

Experiential Design Rethinking relations between people, objects and environments

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Experiential Design – Rethinking relations between people, objects and environments



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INTRODUCTION

Volume 1: Engaging with Architecture, Design, and Art

In January 2020, Florida State University hosted the international AMPS conference Experiential Design – Rethinking relations between people, objects and environments. The keynote speakers were Chris Downey from Architecture for the Blind, and Angela Spangler from the International WELL Building Institute.

The conference reflected a confluence of ideas and methods derived from two discrete calls for proposals – the first we directed to designers, artists, and architects, and the second to health, wellbeing, education, and psychology professionals. Although there were many confluences between the concepts addressed by these esteemed scholars and practitioners, we have structured the conference proceedings to reflect the original proffers. This first volume emerged from the following:

Where once design and the arts may have been confined to the 'straightforward' creation of objects, places and similar elements, today we have the knowledge to transcend mere physicality. The experience economy challenges us to move from reactionary to initiatory modes, moving us from questions of problem solving and object making to our potential to serve as catalysts, releasing potential energy, activating thought and affecting change from those who engage with the objects and spaces we design and make.

Experiential design, situational design and Xbd (experience by design), are all examples of this expanding reality for the art, design and spatial sectors. Within this context, it is clear that art, design and space influence, reflect, react to and sometimes distort life experience. This is evident across sectors and scales making the relationship between designer-maker, designed object and user or client complex and varied.

Each paper in this volume centers upon the premise of active engagement. We have arranged them thematically based upon a range of experience types—with people; with objects; within distinct spaces, buildings, or complex environments; within our thoughts and perceptions. We learn how these engagements may be facilitated through design interventions, be co-designed with communities, or track individual memories or experiences. Of particular note is the breadth of perspectives, which came from art, graphic and environmental design, interior and product design, architecture and urban planning, architectural theory, design history, and cultural studies. The volume ends with a thematic unit incorporating papers that discuss the role of design in bringing existing states of being into questioning and in supporting user agency. Ultimately, all reveal the extent to which design can be a catalyst for change in peoples' views of environmental stewardship, history, social equity, and equality.

We thank all of the participants for their engaging contributions to the growing discourse on the manifestations and meanings of designed experiences and experiences of design.

Yelena McLane and Jill Pable Tallahassee, Florida

TABLE OF CONTENTS

Chapter 1 SUSTAINABLE INTERIOR DESIGN: A MODEL TO PROMOTE SUSTAINABLE PRACTICES Kika Ioannou Kazamia	1
Chapter 2 UNIVERSITY AS ENABLER FOR INCLUSION THE CERAMICIST, THE TUTOR, THE STUDENT AND THE AUTISTIC ADULT Joan Scott Love	12
Chapter 3 RASA THE ART EXPERIENCE IN ARCHITECTURE Samyukta Raman, Harshita Vangara, Abhinand Gopal Pulijala	28
Chapter 4 ARCHITECTURE BEYOND THE BUILT FORM. UNDER-STANDING AND IMAGINATION Maria Vidali	45
Chapter 5 TWO TALES FROM THE LIBRARY: THE EROSION OF PUBLIC REALM AND NEW FORMS OF SPACE Charlie Smith	52
Chapter 6 STREETSET TOWARDS A PHOTOGRAPHIC FRAMEWORK FOR THE EVOCATION OF URBAN CHARACTER Dan Brackenbury, Valentina Nisi	65
Chapter 7 DYNAMICS OF ARCHITECTURAL EXPERIENCE IN THE PERCEPTUAL FIELD Sergei Gepshtein, Tatiana Berger	76
Chapter 8 EXPANDING HORIZONS: INTERACTIVE SPACES MEET INTERCULTURAL ENGAGEMENT IN THE DESIGN CLASSROOM Kelly M. Murdoch-Kitt, Denielle J. Emans	88
Chapter 9 THE INFLUENCE OF GREEN WALLS ON THE PERCEPTION OF SPACE Jana Kozamernik, Martin Rakuša, Matej Nikšič	99
Chapter 10 DOORING EXPERIENTIAL BOUNDARIES Andy Milligan, Rod Adams, Nigel Bruce Simpkins	109
Chapter 11 MATERIAL-TOUCH-EMOTION LEXICON ENABLING DESIGN FOR WELLBEING Rashmita Bardalai, Robin Laycock, Olga Troynikov	117
Chapter 12 INDIVIDUAL AND COLLECTIVE RELATION TO HISTORICAL ENVIRONMENTS - DESIGN INTERVENTIONS AS A MEANS TO INFORM, INCLUDE AND INVITE Mathilde Kirkegaard	131
Chapter 13 STACKS AS SHELTERS: LIBRARY LESSONS ON DESIGNING FOR HOMELESSNESS Yelena Mclane	139

Chapter 14 CO-CREATING OUTDOOR ARCHITECTURAL DESIGN STRATEGIES FOR WELL-BEING IN A HONG KONG PRIMARY SCHOOL Jimmy Tsz-Wai Ho, Thomas Chung, Sau-Lai Lee	148
Chapter 15 MODELMAKING IN ARCHITECTURAL SPACE PRODUCTION: STUDIO INTERACTIONS IN THE MATERIAL AND THE DIGITAL REALM. Athena Moustaka	161
Chapter 16 IN PRAISE OF INCONVENIENCE RETHINKING FRICTIONLESS EXPERIENCE Aaron Seymour	167
Chapter 17 THIS HERE NOW: TRADITIONAL JAPANESE BUILDINGS AND THE ARCHITECTURE OF THE INDIVIDUAL Kevin Nute	176
Chapter 18 EXPRESSION OF DEATH IN ARCHITECTURAL SPACE A STUDY IN POETICS Ghaina Sabir Malik	185
Chapter 19 QUANTIFYING HUMAN BEHAVIOR WITH NON-INVASIVE SENSORS Andrew Khoudi	194
Chapter 20 (DE)OTHERING: EMPATHIC DESIGN FOR IDENTITY, CULTURE, HISTORY, MEMORY, AND PLACE Elgin Cleckley	202
Chapter 21 BECOMING THE UNBECOMING AN ARCHITECTURAL MANUSCRIPT OF THE ABSURD Mogheesa Hasnain, Junaid Alam Rana	210
Chapter 22 ALIENATED SPACES IN CONTEMPORARY HOUSING Humna Syed, Junaid Alam Rana	227
Chapter 23 TRUST THE PROCESS Benjamin Hall	235
Chapter 24 EXPRESSIONS OF CURIOSITY INDIVIDUALITY AS CONTEXT Michelle Pannone	242
Chapter 25 VIRTUAL REALITY SPATIAL PRESENCE INDEX Diane Guevara, Deborah De Laski-Smith, Suleiman Ashur	250
Chapter 26 KRESGE COLLEGE RENEWAL CONNECTING PEOPLE, OBJECTS, + PLACE THROUGH ENVIRONMENTAL GRAPHICS Brett L. Snyder, N. Claire Napawan	262

