacle of cultural difference, encapsulating public multiculture not reproduced elsewhere in the city centre. …[T]he market's dominant aesthetic is of bustling eclecticism; on busy days the market assumes a vibrant, carnivalesque ambience of orderly disorderliness."[3]

The concept for *Drawing Out* arrived during a previous visit to the market where we had tasked ourselves with making observational drawings of the sights and subjects around us. Our intention was to undertake this activity as inconspicuously as we could, sitting away from the main footfall. However, as we sat and sketched, the opposite occurred; this inactivity was unusual in a busy, bustling market and created intrigue and curiosity with market-goers and traders alike. People began

to notice and engaged with us directly, asking *what we were doing* and *why*. When we explained that we were drawing, people shared their own, often suspended, creative experiences, one market-goer opened up:

"I tried drawing once… I tried drawing my door frame, but it was too difficult. I gave up."[4]

In doing something *different* in the space, in this case *drawing*, we realised that this atypical activity invited interesting encounters and was an opportunity for candid, cultural exchange. As such, we made the decision to return, looking to spend longer in the space in order to unlock new, social possibilities for learning.

Our own residency maps instinctively to *streetwork*, an educational approach set out by Colin Ward and Anthony Fyson who "advocate an 'exploding school' that moves outwards to the people and environments around them, where students engage in education in spaces outside of the classroom."[5] This "incidental school"[6] was a reaction to the active removal of young people from the everyday environment by a rigid society, only to be reintroduced when they had been sufficiently educated.[7] Such segregation removed important opportunities for learning that the town and city could offer. *Streetwork* was an opposite to the restrictions of the classroom, as Ken Warpole writes:

"The point… was to help get children out of school and into their communities, to talk to local people, and explore their neighbourhood, its amenities and utilities, and understand how buildings, streets, landscapes and social life interact."[8]

Illustration at Leeds Beckett University is delivered in a former *art school*, now part of a larger, more corporate institution. Much like the educational context within which Ward and Fyson write, the fluid, open pedagogies of the *art school* are hamstrung by capitalist metrics that mould teaching into standardised compartments of time, subject scope and level. In stepping out of the university, this opens up a chance to disrupt the relationship of learners and teachers to the possibilities away from the economic drives of the institution, the perceived expectations of a curriculum and the behaviours shaped by the classroom. *Streetwork* is aimed mainly at the urban environment, though nowadays any attempt to stage learning within a city centre would struggle against a capitalist backdrop, where ethnographies are hidden behind a more dominant consumer culture. Being in the market during this project turned out to be an opportunity to visibly 'step outside of the market' in a way, to experience not being a consumer in the city centre. Increasingly these are spaces where culture that sits outside of profit-making has been shrunk through privatisation, state-led gentrification and the impact of 'austerity'.[9]

It's important to note that *Drawing Out* wasn't explicitly funded, with the exception of support in kind. Kirkgate Market offered us the space for free, and were happy as long as an interesting activity took place, and that this was tagged and shared across social media. The market regularly hosted *happenings* with artist groups such as Leeds' famous *Art Doctors*, facilitated by a dedicated events and outreach manager. We acknowledge that being employed by a university is accompanied by certain financial support in the form of materials and part of the preparation (emailing, risk assessment etc.) was covered by allotted *Teaching Related Activity*. The absence of funding meant that there were no external *stakeholders* who had a vested interest, nor was there a specific expectation of what would happen. Applications for funding are littered with predictions of explicit outcomes and promised impact: but in the chaos of a busy market, how could we possibly know what this would be? Without funding, the stakeholders were the students, staff and market-goers and we could operate freely, without an expectation of what would happen, inviting uncertainty and the unknown.

Looking back, our own *explosions* spanned both space and time, seeking to encourage hybridity between spatial and temporal conventions. The space itself was an important factor in encouraging the spills and overlaps between the temporary classroom and the market environment. The stall was open-

sided, which permitted the students to come and go as they pleased, as well as interested market-goers, curious to see what was taking place. As a loose idea, we strung a series of 'clothes lines' across the open sides of the stall in order to hang drawings as an improvised gallery. The clothes line acted as an ambiguous and permeable boundary, which indicated both an edge, and an opening; an opportunity to cross inwards and outwards. It wasn't directly obvious what was permitted, and questions needed to be asked. *Is this a stall? Is this a classroom? Is this public or private? Can we join in too?* This criticality took on both indirect and direct forms, from a fleeting 'peep' through the clothes line to engagement in conversation between students, staff and market-goers. Questions received included: *what were we doing? Where were we from? Did we work for the market? Can we join in too?* Such critical encounters allowed students, staff and market goers alike to think differently about the environment, and what could be done with it, seeing it as a rich social, cultural and educational resource. Ward draws upon the work of Paul Goodman as the basis for *Streetwork* who advocates for a similar questioning of one's environment, outlining: "if you want to make the best of it, you've got to be able to criticise it and change it and circumvent it…".[10]

Initially we stuck to the expected academic timetable that the students were used to: 11:00am until 4:00pm with an hour for lunch. Even time outside of sessions presented an opportunity for discovery, particularly in terms of food and drink. The market offered a wealth of global cuisine, without the polished veneer of the high-street chain. As the residency progressed, our collective approach to time loosened, where attendance was not enforced, just acknowledged. If the students were present we would set drawing tasks in and around the market, but equally they were free to come and go as they pleased, joining in with the activity or not. As time became less formal, the students adopted their own timetable, often arriving ahead of the conventional start-time to engage with the space on their own terms, making individual observations and connections. One student began to integrate these personal experiences with their own habitual journeys to the city:

"The thing I like most about my experience working in the market is the feeling of walking here in the morning seeing people go about their morning routines. It's comforting seeing so much life as I enter the market. I catch snippets of conversations, the smell of different foods and the sounds of people working. It feels like I'm watching little random episodes of people's life. I love to listen to music in my headphones as I walk here and when I see people, my mind incorporates them into the song giving them little narratives."[11]

During the residency, we used drawing as a tool to invite social encounters and connect with the public. As well as being a pop-up exhibition space, the stall acted as a field-station for students to return to following reconnaissance trips to understand and explore the market. We improvised small clipboards out of greyboard and cartridge paper held together by a clothes peg and accompanied by a 2B pencil. Drawings that were brought back were hung on the clothes-line to reflect our observations outwards. Initially the exhibition was made up from those made by the students and staff, but later included pictures contributed by market goers in response to seeing our drawings as an invitation. These were hung without judgement: all contributions were accepted.

Drawing Out unlocked a wide variety of different encounters, from a fleeting compliment about a student's dyed hair to a two-hour interview for a pirate radio station. Engagements were one-offs, or repeated where market-goers would return with something or someone, expanding the cultural exchange wider beyond the walls of the market. People came back with drawings they had spent the evening working on, or family members that also loved to draw, but had since given up. Of these encounters, one student observes:

"It's nice to hear what people are passionate about and what they like to share upon meeting others. I also just like how friendly everyone is at the markets and the sense of community. It's nice to work in an environment with constant noises and chatter. It's a reminder that there are constantly different

stories and interactions happening around us, whether it be big or small, significant or forgettable. It's nice to see parents taking the kids around showing them the hustle and bustle of places like this people working et cetera whilst still letting them have fun and roam around - this is something very important to have in your childhood, I believe in order to be able to go out and talk to people and go to places independently when you're older?"[12]

If there was a climax to the interactions (not that there was a value judgement), it would have been an episode when delegates from an indigenous summit happened to chance upon our residency whilst they were walking from the bus station, through the market and up to the University of Leeds where their event was taking place. These were artists from South America who just happened to choose one route - of many - which by chance went past the *Drawing Out* field station. The group stopped and observed before sending over one of their counterparts, who asked: 'my friends would like to know what you are doing.' Language could have been an obstacle (they didn't speak English), however one of our students spoke Portuguese and acted as a conduit between us:

"Lots of people came in. It was very busy and they all wanted to make/draw something. [an Illustration student] translated as they didn't speak or understand English that well."[13]

One thing that stood out was the power that emotion held here as a means for direct and indirect, social connection. Engagement in this way ranged from distant observations to often tearful conversations where strangers would open up. One student reflects:

"While looking at a small antique shop outside, a lady came off her phone. Someone had called. She acknowledged something they said, and bid them goodbye. Her friend put her hand on her shoulder, and looked at her for news. The lady shook her head. I didn't hear the rest of the conversation, but as I walked away I heard her cry out. When I looked back, they were holding each other."[14]

Another encounter recounted by a tutor, resulted in a moving conversation for both parties:

"A woman is keen to show some photographs on her phone. These were paintings she had made recently of landscapes and seascapes. She was excited to talk about the paint and effects that she was trying to capture. We talked about expressive marks and the boldness of the colour she had used. She added that she had studied at our University many years ago, that her parents had wanted her to study engineering, and she had gone along with this although her real wish had been to study art. She continued that now she was forty years old, working as a cleaning supervisor at a nearby hotel but with a love for creativity that she had never had the chance to pursue. In another swipe of her phone she landed on some little knitted characters that she had made with her mum just before she had passed away two years before. She began to cry and talked about how she had looked after her for ten years of illness and placed her own life 'on hold' during the time - of her sadness of now finding herself alone, without a family or a career that she could enjoy. We talked about her finding a community, looking for a local art class and meeting some like-minded people to paint and draw alongside. She apologised for being upset and had surprised herself at how emotional she had been. Seeing our activity with the students and having a chance to show something she had made and felt pride for became an opportunity to talk about something that she hadn't shared with anyone else before."[15]

"It's been… emotional"[16] was the sign-off that Brother Slick from *Jump On Jump In 247 Online Radio* used to close his interview with students and staff, and this was key to a conversation where interviewer and interviewees discovered more about themselves and the world around them than they had initially bargained for. Emotion is not observed as a meaningful, valuable currency within mainstream education, often seen as outside of professionalism and wholly absent from learning outcomes or the metrics set to capture them. Debra Kidd writes:

"...[W]e need to attend to the idea that emotions can drive learning in positive and constructive ways."[17]

For *Drawing Out*, this was central to fostering cultural connections made possible by chance encounters and conversations between students, staff and the market-goers.

CONCLUSION

It is clear that within contemporary higher education, there needs to be a redefinition of 'hybridity', one that advocates for and supports a more *exploded* approach to how learning takes place. Our residency in the market demonstrated that for this to be meaningfully adopted, we need to do something *different*, abandoning expectation and committing to the inevitable uncertainty that loosened approaches will bring. We must dismantle the segregated structures of the standardised university: module / level / subject containers, learning outcomes and the associated metrics that insist these are enforced. Doing so we can create an ambiguous site of learning, a truly hybrid space where what we offer in the overlaps can be exchanged: our experiences, interests and dreams, for conversations, stories and discoveries. Such encounters would not have been possible were we to be situated on campus, in the classroom, all of which help us to think differently about ourselves and the environment that we occupy. For an *exploded art school*, learning is social and emotional, operating on a connective, human level. As educator Michael Young states:

"The curriculum is not just a body of knowledge; it's a group of communities we must encourage our students to join."[18]

NOTES

[1] Colin Ward and Anthony Fyson, *Streetwork: The Exploding School* (London: Routledge and Kegan Paul, 1973), back cover.

[2] Catherine Burke, "'Fleeting Pockets of Anarchy': Street Work. The Exploding School," *Paedagogica Historica: International Journal of the History of Education* (2014): 2, https://doi.org/10.1080/00309230.2014.899376.

[3] Penny Rivlin and Sara González, "Public Markets: Spaces for Sociability Under Threat? The Case of Leeds' Kirkgate Market," in *Contested Markets Contested Cities: Gentrification and Urban Justice in Retail Spaces*, ed. Sarah González (London: Routledge, 2018), 135.

[4] Kirkgate Market customer, in conversation with the authors, 2023.

[5] Colin Ward, Damian F. White, and Chris Wilbert, eds., *Autonomy, Solidarity, Possibility: The Colin Ward Reader* (Oakland, CA: AK Press, 2011), xxii.

[6] Colin Ward and Anthony Fyson, *Streetwork: The Exploding School* (London: Routledge and Kegan Paul, 1973), 19.

[7] Catherine Burke, "'Fleeting Pockets of Anarchy': Street Work. The Exploding School," *Paedagogica Historica: International Journal of the History of Education* (2014): 436, https://doi.org/10.1080/00309230.2014.899376.

[8] Ken Worpole, "Colin Ward Obituary," *The Guardian*, February 22, 2010, http://www.guardian.co.uk/society/2010/feb/22/colin-ward-obituary.

[9] Anna Minton, "Notopia: Who Is the City For?" *The Architectural Review*, September 1, 2016, http://www.architectural-review.com/archive/campaigns/notopia/notopia-who-is-the-city-for/10007202.article.

[10] Quoted in Colin Ward and Anthony Fyson, *Streetwork: The Exploding School* (London: Routledge and Kegan Paul, 1973), 18.

[11] Student A, reflection, March 7, 2024.

[12] Student B, reflection, March 7, 2024.

[13] Student C, reflection, March 7, 2024.

[14] Student D, reflection, March 7, 2024.

[15] Tutor, reflection, March 7, 2024.

[16] Brother Slick, conversation with the author, 5th March 2024.

[17] Debra Kidd, *A Curriculum of Hope: As Rich in Humanity as in Knowledge* (Bancyfelin: Independent Thinking Press, 2020), 19.

[18] Michael Young, "Michael Young: What We've Got Wrong About Knowledge and Curriculum," *TES*, September 21, 2022, https://www.tes.com/magazine/teaching-learning/general/michael-young-powerful-knowledge-curriculum.

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WHY SHOULD WE PROVIDE CHOICE IN ENGINEERING DESIGN COURSEWORK ASSESSMENT?

Author:
ALED W DAVIES

Affiliation:
CARDIFF UNIVERSITY, UK

INTRODUCTION

Assessments should not disadvantage any student from achieving and demonstrating their capability and potential in an equitable manner.[1] Usually, underperformance in assessments is seen as a student problem[2] with diversity being addressed by reasonable adjustments and additional support.[3] However, this approach reinforces exclusion by highlighting differences rather than embracing diversity.[4] Although providing assessments which are inclusive to all students is part of the wider context of inclusive education,[5] it is not receiving much attention within higher education.[6] The Quality Assurance Agency for Higher Education (QAA)[7] reaffirmed its commitment to fostering these inclusive assessment practices through their Equality, Diversity, and Inclusion (EDI) requirements, aimed at promoting equity and social justice within educational settings.

An 'assessment for inclusion' approach has been promoted as a 'vehicle for radical inclusion', where assessments should be designed to be inclusive for all by recognising diversity in student learning and not retrospectively altered to accommodate diversity. The goal is not to discriminate through assessment and to accept that 'current assessment methods introduce barriers to a wide range of students.'[8]

Inclusivity itself can be a problematic term,[9] potentially implying change to accommodate outliers to join in rather than acknowledging systematic barriers that restrict access to educational opportunities for certain learners. The context of care applied in this study revolves around that stated by Bali[10] who defined that 'this is the difference between caring for ALL students versus caring for EVERY student'.[11] Guidance from the Universal Design for Learning (UDL)[12] and Freire[13] offer valuable insights into cultivating educational equality (evenly distributed tools and assistance for students) and equity (customized tools that identify and address inequality) as well as promoting a 'pedagogy of care' that prioritizes inclusivity within student learning. UDL principles further promote building flexibility and relevance in the learning experience to support student identity, motivation, autonomy, belonging and engagement. Critical pedagogy[14] is also relevant to equitable education, where educators should engage in dialogue with students as equal partners in the learning process, while also moving away from 'transmissive' methods of teaching which regard students as empty vessels to fill, to 'transformative' education.[15]

For students, a crucial aspect of assessment revolves around the extent to which their format enables them to effectively demonstrate their achievement and potential. As noted by Thomas and May,[16] inclusive assessment refers to 'the design and use of fair and effective assessment methods and

practices that enable all students to demonstrate what they know, understand and can do.' This is sometimes referred to as 'justice'[17] which can be defined 'as a system to offer equal access to both tools and opportunities'[18] that goes beyond that defined as equality and equity.

This study embraces the widest understanding of inclusion for all students and de facto embraces diversity at all levels through assessment design and not adjustments. Nieminen and Pesonen[19] further noted that social model-minded studies emphasized 'inclusive assessment design through diverse assessment practices that provide multiple ways for students to represent their knowledge and thus reduce the need for individual accommodations.[20] Adopting inclusive assessment approaches can further address instances of poor student experiences around assessments, reduce attainment gaps and facilitate an improved learning experience[21] that is personalized and respects inequalities while accommodating disparities in student opportunities.

Little research on the impact of providing inclusive assessment has been undertaken, especially for engineering coursework. A practical study was undertaken where inclusive coursework assessments were implemented on a final year engineering problem-based design module having a cohort of circa 140 students. A range of assessment formats were designed and offered to students and this review reflects on their development and implementation across both individual and group contexts. Student responses to inclusive assessment practices are discussed, including impact on cohort performance. Unexpected challenges around student assessment literacy, considerations for selecting the most suitable authentic assessment formats and equivalence of workloads, as well as strategies for mitigating stress and anxiety associated with offering choice are also highlighted.

PROVIDING CHOICE

Numerous traditional pedagogic approaches exist around creating assessments, with the three main categories each addressing learning in different ways. Commonly, assessment is framed through certification (assessment of learning – what learners know and can do), learning (assessment for learning – what learners need to study) and sustainability (assessment as learning – learners directing their own learning).[22] Boud[23] stressed that assessment 'powerfully frames how students learn and what students achieve'. To help in designing meaningful and engaging assessments, different assessment formats suited to different learners was explored, drawing insights from the Universal Design for Learning (UDL) approach, Equity, Agency and Transparency (EAT) principles[24] and TESTA[25] (Transforming the Experience of Students Through Assessment) tools.[26] This guidance facilitated the creation of a diverse range of authentic[27] but customized assessment methods accessible for EVERY student while still aligning to the same module learning outcomes (LOs).

UDL guidance further promotes choice and autonomy in assessment, extolling that learners should be given 'the right kind of choice' and 'as much discretion and autonomy as possible' in respect of 'the level of perceived challenge', the 'type of rewards or recognition available', the 'context or content used for practicing and assessing skills' and 'the sequence or timing for completion of tasks.' Providing choice in authentic assessment formats is also important to reduce barriers, allowing students to express their learning and understanding through personal and contextualized preferences.

Offering a range of assessment formats empowers students to select the most suitable for them, a practice[28] sometimes referred to as 'negotiated assessment.' This broadly follows the critical pedagogy principle, implying some level of discussion in formulating and determining a preferred format, which is not always the case. Since LOs need to be demonstrated and evidenced appropriately to maintain quality and professional standards, assessments need to be designed to substantiate them in a meaningful manner. In essence, multiple means of expression and engagement nurtures an enhanced and authentic learning environment conducive to student success.

Engineering practice often requires complex and interdisciplinary solutions,[29] where authentic real-world challenges are approached[30] through problem-based learning (PBL). These complex coursework design projects can pose an additional challenge around mapping LOs across a diverse set of students. These challenges are not insurmountable but do require care and attention when designing appropriate authentic coursework assessments.[31]

Despite the widely held perception that extended preparation time for design-based coursework allows students appropriate opportunities to overcome any learning obstacles, it fails to address equitable workload distribution. It further highlights that assessments do disadvantage (and likewise advantage) certain students. This inclusive approach is now being recommended by The Higher Education Academy[32] by mitigating any disparities through offering alternative assessments incorporating student choice.

Ensuring equivalence of workload across various assessment formats is certainly an important discussion between students and staff,[33] especially where some choices are perceived by students as needing less effort to achieve the same level of success and academic standard. Morris et al[34] found that students had reservations around being given choice, being concerned about 'fairness' around some modes of assessment. Students in this study were asked which mode of assessment was felt to be the most challenging. Interestingly, the results were equally weighted between the choices provided, namely presentation, oral, written or exam. Unfortunately, little research work is available in this area, although some simple guidance on the equivalence of workload across various assessment types is available,[35] it is often criticised as over-simplifying issues around inclusive education.