SUSTAINABLE INTERIOR DESIGN: A MODEL TO PROMOTE SUSTAINABLE PRACTICES

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INTRODUCTION

The purpose of this research and its academic rationale are to evaluate the effectiveness of a range of methodologies designed to provide future researchers and practitioners in the island of Cyprus, with an entrée into the literature of sustainable interiors and to develop, apply, and evaluate methods to promote the uptake of sustainability in the discipline and practice of interior design.

The literature describes several ways that measure how much design work can affect the environment or how designers can offer more sustainable interiors, all of these involve a number of specific considerations that are rather confusing and thus risk being neglected among the stakeholders. Parallel, as has been defined by the Danish Design Centre in 2003 and explained in Design and Innovation Forum of 2015, interior design in Europe at this stage describes either a non-design phase, where design is an invisible part of product development and the task is not handled by trained designers or is viewed exclusively as a form-giving phase of the production. ¹ So how, sustainability objectives can be promoted in the field of interior design?

The research aims to investigate the extent to which a range of interventions consequent from a proposed model can raise participants' awareness and understanding of the role of interior design in the delivery of sustainability in the built environment and promote the uptake of sustainability practices in the discipline of interior design and more specifically among two groups of stakeholders, interior designers and their clients on the island of Cyprus. The research questions that were answered in order to achieve the aim of the research are: Q1: To what extent does the proposed model promote sustainable practices among designers and clients? Q2: Which sustainable practices are the more widespread among designers and their clients?

LITERATURE REVIEW

Literature review is separated into three parts. The first part indicates the context and the background of the research. The second part presents the context of sustainability in interior design and the scope of sustainability in interior design practice is clarified, explaining the different ways in which an interior designer can contribute towards sustainability. The third part develops the theoretical background that supports the proposed model.

Context and the Background of the Research

In relation to sustainability issues on the island of Cyprus, the rapid development of the island which followed the events of 1974 initially lacked the luxury of considering environmental protection, as the focus was on meeting the needs of refugees and reactivating the economy. This resulted in serious environmental damage. Today, the socio-political environment is again changing rapidly as Cyprus became an official member of the European Union in 2004, which brought environmental protection to the forefront and made it a political priority. In Europe, processes and procedures have been set and laws have been adopted that make environmental protection a fundamental social objective. Cyprus has consequently adopted the resulting institutional framework as a full member of the European Union and included in its legislation more than 300 directives and regulations and a range of related action plans concerning environmental protection. ²

As far as interior designers, they usually operate as freelance designers and parallel to that they can become education providers in public secondary, private tertiary, and governmental adult education programmes. Also, they commonly collaborate with contractors on a full-time or part-time basis, retailers on a full-time or part-time basis and private clients. Within this framework, the practice of interior design could be supported and regulated by the two professional associations for interior design active in Cyprus—the Cyprus Designer, and Cyprus Interior Designers Associations- although this is not the case as these organisations are registered as professional organisations, but the profession of interior design is not legally regulated in Cyprus.

Concerning the interior design practice Stewart Brand ³ provides a helpful conceptual framework for dividing the parts of a building into different lifespan elements. He notes that interior designers are in most cases—dealing with the layers that are closer to the surface and therefore require faster replacement. Consequently, the decisions they make are crucial for the longevity of the life cycle of a building.

As Brand noted the lifespan for stuff, or objects, (e.g., furniture) its 5-15 years; for space (e.g., space dividers) its 5-20 years; for services (e.g., electrical installations) its 5-30 years; for the skin, including exterior surfaces, its 30-60 years; and for the structure (including the load-bearing elements) its 60-200 years. ³ The site, or geographical setting, outlives the building. Moreover, Pilatowicz highlighted another aspect that contributes to the importance of design by explaining that the quality of the environment, both natural and manufactured, has a limitless influence on people's behavior and physical and psychological well-being. ⁴

In Cyprus various governmental and non-governmental organizations (NGOs) have established policies for environmental and sustainability issues according either to EU directives or to the bylaws of professional organizations. Of course, other cases exist where NGOs have established their priorities regarding relevant issues and are working towards planning strategies that facilitate the promotion and realization of those priorities. However, this research is the first indication for relevant actions among designers.

Sustainability and Interior Design Practice

In this part, the scope of sustainability in interior design practice is clarified by explaining the ways in which an interior designer can contribute towards sustainability in practice. The two major problem areas of interior design practice, those with faster replacement cycles, were chosen for further study and classification of tangible sustainable practices that can be promoted among stakeholders. These are approaches for materials or objects, (e.g. furniture) and approaches for space design (e.g. space dividers) as Brand noted 'stuff', and 'space'.³

Approach for the Use of New Materials

Suggests the use of life-cycle assessment instead of the conventional linear model so To make sure that material at the end of its life span will become the resource for something new. The example in Figure 1 shows a new sustainable material –agrifiber board.



Figure 1: Immediate term approach/Use of new materials, Agrifiber Particleboard Life-Circle Analysis, UNIC student: Shinous R., Source: Author.

Approach for the Use of Multipurpose Furnishings

Suggest the use adaptable furnishings. In this case furnishings that can be used in different ways will serve various functions.

The example as illustrated in Figure 2 presents the work of Milan-based designer Emanuele Magini who has created a sofa, bed and a chair which, when put together create the object known as 'Sosia'.



Figure 2: Use of multipurpose furnishings Magini, 2011. Kerala House Design [Online]. Source: http://keralahousedesignidea.blogspot.com/2013/11/multipurpose-sofa-bed-and-chair-unified.html [Accessed 30 May 2014].

Approach for the Use of Recycled Materials

Suggests the selection of objects that have been designed from recycled materials, gathered from the community and processed in small workshops employing local workers and represent an enhanced and holistic embodiment of sustainability

The example below as illustrated in Figure 3 indicates how designers used recycled aluminum cans taken from the recycling centre during the recycling process in order to use them and create a series of settees for the Dan Region Association Centre of Environmental Education. The centre is located in Hiriya, Israel.



Figure 3: Use of Recycled materials, Sofa made from aluminum cans, Dan Region Association Centre, 2008, Source Author.

Approach for the Use of Flexible Space Design

Suggests spaces that can accommodate different needs of different users as the years pass, from parents to children or different tenants, with a minimum cost. Design is more effective when it allows for maximum flexibility of spatial configuration within a given structure as this preserves the building structure as a whole.

The example in Figure 4, is by Woodroffe, S. 2000 and shows furniture that emerge from walls, floors and ceilings.



Figure 4: Flexible space design, Woodroffe, S. 2000, Source: Yo! Sushi and Yotel [Online]. http://www yo.co.uk [Accessed 30 May 2014].

Approach for the Use of Reclaimed Materials

The waste or rubbish from one business is treasure for another business. By reusing materials, we conserve energy, resources, and landfill space, while reducing disposal, greenhouse gas emissions, and purchasing costs.

The following example as illustrated in Figure 5, and the use of cork in a series of pieces of furniture and products, is chosen due to the extensive consumption of wine in Cyprus and generally in the European region. The material itself is flexible with the ability of going through different processes and therefore able to take different forms and shapes in order to produce a vast number of 'new' products and uses.



Figure 5: Use of reclaimed materials, chair made from used wine bottle corks, Ioannou 2003, Source author

Approach for the Use of Design for Deconstruction

Suggests designing details for deconstruction at the start of a project to enable one building, at the end of its useful lifespan, to be the resource for the next and helps "close the loop" for resource use an opinion supported in 2005 by the Scottish Ecological Design Association. ⁵

Example of application show a well-known pavilion by Zumthor; it is the Swiss Pavilion at Expo 2000 in Hanover. The intuition in his design originates in a common, everyday image: simple stacking of wooden boards in an ordinary carpenter's stockpile or warehouse as illustrated in Figure 6.



Figure 6: Design for deconstruction, Exterior View, Zumthor, P. 2000, Swiss Pavilion Expo 2000. [Online]. Source: Floornature website, [Accessed 30 May 2014].

The Theoretical Background

The theoretical background focused on the three-step model of change as presented by Levin⁶ to manage change, the qualities of the affective learning domain as explained by Krathwohl, ⁷ to affect emotions and values and learning approaches, to facilitate learning.

The three-step model of change includes: 1. Unfreezing involves finding a method of making it possible for people to let go of an old pattern that was counterproductive in some way. 2. The change stage involves a process of change in thoughts, feeling, behaviour, or all three that is in some way more liberating or more productive. 3. Refreezing refers to establishing the change as a new habit, so that it now becomes the 'standard operating procedure'.

To complement the use of Lewin's three-step change model, it was necessary to define how the felt need for change would be transmitted and how stakeholders would adopt new behaviours. In the context of this study, this required an examination of how new information or knowledge should pass to the stakeholders. This was achieved by reviewing learning theories and considering how one can change through learning, for example, the elaboration likelihood model by Petty & Cacioppo ⁸ and the social learning theory by Bandura⁹ were examined. Additional, Bloom's taxonomy of affective domain classification was investigated further. This is a taxonomy that includes three overlapping

domains: 'the cognitive, psychomotor, and affective'. As explained by Krathwohl the affective domain, includes the way we deal with things emotionally, such as feelings, values, appreciation, enthusiasm, motivations, and attitudes. ¹⁰ The consideration of the affective domain in learning for the stakeholders was important, as we wanted them to alter their attitudes towards design practice. Moreover, several learning approaches seemed suitable for contributing to the behavioural alterations required in this study. Garrison (2001) as cited in Rastegarpour, explained that according to the behaviourists, the best teaching practice is the one that enables the teacher to effectively and competently meet his course objectives. ¹¹ This suggests that different teaching techniques and approaches should be used to engage all participants in the learning process. For example, problem-based learning is an approach which is widely used in professional education, and it is frequently built around collaborative learning strategies.

After reviewing above a number of change and learning theories and other literature on issues that impact learning, the proposed model merges the selected change model with the domain of affective learning and combines selected teaching approaches in order to facilitate change towards a more sustainable interior design practice. Fundamentally the model occurred through the combination of three foundations. These three basic foundations are: Foundation I: Kurt Lewin's Change Theory; Foundation II: Krathwohl, Bloom, and Masia Taxonomy – The Affective Domain; Foundation III: Learning Approaches as appear in Figure 7.



Figure 7: Model for Promoting Sustainable Interior Design Practice

METHODOLOGY

Within this study framework, an action research methodology was chosen. This action research contributes to the concerns of sustainable interior design practice and applies the necessary approach that will facilitate learning and active engagement of stakeholders. McNiff explains that action research is a participatory research method which is usually performed in groups of people who are active in an area and allow participants to explore solutions to real problems which concerned them. ¹² The selected action research and suggests scheduled cycles of actions in three phases. Further, interventions took place utilising different learning approaches to facilitate the process and in a sequence in order to support a systematic data collection.