To implement inclusive assessments requires more than providing reasonable adjustments and accommodations for individual students. It requires radical changes to processes[36] and pedagogical approaches to embrace all learners.[37]

CASE STUDY

This case study explores the practical issues encountered when delivering inclusive assessments on a Year 3 Level 6 10 credit interdisciplinary engineering design module over a two-year period. For context, the module focusses on the design of a multi-storey building using sustainability and net zero principles for a cohort of approximately 140 students. Students initially worked individually for six weeks before submitting an individual report, subsequently transitioning to groups of six and submitting a group review written report after eleven weeks. Marking schemes were provided with detailed assessment-level criteria descriptors that aligned with the content, teaching activities and LOs.

Being aware of the need to be more inclusive,[38] the existing assignments were developed into a variety of submission formats based on the original assessment levels and LOs, while offering improved choice and promoting diversity of assessment to suit student preferences. The aim of designing these inclusive coursework assessments was to allow all students to evidence their potential without the need for reasonable adjustments or further accommodations.[39]

Students were allowed to choose between a range of flexible assessment options for their individual and group submissions. These assessment options included:

- Presentations – live.
- Videos – recorded.
- Storyboards.
- Digital simulations – models.
- Physical models.
- Animation.

- Technical written report.

To aid transparency, marking criteria schedules were produced that clearly highlight and evidence equivalence across these diverse assessment formats, in an attempt to ensure equity while providing clarity for students and staff from the start of the module. In conjunction, each assessment format was clearly described, outlining what is expected and required from students. Students could also suggest their own submission formats, albeit a discussion concerning how the LOs were going to be evidenced was required. Module LOs had to be achieved across the whole range of assessment formats being provided or be rewritten to span across the various assessments.

Using the EAT and UDL[40] principles emphasized the importance of assessment principles that empower, support and clarify the role of students in the developmental process. They mention the importance of 'how students come to co-own their programs with lecturers and see themselves as active contributors to the assessment feedback process rather than seeing assessment as something that is done to them' within the EAT framework. Cardiff University also has a framework to support staff in embedding inclusive education within their learning and teaching practices. Their goal is that 'every student should have an equal opportunity to demonstrate their achievement and potential'[41] through furthering social justice by fostering a sense of belonging for all students, empowering students to fulfil their potential and to develop inclusive mindsets. This framework coupled with the EAT and UDL principles provides guidance on assessment practice from both the staff and student perspective.

Detailed marking schemes and equivalent workload guidance were provided for each assessment format. For instance, the word-count equivalent, duration (minutes) and workload effort (hours) for a video, individual slides, model, live presentation and combinations therein was provided. Further support to students included weekly workshops which gave students an opportunity to ask questions and self-assess their work against the marking scheme and assessment criteria to ensure they stayed focused, engaged and motivated. Having various assessment formats is good practice; just knowing there is another route can provide reassurance and further aid the wellbeing of students.[42]

OUTCOMES

When presented with the choice of flexible assessment options during the first introductory lecture in 2022-23, initial student reactions ranged from complete silence to outright bewilderment. Instead of the expected enthusiastic response, it transpired into an awkward silence with a palpable sense of uncertainty. Most students just reacted with 'just tell me what to do'.

Upon reflection, it became evident that these students had never encountered such flexibility in choice of assessment formats during their degree programme. The introduction of flexible assessments[43] was a bombshell and represented a significant departure from their prior learning experience and practice. Guiding EAT principles[44] had already underscored the importance that learners needed to have better assessment literacy and support around flexible assessment practice and design.

To address this assessment literacy gap, a few weeks of discussion, coaching and mentoring focussing on inclusivity was undertaken, after which students gradually gained insight into the rationale and reasoning behind introducing the flexible submission format. It was evident that implementing change is not straightforward and care is needed to guide students through the rationale for inclusive assessment choice and understanding expectations.

While most students opted for the traditional technical report format, a noteworthy 18% chose to submit individual or group video presentations, which was less than expected but still significant. Additionally, a few students submitted storyboards albeit still predominantly written but in a less traditional report format. A few students provided physical models instead of the usual digital representations.

Student feedback from module enhancement highlighted a newfound sense of empowerment and the removal of some barriers to their learning and achievement. This initial approach to providing inclusive assessments garnered widespread praise from students across the entire cohort and not solely from those expected to benefit the most. This feedback underscores the transformative impact of an inclusive mindset on student engagement and overall learning experience. Typical students comments included this 'assignment has allowed and encouraged creativity and developing skills'; 'good coursework scenario' and 'great freedom regarding coursework submission and details.' Importantly, students felt liberated that a barrier to their learning and achievement had been removed.

Module enhancement scores further improved for 'Overall performance' and 'Support for my assessment' being 4.59/5 and 4.58/5 respectively, up by 0.5 points from previous years with inclusive assessments. For the second year, 2023-24, the introduction to flexible assessments was more explicit and incorporated a clear message of co-creation with students. Student concerns were mostly around equivalence of effort and workload, which were resolved through discussion and negotiation. More students chose alternative individual submission formats, increasing to 25% of the cohort, with most being video based but mixing visual and sound mediums within their submissions. For instance, many opted for 'live' delivery in an authentic employer context, using a variety of sketches, models and virtual reality.

Module enhancement scores increased further for 'Overall quality' and 'Support for my assessment' to 5/5 and 4.83/5 respectively, up by 0.3 points from the previous year. The module student average stayed relatively static around 63-64% across both years, which is comparable to earlier years (±2%) having no flexible assessments. Importantly, student progression from the module improved from 91% to 98%, which is indicative that using inclusive assessments has allowed some students to pass the module.

Reflecting on these results, ongoing efforts are required to refine the design of these flexible assessments and to better define submission formats for following years. Addressing challenges around evaluating inter-disciplinary LOs remains a module priority, necessitating a more comprehensive approach that considers both technical proficiency and developing interdisciplinary skills.

CONCLUSION

Assessments significantly influence how students learn and especially what they achieve. Diverse learners need to be given an inclusive opportunity to demonstrate their learning and understanding by offering a range of flexible assessment formats to suit their needs. However, providing inclusive coursework assessments receive little practical attention or guidance within higher education.

Incorporating flexible assessment formats into educational practices is a transformative endeavour for students and staff, yet it may evoke uncertainty, fear and confusion, necessitating additional support and reassurance. Students seemingly have an expectation of what university work involves, where 'prior educational experiences frequently lead them to anticipate conventional assessments at university' and 'expressed anxiety about authentic assessments that did not feel sufficiently like an assessment'.[45] Choices in assessment formats are never neutral, as each may promote or constrain inclusion differently.[46] It is quite apparent that inclusive assessment design is not about just providing a range of different formats –the needs of students have to be critically evaluated with staff being ready to negotiate on formats and equivalence. Moving forward, early engagement with students to discuss assessment formats aligned with their strengths and potential is recommended. It is important to recognize that the level of choice and autonomy in submission formats varies based on factors such as student age, maturity, subject matter and overarching learning outcomes. Embracing these strategies should also foster greater engagement and self-directed learning among students.

Flexible assessments, when coupled with comprehensive feedback, have provided students with more robust reasoning and guidance on how to enhance their performance in subsequent assessments rather than just challenging marks obtained. This approach has also shifted the focus towards valuing effort and practice over innate ability, a pivotal consideration in designing assessments for inclusivity.[47] This case study highlights the importance of developing student assessment literacy, aligning learning outcomes with diverse assessment formats, managing student expectations and navigating changes without causing undue stress for students and staff.

While the positive impact of inclusive assessment practices on individual student performance is apparent, it remains unclear from this case study how they have affected their results. Unfortunately, little comparative quantitative data from other similar studies is available[48] and this certainly highlights the need for a better understanding of the impact of inclusive assessments on student attainment. The next step is to undertake a thorough interrogation and analysis of available case study data to quantify student attainment accurately. Although module enhancement survey results have been overwhelmingly positive, the average module marks have largely remained static, suggesting a need for further exploration and better understanding at the individual student level.

Our recommendation would be to embrace flexible coursework submission formats. Careful implementation is however needed, ensuring the upfront definition of equity and equivalence to reassure students that their chosen approach will not disadvantage them. Proper alignment of assessment learning outcomes (LOs) across diverse submission formats and fostering dialogue with students to explore new, uncharted or sometimes undefined formats are crucial steps in this ongoing process. If done properly, it will provide a better opportunity for all students to perform at their best.

While preparation and clear communication with students is essential, the potential benefits around engagement and performance make these efforts worthwhile. Ultimately, students stand to benefit from the opportunity to demonstrate their capabilities in a manner that aligns best with their individual strengths and preferences. Staff benefit too from seeing work being presented in more engaging and employable ways, reflective of industry practices with regards to innovation and embracing change.

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LEARNING AND ARCHITECTURE: WHAT MASS TIMBER CAN TEACH US

Author:
MARTIN HOPP

Affiliation:
MARTIN HOPP ARCHITECT, USA

INTRODUCTION

We need to learn new ways to build schools sustainably. School districts around the nation face overcrowding and are in desperate need of more facilities, but at the same time, global warming is making it ever more urgent to rethink how—and how much—we build. The architecture-engineering-construction industry is responsible for nearly 40% of global carbon emissions;[1] the only way towards a net-zero future is by building more sustainably. Mass timber, a net-negative-carbon material that can replace carbon-costly ones like concrete and steel, offers a way to do just that.

Figure 1. Evergreen Charter School, Front Elevation by Martin Hopp Architects

Evergreen Charter School (ECS) (Figure 1) by Martin Hopp Architects (MHA) is one of the first mass timber K-12 projects on the East Coast. The building uses the material to create healthy, inspiring, and environmentally responsible learning environments. Using mass timber required MHA to teach the client and project team about the material, its sustainable qualities, and the design opportunities it presents. Moreover, it required learning a new way of thinking about design and construction, using prefabricated mass timber elements so that the building could be built quickly and cost-effectively. Most importantly, the design leverages the physical school itself as a learning tool, making it part of

the curriculum. Through integration with the teaching program, with murals and information stations, the building teaches students and faculty about the principles of carbon sequestration, circular economies, and the sustainability benefits of mass timber. The result is a school that encourages critical thinking about the environment and a deeper appreciation for the natural world and its resources.

Schools Matter

A healthy society is one that invests in its youth and creates a level playing field for all. The best opportunity to reduce issues of inequality is to provide high-quality education for everyone. While more funding must be directed to teacher resources and supplies, quality education does not stop at the curriculum. Rather, the school building itself plays a critical role in the success of its students. Scientific studies show that increasing the quality of the indoor environment of schools leads to higher performance among its students.[2] In North America and Europe where students spend upwards of 15,600 hours indoors by the time they graduate from high school,[3] alterations to the interior by means of enhanced natural lighting, increased ventilation, the use of non-carcinogenic materials, and access to green space are very essential. By considering more flexible building systems and the use of mass timber, municipalities can better accommodate the future needs of schools and their immediate communities.

COVID demonstrated that schools are the beating hearts of our communities. They became vaccination and testing centers, storehouses for medical supplies, and overflow treatment facilities. However, their absence as learning facilities and community centers was sorely missed. As classes switched to Zoom, teachers and students bemoaned the loss of the in-person learning experience Performance and morale dipped. The extra-curricular functions schools host—whether GRE classes, school sports events or concerts, PTA meetings, community gatherings, or other social events— registered as one of many things that the public was deprived of during the pandemic.

Schools matter not only to the community but also to the students they serve. Great schools have been demonstrated to level the inequality playing field. Students who attend schools in such districts have been demonstrated to have lower rates of absenteeism, unemployment, and premature deaths.[4] Post-Covid K-12 education is up against major problems, in terms of performance as well as facilities equity. Statistics show that students and teachers faced a severe dip in performance and morale after the COVID pandemic. Student results in classes dropped dramatically, as did attendance.[5]

DESIGN CAN HELP

As has been demonstrated, the nation's school districts are facing major challenges. These must be solved in a holistic way, one that considers not only resources and funding but also the potential for design to transform the student and teacher experience and create schools that support student learning, bolster the community, and act as teaching tools in themselves.

The Reggio Emilia pedagogical approach proposes that there are three teachers of our youth: adults, other children, and physical environments.[6] Elevating the role of the physical environment to the same status as teachers and peers in the learning process is one of the approach's most profound insights into early education. Children thrive in environments that are suited to their interests, their developmental stages, their physical and mental well-being, and the pedagogical methods like open-ended learning that have been proven to improve student performance. At its core, the Reggio Emilio approach proposes that school is not preparation for life, but rather that school is life.

Schools as third teachers

The path forward is clear: we need to build more schools to stem overcrowding and provide better learning environments and renovate existing facilities so they can serve as the "third teacher" that the Reggio Emilio method proposes.[7]

However, we need to do this without continuing to destroy our planet. The architecture, engineering, and construction industry is responsible for nearly 40% of global carbon emissions annually. This is in large part due to the operational costs of running a building but more than 20% of the carbon emissions of the industry are from embodied carbon: the carbon emissions associated with the manufacturing, transport, and installation of building materials.[8]

The biggest culprit for these emissions in the building industry is the use of concrete and steel, two of the most popular building materials and two of the most carbon costly. Global per capita concrete usage is second to only one other item on earth: water.[9] Producing one ton of concrete emits one ton of carbon into the atmosphere. The production of concrete is responsible for about 8% of global carbon emissions annually. Steel—though fully recyclable if it has been produced in the United States—has an even more carbon-intensive production process, and accounts for 11% of global carbon emissions annually. Until recently, it has been difficult to imagine how we could build tall or dense without these materials.

The advent of mass timber and engineered wood products make it possible to replace steel and/or concrete in a sustainable way. It offers comparable strength to steel and concrete in both tension and compression, meaning it can serve as beams, columns and floor plates, minimizing the need for steel and concrete.[10] Mass timber products are also carbon-negative if they are grown in sustainable forests, as the carbon that the trees sequester during their growth amounts to more than the carbon emitted in the processing and installation of the materials.

The advent of cost-effective, sustainable, and humanistic design and construction techniques such as mass timber can—along with architects and districts that prioritize creating school facilities that look beyond convention—make it possible to deliver innovative and highly effective learning facilities even in low-income communities.

SETTING A HIGHER SUSTAINABILITY STANDARD

Public and private entities are increasingly turning to mass timber as a sustainable building solution in the United States and around the world.[11] As the market continues to shift in favor of this eco-friendly material, projects the scale of schools and community centers are being used as testing grounds for its practical application. Despite concerns that mass timber may be too expensive to be viable, the recently completed ECS by MHA proves that selecting the right structural system and adopting a hybrid design approach can lead to a cost-effective building.

ECS is located in the Village of Hempstead, Nassau County's most impoverished area with 14% living below the poverty line. Nearly 90% of the Village's overall population are minorities, and the average income levels are only 57% of Nassau County's, with poverty levels up to three times higher.[12] This school is one of the first mass timber K-12 projects on the East Coast and serves the local community in more than one way. This five-story building doubles as an educational facility during the day and community center at night and weekends, making it a valuable resource for the area.

Flexible programming for future growth

The design process for ECS began in the Fall of 2020 whilst Covid-19 was at its peak. Learning our lessons from that time, we prioritized conceptualizing spaces, including rooftops and event halls, that could function as community assets beyond the working hours of the school. ECS is planned to

expand over the years and accommodate more flexible uses with its growth. At present, the facility supports the education of grades 7 to 12 and public activities at night and on weekends. The community spaces are placed closer to the entry into the school such that visitor access inside the building is contained to the designated zone.

The design closely supports the teaching program implemented by ECS, which focuses on holistic education and commitment to a healthy planet. The institution's mission highlights electives, extracurricular activities (Figure 2), and sports (Figure 3) to complement academic achievement. Following this, the school hosts an interplay of well-connected indoor and outdoor spaces that integrate learning with food, art, music, and earth sciences.

Figure 2. Evergreen Charter School, Rooftop Soccer Pitch

Figure 3. Evergreen Charter School, Gym

Design for low carbon impact

ECS comprises a hybrid cross-laminated timber (CLT) and steel structure sitting on concrete retaining walls. This approach has drastically reduced the project's embodied carbon impact without significant additional cost to the client. Although CLT has a higher per-unit price than steel or concrete, MHA conducted a study that established with careful design the material is cost-competitive. The school

also has a high-performing facade, optimized VRF, and a net zero-ready mechanical system, making it an exemplar of sustainable and community-focused design.

The calculated embodied carbon emissions are as low as 331 kgCO2 e/m2 and the building's energy use intensity is recorded at 142 kWh/m2, which represents a 24% reduction against the baseline. The project is on track to achieve LEED Gold certification.

Why mass timber?

As of today, the mass timber market in Europe is far more developed, with many education projects completed. Within the United States education campuses across the country are increasingly using mass timber as a more sustainable alternative—including Ivy League colleges that each have a mass timber project.[13]

It is clear that mass timber K-12 school projects can be made cost neutral with conventional structures. More importantly, we now realize that healthy buildings are the smart future as they have been shown to reduce absenteeism and increase inhabitants' performance.[14]

Given the material's pliability and ease of assembly, mass timber gives an exciting opportunity for designers to experiment with numerous forms. It is a natural subset of biophilic design, which, at the architectural scale, can be a tool that begins to value the symbiotic exchanges between organisms. With the use of this material, school design represents a unique way to engage children and young adults in conversations about environmental conservation.

Choosing by advantage

Mass timber is a promising alternative to the two most carbon-intensive construction materials— steel and concrete—that together contribute to nearly 16% of the global carbon emissions annually.[15] This engineered wood can drastically reduce the amount of steel and concrete used in a building, depending on its structural design, use, and other practical aspects. The result of choosing mass timber is a warm, welcoming, high-quality environment that is healthy to inhabit and sustainable to build.

A mass timber building system, whether applied in conjunction with steel, concrete, or timber supports, offers savings compared to conventional structures in the measures of carbon impact and time. Hence, choosing to create an efficient mass timber building as the basis of design is a highly advantageous consideration, with the possibility of converting into a traditional structure if need be.

Looking ahead

Countering the common assumptions of mass timber buildings being at risk to fire, the material is inherently fire-resistant given its thick char layer developed around the structural element. Manufactured wood products that are engineered to precise design standards and tested to meet national and international codes are industry-fit for a diverse array of applications like structural members and wall panels. Mass timber does however require early coordination with consultants and vendors for smooth integration of building systems.

With the material growing in popularity, many practical issues concerning bidding and project delivery are largely resolved. Contractors that have worked with mass timber once are keen to do it again as buildings can go up quicker, more reliably and for comparable cost. More, there are now multiple companies competing in the market for bids on mass timber projects such that there is healthy competition and choice.

Other considerations

Timber buildings can achieve a 25% reduction in global warming potential compared to its concrete counterpart.[16] But developing the North American-based mass timber supply chain is critical in the reduction of transport related emissions. To further reduce the greenhouse footprint of mass timber, we need to look at the end-of-life conditions for the product. This means promoting a developed circular economy where the wood members are reused in new buildings, rather than going to waste in the current, linear product-to-waste economy.

Further, eighty percent of the buildings required in 2050 already exist today.[17] Strategic renovations and upgrades need to be applied to much of the current building stock. With adaptive reuse and energy efficiency upgrades, buildings can be tailored to new uses and their lifespans extended without requiring complete demolition, hence shrinking costs. Whilst reducing the embodied and operational carbon footprint, this would also improve the character of a neighborhood.

PHYSICAL SCHOOL AS LEARNING TOOL

While mass timber is emerging as a clear winner for being green, reliable, cost-effective, its use in building schools further enhances the role of the building in facilitating learning. Alongside the involvement of primary stakeholders in the project, students and teachers should be invited to contribute their ideas and state their needs early on and remain involved throughout the project. This valuable exchange of close listening and sharing opens doors to bigger conversations on what an ideal school can be like and what sort of a learning environment it should support. It further kickstarts additional programs that could facilitate learning beyond the classroom. At ECS, the building itself becomes a part of the curriculum and has murals and information stations that give insight into the construction process, its impact, and materials used.

Consensus building through collaborative design

Working in close collaboration with the client and the local community, we approached the design of the ECS from the inside out. First, we built consensus on the ideal classroom type (Figure 4) through workshops with teachers and students. Next, we identified institutional growth targets, key program elements that the school most valued, and opportunities to create spaces that serve the community when school is out of session. We also collaborated with structural engineers, sustainability consultants, and MEP / FP engineers early on to consider the latest industry developments in our design and establish a highly coordinated workflow. From this, we developed a design that creates a functional, safe, and aesthetically distinguished school that cost about $650 sf to build which is comparable to typical schools in the New York area.

Figure 4. Evergreen Charter School, Typical Classroom

Healthy building

ECS always taught their students about healthy lifestyles, as they recognized the chronic health and wellness issues within their community, but the new building takes that approach further in creating a 'healthy building' than makes manifest the link between personal wellbeing and sustainability. The food lab as well as the urban roof garden (Figure 5), support the school's mission to make healthy eating a core part of the curriculum. Students learn about nutrition and how to prepare healthy meals through active learning, growing and cooking food that they can then eat whilst combating obesity issues. More, data sensors throughout the building ensure healthy temperature and—importantly—air conditions for all students, emphasizing the role that anti-pollution and GHG-producing measures have in ensuring environmental health not only on the global scale, but also the personal one. Information stations throughout the building inform students about the data the sensors are monitoring, how much carbon has been saved through the building's efficient construction and operational methods, and the direct impact these measures have on their personal health. This data also forms part of the students' earth sciences lessons. More than just these benefits, it has been statistically proven that students and staff perform better in healthier environments: the building not only helps students be healthier, but it also helps them learn about all subjects more effectively.

Figure 5. Evergreen Charter School, Urban Roof Garden

Beyond the building

Evergreen is a school building designed as a third teacher. That means that the building actively promotes student education and growth both in- and outside of the classroom. Assembly and recreation areas double as places for community programming after school so that the building can be an asset to the entire community, not just the student population. Mural and art programs support local artists and bring a sense of joy and creativity to the issues as well as chances for deep reflection on topics like climate change and sustainability. Moreover, the school will create a student-led tour program supported by the architect that allows students themselves to teach community members about the sustainability benefits of using mass timber, helping to bring their knowledge to the people of Hempstead.

CONCLUSION

As the Emilio Reggio approach suggests, the school is the third teacher.[18] With ECS, this opportunity is taken up not only to create pedagogical environments that support the stage of students' development but also to help teach the wider community at large about the importance of well-designed learning environments and sustainable building through mass timber. From the earliest design workshops through execution, completion, and occupation, the building takes every opportunity to actively teach the community about mass timber as a viable, beneficial, and environmentally sustainable building approach for schools. The building—in concept and operation—helps people learn about the viability, cost-effectiveness, and necessity of building with sustainable and local materials like mass timber and educates about the impact that embodied carbon has on the worsening global warming crisis. It also emphasizes the importance of warm, human, and well-designed school environments in the learning process and for staff, student, and administrator morale. The school serves as an exemplar of the third teacher approach updated for a century facing dire challenges like climate change that require some of the greatest education, thinking, and action that we have ever known.

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DRAWING THE CLIMATE EMERGENCY: MAKING THE INVISIBLE VISIBLE, A PEDAGOGICAL APPROACH

Author:
ELIZABETH DONOVAN, HELLE BLOM

Affiliation:
AARHUS SCHOOL OF ARCHITECTURE, DENMARK

INTRODUCTION

Increasingly, students face urgent challenges due to the climate emergency, significantly increasing climate anxiety.[1] This anxiety is often exacerbated as the complexity of sustainability is overwhelming, leaving many students (particularly undergraduates) feeling ill-equipped to address these challenges, especially within problem-based learning design projects.[2] Furthermore, the perception is often that sustainable architecture is largely a technocratic field. Guy and Farmer[3] argue that this technocratic view reduces sustainable architecture to a series of technological fixes rather than an integrated aspect of architectural design.[4] Thus, it can be daunting for undergraduate students to add the climate emergency's complexity to the design process's already complex nature.

Moreover, sustainable solutions are often applied late in the architectural design process rather than as an early concept driver, leading to the application of technology rather than an integrated core of a project.[5] This fragmented approach limits success and hinders creativity, as students struggle to create innovative strategies when sustainability is treated as an afterthought.[6] This issue is compounded by the fact that many sustainable design strategies—such as natural ventilation, thermal comfort, and indoor air quality—are not easily visualised in traditional architectural drawings.[7] How we draw and represent sustainable architecture or a climatic response to architecture has changed very little since the middle of the 19th century,[8] with works from Victor Olgyay's 'Design with Climate'[9] heavily influencing how we communicate climatic design. Often, reductionist section diagrams, which depict mainly sun, wind, and air (as arrows), illustrate principles such as heat transfer but do little to visualise what that means in terms of space, poetics or atmosphere. Additionally, these diagrams often fail to communicate the complexity and potentials conceptually or as a presentation.[10]

As a result, this paper aims to understand how drawing can be used as a learning method to address some of these challenges. Analogue drawing can help students to explore and comprehend these complex, invisible aspects of sustainable architecture. Additionally, it can facilitate quick iteration and reflection, allowing students to engage with abstract concepts more tangibly.[11] And as an iterative process, drawing is crucial for embedding sustainability into the design process from the outset, encouraging students to think creatively, abstractly and spatially about various sustainable strategies.

Scenario-based learning was used as a pedagogical framework rather than problem-based learning, as it encourages creating scenarios for a situation or context rather than solving a problem.[12] In turn, this helps to reduce the perception of a right and wrong answer, lowering the pressure and encouraging experimentation by the students[13]. Through these approaches, students can develop strategies to tackle their climate anxiety and the complexity of sustainability, rediscovering their creativity.

METHODS

This paper investigates drawing as a tool for architecture students to explore sustainable architecture, particularly its invisible aspects. The study is based on case studies of three distinct learning activities conducted at Aarhus School of Architecture, a Beaux-Arts institute known for its studio-based teaching. The research focuses on how these activities, embedded within a mixed bachelor-level studio comprised of 35 2nd and 3rd-year students, facilitated students' understanding of sustainable architecture through progressive learning and analogue drawing methods.

An overview of the three learning case studies are as follows:

1. Intuitive drawing

This learning activity was a three-hour exercise where students worked in co-presence[14] to produce a series of intuitive drawings. The paper size and medium were predefined to reduce complexity and choices. After completing the drawings, students engaged in peer feedback sessions where they assigned atmospheric descriptions to each other's work.

2. Climate drawing

Later in the semester, students began with a blank concept section of their ongoing projects, working again in co-presence for three hours. They experimented with intuitive drawing techniques to create an atmospheric representation that explored the section's and site's climatic conditions. Following the exercise, each student selected one drawing as the basis for a short narrative that explained the scenario depicted in the atmospheric section.

3. Atmospheric representations

The atmospheric representation was the third and most complex iteration in the following semester (with the same students) but with a different design assignment. Over two days, students combined what they had learned from the previous workshops, working with a new set of intuitive drawings combined with an existing model they had previously created. From this, they were tasked with producing a spatial collage representing an invisible aspect of the climate and sustainable architecture, such as thermal comfort or natural ventilation.

Data gathering involved direct observation of the learning activities, discussions with students, assessment of the work produced during these activities, and the analysis of how the insights gained were applied to their subsequent design studio assignments. The observations and discussion were qualitative, focusing on the students' engagement with the tasks, their creative processes, and the evolution of their understanding of sustainable architecture.

The pedagogical framework guiding these activities was rooted in scenario-based learning, emphasising progressive learning, learning by doing, peer learning, peer feedback, and the development of critical reflection. Progressive learning[15] or scaffolded learning was particularly crucial, as it allowed students to build on their experiences incrementally, leading to a more profound understanding of both drawing and sustainable architecture. Analogue drawing played a central role in the learning activities as a tool for exploring and understanding complexity and softer values. In these cases, the value of analogue drawing was in its ability to support a more intuitive and reflective design process, allowing students to engage with abstract concepts in a more tactile and immediate way.[16]

Figure 1. Image of students working in co-presence

LEARNING SITUATIONS – CASE STUDIES

Drawing as exploration, discovery, research, and communication are the basis for these three learning cases. Within these learning experiences, students oscillate between thinking and drawing,[17] between intuition and cognition[18] or, as Bryan Lawson[19] terms it, the conscious and unconscious thought process.

Intuitive atmospheric drawing (1)

As mentioned, this activity served as the introductory task in a progressive learning sequence designed to develop students' engagement with both drawing and the visible aspects of sustainable architecture. Aiming to create a scenario-based approach, allowing students to explore analogue drawing techniques spontaneously and experimentally rather than focusing on a specific outcome.[20] Students chose paper of varying qualities, but all standardised to 21 x 21 cm and restricted to a monochromatic palette of black, white, and grey. They could use any medium within this colour scheme—such as graphite, charcoal, watercolours, pen, ink, pencil, crayon, pastel or chalk. The goal was to encourage students to test the possibilities and limitations of these mediums without predefined outcomes, facilitating an open-ended exploration of creative techniques.

Central to this learning activity was intuitive drawing, encouraging creativity through spontaneous, unstructured exploration rather than focusing on technical accuracy. This aligns with Bryan Lawson's notion of **unconscious thinking**, where intuition and spontaneity are pivotal in generating innovative ideas and solutions.[21] In addition, '**learning by doing'** was also integral to this exercise. By engaging directly with various drawing materials and methods, students experience a hands-on, experiential form of learning that reinforces their understanding of design concepts through practice rather than theory alone.[22] This method reflects the belief that active engagement with materials leads to a deeper, more personal understanding of design principles, particularly in exploring the atmospheric and emotional qualities of space.

As a result, the students collectively produced over 120 drawings during the session. These were displayed for peer feedback and reflection, where students analysed the atmospheres and emotions expressed in the drawings. The students categorised the drawings using atmospheric keywords such as "cold," "calm," "dynamic," and "sad" based on visual elements like light, shadow, structure, contrast, rhythm, and texture (see Figure 2). This categorisation highlighted the ability of intuitive processes to produce meaningful and reflective outcomes. The peer discussion and reflection allowed students to move from unconscious to conscious thinking, critically evaluating their work and refining their understanding of the process. This approach aligns with Lawson's[23] emphasis on reflection as a

critical component of the design process and Schön's notion of reflective practice.[24] Furthermore, the reflective phase was crucial in deepening their understanding of how atmospheric qualities can be visually represented and related to spatial concepts. Students reported that this activity enhanced their ability to use drawing to explore and communicate. They also reflected on the confidence it gave them to produce many drawings and ideas quickly.

Figure 2. Four student's intuitive atmospheric drawings. From left to right: "Cold" by student Viktoria Ellingsen; "Calmness" by student Christian Rønholt; "Dynamic" by student Helene Søndergaard Jensen; "Sad" by student Kristin Sloth.

Figure 3. Image of student's production of intuitive drawing at the table

Climate Drawing (2)

Building upon the previous activity, this workshop was developed to further explore the intersection of intuitive drawing techniques and the reflective tool of narrative storytelling. The exercise required students to continue working intuitively and engage with the specific atmospheric and climatic conditions that could affect their architectural design. Scenario-based learning was important for this activity as students were required to use their drawings to create scenarios rather than to explore or solve problems.[25] It ensured that students stayed within an experimental mindset rather than being pressured to resolve something with consequences for their later design development.

To start, the students engaged in another three-hour co-presence session. They were asked to bring printed, work-in-progress sections from their semester project proposals to work with the techniques previously learned.-The aim was to use these intuitive and analogue techniques to visually convey the impact of a chosen climatic condition —such as dust storms, rain, or wind—on their architectural design. As mentioned, after the workshop, students selected one of their drawings and wrote a short reflective narrative, imagining themselves as humans experiencing the depicted climatic situation within the drawing (see Figure 4, 5 and 6).

Squinting my eyes as I cover my face with one arm. A hail of sand and salt rage against my body. I hear the particles tick against my coat. The light is bright, but it's like a thick mist covers the landscape like a blanket. In the distance I see vague shapes that must be trees. They're blurry, and it's like someone tried to erase them with an eraser. But only left the outlines. When the wind lays down for a minute the landscape reveals itself. But it won't be long before the landscape hides itself again and all colours fade out in shades of yellow and white.

Figure 4. Student work by Daan Somsen: On the left is the climatic drawing, illustrating drifting sand around his project in section and on the right is the accompanying narrative.

This learning activity emphasised integrating unconscious (intuitive drawing) and conscious (narrative reflection) thought processes. Intuitive drawing fosters spontaneous creativity by tapping into unconscious thinking, enabling designers to explore new possibilities and generate innovative ideas without the constraints of premeditated outcomes.[26] However, while unconscious thinking is critical for sparking initial creativity, conscious thinking is equally important for analysing and solving design problems, identifying constraints and opportunities, and developing and evaluating potential solutions.[27] In this workshop, students employed narrative storytelling as a form of conscious thinking. By writing narratives that contextualised their drawings within specific climatic scenarios, students could reflect on the connection between their initial intuitive designs and the broader environmental and user experiences. This method encouraged students to engage in deeper critical reflection, helping them to assess the strengths and weaknesses of their and their peers' designs, explore how these designs could be improved or modified, and ensure that their ideas aligned with the needs of all stakeholders—both human and non-human.

Furthermore, these tasks significantly influenced how students later developed their semester projects, particularly concerning climate considerations. As mentioned, this conscious narrative construction process was valuable for developing critical reflection, offering a shared language and context for analysing and communicating complex design ideas. Figure 6 showcases a student's work from the workshop as well as two final renders from their final project. In this work, it is clear how the activity has directly influenced both the development of ideas and subsequent communication. Thus, the workshop exemplified how combining intuitive drawing with narrative reflection can deepen students' understanding of the interplay between climate and architecture. By engaging with both unconscious and conscious thought processes, students could explore the atmospheric and environmental implications of their designs more holistically and develop a more nuanced and empathetic approach.

Figure 5. Student work by Julie Marjinissen: on the top left is climatic drawing, illustrating a storm rolling over a harbour in plan with accompanying narrative on the right. On the bottom are the final collages of the semester project in dry and flooded conditions - influenced by the previous work.
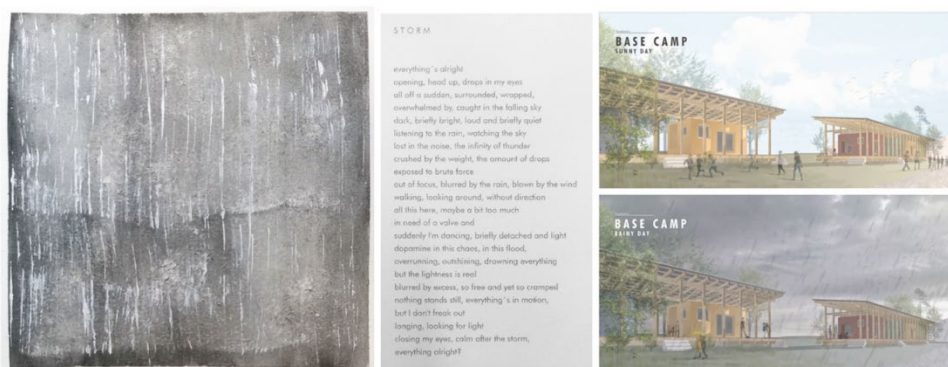
Figure 6. Image of student work by Stefan Pielmeier: On the left is the climatic drawing, in the middle the narrative about the storm, and on the right are two renders in sunny and rainy weather influenced by the previous work.

Atmospheric representation (3)

The third workshop was designed to build upon the foundational skills developed in the previous two exercises. This task was embedded within a different semester project, and focused on representing invisible qualities of a sustainable environment, such as light, sound, temperature, and air quality. The context for this assignment was an educational environment, with students tasked with visualising an initial conceptual learning space as a starting point for the design process. To achieve this, students were asked to use previously made section models of case studies, employing photography as a 'sketching' tool and combining these with analogue intuitive drawings and Photoshop (see Figure 7). This collage technique allowed students to reflect on how materiality and construction not only support the physical structure of a space but also contribute to its atmosphere. Furthermore, students

were required to visualise a climatic condition of their choice, including aspects like air quality, thermal comfort, indoor environment, weather, connection to nature, sound, diversity and inclusivity, the ageing of a building, or its future potential.
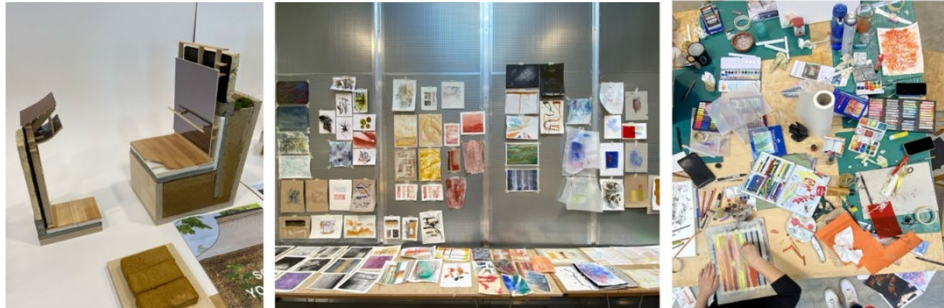
Figure 7. Collage of the raw material. On the left section are models, the middle is a series of intuitive drawing, and on the right is the physical creative space.

Similar to the other exercises, this workshop was underpinned by pedagogical concepts of co-presence, peer-learning, and learning-by-doing. These teaching methods were also critical components of this exercise. Working alongside their peers in a studio environment, students could share insights, critique each other's work, and reflect on the different ways atmosphere could be represented. This collaborative setting enables a deeper engagement with the material as students learned from each other's interpretations and approaches.[28]

The learning outcomes from this assignment were multifaceted, as seen in the examples in Figure 8. Students grappled with the complexity of visualising the invisible—using physical elements such as a fluttering curtain to indicate a breeze, or framing rays of daylight through a window. Moreover, the thoughtful use of natural light, materials, and the integration of nature into the design were shown to enhance the sensory experience of the space. This was particularly important in the context of educational environments, where creating a memorable, inspiring, and engaging atmosphere can profoundly impact children. Furthermore, Juhani Pallasmaa emphasises the importance of the atmospheric qualities of architecture; this assignment invited students to reflect on how atmosphere shapes our experiences and emotions within a space, thereby influencing our relationship with the environment.[29]

These challenges required students to creatively combine rational, technical processes with intuitive, sensory-driven approaches. The learning activity also reflects the concept of "designerly ways of knowing," which emphasises that designers develop unique forms of knowledge through the process of designing itself.[30] The act of drawing during this exercise served as a method for students to generate and refine knowledge about climate, space and sustainable architecture.
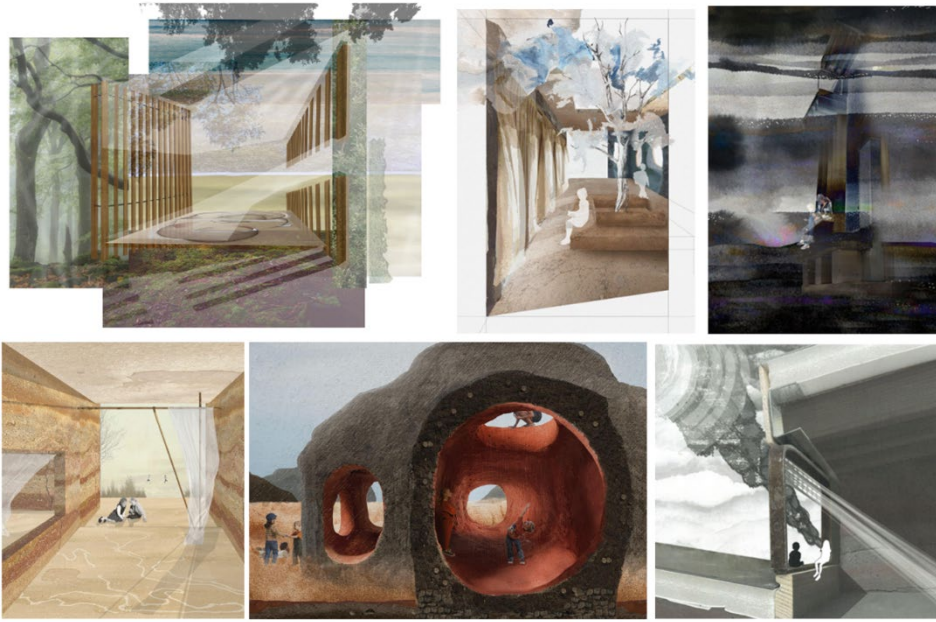
Figure 8. Student images of atmospheric representation. On the top left is an image of light through trees on a structure by student Julie Marie Christensen. On the top middle is an image of a space with a tree in the middle and curtains blowing in the wind by student Viktoria Ellingsen. On the top right, is an image of children playing in a cave-like structure by student Sofie Axberg. Bottom left is an image of children sitting on a window ledge by student Constance Lee Krarup Belling. Bottom middle is an image of children playing in a rammed earth space with curtains blowing in the wind by student Emma Holm Kjær. Bottom right is an image of light through a window with children in a window by student Thea Hennie Matilde Olsen.