Concerning the population and sample of the research all the fifty-four designers' members of the association involved and then continued on a voluntary basis. Regarding clients, using a stratified random sample, the population was first divided into sub-groups. The target population and the sampling frame were the same in all respects, including the fact that clients were above eighteen years of age and had dealt with construction/renovation of a space after 2008. The first questionnaire was distributed to 150 clients who agreed to be involved. Further two groups, clients and designers, of non-participants were interviewed after every phase.

The dependent variables of the research are the classified sustainability practices. as follow: a) Use of new materials; b) Use of recycled materials; c) Use of reclaimed materials; d) Use of multipurpose furnishings, fixtures and equipment e) Use of flexible space design and f) Use of the design for deconstruction principles.

For the collection of data and in order to study changes in attitudes and behaviour of participants, a questionnaire has been designed. The questionnaire was built by the researcher and has been tested during a pilot study before reaching its final form. Further, a formalized interview with some open questions was done face to face and also, observers' reports were employed. Parallel to that a number of case studies were presented.

For the data analysis, both quantitative and qualitative methods were used. The statistical analysis of the data collected from the questionnaires analysed in SPSS v.21 and charts were constructed in MS Excel 2013. The statistical significance was set to 0.05. The qualitative data analysis was done according to the measurable evidence of categories of the affective domain as suggested by Krathwohl, Bloom, &Masia. ¹³ Additionally, the interviews were analysed using a deductive approach and the observations using a coding for the observation notes. This method is based on a predetermined framework, therefore the pre-existing theories and foundations are tested through the measurable evidences, namely the operational definitions.

RESULTS

The structure of the results presentation follows the research theoretical framework and the model that has been introduced. For that reason, the results are presented in three parts:

Part One describes the results of Phase I and the 'Unfreezing' Step according to the model. The results show that more than sixty-five percent of designers, value being provided information from their association, and seventy percent said they would attend workshops in their area. Also, at this stage, it was acknowledged among the interior designers' association members that there was a need for professional advancement and progression on sustainable issues.



Figure 8: Designers' response to question relevant to their interest in Participation

Additionally, more that ninety-eight percent of clients, 'strongly agreed' or 'agreed' that they are interested in an interior designer with knowledge and experience on sustainable practices. Clients were also willing to open up to new experiences, get involved and participate in the schedule interventions.



Figure 9: Clients' responses relevant to expectations from interior design professionals

Part Two describes the results of Phase II, the 'Change' step that focuses on how much participants, value the new information. Designers were asked to make a choice between sustainable space and sustainable materials practices. Figure 4.24 shows that space practices were chosen by 46.2%, materials practices by 23.1% and 30, 8% of the persons selected both options. When the question was repeated after the intervention, only 23.1% selected space, 0% selected materials and 76.9% selected both (p=0.103).



Figure 10: Experience, acceptance or commitments to particular stances or actions for designers before and after Intervention 3, Phase II.

As fa as clients, we compared and contrasted the answers of persons who continued from Phase I to Phase II, although the participants' answers are still in the range of strongly agree and agree, a shift towards strongly agree option is observed. The strongest shift towards strongly agree is observed in 'Interior design should develop and implement a deconstruction plan', where for Phase 1 we observed a 53.6% of the participants strongly agreeing to the statement while in Phase II the proportion increased to 67.9% (p=0.046).



Figure 11: Presents Clients Statements for Deconstruction

Part Three describes the results of Phase III: The 'Refreezing' step. The designers admitted that they now, after seeing examples and after the collaboration with their clients, have a better understanding of how they can perform and act using the information given during previous interventions. Some other designers comment that the process of preparing and presenting the proposals was the most enlightening experience. Also, clients acknowledged that the issue of sustainability is now clearly related with interior design. This suggests that being part of the action was important for the stakeholders, Additionally, according to the observer the participants' behaviour is now consistent with personal value set and as is noted: Both designers and clients said publicly that after the previous interventions, this exhibition was the expected intervention to take place.

Further from interviews it was revealed that non participants' understanding on the interior design sustainability practices is restricted to the use of natural materials and energy efficient design. Also, as confirmed by the results non-participant attitude have not changed and do not seem to be ready to implement the promoted sustainable practices.

CONCLUSION

The proposed model has been applied employing an action research methodology in three distinct cycles. The first cycle manages to 'unfreeze' stakeholders' attitudes and explore important sustainability issues and their relationship with interior design practice. This has been achieved through interventions with presentations and hands-on work that took place among interior designers and clients alike in order to allow the transmission of information to the concerned stakeholders. The second cycle of the action research directed to 'change' stakeholders' attitudes, encourage them to share personal experiences and discussions on sustainable practices. This was achieved through collaboration with other stakeholders. Presentations and workshops carried out to present and communicate the range of sustainable practices to the concerned stakeholders. Meanwhile the third cycle of the action research targets to 'refreeze' the attitudes of stakeholders. This was accomplished by setting up an exhibition wherein the participants presented different projects resulting from this action research. The design and monitoring of both individual and team presentations allowed participants to translate their goals into actions. In particular, the collaboration of participants made them aware about the needs and degree of organisation required in a project in order to bring about the application of sustainable practice. The results of this research indicate that the model developed, manages to involve two groups (designers and clients) of stakeholders to an extent that alters their behaviour. Meanwhile the low involvement of another two groups of designers and clients (nonparticipants) did not permit the alteration of any behaviour. Consequently, the adaptation of the proposed model to promote sustainable practices that incorporate specific objectives, along with the classification of sustainable practices, can truly mark the transition towards sustainable interior design schemes.

NOTES

¹ Forum Design and Innovation, edit., *When Design Drives Innovation* (Saint-Etienne: Cite du design, 2015). ² Republic of Cyprus. "Home Page © Republic of Cyprus 2015 – 2017." Accessed September 10, 2015. http://www.moa.gov.cy/moa/environment/environmentnew.nsf/page03_en/page03_en?OpenDocument.