DISCUSSION

These three learning situations have explored the potential of drawing, particularly in capturing atmospheres and the invisible aspects of architecture, as a critical tool for reflecting on and designing for the climate emergency. The progressive learning activities in these case studies encouraged students to develop atmospheric, sensory, and emotional drawings, which, despite their abstract nature, bridged the poetic and technical aspects. This integration is crucial for helping students comprehend the relationship between space and intangible qualities, such as indoor air quality and thermal comfort, which are vital for human wellbeing and the sustainability of our built environments. Further, critical reflection is a "meaning-making process" that considers how we know what we know and aims to transform our ways of knowing.[31] It is the link between thinking and doing; at its best, it can be transformative.[32] Additionally, it helps to articulate questions, confront bias, examine causality, etc., which encourages critical evaluation and knowledge transfer. Thus, critical reflection has been used both as a teaching method and as a learning and research method for this study. Specifically, students were encouraged to critically examine their own experiences and actions to improve and learn from them. It is based on the idea that individuals can improve their practice through self-reflection rather than relying solely on external sources of information or training.[33] Thus, it encourages students to think critically about their experiences, projects, and decisions, leading to deeper understanding and insights.[34]

Moreover, the reflection and empathy cultivated through drawing are crucial for fostering a value shift towards sustainability. Students can create more holistic and human-centred designs by developing sensory drawings that convey not only the visual aspects but also its tactile, olfactory, and auditory

qualities. Pallasmaa[35] emphasises the importance of the sensory experience in architecture, arguing that architecture must engage all the senses to evoke a whole, embodied experience of space. This sensory engagement is essential for creating spaces that are not only functional but also emotionally and experientially rich.

Furthermore, the learning environment plays a pivotal role in facilitating this value change. Active, student-centred learning environments that emphasise peer-to-peer collaboration and hands-on activities are particularly effective in architectural education. Such environments encourage critical thinking, creativity, and a deeper understanding of complex concepts.[36] As Prince[37] notes, active learning promotes greater student engagement and retention of material. In the workshops discussed, the tasks were designed to allow students to explore their approaches within a structured scenario-based framework, supporting creativity and encouraging them to take ownership of their learning. The benefits of active and student-centred learning extend beyond the individual to the collective. Collaborative learning environments help build a sense of community among students, essential for developing a supportive and inclusive educational experience.[38] This collaborative process also enhances learning outcomes and contributes to developing soft skills, such as communication, teamwork, and problem-solving, which are critical in professional practice.[39] As explained earlier, the workshops were conducted in a shared physical space where students work in co-presence within an informal atmosphere. This helped break down barriers and encourage open sharing and collaboration. The workshops' emphasis on co-presence and iterative feedback was instrumental in creating a safe and supportive learning environment.

Lastly, by using scenario-based learning, removing the pressure of producing a 'correct' outcome and focusing on the exploration process, students were more willing to take risks and experiment with their drawings. This approach aligns with Kolb's[40] experiential learning theory, which posits that learning is most effective when it involves a cycle of action, reflection, and iteration. The different iterative processes in the workshops allowed students to refine their ideas quickly and over long periods, developing a deeper understanding of the material and ultimately leading to more innovative and thoughtful ideas.

CONCLUSION

The reflections in this paper aim to demonstrate the possible roles of drawing, mainly analogue techniques, in supporting architectural education in addressing the complexity and invisible aspects of sustainability. By exploring three learning situations, the paper underscores the value of scenario-based and progressive learning in supporting a holistic understanding of sustainability. These pedagogical approaches, which emphasise iterative learning, peer feedback, and critical reflection, enable students to engage more deeply with sustainability as an integral component of architectural design rather than as an afterthought. By engaging with these concepts through analogue drawing, students developed a more nuanced understanding of how to integrate climate and sustainability into their designs creatively and meaningfully.

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AWARENESS TO WELLNESS: INTEGRATING MENTAL HEALTH AND EDUCATION THROUGH COLLABORATIONS IN SCHOOLS

Authors:
VICKI JONES, LORI COOPER, MICHELE GARRISON, TODD HASTINGS, DANA MANNING, ANDREA MANTIONE, MATT TREESE

Affiliation:
WILKES UNIVERSITY, USA

INTRODUCTION

According to a 2022 Gallup poll, 44% of K-12 teachers in the United States reported feeling burned out very often or always. Teachers report significantly more stress than other professions (government, retail, manufacturing, technology, community, health, social services, and finance).[1] Stress often causes a negative cycle, as it can damage teachers' well-being, job satisfaction, and professional longevity. High levels of repeated stress can lead to absenteeism, attrition, and decreased quality of teaching and relationships with students.[2]

Managing stress in schools requires a multi-faceted approach by faculty, staff, families, healthcare providers, policymakers, and other stakeholders to build and support resources that will facilitate coping and wellness. Recently, Wilkes University changed its structure, enabling educators and healthcare professors to collaborate more easily and effectively. The university's new College of Health and Education is taking steps to partner with local schools to address students' and teachers' unprecedented social and emotional wellness issues.[3] This research explains what the university has done thus far to positively contribute to mental health and wellness in education and the trajectory they plan to follow. The goal is to combine expertise and existing research from the fields of education and healthcare with information from today's K-12 school practitioners to improve the well-being of a local school district. The data garnered could positively impact other local and global K-12 communities by informing decisions and facilitating structures to benefit schools and school stakeholders. In addition, combining education and healthcare at the higher education level has the potential to enable new and diverse perspectives in both areas, as careers that exist in silos are no longer sustainable.[4]

The impact of burnout

The National Assessment of Educational Progress (NAEP), an organization regulated by the United States Department of Education, collects data on public and private schools' educational development and reports it to interested parties. NAEP tests fourth-, eighth-, and twelfth-grade students in math, reading, and related subjects every two years to ascertain students' progress or lack thereof. NAEP disaggregates the data in myriad ways to illustrate how various states and groups perform comparatively. The current data, which illustrates an academic decline, can be found in Figure 1.[5]

Student Performance Across Subjects

Changes in average scores and scores at selected percentiles, by subject and grade

Subject	Grade/Age	Current Year	Prior Year	Average score	Percentiles				
					10th	25th	50th	75th	90th
Mathematics	Grade 4	2022	2019	↓	↓	↓	↓	↓	↓
Mathematics	Grade 8	2022	2019	↓	↓	↓	↓	↓	↓
Reading	Grade 4	2022	2019	↓	↓	↓	↓	↓	◆
Reading	Grade 8	2022	2019	↓	↓	↓	↓	↓	↓

SHOW THE RESULTS FOR OTHER SUBJECTS

↑ Significant increase compared to last assessment year   ◆ No significant difference compared to last assessment year   ↓ Significant decrease compared to last assessment year

Figure 1. Academic Decline Associated with K-12 Students

NAEP assigns students into three groups: basic, below basic, and proficient. Results from 2022 in math showed that 63% of fourth-grade and 73% of eighth-grade students scored below proficient. Additionally, 2022 results in reading showed that 67% of fourth-grade and 69% of eighth-grade students scored below proficient.[6] The nation's students need competent teachers to meet their academic potential and acquire crucial skills for successful participation in society.

Research clearly indicates that effective teachers significantly enhance student achievement,[7] but teacher shortages in today's schools negatively impact students, educational organizations, and communities. The problem is more extreme in schools with higher populations of students and families of low socioeconomic status (SES), causing the gaps between differently-advantaged student groups to grow.[8] Documented stressors related to teacher burnout existed before COVID-19 and included teachers' feelings of isolation,[9] increasing numbers of students with diverse and complex needs,[10] minimal teacher support systems,[11] lack of teacher autonomy,[12] resource shortages,[13] pressure related to high stakes testing,[14] and difficult teaching assignments.[15] More recently, questions about artificial intelligence and social and political conflicts have surfaced as topics of concern in today's schools. It stands to reason that eliminating teacher shortages and maintaining competent staff within schools will benefit students.[16] The question of how K-12 leaders can maintain qualified and compassionate teachers has been addressed more since the COVID pandemic but still demands additional research to find sustainable data-informed solutions.

Despite years of federal and state accountability measures designed to improve education, many teachers leave the profession prematurely or fail to enter at all,[17] negatively affecting the nation's students.[18] The prevalence of burnout among teachers indicates that resources and support are needed to help K-12 educators cope. Identifying teachers' social and emotional needs while focusing on their health and wellness can provide the knowledge base and resources needed to encourage a resilient workforce that persists through challenges within today's classrooms while maintaining an enhanced quality of life. This type of change may positively influence the profession by providing experienced educators willing to be part of enduring reform efforts to support today's youth. Teacher wellness is starting to garner some of the attention it deserves,[19] but there is scarce research on how resources that impact teacher wellness can benefit school stakeholders or what resources are most utilized and effective. The fact that most K-12 teachers and administrators are not generally trained to recognize mental health and wellness within their students or themselves while on the job or during pre-service illustrates an important need.[20] New partnerships combining K-12 and higher education expertise may collectively address these needs to build increased wellness within schools and communities.

Revisiting Maslow's hierarchy of needs

Maslow's hierarchy of needs illustrates how a tiered system of needs determines individuals' motivations.[21] Models based on Maslow's hierarchy can be powerful tools for helping teachers understand the reasons behind challenging student behaviors. They can also help adults, including educators, examine their own functionality reflectively. The model is often represented as a hierarchical pyramid with five levels. The four lowest levels (lower-order needs) are considered physiological needs, while growth needs are at the top of the pyramid. Before higher-order needs such as self-actualization can influence behavior, the lower-level needs must be satisfied. Maslow's hierarchy can enable individuals to recognize the underlying reasons connected to motivation. Informing teachers, students, and stakeholders about the pyramid and their own needs can enable teachers to address their students' physiological needs to help them reach their full potential socially, emotionally, and academically. Teachers' needs, like students', must be met at the most basic levels so they can continuously develop as educators and individuals. As Kimberly A. Schonert-Reichl states in her 2017 article, "Social and Emotional Learning and Teachers," "...stress in the classroom is contagious—simply put, stressed-out teachers tend to have stressed-out students."[22] Understanding Maslow's hierarchy and addressing their own health and wellness can help educators reflect upon their own motivations and needs to model healthy behaviors for students.[23] Recognizing Maslow's hierarchy's importance to their work with educators, the authors of this paper convened to discuss what knowledge might best help teachers manage stress and build coping strategies; see Dr. Lori Desautels' visual depiction in Figure 2 below.[24]

Figure 2. Graphic Image of Educator Needs

Responsibility of higher education

Many colleges and universities faced post-pandemic challenges, and Wilkes University was no different. The university evolved to address the challenges; one change it made was restructuring its six schools into three. The reconfiguration resulted in one combined College of Health and Education rather than two separate schools. The Wilkes College of Health and Education Inter-Professional Collaboration (IPC) Task Force was developed to combine expertise from both units to support the greater community. Core members include professors of both schools and an assistant dean. In addition, several faculty members from a local district attend meetings in order to provide boots-on-the-ground information regarding daily realities within the schools and district. When specific questions outside the group's scholarship arise, the task force reaches out to experts within the university and school district. For example:

• The district superintendent is consulted throughout all efforts, and the K-12 school counselor and special education coordinator have attended meetings and shared observations and information.

• Two nursing professors were consulted when the task force was discussing the idea of placing a psychiatric mental health nurse practitioner (PMHNP) within the school who would coordinate research-based wellness initiatives in the district.

• The university's director of sponsored programs provides guidance as the group considers grants, sponsorships, and additional partnerships to support funding efforts and steer initiatives.

After approximately four months of regular meetings and a needs assessment, the data collected clearly illustrated that K-12 teachers within the partner district were seeking increased communication and knowledge to support the social and emotional well-being of the school community. At that time, an additional university professor was consulted to provide further expertise on stress and teacher burnout. In addition, a member of the university's neuroscience department was invited to join the IPC task force due to their expertise in brain research as it relates to social and emotional wellness.

TAKING ACTION

Initial conversations with school personnel indicated that members of the K-12 school communities were unaware of data connected to teacher stress and shortages or that the issue was prevalent not only in other local districts but globally (research indicates that approximately 20–25% of educators internationally report excessive stress[25]). Informing district stakeholders about research related to stress, as well as possible causes and solutions, became a focus of the group's first outreach efforts.

An evening forum focused on health and wellness was organized, and invitations were distributed. An American non-profit healthcare company sponsored the event, and experts from the district and university shared information with attendees. The content was designed to inform participants of research around the topic and to provide additional resources for those who wanted to dig deeper. Topics included data regarding the mental health crisis's impact on K-12 teachers and the communities they serve, the possible shape of education in a trauma-informed era, the social determinants of health and education, a personal account of one educator's journey from burnout to thriving, and the importance of physical health in maintaining wellness. Brief explanations of the topics as they relate to the university's mission and task force are given below.

What educators should know about trauma

Educators are committed to supporting the health and well-being of students. This goal has become more challenging over the past 25–30 years due to the prevalence of traumatization in our society.[26] However, increased trauma-informed principles of care from a health provider perspective have been effectively translated into educational settings.[27] Facilitating a culture of trauma awareness, safety,

trust, empowerment, and support are critical mainstays in the trauma-informed era. Further, environments with trauma-responsive and sensitive processes display educator and institutional flexibility, promote self-care, and foster resilience.[28]

What educators should know about social determinants of health and education

Educators in 2024 must understand the profound impact of social determinants of health (SDOH) on education. These non-medical factors influence both health and educational outcomes and include economic stability, education, social and community context, health and healthcare access, and neighborhood and environment.[29] Issues such as poverty, a lack of employment opportunities, food insecurity, and housing instability significantly affect students' health and educational performance. Students from economically disadvantaged backgrounds often face higher stress levels and poorer health, which can hinder academic performance. The quality of housing and safety of neighborhoods influence student health and education. Schools in safer, resource-rich environments tend to have students with better health and academic performance.[30] Educational attainment is closely linked to health outcomes. Schools that provide health services, like on-site nurses and primary care, can significantly improve students' ability to learn by managing chronic conditions and providing a safe space for students to address health issues.[31]

Continuous faculty training on SDOH and regular program evaluations ensure that educational strategies remain effective and relevant. Institutions should incorporate SDOH into their curricula and regularly assess both educational content and student outcomes.[32] By understanding and addressing the social determinants of health, educators can create more supportive learning environments that enhance both the health and educational outcomes of their students.

What educators could learn from one educator's journey from burnout to thriving

One panelist, who had transitioned from early childhood classroom teacher to working in a higher education faculty, shared her personal story, which described a shift in perspective that transformed her from being a burned-out educator to learning skills that created hope and calm in her classroom. This transformation originated in Dr. Becky Bailey's work *Conscious Discipline* (2015).[33] Prior behavior management models based on behaviorist practices focused on managing student behavior and enforcing strict, predetermined consequences, which were often publicly displayed in the classroom. As a result of educators learning and infusing Bailey's (2015) work, the focus shifted to helping students learn skills to manage feelings and relationships and develop self-regulatory strategies. In other words, it was no longer assumed that students were intentionally behaving in certain ways to hurt or be disrespectful, but instead, they needed to be taught appropriate tools and responses to challenges that arose in daily classroom life. While the panelist originally learned this model of discipline through the lens of early childhood education, the shift in thinking truly is applicable to educators of students of any age or ability, making it a potential tool for overcoming educator burnout throughout the continuum of grades.

What educators need to know about physical health

Like all people, educators require physical resilience to support the mental and emotional labor connected with their role and to support students. A recent scoping review examined nutrition measures and interventions designed to improve teacher health and wellness and their connections to student health and wellness and noted that teachers function as promoters, gatekeepers, educators, and role models for their students' physical health practices.[34] A critical ingredient in teacher resilience is their investment in physical health by way of diet and exercise and recognition that these two areas of wellness usually improve or are challenged in tandem. Educators may be tasked with instructing their

students on the fundamentals of physical health but feel they lack the time and resources to tend to their own needs. As part of our initiative, we addressed common myths about nutrition and physical wellness and subsequently discussed strategies for initiating small habit-building behavioral changes in this area with our educators. The IPC recognizes the importance of fostering holistic wellness in its future efforts, which requires integrating physical and mental health support.

MOVING FORWARD

Although feedback from participants and stakeholders has been positive, participation has not been as high as desired. Several teachers in attendance spoke of the need for more administrator involvement, and the task force is actively working with the administration to identify dates and times for meetings and work sessions that are conducive to administrative participation. The task force recognizes that K-12 administrators are dealing with stress as they are pulled in multiple directions while attending to unprecedented challenges.[35] Collected feedback from the forum indicated that a stakeholders' meeting was necessary to propel efforts forward. Data from the meeting continues to guide the task force's work, and additional actions and collective planning are underway, as briefly outlined below.

● A grant application was developed to provide the district with a psychiatric mental health nurse practitioner (PMHNP) who would work with the task force, including school faculty and staff, to coordinate research-based wellness initiatives for stakeholders. Although efforts were not successful in the first grant attempt, the group continues to look toward receiving funding. This individual would also serve on the IPC task force, acting as a liaison between the university and school while guiding efforts and providing information regarding healthcare and school and community-based health support to students and faculty.

● A faculty day of wellness is being planned to communicate the IPC task force vision to the K-12 faculty of one school district who have not been involved in initial efforts. Information will be provided about the causes and effects of teacher burnout, and documented support that can help both faculty and students will be described. Based on needs, the university will look towards the faculty and community to share their knowledge and expertise.

● The university continues to address student and teacher wellness at the undergraduate, graduate, and doctoral levels. For example, new tools for addressing stressors have been built into the undergraduate and graduate level education curricula with positive student reactions, and an IPC taskforce member has created a new initiative within the doctoral program designed to inform leaders about educator wellness.

● The task force is committed to learning from, applying, adapting, and sharing research by experts in the field from the USA and other countries.

● The task force is committed to documenting efforts and outcomes to provide sustainable data to K-12 stakeholders, including strategies for addressing social and emotional wellness.

CONCLUSION

Wilkes University has a long history of supporting the mental health and wellness of on-campus and commuter undergraduate students. Recently, the university, in recognizing the needs of all students, including current educators, began offering the same support to graduate students who attend the university on a part-time or full-time basis as they do to undergraduates. As producers of the teaching workforce, higher education institutions must address the challenges teachers face during pre-service preparation and service work to successfully lay the groundwork for today's teachers to have long-lasting and impactful careers in the nation's schools. Data indicates that ongoing professional development based on educators' needs is imperative for their own and their students' social, emotional, and academic success. Universities can contribute to school reform efforts by collaborating

across disciplines to provide expertise and research in the areas of social, emotional, and academic wellness. This sort of partnership can enable K-12 schools to provide the most current data to institutions of higher education and enable collaboration amongst disciplines and with outside partners for the good of communities.