³ Stuart Brand, *How Buildings Learn* (New York: Viking Penguin, 1994)

⁴ Crazyna Pilatowicz, *Eco-Interior: Guide to Environmental Conscious Interior Design* (New York: John Wiley and Sons Inc., 1995), 50-52.

⁵ Scottish Ecological Design Association, edit., *Design for Disassembly in the Build Environment-A Guide to Closed-Loop Design and Building*. (Scotland: Scottish Executive's Sustainable Action, 2005), 38-51.

⁶ Kurt Lewin, "Action Research and Minority Problems," Journal of Social Issues 2 (1946): 34–46.

⁷ David Krathwohl, "A revision of Bloom's taxonomy: An overview." Theory into Practice 41 (2002): 212–218.

⁸ Richard Petty and Jonh Cacioppo, "The elaboration likelihood model of persuasion," *Advances in Experimental Social Psychology* 19 (1986):124-205.

⁹ Albert, Bandura. Social learning theory (Englewood Cliffs New Jersey: Prentice Hall, 1977)

¹⁰ David Krathwohl, "A revision of Bloom's taxonomy: An overview, "Theory into Practice 41 (2002): 212-218

¹¹Hasan Rastegarpour, "Teaching methods in the affective domain: For distance learner's," http://iranianedu.com/install/8p.pdf

¹² Jean, McNiff. Action Research: Principles and Practice (London: McMillan, 1988)

¹³ David Krathwohl, Benjamin Bloom and Bertram Masia, *Taxonomy of Educational Objectives: The Classification of Educational Goals* (New York: Longman, 1964)

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UNIVERSITY AS ENABLER FOR INCLUSION: THE CERAMICIST, THE TUTOR, THE STUDENT AND THE AUTISTIC ADULT

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INTRODUCTION

Plentiful research concerns changing individuals' perceptions to stimuli rather than adapting environments,¹ and neuro-typical end-user engagement in design processes.² However, as every autistic person experiences environment differently,³ rigorous evidence-based environmental studies in this field are rare. Sourcing control samples is challenging,⁴ and potentially misleading, as some autistic people switch rapidly from hypo-sensitivity to hyper-sensitivity.⁵ Individual sensory preferences are the subject of a growing body of knowledge. ^{6,7,8,9}

Viewing a person for their capabilities rather than autism is advocated,¹⁰ listening and empowering community participation through education and work.^{11,12} However, following structured school education, limited choices exist,¹³ particularly for those sufficiently able for employment but without formal qualifications.

AIMS

In an age of Pinterest and fast images, students can misinterpret why designers design, meaning educators must ensure a richer learning experience conveying awareness that they are designing spaces for real users with real issues.¹⁴

Encompassed is not only an innovative approach to knowledge acquisition about 'autism-friendly architecture,'¹⁵ but also creativity in sharing this knowledge. Extending beyond traditional student case studies and functional investigation of existing spaces, incorporation of behavioural aspect of users, to 'illuminate a case from different angles,'¹⁶ is here exemplified through live ceramics workshops.

The teaching model described offers alternative inclusion means with ambition to create local contacts, improve communication, raise self-esteem and confidence, and supplement skills for autistic young people. This can smooth the path into work-experience, employment, or simply provide what can be a much-needed added interest with structure and familiarity.

METHODOLOGY UTILISING A TEACHING MODEL: 'ASD-UNI-OUTREACH, MICRO-MODEL'

Previous research,¹⁷ concluded that, although informative, a child-centred project with an autism school is an unsustainable university teaching model. This directed the author to simplify the model, focussing on working with an individual autistic adult.

Live community-based activity is combined with studio pedagogy, encompassing craft as a sensory, therapeutic learning activity,^{18,19} in parallel to empirical case study methodology. The tutor, as facilitator, enables the student to undertake primary research observing human behaviour, to inform and inspire spatial design. Everyday environments can affect autistic people and sensory processing disorders through both positive or anxious behaviours.²⁰ The simultaneous gathering of information, direct from user and ceramicist, helps create holistic understanding, a community of practice.²¹

Two-way collaboration between university and community is an established approach;²² however, this 'ASD Co-Micro Model' adopts a three-way approach including an autistic 21-year-old young person (YP).

PRE-WORKSHOP STAGES

Early Investigations

- Establish autism inspired student project brief founded on tutor and local professional expertise.
- Contact local National Autistic Society to locate YP with skills match and interest in joining project.
- Check viability or 'fit', obtaining permission to speak to family or carers concerning sensory or behavioural issues, gauging level of sensory environment²³ tolerated.
- Attain research ethics compliance and informed consent.

Recording an Intimate History

A two-pronged approach is adopted: an advance interview between tutor, student and YP's mother, who provides insightful background observations, followed by gathering information direct from YP at a live workshop session.

Understanding the User's Heightened Sensory Perceptions and Developmental and Behavioural Issues, through Parent Interview

Examples of factors:

• Transitioning and Tactile sensitivities: YP prefers several layers of soft clothes even inside, disliking aprons.

• Although fluent verbally, assimilating information challenges YP so tasks are prepared accordingly, using examples, repetition, reinforcement.

• YP is future focussed with anxiety, so regular clear instructions are provided with choice over breaks and timing.

• YP can present as having greater ability than actuality and will tell you what you what she thinks you want to hear - managed by careful questioning plus testing and clarifying responses.

- YP will cope with maximum of four adults in the space.
- Mother decides to be absent, otherwise YP will look to her for validation.

Specific Issues Raised at Interview which Relate to the Organisation of Interior Space Proprioceptive difficulties:

- YP likes to stomp feet for stimulus,²⁴ so floor area kept clear.
- Issues with proximity an 'arm's-length rule' to judge personal space.²⁵
- YP is a little clumsy, so breakable items are removed.
- Avoid the touch of water on skin.
- Sound sensitivities: YP cannot cope well with certain background sounds; windows and doors are shut.
- Light and Smell sensitivities: YP has no known issues with natural or artificial light or smells.

Discourse Surrounding User's Needs to Inform Spaces

Tutors, ceramicist and student discuss and debate what skills, for both activity and employment, YP will gain from the workshop. This effectively communicates the link between user's needs and activities to inform spatial configuration.

• *Communication and social skills. Issue:* listening and speaking to four unfamiliar adults whilst concentrating on a task. *Response:* all professionals engage in the clay making workshop as 'students,' then YP becomes just another member of the session.

• *Turn taking skills. Issue:* too many interruptions. *Response:* look for behavioural clues and offer fewer interruptions or time out.

• *Working with the unexpected/flexibility of thought.* All members of the workshop bring 'found objects' of choice to press into clay. Ceramicist provides an extensive library of objects, so YP can be given choice, a known and/or unexpected object.

• *Gross Motor Skills. Activity:* Digging out clay with hands and rolling. *Issue:* tactile sensitivity. *Response:* small pre-rolled clay balls available.

• *Fine Motor Skills. Activity:* Cutting and decorating. *Issue:* tactile sensitivity. *Response:* choice of tools, which can reduce resistance to touching clay,²⁶ or making by hand to encourage desensitization.

Advance Preparation for Ceramics Workshop Activities

Information is gathered about YP to gain prior knowledge on how to engage and structure the workshop, 'capitalising on autistic strengths:'²⁷

- *The known:* existing interest in art is established.
- *The specific:* detailed information about other special interests i.e. drawing, mono-printing and horse riding.
- *The tailor-made:* aspects of pertinent interests are defined and integrated into clay-based activities.
- *The tasks:* sketching²⁸ and making pitchfork marks into clay, form part of the new activity.

Clear Job Roles with Three Supporting Tutors and One Student

• Ceramicist concentrates on actual activity with YP. She then hands over to design student after each stage is set up, creating a symbiotic relationship with YP, allowing time for 'mutual understanding and a process of translation.'²⁹

• One tutor interjects with questions and suggestions. Photographs are taken throughout to record the process for the student and tutor to interpret later.

• Another tutor takes an overview of the workshop, especially YP's anxiety levels and timetable.

<image>

For accuracy and later interpretation, a film recording is made.

Figure 1. Intensive Interaction between student and YP; mobile phone - a mini 'time out;' task lighting from behind; student recording the activity. Photographs by Author.

THE 'SENSORIUM'³⁰ WORKSHOP PLAN

A common activity is defined: the ceramics workshop as a means of 1:1 hands-on, two-way learning, between student and YP, to understand some of the spatial and sensory requirements for the student project. The workshop is not meant to be a sensory assessment, but the gathering of fundamental observations.

'The Production Line' Approach to The Interior

To focus attention, a predictable, structured³¹ linear sequence of activities is set up, incorporating 'offshoots' for creative play or 'time out' to recalibrate. Gradually, the ability to follow a complete sequence can be developed. Alternatively, a YP who struggles to break out of a linear arrangement³² might learn how to accept change by targeting pertinent activities throughout the process.

1. *Arrival and assimilation of spaces.* The YP is nervous when entering the first, domestically scaled room, with new people. Therefore, introductions are brief, and the ceramicist quickly shows her ceramic gallery, before moving into the informal small workshop.

2. *Ice-breaker*. Utilising intensive interaction,³³ YP is asked to mould and squeeze clay, the ceramicist copying and engaging YP by talking briefly about the next activity and opening up conversation.

3. *Introduction.* To contextualise, on a computer in an under-stair alcove, the ceramicist shows a series of digital images of the site where she has accessed fresh clay. YP keeps her distance, including after invitations to move closer, being still quite nervous with proximity issues.

4. *Time Out in an adjacent room.* YP chooses to go on her phone for 5 minutes, providing an opportunity to process information.³⁴



Figure 2. Computer recess; view towards 'time out' space; selected worktop. Photographs by Author.

Real-time Environment Choices to Inform The Interior

YP is given two clear choices for each option, whilst undertaking the main activity. Examples include:

- 'Seated' or 'standing?'
- Worktop 'facing the window' or 'away from the window?'
- Blind 'up', or 'down?'
- Mirror on adjacent wall 'left' or 'covered up?'
- Directional angle-poise light 'on' or 'off?'

Following establishing an optimum learning environment,³⁵ activity commences.

Activity 1: Demystifying Clay Processing

YP is given the opportunity to explore sensory qualities of materials in four bowls:³⁶ pure clay; slip; murky water with some clay; water.

Responses to different consistencies of clay: YP easily touches an unprocessed clay ball and likes its texture. When offered unprocessed rough clay containing some water, YP holds out her finger but does not want to touch, saying '*I'm alright*.'

However, when offered smooth and silky processed clay, YP appreciates its malleability. This acts as an effective ice-breaker. At this point, YP starts to relax and enjoy the activity.

YP becomes completely focussed when processing clay. The ceramicist stands side-by-side with YP, to demonstrate or offer choices such as:

- YP or ceramicist to scoop the unprocessed liquid clay?
- Scrape the clay across the plaster bat 'with the rubber kidney', or 'bare hands?'

YP comments include: 'As long as you keep me busy that is fine;' 'I like this a lot;' 'This is so cool, it is good to get stuck in. I think everyone wants to work with me now. I am ahead of you guys.' YP becomes very confident when successful and seeing the immediate transformation of clay by her own hands.

Activity 2: Pinch Pot Making

YP readily starts to make a pinch pot with soft yet firm clay (demonstrated first). Proprioceptive difficulties are observed with too much force being exerted on the clay; YP recognises pressure needs reducing. YP chooses to sit down on a stool (after 55 minutes standing).

Linking activity: A repetition of the previous task, making a pinch pot, using a more subtle, finer

white clay. YP recalls and repeats the process commenting '*I get ocd with things like this, I'm liking it.*' Moving forward, no preference is shown for either clay type.



Figure 3. Confidence grows as different touching experiences become familiar. Photographs by Author.