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ARCHITECTURE AND MEDIA:
JOURNAL AS PEDAGOGICAL DEVICE

Author:
ANNMARIE BRENNAN

Affiliation:
UNIVERSITY OF MELBOURNE, AUSTRALIA

INTRODUCTION

This paper explores how the establishment of a student-edited journal over ten years ago was created to not only provide a platform for graduate architecture students to publish their ideas about architecture, but to serve, and continues to serve, as a pedagogical device to teach students how to create a publication, gathering articles with various points of view, edit and provide constructive feedback, assemble the text and images in an aesthetic and clear format, and advertise, distribute, and sell the issue at various venues. To edit a volume means, for the student editors, that they can assemble a critical intellectual project by multiple authors on important contemporary themes that the discipline of architecture confronts today. It is an extracurricular activity within the university graduate studies that offers real-world, concrete outcomes.

Inflection: The Journal of the Melbourne School of Design

In 2013, after mentioning my role and experience as student editor of the journal *Perspecta* during a lecture to graduate students in the Master of Architecture program and explaining how editing the journal had a significance influence on my graduate studies in architecture, three students approached me and asked if it would be possible to start up our own student-edited publication at the Melbourne School of Design. With some assistance from an in-house seed funding for in-house initiatives, the three graduate students received funding to edit and publish the first two issues of the journal.

Now in its 11th year*, Inflection* is the student-run design journal of the Melbourne School of Design (MSD) established in 2013. It is a collaborative scholastic endeavor created to perform as a platform for graduate MSD students to showcase their knowledge of contemporary architecture and participate in architectural discourse.[1] In addition, it serves as an activity for a group of advanced graduates to explore learning opportunities outside the traditional confines of the classroom. Moreover, it serves the as a publication to promote, to an international audience, the intellectual work by students and staff in the MSD. The journal features work from a wide range of expertise: from exemplary MSD students, MSD and other Australian academics, noted Melbourne and Australian architects, to international scholars and architectural firms. The audience of the journal is reflected in its range of contributors to the journal. Some articles are deep dives into relevant topics while others highlight recent projects by architectures and students. Often each volume features a few interviews conducted by the student editors of visiting lectures to the MSD. In doing so the volume is reflective of the events and ideas circulating within the MSD at the time of its publication.

How It Works

There is one issue of the journal published annually and edited by one group of students from conception of the journal theme to the issue launch. Apart from the first two issues, which were edited by the founding co-editors Ariani Anwar, William Cassell, and Jonathan Russell, students only have one opportunity to serve as editors. However, many times potential student-editors will start their *Inflection* experience by serving as a sub-editor and part of the editorial team.

During semester 2, the Academic Advisor places a call for editors to the MSD graduate cohort and asks potential applicants to develop a theme based on a contemporary idea, problem, or challenge to the discipline as the core part of the application. The student editors are selected based on the quality of the journal theme proposal as well as the experience of the student editor applicant team.

Marketing, Printing and Distribution

Each annual issue has a print run of approximately 1000 copies. The journal contains both color and black and white pages. Inflection journal is distributed internationally to bookstores and university libraries. The publisher, Melbourne Books, also sells a digital version of the journal once most of the hard copies are sold.

About 500 journal copies are purchased by the MSD to be sold at local University events such as the end-of-year student exhibition MSDx and other events hosted in the faculty, such as the AIA awards ceremony or conferences hosted by MSD. Other venue includes the off-campus issue launch at MPavilion or the annual National Gallery of Victoria Art Book Fair. The revenue from these sales, while minimal, is returned to the Inflection account and used to defer the costs of ongoing costs, such as running a website, printing of posters for advertising and marketing. The other 500 copies are sold and distributed by the publisher, Melbourne Books, to local bookstores in Melbourne, throughout Australia, and internationally and the revenue collected from these sales is used to offset some of the printing costs. The journal issues were originally printed in China, however *Inflection vol. 8: Presence* (2021) was ceased by the CCP censors. They incorrectly claimed that one of the articles authored by a Chinese author was critical of the government and demanded that it be pulled from the manuscript before the journal issues could continue to be printed. Instead, Melbourne Books and the editorial team decided to go elsewhere and found a printer in Singapore.

PEDAGOGICAL PRECEDENTS

Inflection was not the first student edited publication associated with the University of Melbourne. The Victorian Architectural Student Society (VASS) published *Lines* starting in 1932, followed by the student publication *Smudges* in 1939, was founded by well-known architect Robin Boyd when he was a student at the University of Melbourne.[2] These publications focused very much on the activities of the school of architecture and the Melbourne architectural scene and edited by students. Many years later in 1979, the postmodern periodical *Transition*, published by the Royal Melbourne Institute of Technology (RMIT) was not necessarily edited by students but recent architecture graduates, and looked further afield to international theoretical debates concerning postmodern architecture.[3] The *Transitions* journal ceased publication in 2000, and the RMIT student-edited landscape architecture journal *Kerb,* founded in 1994, would continue to be produced for the next three decades, becoming Australia's longest running student-edited design journal.[4]

Despite the periodical precedents specific to Melbourne, *Inflection* was not modeled upon these, but rather the American student-edited publication *Perspecta: The Yale Architectural Journal*. It is the longest running student-edited journal in the United States. *Perspecta* served as the original model as it was mentioned a lecture to students in a required subject in the Master of Architecture degree at the University of Melbourne, where I discussed my own participation and work as a student editor of the

journal *Perspecta* as a graduate student.[5] Therefore while serving as the academic advisor for the journal, I recalled the lessons learned from my own experience as editor, and could cited my own research on the history of the journal which was established in 1954.[6] However since those early issues, *Inflection* has evolved into its own unique approach to scholarly publications. While Perspecta mostly solicited articles from architects and academics, *Inflection* editors post a call for submissions, often publishes the work of ongoing PhD candidates or outstanding thesis works from students. Moreover to approach to the scale and scope of interest is both local, encompassing Melbourne, Australia, but also very international, with a specific focus on the Asia Pacific.

CRUCIAL COMPONENTS OF THE JOURNAL

The duration of this editorial learning experience for students takes place over the course of one year, usually starting at the end of the first year of the Master of Architecture program and continues into the students' second year. Starting with volume 2, the journal was accompanied by the establishment of a graduate elective titled Architecture and Media. The subject was mostly about design and theoretical projects behind many canonical publications within the architectural discourse, and loosely based on the course and resulting publication lead by Prof. Beatriz Colomina at Princeton University.[7] The central learning objective the subject was an assignment which asked students to create their own annotated table of contents for a proposed journal. The students were asked to research and develop a theme for the journal, a cover image, a table of contents listing potential authors, write about the authors, their specialty, and describe the proposed article that the student, as editor, would solicit from their chosen authors. Some years, students enrolled in the subject would continue to become actual editors of the journal, whereas other years, the student editors would enroll in the subject after being selected for the editorship. This assignment within the elective continued until 2023, when the content of the subject changed, yet the student editorship continued as an extracurricular activity of MSD graduate students.

The Proposal, the Call for Submissions, and the Editorial

While the theme proposal for the editorship application, the call for submissions, and the editorial may appear to be three separate types of writing; they serve in this project as a type of iterative phased writing assignment, with the final objective of revising and honing an editorial for the final published manuscript.

Once the student editors are selected, they are briefed by the Academic Advisor as to what to expect in the coming year in the role of editor. They discuss the various tasks which need to be completed and the various skills and roles they will need to adopt and fulfill. For example, there are times where the editorial team will need to rush to complete certain time-sensitive tasks such as posting the call for submissions or replying to authors with feedback, while other times the editorial team is merely waiting to receive abstracts and completed articles from authors.

The first major task of the student editors is to develop a call for submissions based on the theme proposal. Most of the time students work closely with the Academic Advisor to write a coherent and timely theme that is likely to have resonance with the contemporary moment. Often the scope proposed by the students is too large or general, and more akin to the scope of a book anthology rather than the au courant nature of a periodical. The carefully crafted call for submission, authored by the student editors, is then understood to lay the groundwork for the editorial that will be featured in the journal and revisited during near the end of the project when the penultimate draft of the manuscript is being complied and edited.

Once the call for submissions is posted by December, the students conduct further research on their theme to discover potential authors who have a track record related to the issue theme and solicit an article from them.

The Importance of a Theme

As Miglena Sternadori has noted, the instructive and pedagogical functions of magazines and journals are not a focus of teaching and learning scholars.[8] However, after studying the history of architectural periodicals, specifically, the Italian architectural magazines *Domus* and *Casabella* edited by Ernesto Nathan Rogers, one can begin to see the formation of the magazine or journal as an intellectual project. For Rogers, these magazines became a means of influence to assist in reestablishing the international reputation of Italian architecture.[9] In a similar manner, by mandating the composition of a journal theme, the mundane task of the editorship, or student editorial team, transforms into a critical, intellectual project. In order to have the editing of a journal serve as a pedagogical device, the role needs to entail more than soliciting articles and editing and formatting text – it requires a crucial, critical and intellectual component. This is accomplished through the development of a theme in which all of the articles and journal content addresses in some manner. Once the students have refined the concept of their theme, they are instructed to engage with the theme from various points of view, from many different aspects. Articles which challenge the premise or idea of the journal theme are encouraged by the editors to present well-rounded issue. Some article will address the theme through practice and the discussion of built works, whereas other authors/academic may approach the theme from a more theoretical point of view. In this manner the theme is exhausted from a variety of authors with differing outlooks and the editing of the journal can be understood as a learning experience of critical thinking.

Just like an Album: The Cover

The compiling and arrangement of articles in a particular order can resemble the process of creating a narrative structure for traditional vinyl albums. This is one consideration for the articles for the readers who may read the issue from front to back. However, the genre of the journal, by its very nature, does not necessary require this type of sequential arrangement. One may argument, especially since the architectural discipline is a practice based on the visual, that the journal contains both a textual as well as visual narrative and this is something that the editors are instructed to keep in mind while editing and formatting the images and illustrations – that the visual narrative is equally important as the text. Just think of the many times, when contemplating whether to purchase a magazine, the reader flips through the pages to gage the content by examining the creativity and quality of the images.

Figure 1. Covers to the first 10 issues of the journal.

Similar thinking applies to the journal cover image. Like an old school album cover, the journal cover image, displayed in a newsstand or on a bookstore shelf, should be appealing and provocative enough to entice a potential buyer to walk across the room and pick up the journal for inspection. Therefore, much time and consideration go into the journal cover image. For example, in vol. 1 & 2, the images are photographs taken by the editors. Volume 1 cover images is a photo by William Cassell of the Sagrada Familia cathedral that he took on a university trip to Barcelona. Vol. 4 editors, with the theme of Permeance, selected a historical black and white photo from the Victorian Library of the demolition of a building. Vol. 3: New Order, stands as the only issue that contains a cover with a drawing. It depicts individuals associated with the journal drawn by one of the editors, Courtney Foote. Vol. 5: Feedback went another route and used the Lidar scan image of the parking garage underneath the South Lawn of the University completed by the student editor Olivia Potter for a studio she took at the MSD. In more recent issues, the editors selected photographs from professional photographers or works by artists. The cover to vol 7: Boundaries features a satellite photo of the Hong Kong-Zhuhai-Macau Bridge linking Hong Kong to mainland China taken by the UK Airbus Defense and Space. This issue was followed by the dramatic yet prescient cover to vol 8: Presence, which was a photo of the bushfires at Lake Conjola taken by Matthew Abbott for the *New York Times*.

Intended Learning Outcomes

The editorship of *Inflection* offers students some general scholastic learning outcomes as well as real world skills, with budgets, applications, and deadlines. Traditionally, only the reading of architectural journals and magazines were the source of knowledge and the teaching of history.[10] The general learning outcomes include the development of critical thinking and analytical ability, the development of leadership skills and teamwork capabilities, the learning and improvement of editing (including copyediting) and writing skills. Students also learn real-world skills such as working with the publisher from Melbourne Books, organizing and conducting interviews of visiting architects and preparing and getting approval of the transcript. The students apply for access each year to the NGV Art Book Fair and organize a stand to sell current and previous issues of the journal as well as network with other journal editors.

In addition to the critical thinking involved in developing a journal theme discussed above, the student editors research, learn communication skills with the authors and learn how to critical examine and revise text, and discover the best way to provide feedback. One of the most important but difficult to teach skills that students learn is how to gauge how much material and articles they will need, and

which authors will take on the editorial feedback and submit their articles completed with the proper image files and information, and on time to meet the final deadline.

While not a learning outcome, but an accolade, the student editors of vol. 7: Boundaries and vol 8: Presence, received a surprising accolade when both *Inflection* volumes were awarded the Australian Institute of Architecture Bates Smart Award for Best Publication for Architecture in the Media in 2021 and 2022.

CONCLUSION - THE LAUNCH

The launch of the issue celebrates the completion of the project and the 'passing of the baton' to the next editorial team where they announce their theme. During the initial years, students organized the launch of their issue at the end-of-year student exhibition, which is an exuberant event with food, drinks, and a DJ. However, students found that oftentimes the journal was lost among the other student work exhibited throughout four floors of the MSD building. Starting in 2021 with vol. 7, the editors applied to use a new venue that appeared in Melbourne. The event space was part of a series of pavilions created for the MPavilion program, which was an initiative of the Naomi Milgrom Foundation and various local and State government entities to prove a new civic space. Each year a new architect would design a pavilion in the Queen Victorian Gardens across the street from the NGV. The retire pavilion by Melbourne architect Sean Godsell was relocated to a site in the Docklands; an event space which began a tradition with *Inflection* as the location to celebrate the launch of each new issue and to announce the new editors and the theme of the next issue.

The most poignant aspect of the journal launch is that it is an event that serves as a sort of pilgrimage of past *Inflection* editors, who come together to celebrate the journal that they were of part of, reminiscent with old friends, and make and mentor new ones.

NOTES

[1] AnnMarie Brennan, "On Secrets, Prayers, and Student Journals," *Inflection: Melbourne School of Design Journal*, vol. 1, 2013: 8-13.

[2] Philip Goad, "Designing a Critical Voice: Discourse and the Victorian Architectural Students Society (VASS), 1907-1961," in *Proceedings of the Society of Architectural Historians, Australia, and New Zealand*: 38, Ultra: Positions and Polarities Beyond Crisis, edited by D. Kroll, J. Curry and M. Nolan, Adelaide SAHANZ, (2022), 111-122.

[3] Andrew Leach, "Transition to 'Discourse': Architecture Theory in Postmodern Australia," in V. Patteeuw and L. Szacka, eds., *Mediated Messages: Periodicals, Exhibitions and Modern Architecture*, (London: Bloomsbury Visual Arts: 2018). *Tran*

[4] "Gutter journalism: Reflections on a quarter-century of *Kerb*," Panel discussion at the National Gallery of Victoria for the Melbourne Design Week on *Kerb* Journal, (Transcript), 19 March 2020, Accessed 13 August 2024: https://www.foreground.com.au/culture/gutter-journalism-reflections-on-a-quarter-century-of-kerb/.

[5] AnnMarie Brennan and Brendan Moran, eds. *Perspecta 32: Resurfacing Modernism*, MIT Press, (2001).

[6] Robert A.M. Stern, Peggy Deamer, and Alan Plattus, eds. *Re-Reading Perspecta: the first fifty years of the Yale Architectural Journal*, Cambridge, M.A.: MIT Press, 2004.

[7] Beatriz Colomina, Craig Buckley, eds. *Clip, Stamp, Fold: The Radical Architecture of Little Magazines 196X to 197X*, (Barcelona: ACTAR, 2011).

[8] Miglena Sternadori, "Magazines as Sites of Didacticism, Edutainment, and (Sometimes) Pedagogy," *The Handbook of Magazine Studies*, 2020.

[9] Orsina Simona Pierini, "Continuity and Discontinuity in *Casabella* and *Spazio*. The 1950's architecture magazines directed by Luigi Moretti and Ernesto Nathan Rogers," *Cuadernos de Proyectos Arquitectónicos*, vol. 0, no. 6, May 2016: 140-143.

[10] Stephen Parnell, "Slow Media: Architecture histories of, from, and though architecture magazines," *Charrette*, vol. 9, no. 2, (Autumn 2023), 7-30. Also see: Gaia Caramellino, Valeria Casali, and Nicole De Togni, "Mapping the Discourse. Architecture Periodicals in/for the Teaching of Architecture History*," Les Cahiers de la recherche architecturale urbaine et paysagère*, vol. 13: (2021).

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UNITY OF LIFE, WORK, AND STUDY: THE VALPARAÍSO SCHOOL OF ARCHITECTURE AND CIUDAD ABIERTA, CHILE

Author:
OSCAR ANDRADE CASTRO

Affiliation:
PONTIFICIA UNIVERSIDAD CATÓLICA DE VALPARAÍSO, CHILE

INTRODUCTION

The paper delves into the Valparaíso School of Architecture's concept of the "unity of life, work, and study" and traces some of the essential precedent experiences of the group that shaped this notion. The analysis provides a perspective on how this concept determined some of the Valparaíso group's best-known projects, such as the Ciudad Abierta (Open City), a community of poets, artists, and architects outside the conventional university setting. The paper examines the group's emphasis on the importance of the work of the craft (oeuvre), for which life and study were considered essential. For the group, the study was inseparable from the work being carried out; thus, instruction was derived directly from the act of creation. Consequently, rather than focusing on awarding degrees, the group emphasized the validation of knowledge through the testimony of creative work, a practice to be upheld throughout life. This approach to architectural education crystalized in diverse collective studying and working formats, such as the Bottegas. The experience of the Valparaíso School offers a radical understanding of architectural education, not just as a profession but as a vocation—where study, work, and creation are intertwined with life itself.

UNITY OF LIFE, WORK, AND STUDY

The poet and professor Godofredo Iommi formulated the idea of the "unity of life, work, and study" during the 1967 University reform movement in Valparaíso.[1] But to truly grasp the meaning of this idea, it is necessary to go back to 1952 when Iommi and a group of architects reorganized the Valparaíso School from a particular artistic position based on the relationship between poetry and architecture.[2] The group of professors' first action was establishing the UCV Institute of Architecture, which pursued expanding the faculty's academic sphere. The institute was conceived as a practice-based, independent, and interdisciplinary space for architecture and the arts. Along with opening the institute, the professors and their families decided to live together in a set of semi-detached houses in the neighbourhood of Cerro Castillo. The group actively pursued the option of a life in common, seeing the experience of living together as the underlying plane from which they could conceive their artistic project. The professors also initially located their institute in one of the houses, accommodating the spheres of study and work next to their communal life as they developed projects, organised seminars, and displayed exhibitions. Thus, in the houses of Cerro Castillo, domestic life merged with studying and working, giving rise to a new mode of conceiving the relationship between

these three spheres. This experience was gradually transferred to the school, nurturing a new vision of the university.

Figure 1. The communal life in the houses of Cerro Castillo, 1953. Archivo Histórico José Vial Armstrong.

The University Reform Movement of 1967

Between 1967 and 1969, professors and students at the Valparaíso School of Architecture proposed a comprehensive overhaul of the university. They rejected the traditional notion of universities, which were understood solely as places for instruction and professional preparation. For the group, the institutional approach of the university had a consequence: it divided work and study, subduing life to artificially predetermined periods.[3] Their invitation was to conceive a new community beyond the institutional framework, which would allow a new form of existence based on the unity of life, work, and study: "Universities, we believe, must take a decisive step to unite life, work, and study. They must transition from abstract or merely legal communities to genuine communities of life, work, and study founded on freedom and proper self-management."[4] Accordingly, the school members' pursuit was not to improve or redress the already existing university but to think of an unprecedented possibility of it.

The invitation to re-originate the university was conceived from a specific perspective: Latin America. The poet Godofredo Iommi placed the question about the Latin American reality at the core of school with the formulation of Amereida, a poetic vision of the continent.[5] Nurtured by this vision, the manifesto raised fundamental issues about the university models in Latin America, purporting the inexistence of real research and the absence of autonomy, which prevented the university from providing solid ground to tackle national issues and, even less, Latin American reality.[6] By 1969, the university reform had made significant progress, which was interrupted by the Chilean political crisis of the 1970s. The reform movement's original sense—and its understanding of the university—was affected by the fragmentation and instrumentalisation of the university community from the student base.[7] Finally, with the arrival of the dictatorship in 1973, the reform came to a halt due to the military intervention in the Chilean universities.

The Inception of Ciudad Abierta

Although the political events of the 1970s meant the end of the reform, the process that began in 1967 at the School of Architecture took an autonomous path. With the public reading of its manifesto, the group had already set plans to accommodate its vision of life, work, and study in a physical space. As a result, in 1970, the members of the School founded Ciudad Abierta under the legal figure cooperative, whose central pursuit was "the organisation of a community of life and work based on the intrinsic equality of intellectual and manual activity; the absence of profit; pluralism in the social conception; the rejection of power as a domain of some over others; hospitality; the rejection of aggressive violence; study, creation, and peace. The cooperative intends to build a physical milieu in the coastal area of the Province of Valparaíso, where the communal unity of life, work, and study, conceived in freedom, might be possible."[8] Under these principles, the cooperative bought the land to establish Ciudad Abierta, consisting of a 270-hectare area on the edge of the Pacific Ocean, sixteen kilometres north of Valparaíso. In this space, poetry, trades, and hospitality come together in the construction and experience of the place. In Ciudad Abierta, professors and students of the Valparaíso School of Architecture carry out diverse architecture, design, and art projects.

Figure 2. Reception of the first-year students at Ciudad Abierta, 2003. Archivo Histórico José Vial Armstrong.

The Bottega: Collective Studying and Working Formats

Amidst the university reform movement, the professors of the Valparaíso School proposed a form of study and work that they called Bottega, which consisted of a collective working unit integrated by professors and students who developed commissions in architecture and design. The Bottega located the architectural work at the centre of its activities, making study an activity that happens next to work under the idea that "all trade, whatever it may be, is consummated in a piece of work. Life and study are necessary for it. Study is, therefore, inherent to the work of the trade."[9] Structured around the project, the Bottega became the fundamental framework for shaping a new interaction between professors and students. In this format, the architectural project is presented as a platform of interaction, allowing its participants to engage in a master-disciple relationship rather than the lecture-

based relationship between a professor and student, which is specific to the academic world. The group established this approach as one of the fundamental characteristics of the School's position towards education, in which "the trade is ultimately learned by osmosis and not by instruction."[10] In Ciudad Abierta, the Bottega's collective working and studying format acquired a renewed nature by extending into the continuous temporality of life.
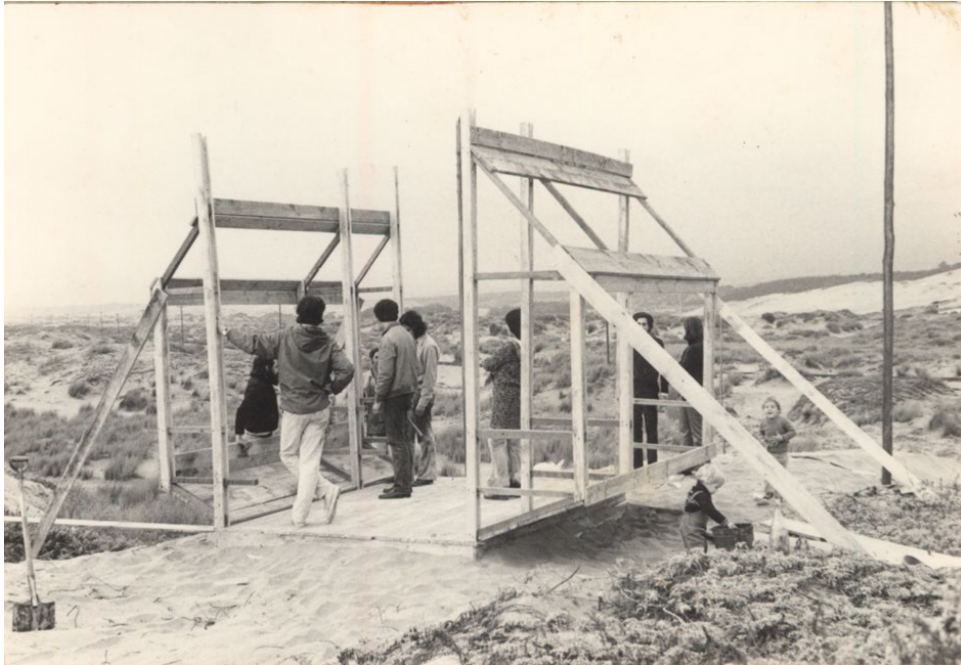
Figure 3. Graduation students working in Ciudad Abierta, ca. 1973. Archivo Histórico José Vial Armstrong.

The architect Alberto Cruz and the poet Godofredo Iommi explained the possibility of the collective in the Bottega had an intrinsic bond with the temporality of life: "Shortly before [Ciudad Abierta] we began working in ateliers that we called Bottegas –in the absence of another name– such as those of the Renaissance. We organised the Bottegas to hear each participant's creative voice, understanding that for such a voice to speak, work needed to extend into the chord of meals, celebrations, and visits."[11] Accordingly, in Ciudad Abierta, the experience of the Bottega unfolded into the continuous temporality of life, which brought the understanding of architecture as a trade. The professor and inhabitant of Ciudad Abierta, Patricio Cáraves, refers to this way of approaching life, work and study as he remembers that Antonin Gaudí "took the cot to the construction site,"[12] referring to how the Catalan architect installed his bed in the Sagrada Familia while working on the project. Likewise, Cáraves states that those who constructed Ciudad Abierta "made a close bond with work and study in their life […], which is a milieu sustained by permanence, involving life in the exercise of the trade."[13] Understanding the experience of the Bottega reveals a possible distinction between architecture as a profession and architecture as a trade, as the latter implies uniting the tasks of discipline with life itself.

Understanding architecture as a trade –caught by that temporality that arises from the work to organise daily life– also had profound implications on the group's approach towards formation in the discipline. The school members set out the guidelines supporting this alternative perspective on formation under the idea that: "[…] the students who participate in the association leave aside exams and professional degrees bestowed by tradition. The knowledge and the degree are verified and earned by the specific work that one is fully capable of carrying out. No degree is in perpetuity. According to

a temporary lapse that the association establishes, all degrees must be renewed periodically by presenting a specific work or a set of them. In this way, the title becomes the testimony of a constant trade."[14] The approach to architectural education experienced in the Bottegas continued in other formats at the school, such as the Taller de Obras (Built-project studio) in Ciudad Abierta and the Travesías (crossings) across South America.

Travesías are poetic journeys across South America carried out by students and professors every year since 1984. During a Travesía, the students and professors experience life sharing the everyday while crossing the continent, studying, and working on the road. The group identifies this relation between the Bottegas and Travesías when stating that "in the Renaissance, apprentices in artistic trades worked in Bottegas. They learned by working with the master, living together, and carrying out all the chores of life inside the Bottega. For some time, the school provided this way of teaching the trade, in which life, work and study were assumed in totality without dichotomies and separations. This way of teaching is assumed today in the Travesía, where it is impossible to make separations."[15]
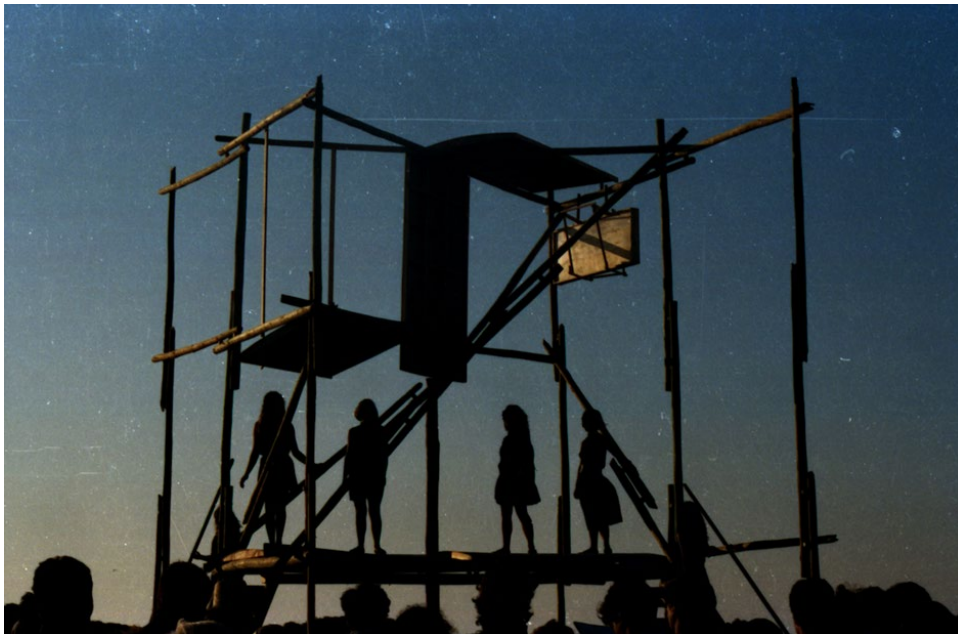
Figure 4. Travesía to La Serena, 1988. Archivo Histórico José Vial Armstrong.

CONCLUSION

The artistic position of the Valparaíso School of Architecture was built based on the founding professor's experience of life in common. In this case, sharing life means experiencing the everyday together with others, with all its ordinary and extraordinary dimensions. The ultimate pursuit of proposing these ways of living together was to access a temporality in which work, study and other life registers would become a continuum again. This new form of existence where work and study are no longer isolated moments in life but instead go along with it is a key element present in the group's most radical experiences —ciphered in the Bottega— such as Ciudad Abierta and the Travesías. In these experiences, the built project determines particular architectural education and practice forms that combine study and work by amalgamating the studio and construction site. Nevertheless, the Valparaíso School does not approach the experience of the built project as a professionalising instance like an internship where the student's skills need to meet the profession's requirements. Conversely, this experience seeks to constitute an encounter with the built work, whose end goal is to let the

participants discover architecture as a trade. Thus, more than an intellectual exercise, the encounter with the built project seeks to be a physical and material experience capable of awakening –in the words of the school members– an Eros for the work. Professor Patricio Cáraves indicates that the condition for reaching the reality of a university founded in the comprehension of this Eros "is the invention of a different way of life […] since it is now a matter of merging it with study and work."[16] Thereby, the unity of life, work, and study unfolds a time in which it is possible to understand formation in architecture, not as a process determined by a future fulfilment but as a present constantly fulfilled in the act of working and studying with others around the project.

Figure 5. Hospitality Pavillion in Kassel, 2017. By Oscar Andrade Castro.

NOTES

[1] Godofredo Iommi (1917-2001) was an Argentinian poet and founding professor of the Valparaíso School of Architecture, the UCV Institute of Architecture, and the Ciudad Abierta.

[2] The group was formed by the poet Godofredo Iommi and the architects Alberto Cruz, Miguel Eyquem, Francisco Méndez, Fabio Cruz, José Vial, Arturo Baeza, Jaime Bellalta, and the sculptor Claudio Girola.

[3] Godofredo Iommi, "Voto propuesto al Senado Académico 1969," in *Fundamentos de la Escuela de Arquitectura Universidad Católica de Valparaíso 1971,* (Viña del Mar: Escuela de Arquitectura UCV, 1971)

[4] Godofredo Iommi, "De la Reforma," Anales de la Universidad de Chile, No. 150 (April-June 1969): 67-68.

[5] Amereida is the Aeneid of America, an epic poem that inquires about the origin and possible destiny of the continent.

[6] Godofredo Iommi, "Manifiesto del 15 de junio 1967," in *Fundamentos de la Escuela de Arquitectura Universidad Católica de Valparaíso 1971,* (Viña del Mar: Escuela de Arquitectura UCV, 1971)

[7] "IV sesión de la Comisión Memoria Histórica de la Universidad Católica de Valparaíso". Pontificia Universidad Católica de Valparaíso, accessed August 10, 2024, http://archivohistorico.ucv.cl/entrevistas.html

[8] Cooperativa de Servicios Profesionales Amereida LTDA., Estatutos (Viña del Mar: Imprenta Lourdes, 1971), 1.

[9] Iommi, *Voto propuesto al Senado*.

[10] "Vida, trabajo y estudio," Wiki Casiopea, accessed August 10, 2024, https:// wiki.ead.pucv.cl/Vida,_trabajo_y_estudio

[11] Godofredo Iommi and Alberto Cruz, "Ciudad Abierta: De la Utopía al Espejismo," Revista Universitaria, no.9 (1983): 17-25.

[12] Patricio Cáraves, *La Ciudad Abierta de Amereida Arquitectura desde la Hospitalidad* (PhD dissertation, Universitat Politècnica de Catalunya, 2007), 21.

[13] Cáraves, *La Ciudad Abierta*, 21.

[14] Iommi, *Voto propuesto al Senado*.

[15] Escuela de Arquitectura UCV, *amereida travesías 1984 a 1988* (Viña del Mar: Talleres de Investigaciones Gráficas de la Escuela de Arquitectura de la Universidad Católica de Valparaíso, 1991), 6/a.

[16] Cáraves, *La Ciudad Abierta*, 41.

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ENHANCING CLASSROOM ENGAGEMENT THROUGH INTERACTIVE PLAY INSTRUCTION IN A HYBRID LEARNING ENVIRONMENT

Author:
MIKKI SHIU

Affiliation:
UNIVERSITY OF SANTO TOMAS, PHILIPPINES

INTRODUCTION

As the landscape of education continues to adapt to the emergence of digital natives, educators face the dual challenges of bridging generational divides and alleviating the impact of increased digital distractions within the learning environment.[1] Also, introducing various educational modalities such as hybrid learning, remote instruction, flipped classrooms, and other innovative learning models reflects the diversification of educational modalities, further emphasizing the departure from traditional face-to-face interaction to more flexible and versatile learning paradigms. This shift has been significantly accelerated by the global COVID-19 pandemic of the early 2020s, which catalyzed the transition from traditional learning environments to remote and hybrid formats, reshaping the educational landscape and societal norms.[2] This paper advocates integrating interactive play instruction as a transformative approach to enhance student engagement and cultivate meaningful learning experiences. By weaving play elements into classroom instruction, educators can effectively capture student attention and promote active participation, thereby addressing the evolving educational needs of contemporary learners.

GENERATIONAL LEARNING

The evolution of student demographics, principally represented by Generation Z and soon Generation Alpha, underscores the necessity for adaptive teaching strategies. Characterized as digital natives, these learners prioritize convenience, rapid information access, and technology integration in their educational experiences. In a way, the impact of extensive reliance on technology has resulted in underdeveloped in-person social skills among learners, as they lack the art of conversation,[3] further complicating the task of nurturing student engagement.

Understanding the differences in learning styles across generations can help us better meet the needs of today's learners and help them learn more effectively. Focusing on Generation Z, this cohort is highly adept at technology, having grown up with it.[4] They value independence, flexibility, and personalized learning experiences.[5] They are also known for their multitasking skills and shorter attention spans.[6] Characterized as the post-literate generation, they prefer communication that engages multiple learning channels. Post-logical also tends to seek experiences that are social, emotional, and visceral rather than purely logical. and post-linear, they live in a world that is hyperlinked, and for them, that is a lifestyle rather than a subject they are learning in school.[7] This is why, when it comes

to learning, Gen Z learners value interactive communication, easily accessible information, flexibility, and visual and kinesthetic learning methods.[8] As we understand the needs of current learners, it's crucial for teaching approaches and pedagogy to evolve to meet these changes, especially as different generations of learners will enter the educational landscape in the coming years.

HYBRID LEARNING ENVIRONMENT

Educational institutions nowadays are implementing web-based learning environments that enable the delivery of online education that complements face-to-face setups. It shows that academic institutions are going towards personalized learning. It is gaining thrust in the learning mode setting as educational institutions use hybrid modes to improve teaching and learning instructions, enhance learning outcomes and achievements, and improve the cost-effectiveness of learning infrastructure.[9] Also, prepare future graduates for hybrid workplace arrangements and digital literacy.[10]

A hybrid learning environment enables educational institutions to facilitate a learner-centered approach to teaching and learning, giving learners the space and flexibility to indulge in practical learning activities. One of the best practices in hybrid learning is that it allows the student to have the opportunity to interact with the content and engage in learning activities even before, during, and after face-to-face activities;[11] it is considered that remote learning is a supplement to brick-and-mortar face-to-face set-up.[12] In addition, the shift in learning modality affects how teachers understand and provide additional support for student engagement.

In the wake of these changes, substantial scope remains for enhancement in student engagement and learning outcomes. The gradual return to conventional learning modes and the adoption of permanent hybrid models exemplifies the ongoing transformation within educational institutions. The University of Santo Tomas, moved by the pandemic-induced demands, expedited the implementation of its hybrid learning model from a planned 2025 launch to 2023. Then, in March of 2024, the university announced that the hybrid learning mode would be a permanent learning mode set-up for the university. The university believes that the hybrid learning setup and the integration of digital tools would prepare students for hybrid workplace setups in the future. That is why it continued to seek the best mix of face-to-face hours based on the outcomes of different programs.[13]
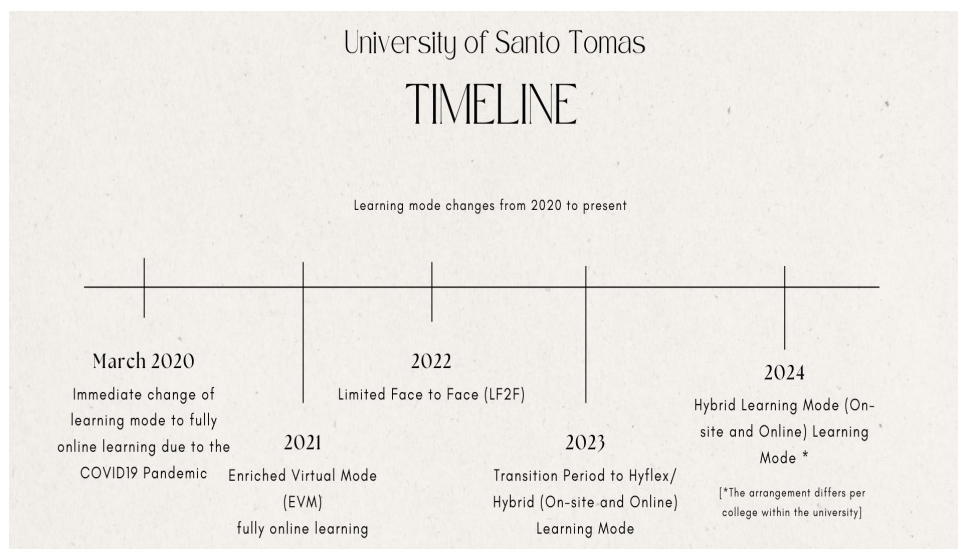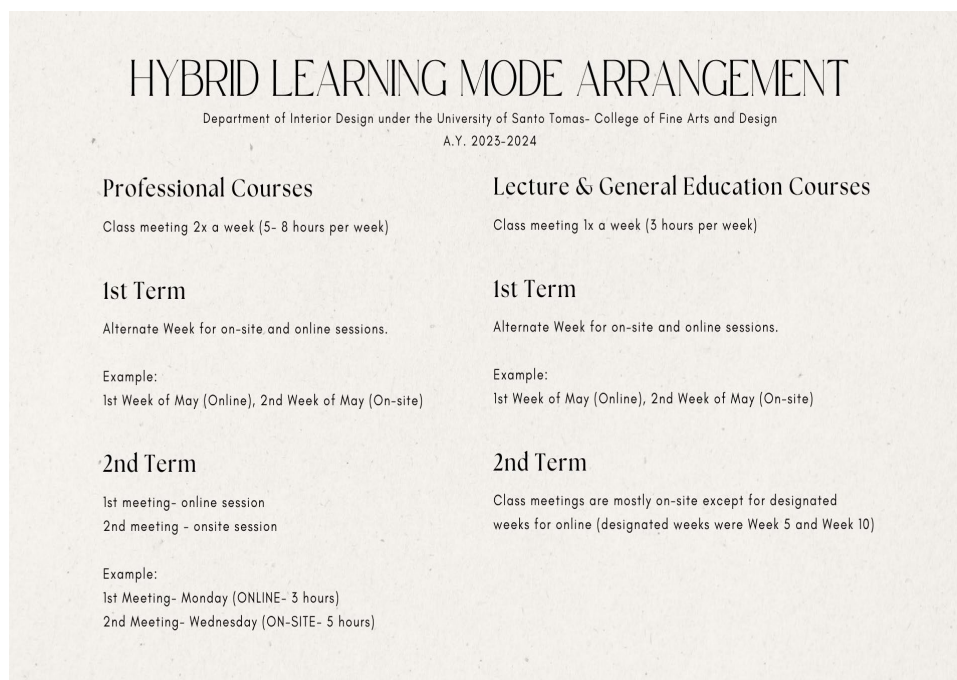

Figure 1. The University of Santo Tomas timeline of learning mode from the academic year 2020 to 2024.