Activity 3: Mark Making with Objects

Options continue to be offered, such as:

- Rolling out white clay with 'hands' or 'rolling pin?'
- *Soft* or *hard* objects to press into the clay?

The Random. The ceramicist suggests pressing clay into the adjacent exposed brick wall, providing YP with the opportunity to look at her environment differently. Individual alphabet letters are pressed into the clay to spell her name, which she repeats and comments 'I want to keep these in my room, if that's alright.'

Time Out. YP becomes more anxious, checking her phone frequently. The choice of a break and drink is provided. YP then decides that she would like to treat the group to biscuits from the nearby supermarket. Without warning, YP leaves. Although YP is independent enough to do this herself, for safety the tutor accompanies her.



Figure 4. Proprioceptive opportunities with the clay; pulling the cheese cutter; spreading with a rubber kidney; rolling pin; pushing through a sieve; pressing into a brick texture on the wall. Photographs by Author.

Activity 4: Drawing with Tools

A selection of four tools are explored in turn. YP shows a steady hand when sketching in clay, developed from her pre-established drawing skills.

Activity 5: 3D Experimental Pieces

The plasticity of clay allows a butterfly to be reshaped into a hedgehog; YP draws a spiral and then is prompted to make a rose, saying '*I'm shaking I'm really impressed with that...this is so beautiful.*' After a further hour, she announces '*I've got to go now.*'

Observations of making. YP enjoys creating the rose, more than the textures, as making the leaves of the rose is instantaneous, yet forms something recognisable, an end product.³⁷ When provided with the choice of a tool rather than bare hands, the tool is always the preferred option. In answering whether working with the clay makes her feel calm, YP shares '*When I'm depressed, I might come here*, ' clearly communicating the session's positive effect.



Figure 5. Fine Motor Skills and Concentration: experimenting with pressing in different textures; sketching; making a rose. Photographs by Author.

RE-READING THE WORKSHOP: INSIGHTS AND INTERPRETATIONS

Reflective discourse between student and tutors, of written notes, sensory and behavioural observations, photographs and film recording, discloses that working closely with autistic people³⁸, can reveal clues and problems to establish 'design parameters:'³⁹

Parameters for the 'Design a Ceramics College' Project

Spatial parameters:

• Provide external activity spaces for vestibular and socialisation opportunities, possibly through the digging up of the clay from small adjacent pits.

- Allow time and space to process information between activities.⁴⁰
- Adopt the 'one arm rule,' supporting proprioceptive difficulties.
- Provide both formally and informally configured spaces, each being spontaneously accessible from the other.

• Allow for options, anticipating unpredictable sensory preferences, with practical activities preferable over theory, ensuring the design of spaces reflects this flexibility and the potential to extend activities.

• Provide clarity of purpose for each space, avoiding user confusion.

• A degree of control is required to keep the YP on task. This could be supported by a sequence of spaces⁴¹ and visual support, which reflects the process of working with clay.

• High levels of interaction with supporting adults⁴² is demanding and so 'Time out' spaces should be accessible.

• Consider natural adjustable lighting preferably using northern light avoiding high contrast shadowing. Consider artificial lighting which can be separately switched and moveable task lighting.

- Security of spaces, encouraging a level of safe independence.
- Acoustics.^{43, 44}
- Isolate different activity spaces avoiding bleeding of sound, light, movement and smell.

Furniture parameters:

- Provide flexible seating options.
- Allow for stools to be accessible but also moved away when not required. Low seating options give YP the opportunity to observe the process from a quiet space.
- Allow choice of worktop location and height, accounting for office environment ergonomics.⁴⁵

• Clear worktops frequently to avoid 'too much information'⁴⁶ or sensory overload, and to give focus. Consider adjacent spaces to allow quick storage of objects, and two sliding worktops so a clear worktop is constantly available.

• Mirrors can bring light into a dark space but can also distract so may need to be covered. They also allow indirect observation by the tutor without staring at the YP.

• Allow for adjacent sink for handwashing with options on water pressure e.g. a soft rainwater spray and a standard flow.

• Consider how to integrate visual support, e.g. PECS timetable, without interfering with the clay making process.

Materiality parameters:

• Consider window treatments to limit distraction of views or a screen as a diffuser.

• Consider flooring treatments which provide a little 'give' or resistance e.g. rubber, to aid in proprioceptive difficulties.

QUALITATIVE ANALYSIS OF THE EXPLORATORY MODEL

Being immersed in the experience⁴⁷ first-hand, knowledge assimilation by the student directly triggers design problems to be considered. This accessible approach paves the way for students to reduce the gap between 'skills, self-perception and expectation.'⁴⁸

A visual timetable of the workshop activities may have been supportive⁴⁹ as the YP is anxious about time and leaves unexpectedly for a previously unannounced but pre-arranged meeting with a friend.

Once the optimum personal learning environment is achieved, within the constraints of a non-autism specific environment, the YP becomes so focussed on the calming, repetitive, clay activities for the first 2 hours, that her immediate surroundings appear not to distract her significantly. The interpretation of a dialogue with space, people and action to find a truth is tested; however, an absolute conclusion on the impact of each sensory aspect of the space on her learning, is difficult to define fully.

Feedback from YP and Student

At a later meet up in the university, YP enjoys seeing her fired ceramic pieces and the transition which occurs from wet to dry clay.

The student, after she graduated and entered the design profession, gives feedback that she gained awareness that designing for sensory sensitivities for those who are autistic is an approach which can be used to inform all design projects.



Figure 6. A Ceramics College for Autism, informed by The Sensorium Workshop: ceramic experiments; sensory diet boxes; calm space; transitioning bridge from clay pit. Images by student.

CONCLUSION

Applied learning from the sensorium workshop provides the student with an empathy,⁵⁰ an opportunity 'to see the world through the eyes of autism,'⁵¹ in parallel to exposure to 'a balanced awareness of the constraints and complexities of design,'⁵² to inform and augment the student's design knowledge (fig. 6). The 'dynamic and contested field' of design⁵³ can flourish via universities without walls.