Figure 2 illustrates the hybrid learning model adopted by the University of Santo Tomas- College of Fine Arts and Design, particularly the Department of Interior Design, with which I am affiliated. In the academic year 2023-2024, the schedule consisted of professional courses, such as studio courses, which met twice a week for a total of 7 to 8 hours, and lecture and general education courses, which met once a week for 3 hours. During the first term, both categories followed a similar schedule, alternating between face-to-face and online classes every week. In the second term, there were adjustments made on the schedule to allow for more face-to-face hours than online hours. For professional courses, the arrangement included two weekly meetings, with one meeting conducted online for 3 hours and the other held face-to-face for 4 to 5 hours. Lecture and general education courses were on-site, with only specific weeks designated for online classes. The college decided to maintain the second term arrangement for the first term of the academic year 2024-2025, finding it more practical and manageable for all stakeholders. Notably, the schedule for professional courses provided a more balanced distribution of online and face-to-face hours, allowing for twice-weekly meetings with the benefit of one weekly face-to-face session, which is essential for hands-on studio activities. Additionally, the use of online sessions for lectures maximized the face-to-face time for activities and assessments.

HYBRID LEARNING MODE ARRANGEMENT

Department of Interior Design under the University of Santo Tomas- College of Fine Arts and Design
A.Y. 2023-2024

Professional Courses

Class meeting 2x a week (5- 8 hours per week)

1st Term

Alternate Week for on-site and online sessions.

Example:
1st Week of May (Online), 2nd Week of May (On-site)

2nd Term

1st meeting- online session
2nd meeting - onsite session

Example:
1st Meeting- Monday (ONLINE- 3 hours)
2nd Meeting- Wednesday (ON-SITE- 5 hours)

Lecture & General Education Courses

Class meeting 1x a week (3 hours per week)

1st Term

Alternate Week for on-site and online sessions.

Example:
1st Week of May (Online), 2nd Week of May (On-site)

2nd Term

Class meetings are mostly on-site except for designated weeks for online (designated weeks were Week 5 and Week 10)

Figure 2. The University of Santo Tomas- College of Fine Arts and Design, Department of Interior Design's hybrid learning mode arrangement for the academic year 2023-2024.

Hybrid learning offers increased mobility and flexibility for students learning in the online environment while maintaining a more personal connection with their facilitators and students in the physical classroom.[14] At the same time, the hybrid learning mode is not just a simple transfer of teaching materials online, but it involves a change in teaching delivery and pedagogy.[15] Such transitions and arrangements highlight the challenges and opportunities inherent in fostering academic engagement within a hybrid learning context, underscoring the importance of understanding the harmony between online and face-to-face learning modalities to optimize the educational experience and engagement.

ENGAGEMENT IN LEARNING

Student engagement is composed of four dimensions: cognitive, affective, behavioral, and social engagement. Cognitive engagement refers to students' focus, self-regulation, and high cognitive function during learning. Affective engagement pertains to the emotional response exhibited during academic tasks. Behavioral engagement involves students' initiative-taking effort, attention, and time in learning. Lastly, social engagement encompasses interaction, communication, inclusion, and a sense of support linked to student learning. These engagement dimensions are interdependent and can overlap.[16] Understanding them can assist teachers in improving student engagement in the classroom.

In a research findings have shown the interdependency and overlap of the four dimensions. One of the findings on the core concepts of social engagement is co-creation and shared cognition, and the results also show that individual engagement is critical for social engagement.[17] Social engagement fosters communication, knowledge-sharing, and collaborative creation among students, providing support and a sense of inclusiveness in the academic environment. Additionally, another study focusing on emotion, behavior, and cognition shows that positive emotions toward academics are correlated with increased engagement in school-related activities. In contrast, negative emotions are associated with lower academic performance. Therefore, it is crucial to introduce motivating factors that cultivate enjoyment, enthusiasm, and positive emotions in academic learning to promote high cognitive and behavioral engagement levels in the learning environment.[18]

INTERACTIVE PLAY INSTRUCTION

In the evolving perspective of educational methodologies, a move toward a learner-centric approach makes the reintegration of intrinsic enjoyment and exploratory play into authentic learning experiences necessary.[19] This idea emphasizes interactive instruction as a strategic pedagogical approach that promotes active learning and collaborative engagement, which can integrate into educational settings. More precisely, play-based learning incorporates purposeful interaction that cultivates genuine learning experiences, aiding learners in assimilating educational content. This approach creates a conducive learning environment wherein students are encouraged to explore concepts, embrace vulnerability, and undertake risks. The emphasis on creating a non-judgmental and supportive learning space allows for continuous growth through formative assessments and constructive feedback loops.[20]

As an educational tool, play stimulates engagement, imbues lessons with joy, and introduces an element of mystery and excitement to classroom settings. Interactive play instruction is a form of active learning that equates play with the learning process. Additionally, the analogy of playing with games highlights the complexity and interactivity of games as educational tools that are accessible, cost-effective, and risk-free. Games serve as simulations that nurture critical thinking and value the preparation of students for future challenges, thereby fostering a foundation for lifelong learning. Games can be in the form of board games, video games, and other activities that can be played in person or virtually. The relationship between games and student engagement is described by having clear objectives, unambiguous feedback, and optimally challenging tasks. These aspects align with the self-determination theory, which states that the need for autonomy, relatedness, and competence drives human motivation. This theoretical framework underscores the desire of students to forge meaningful social and emotional connections.[21] In turn, relates to all four dimensions of engagement.

Implementing interactive play instruction facilitates a reexamination of classroom norms, offering students the platform to express themselves within the confines of brief activity sessions. Furthermore, this instructional approach promotes flexibility and innovation in educational activities. Educators can reinvigorate student engagement and foster impactful learning outcomes by leveraging technology-based, personalized, visual, and kinesthetic learning strategies[22] within the broader context

of interactive play instruction to the current generation of learners. Those same factors are evident and can be executed simultaneously in a hybrid learning mode. Integrating playful elements into academic sessions captivates student attention and promotes active participation and deep engagement with course material. Interactive play instruction thus emerges as an essential tool in promoting self-expression, tolerance for error, and meaningful interaction among students, thereby cultivating an atmosphere of meaningful engagement and communal learning.[23]

Session Activities and Engagement

Interactive play activities can be integrated within a class session, either pre-session or post-session. Pre-session activities can be in the form of ice-breaker activities and a review of the previously discussed module. Post-session activities can be an activity or a game that is aligned with the recently discussed module and helps scaffold the understanding and learning of the content. Session activities can be considered a formative assessment where students are given the opportunity to self-assess their learning and get feedback on their progress, as it can help ensure the understanding of the content is on track.[24]

SAMPLE #1	SAMPLE #2
Attendance	Attendance
Pre-Session Activity	Lecture Discussion
Lecture Discussion	Post- Session Activity
Consultation	Consultation
End of Session	End of Session

CLASS AGENDA

Figure 3. A sample of the class agenda for the possible integration of session activity.

Figure 3 illustrates a sample arrangement of the class agenda wherein course facilitators can integrate the session activities into their class schedule. Sample #1 shows the incorporation of pre-session activity before the start of the lecture, and sample #2 situates the post-session activity after the lecture. In this way, inserting session activities within the class schedule brings the spirit of play within the classroom, enhances engagement with the course content, and creates a safe learning environment for the students.[25]

Pre-session Activities

Figures 4 and 5, these are the pre-session activities I have done with my course from the academic year 2020-2021 up to the present.

For Figure 4, the icebreaker activity is a getting-to-know exercise typically conducted during the initial class session. Its purpose is to familiarize the students with each other and encourage them to share with their peers. This activity made use of a combination of Canva, PowerPoint Presentation, and Google Slides. The content on the left side of the presentation was based on an existing template

from Canva. After customizing the details, I downloaded it into a PowerPoint presentation and then uploaded it to Google Slides to create duplicate copies. I shared the editor link of the Google Slide, allowing students to collaborate in real time. Although Canva also offers collaborative features, students preferred using Google Slides due to its user-friendly nature, as students had difficulty accessing files in Canva. Initially, this activity was utilized in a fully online setting. When the opportunity arose to conduct face-to-face classes while implementing the hybrid learning mode, I adjusted the activity, focusing on hopes and fears. I provided each group with different colored sticky notes and manila paper to post their thoughts, using the opportunity to teach basic thematic analysis techniques related to divergence and convergence of ideas. Playing and enjoying social interactions with peers while being introduced to new processes and content to learn is what meaningful play is all about and provides authentic learning opportunities to the students.[26]
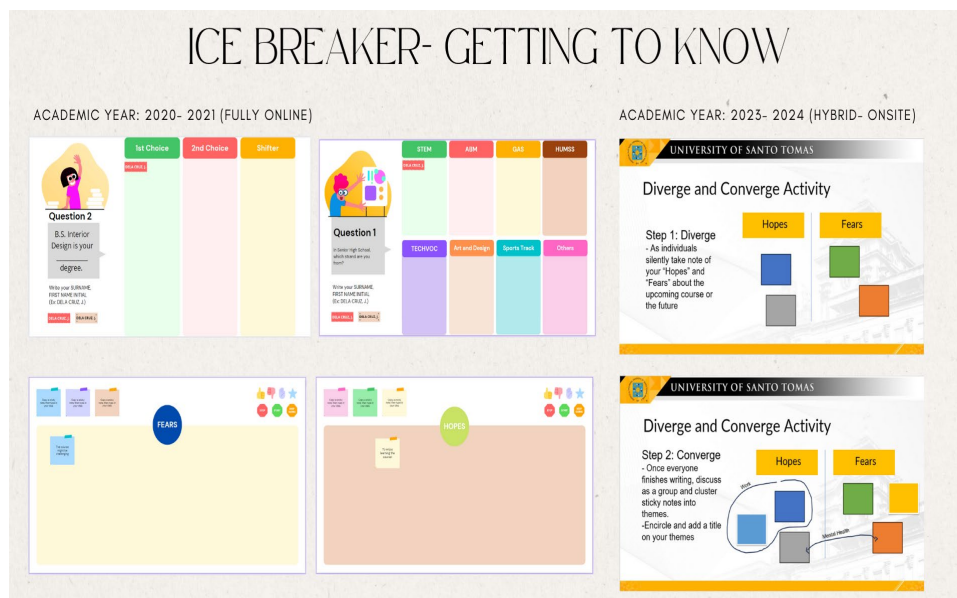
Figure 4. Ice Breaker- Getting to know pre-session activities and showing two different academic year and learning mode activities.

For Figure 5, Kahoot! is a free game-based quiz game that is a global learning and engagement platform that wants to empower its users to unlock their full learning potential.[27] This online quiz game was a very helpful and engaging educational activity tool for my courses, especially on lecture courses with long lecture series. Based on a meta-analysis report done by WiKIT AS for Kahoot, the tool promotes motivation, learning, and engagement. It also has a positive effect on learning performance, classroom dynamics, behavior, and emotion, specifically lessening the anxiety level of users. Kahoot! is an easy, feasible, and fun e-learning tool that fosters content acquisition in teaching and learning and provides a good platform for online learning to do formative assessments.[28]

Figure 5. Kahoot! pre-session activity

Post-session Activities

Figures 6 to 8 are the post-session activities I have done with my course from the academic year 2020-2021 up to the present.

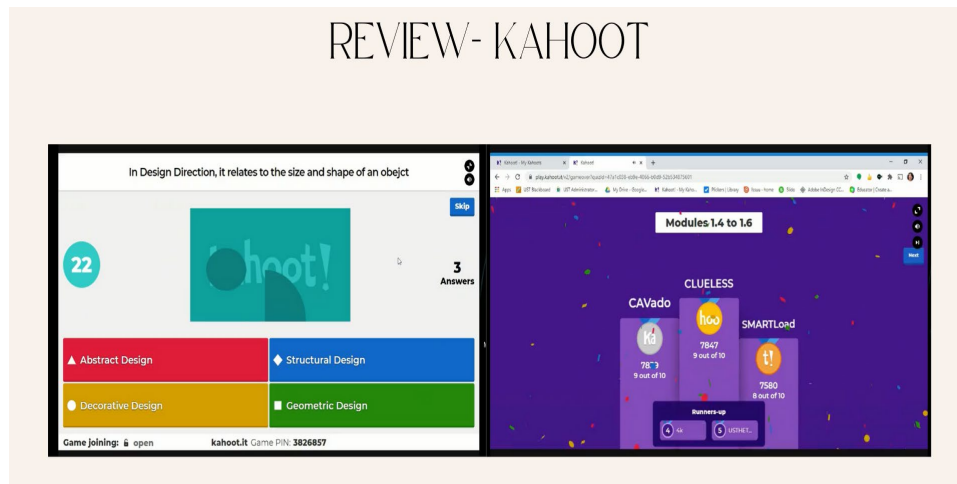Figure 6 is a snake and ladder-inspired activity using Google Slide and uses the collaborative feature of the application by sharing editable link for real-time access and engagement with the activity. This is also one way of designing meaningful learning activities by tapping into the familiar old-school games so that students can instantly switch to play mode by repurposing old favorites and adding the learning content within the game for formative assessment activity.[29]

Figure 6. Snake and Ladder inspired board game using Google Slide for post-session activity.

Figure 7 shows the activities that offer opportunities to develop skill competency beyond traditional content review. One of the challenges we faced during the pandemic was how to effectively teach the necessary technical skills for the Interior Design program in an online setting. To address this, I devised a method using Google Slides to engage the students and encourage them to apply their learning. This involved tasks such as interpreting architectural scales, becoming familiar with different technical plans and their components, and creating image and swatch boards. I chose to use Google Slides for these activities because the platform offers a variety of tools that can be customizable and personalized. For example, the line tool provides options for different thicknesses

and line types, which align with the concepts we instruct our students in relation to the alphabet of line - line type and line weights for technical drawings. This approach combines learning content with technology-based learning.

Figure 7. Showing two different academic years with the same content activity but in a different learning mode. This activity is on skill competency such as architectural scale reading and basic drafting.

Then when the hybrid learning mode was officially in place, the activities that were played for online activities were easily adopted for on-site learning. Content-wise are mostly still the same, the only difference would be that in face-to-face sessions, they are able to communicate in person and learn how to delegate tasks to their peers, developing further their art of communication. Communication was a challenge for them during online activities, especially if the activities were in groups.

CONCLUSION

The use of interactive play instruction is highly suitable for the hybrid learning model. It offers flexibility and adaptability, making it easy to transition between online and in-person learning, and can be considered as a supplement to one another. This approach promotes student engagement and active participation, improving comprehension and retention of course material while fostering a dynamic and inclusive classroom environment. It creates a secure space for learning, challenging students through various activities yet allowing them to confidently express themselves, learn from mistakes, and meaningfully engage with the course content.[30]

To address these challenges, it is crucial to have a deep understanding of student preferences regarding interactive communication, flexibility, and technology-driven learning experiences.[31] Educators can create a learning environment that meets the needs of current learners and adapted for future generations. This approach boosts engagement and motivation and encourages students to embrace self-directed and lifelong learning. Implementing a hybrid learning environment infused with interactive instructional play and considering learners' preferences is a potent strategy for rekindling student engagement, promoting genuine play, and fostering active learning across diverse age groups.[32]

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EMOTION WITHIN THE DESIGN CURRICULUM:
AN EDUCATIONAL PERSPECTIVE.

Author:
AHLAM ABUMUGHLI, JAMIE MARSDEN, BRIONY THOMAS

Affiliation:
UNIVERSITY OF LEEDS, UK

INTRODUCTION

The interplay of emotion and design has become a critical component of modern design discourse. The emotional dimension of design can be critical for developing effective communications, products, and experiences that not only meet functional objectives but also connect with users on a deeper level.[1] Consequently, there has been a gradual shift away from conceptualizing design as an activity mostly concerned with aesthetic and utilitarian functions of products, to becoming increasingly recognized for its significant influence on human experiences and emotions.[2] As such, designers are progressively becoming more involved with social and political issues. This conceptual shift, in which the role of emotion in design is considered instrumental to design's success, necessitated a more thorough investigation. From an educational perspective, there is particular merit in exploring the process of how the integration of emotional design principles sit within traditional design pedagogical practices. The design curriculum, which has traditionally focused on creative problem solving and technical application skills, is increasingly expected to consider the emotional aspects of design processes and outputs.[3]

This study explored how the consideration of emotions is taught within design programmes in higher educational settings by examining current pedagogical approaches. Interview data from experienced educators working within leading higher education institutions were used to provide an indicative representation of the delivery of current design education. These findings highlight the key points to consider for developing emotionally aware designers capable of successfully navigating the intricacies of today's design environment.

EMOTION IN DESIGN

Emotional design is a concept based on the idea that a product elicits an emotional response when an individual interacts with the product.[4] The idea is that by heightening the involvement of emotions in our interactions with products and environments, users gain more positive and memorable experiences. Norman suggests that the emotion is not primarily linked to the utility of a product but is often due the look and feel of an object, or other personal attachment.[5] Functionality, within this conceptual framing, is only partially essential in forming a positive experience in the way people process an interaction with a product or design.

The idea that emotion is the primary factor is shared by Adams and Van Gorp, who state that "all design is emotional design" because the most important aspect of a product is the ability to generate

an emotional response.[6] When viewed from a user interface design perspective, Walter defines emotional design as the creation of products and experiences that engage users on an emotional level, thereby suggesting that an emotional connection leads to greater user engagement, loyalty, and overall satisfaction.[7] This latter viewpoint raises the question of whether emotional design is always a central quality for everyday products, particularly for utilitarian products such as industrial tools.

While it might be difficult to argue that an object such as a paperclip has emotion within the design, the consistent function of a paperclip can be a source of user satisfaction. Likewise, if the paperclip had a sharp edge and broke the skin of the user during use, the result would likely be a feeling of frustration and dissatisfaction. In this instance, the resulting negative emotions aroused through poor functional attributes, would generate an emotional, undesired response.

Furthermore, if an industrial tool happened to have been inherited from a close family member, such as a late father, then the tool would take on additional significance and meaning beyond its functional properties. In this type of example, the emotional significance of the product would not be the result of design but the effect of contextual factors. Similarly, when a design incorporates a broader cultural signifier, there would appear to be greater potential for an emotional response due to the design being related to a particular group, or sub-group, that share cultural values, beliefs, traditions or nationality. An example of this might be the adornment of a national flag on products.

Emotion in design theories

As an interdisciplinary concept, emotional design draws from psychology, design, and human-computer interaction to inform our understanding of emotional design. Norman's theory of emotional design suggested a framework for classifying a user's emotional response to a product or design.[8] According to Norman's theory, there are three levels involved in the processing of emotional response: Firstly, the visceral level: which describes the instinctual, immediate response to the aesthetics and the sensory appeal of a product. This includes the first impressions of a design, which can be significantly influenced by the product's aesthetic and physical attributes. Secondly, there is the behavioural level, which is based on the usability and functionality of a product, and how well a product accomplishes its goals through the favourable feelings that result from a product's smooth operation and satisfying user experience. The third, reflective level, addresses a product's psychological and intellectual effects that follows the initial usage and engagement phases. In this latter stage, people evaluate their interactions and begin to develop enduring opinions and attachments to a product, considering the product's purpose and importance in the user's life.
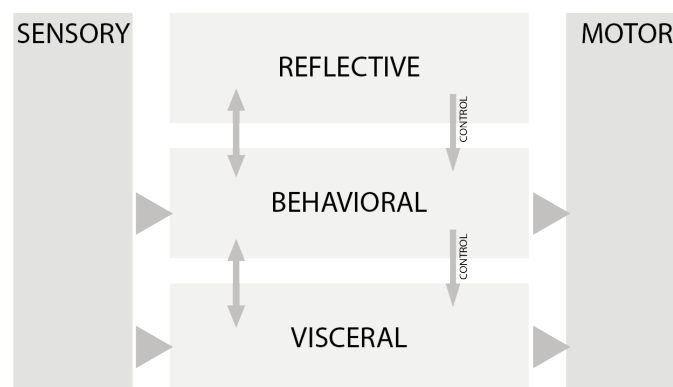

Figure 1. Three levels of processing emotion in design adapted from (Norman, 2002).

According to Norman, a successful product should seek to elicit a favourable emotional response on each of these three levels.[9] The supporting claim is that the design of products should appeal to users' emotional needs and desires, extending beyond aesthetic appeal or useability. This conceptualisation recognises that consumers frequently base their decisions on their emotions, and that designers will produce more engaging and rewarding products by addressing these feelings. While this classification of emotional response provides an understanding of the human response to emotional design, the classification does not in itself provide any guidance in the application within a design practice.

Desmet recognized the need for a practical tool that designers can use to create more emotionally driven products and created the "Product Emotion Measure Optimization" (PrEmo) tool.[10] This structured method for assessing and enhancing emotional qualities in products and designs used 14 animations to express different emotions, 7 positive and 7 negative. The assessment tool involved rating the product interaction on a three-point rating scale, to measure users' emotions. By utilising a non-verbal system, PrEmo was tested on cross-cultural groups from different countries across a range of age groups and was considered successful in capturing emotions.

An update to this tool proposed a typology that focused on positive emotions only, suggesting that, although users can experience up to 25 emotions when interacting with a product, these could be categorized into nine types of emotions.[11] The tool provides a structured approach for capturing data on how users behave in situations, where a range of complex emotions might be expressed in relation to specific psychological demands, helping designers to purposefully develop products to meet users needs. Fokkinga introduced a framework for impact-centred design that conceptualised both the immediate and subsequent psychological, social, and behavioural effects of the human-product interactions.[12] This model (see figure 2) encompasses the three levels of emotional design proposed by Norman, however, the levels are categorized as product experience (emotion, aesthetic, meaning), human impact (behaviour, experience, knowledge, attitude), and quality of life and society.
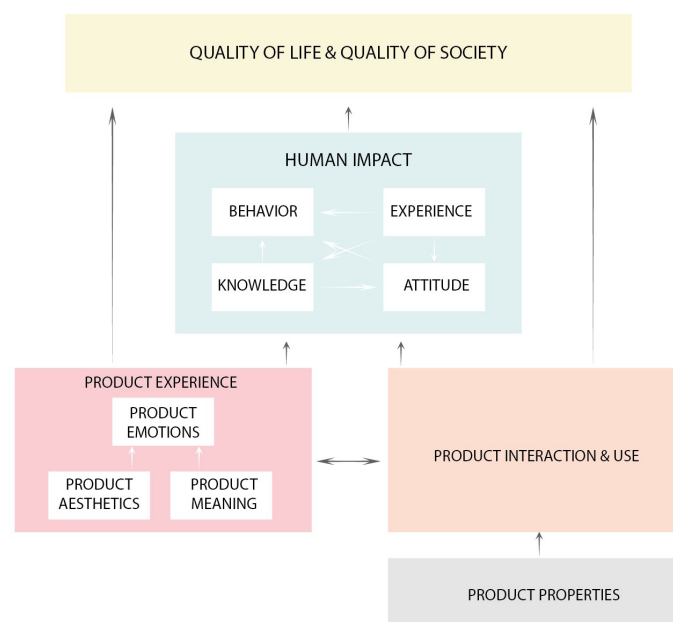

Figure 2. The impact- centred design framework adapted from Fokkinga, S., et al. (2020)

Numerous design tools have since been introduced by design researchers in an attempt at improving design processes, however the general adaptation of such tools in both design practice and education remains very low.[13] Products, like people, have the ability to grab our attention by how they look and

how they engage us, frequently serving more as dynamic objects to which we ascribe personality and judge in accordance with human social norms than as simple instruments.
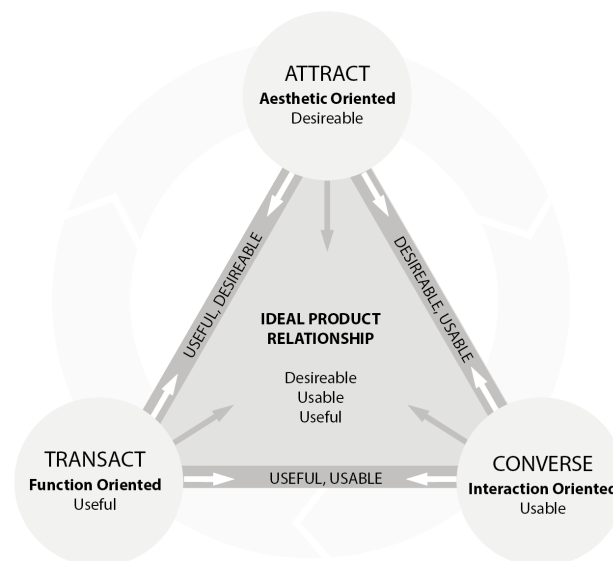

Figure 3. The A.C.T Model adapted from (Van Gorp, 2012)

The ACT model (Attract, Converse, Transact) depicts how designers can meet consumers' emotional demands for pleasurable, practical, and relationship-building experiences using design elements by drawing a comparison between previous models based on aesthetic, interaction and personality.[14] The purpose of the ACT model is to create strong user-product bonds, referred to as the Ideal Product Relationship, by carefully understanding user needs, user personality and then designing, marketing, and advertising the product with the identified personality in mind.

As an interdisciplinary concept, emotional design or design for emotion shares similarities with related concepts that emerged in other fields. In the field of engineering, Nagamachi introduced a Japanese concept known as "Kansei Engineering," where the aim is to build products with human emotions and sentiments in mind.[15] Under this concept, emphasis is placed on how crucial it is to comprehend users' emotional demands and preferences throughout the design process. As such, Kansei Engineering entails gathering and converting human feelings and emotions into design qualities, with the intention of designing products that elicit specific emotional reactions.

Emotion within design in higher education

Until recently a designer's role would have been more focused on a particular application, such as physical product design. However, through the shift to the digital online space, there has been an expansion of designer involvement in a broader range of activities, from products, information, services, experiences and broader social design issues. As a result, design students frequently lack the necessary knowledge and understanding of the complexity of the society and human behaviour, behavioural sciences, technology or business beyond the remit outlined in design schools.[16] A designer's knowledge increasingly necessitates a comprehensive understanding of culture, philosophy, history, politics, and ethics.[17] In other words, while designers today might have skills to design aesthetic products, they might not be equipped to design in other cognate areas where traditional artisan skills no longer apply. Research has shown that Emotional Intelligence (EI) had a positive effect in promoting design students' creativity, teamwork, and efficient communication.[18]

Subsequently, it would also seem necessary that students become emotionally critical and conscious of the aesthetic feelings and reactions elicited by the creative products around them, in addition to being "emotionally" aware of the influence of the products they create.[19]

Given the importance to design education, Yu and Nagai proposed a systematic approach to teaching emotional design that focused more heavily on data collection and feasibility testing.[20] This method was shown to be effective in assisting design students in developing products that satisfied users' emotional needs. This emphasised the significance of emotional learning and design in sustainable design education, advocating for the use of emotional tools to empower students and improve their understanding of sustainable results.[21] Moreover, Kordts-Freudinger emphasised the emotional component of teaching methodologies, linking positive feelings to a student-centred approach.[22] Chuah revealed design components that elicit good feelings in a virtual reality-based learning environment, indicating the possibility of emotional considerations in educational design.[23] A recent study presented a five-day course to teach emotion-driven design (EDD) to graduate students based on seven developed fundamentals intended to educate students on how to develop the ability to include an understanding of user emotions in their design processes.[24] Despite the increasing advancements in this research area, it remains difficult for design educators to effectively and systemically teach students how to incorporate emotional considerations into the creative design process, particularly when those students have little formal understanding of the psychology of emotion.

RESEARCH DESIGN

The purpose of this research was to explore how design educators use the principles of emotional design to inform their teaching. The study employed a range of semi-structured interviews with eight academics from leading institutions in the UK. The sample of interviewees were carefully chosen to ensure they had sufficient previous experience and informed by the following criteria: first the interviewees must have worked within their respective fields for a minimum of five years to ensure there was a baseline of familiarity with the teaching and practice of design. Second, the interviewees must have experience gathered from recognised institutions regarded for their practice. Participants who contributed to this study came from prestigious organizations, such as Central Saint Martins, University of Leeds, Northumbria University, Manchester Metropolitan University, Imperial College London and the Royal College of Art.

The interviews were conducted through Microsoft Teams, each lasting between 30 to 40 minutes. Participants were initially asked to outline their design process and discuss the specific stages of the process in detail. This was followed by an open discussion of what the participants knew of the concept of emotional design and how this informs their own teaching. Permission was sought and received for recording the interviews, to ensure the accuracy of the transcription. All transcribed data were coded using NVivo software and thematically analysed to identify the commonalities and differences among the educators. To ensure the accuracy of the interpretations, experienced colleagues checked the translation of the raw data.

FINDINGS

The data revealed a typical five-phase approach to the design process in all cases, with varying degrees of emphasis on the different stages according to the project's necessity. However, the most surprising aspect to emerge from the data was that the term "emotional design" registered very little response, in terms of any recognizable contribution to the design process or teaching. The most significant finding was that there was only a limited understanding of the concept of emotional design. This is discussed in greater detail in the sections below.

Lack of awareness of Emotional Design

During the investigation two aspects were discovered: firstly, the lack of clarity in the participants' understanding of the concept of emotional design, and secondly, the uncertainty with knowing how emotional design might inform the teaching of the design process within a higher education setting. This corresponds with Yu and Nagai who found that design practitioners gradually gained the necessary skills of emotional design through practical experience rather than through formal design education.[25] This could be explained as being due to emotional design's complexity, particularly as there seemed to be less emphasis on any explicit teaching of emotional design to design students. When interviewees were asked to define the concept of emotional design, the question prompted hesitation, pause for thought, which suggested an unfamiliarity with the concept. Following the delay, participants were unable to explain the concept and struggled to provide any clear illustrations making it immediately apparent that the concept was unclear.

"Oh I'd say that could be interpreted in many different ways but tell me [more]."

"To be honest, I couldn't even give you a definition of emotional design."

"It's not a phrase I've heard of."

Those participants who were familiar to the concept could recall the self-titled book on emotional design,[26] but the concept was not introduced to them through their curriculum when studying design. Additionally, those who were familiar with the concept displayed a vague recollection of when they first encountered the term. As a result of the unclear definition, there seemed to be little understanding of how this concept might inform the design process.

Limited understanding of emotional design in the design process

To explore how educators teach the design process, participants were asked where they believe the consideration of emotions might occur within their teaching of the design process. The responses were varied, ranging from the very beginning of the process, the research exploration and empathy phase, to the end of the process, as a user-testing phase, as well as throughout all stages of the process.

While providing users with a satisfying emotional experience might be considered as a key role in design, the findings presented a very unclear picture of how this skill, or knowledge, is taught to design students through their formal design education. From the comments below, there is the suggestion that an understanding of emotional design is a form of intuitive knowledge that is gradually acquired through the reflection on and practice of necessary skills while experiencing the process of design.

"… I guess it depends on the project, but yeah, I'd say at the beginning"

"I think all the way through … I think it has to be everywhere because really emotion is what moves design"

"I guess at the very beginning of that discovery session"

"… I'd say every level … between explore and create and between create and define"

"I would say more at the development stage …"

Several participants did not specify, but instead gave examples of tools they used in the design process, such as journey mapping and storytelling to help with understanding end-user perspectives.

Intuitive associations with emotional design

It became clear through the interpretation of data that emotion in design could occur from three perspectives: designers' emotions, user emotions, and the topic itself (e.g., emotive subject matter, such as charitable work or designing for disadvantaged individuals, or being involved in a campaign that contained upsetting material). Although these three perspectives emerged from the analysis of separate data sets, the three perspectives of emotions were not raised by the participants, which

suggests that there is no holistic appreciation of the sources of emotion that inform the design process.

"… I don't use the term emotional design in my day-to-day job as a … language. But I, but I'm applying its principles every single day."

"… and I guess you're guided a lot by instinct and kind of feelings"

"Design comes from the heart as much as the head."

The interview data from the educators also showed that they equated a number of design characteristics as mechanisms for expressing emotions, such as the strokes of lines, specific hues and their intensities, and the intrinsic evocative nature of typography. For example, the width and style of characters can determine how formal a font may appear. Similarly, in motion graphics, elements such as level and style of lighting, the representation of time and speed of transitions, as well as types of audio, can all be features for expressing intended emotions.

Shortcomings in design education

The data analysis showed that educators were unclear when and how they learned specific aspects of emotion in design, suggesting that this facet of design education is learned tacitly, if an appropriate circumstance arises. Moreover, the educators could not describe how this component of design knowledge is taught in terms of structured learning material, but instead referred to the ad hoc manner of tutor guidance as being a means of passing on these skills. Recent research in design education has recognised this shortcoming: "there is very little in pedagogic research demonstrating how to push this new horizon in design education".[27]

"There's not a particular way that *I've* learned to do this"

"We show them how *we* work through live projects"

Such transfer of tacit knowledge, therefore, would be wholly dependent on the educator having direct experience of professional design practice, and not solely be a faculty member with a higher research degree. The direct guidance of educators mentoring students through the design process and bringing to the fore their insight and experience gained from industry experience was believed to be the method of translating this nuanced type of knowledge. The complexity of design problems that are apparent in many design challenges, requires a mentoring of the student to help navigate through the process, and it is here where the educators "pass on" these tacit skills.

CONCLUSION

This study explored how the concept of emotion is taught within the higher educational context by examining current pedagogical approaches. The interpretation of interview data from educators working within higher education institutions, revealed two significant findings. Firstly, there was a limited awareness of the concept of emotional design, with the majority of participants struggling to articulate the concept. This finding echoed Norman's observation that: "Most designers still fail to take emotion into account."[28] Participants responded by asking for clarification of the concept or equated emotional design to either storytelling or the designer's individual emotional response to their work. Secondly, there was very little consistency in the descriptions of where emotions typically feature in the teaching of the design process, which suggested this aspect had significant variance in its phases of development and is heavily influenced by individual preferences. Numerous design tools have been introduced by design researchers in an attempt at clarifying and improving design processes, although the general adoption of such tools in both design practice and design education remained very low.[29] These findings therefore suggest that a much more extensive investigation of the design process, particularly in respect of how emotions typically inform the process, would be beneficial for the education of designers. With a more systematic understanding of the connection

between the functional considerations of design and the emotional aspects of design, the teaching of the design process would be less susceptible to the variance that currently occupies design education.

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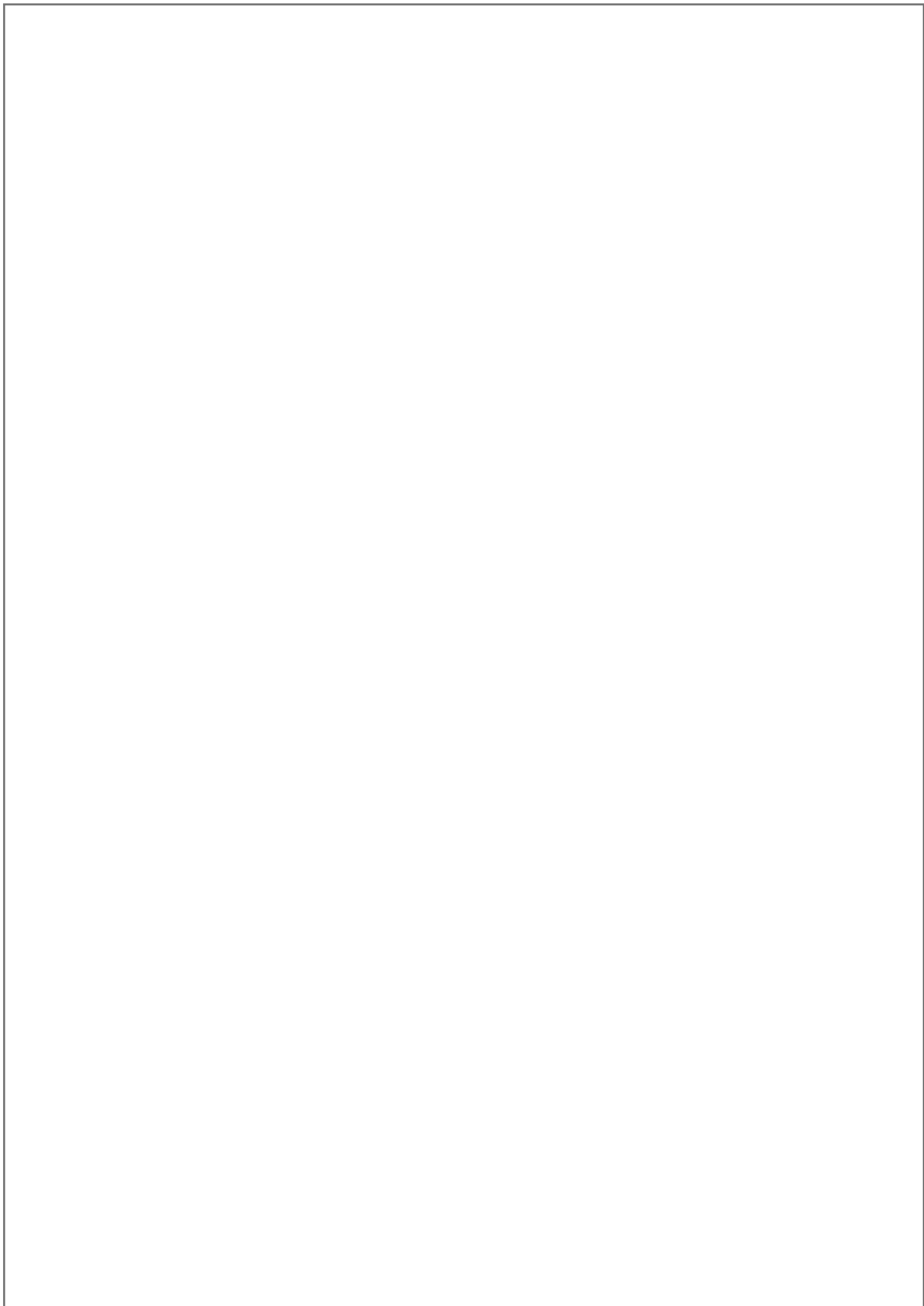[29] JungKyoon Yoon, Anna E Pohlmeyer, Pieter MA Desmet, and Chajoong Kim "Designing for Positive Emotions: Issues and Emerging Research Directions." *The Design Journal* 24, no. 2 (2020): 167-87. doi:10.1080/14606925.2020.1845434.

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