Close social interaction⁵⁴ with the autistic YP, the ceramicist and two tutors as 'facilitators,'⁵⁵ provides the student with a validity, the freedom to reshape the brief based on their developing knowledge.⁵⁶ Student design process becomes more purposeful and responsive to unique characteristics⁵⁷ of the user, additionally benefitting from an insight into practical requirements of a ceramic workshop.

The experiential⁵⁸ workshop illustrates that an ability to be highly focused over a new engaging task, can enable this YP to excel in an unfamiliar setting, if modified carefully. 'The physical environment generates opportunities for action.'⁵⁹ Redirecting pre-developed skills, i.e. drawing, in an alternative way, can be motivating, leading to success which can 'be extended out into the community.'⁶⁰ All principles lend themselves to replication in similar workshops (e.g. painting, printing, felt making, woodwork) and on other educational courses such as art, textiles and product design.

A further benefit would be if the YP could be an apprentice to the ceramicist for future workshops. Alongside learning the all-important craft-based making skills, such sessions could also foster tangible competencies in communication, social interactions, time management and turn-taking instructions. This opportunity would be a more sustainable outcome than the short-term work experience sessions which the YP undertook at the local vets and supermarket, which concluded in no permanent employment.⁶¹

Universities could be part of the solution for inclusion, 'voices should not have to be loud to be heard,'⁶² whilst helping to create enduring knowledge for future designers surrounding 'autism-friendly architecture.'⁶³ Since the needs of those on the spectrum vary widely, the clear message paving the way, of providing a distinct 'choice'⁶⁴ of activity and 'flexibility' of environment for autistic people, is propitious.

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RASA- THE ART EXPERIENCE IN ARCHITECTURE

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INTRODUCTION

In Indian classical dance, drama and music, the term *rasa* is used to refer to the aesthetic experience of the audience. The *theory of rasa* was put forth in Natya Shastra¹(NS) in 500 CE by philosophers of the Kashmir valley in the Himalayas. *Rasa* primarily deals with how emotions are depicted, inferred and transmitted in the presentation of a play.

It is undeniable that at the core, architecture is a functional art & *rasa* is essentially an emotional response to an ongoing art performance. This paper is an attempt to establish a bridge between *rasa* and architecture using a 3 part analysis. Firstly, this paper establishes a basic structure of the rasa theory for a more universal interpretation. Second, it applies this structure to understand how *rasa* influences the design of sets of a Drama/movie. Finally, it attempts to extend the parameters laid down in NS to create experience of *rasa* in architecture.

AESTHETICS

The term 'aesthetics' as used in the modern sense was first used in Baumgarten's *Reflections on Poetry*, *1735* (D.N.Rodowick, 2014). Baumgarten defines aesthetic as the science of sensuous cognition. The attempt was to find a bridge between logical and imaginative thinking. His student Meier elaborated the value of this branch of philosophy in evaluating art forms. He puts forth that it is by stimulating our feelings that artwork manages to evoke multiple imagery resulting in densely packed cognition (Guyer, 2016).

ARCHITECTURAL AESTHETICS

In the *Prolegomena zu einer Psychologie der Architektur* (1886), [Prolegomena to a Psychology of Architecture] Wolfflin explores the question of how inanimate architectural forms can convey an impression that can be felt as an expression [emotion] (*Stimmung*)? For Wolfflin, the aesthetic of architecture is not in the visual impression but in the experience of the body within the space. The architectural experience as per Wofflin presupposes bodily movement within a space. The aim of architecture is to order structures into spatial experiences with bodily movement at the core of it. (Ionescu, 2016)
ARCHITECTURE AND DRAMA

Architecture as a sequence or multiple sequences of spatial experience is similar to a dramatic performance. In a play, a set of performance sequences are presented on a fixed stage while in architecture, the reverse takes place, the user is expected to move through the sequence of spaces. In this context, it is useful to learn from the aesthetics of the dramatic arts which have occupied pride of place among arts in Early Civilizations.

Aristotle, Catharsis (3rd Century CE), Greece

Aristotle's theory of catharsis is considered a landmark in the evolution of western aesthetic theories. He classified arts as Useful arts (Architecture) and Fine arts (poetry, drama, music and painting). Useful Arts needed to fulfil their practical purpose, the character of the Fine Arts on the other hand are not limited by such practical considerations. The goal of Fine arts is to create a certain pleasurable emotion in the mind of the spectator which he terms *katharsis*. (Kumar & Seetha, 2017)

Bharata, Rasa (5th century CE), India

The theory of Rasa was first put forward by Bharata sage/muni in 3rdcentury AD in his treatise on dramaturgy- *Natyashastra*. Before his treatise, the structural correctness of Sanskrit poems: rhythm, rhyme and meter were the basis of all aesthetic judgements (McCrea). Not only did Bharata's treatise give the dramatic arts their moment in the lime light, it also put up an alternative basis of Aesthetic judgement- the user experience, *Rasa*.

EVOKING RASA

In Natya Shastra, the mood of the play/ scene is called *Sthayi*. The mood may be romance, horror etc. In order to establish the mood on the stage, the actors keep three components in mind:

1. *Vi-bhaava* \overline{a} a thorough understanding of the plot and events within the scene.

2. Sanchari-bhaava/ $\forall \exists l \land \forall l q$: to interpret the plot, break it down into a sequence of emotional events and exemplify the mood. For example, a typical sequence of events involving the relationship between lovers is illustrated as-

- happiness in getting dressed to meet the beloved
- **anxiety** at his/her delay
- **anger** at being stood up
- **morose** at not getting the opportunity to meet.

Such a sequence of emotional events can be constructed to suit any mood.

3. *Anu-bhaava*/ $3/\overline{g}$ ^{4/ \overline{g}}: these emotions are actually seen through the bodily movements and gestures. The technique of the actors complemented by their costumes within a dynamic stage environment.



Fig1. Components of Rasa and their inter relation (Author's own interpretative illustration)

Thus, establishing the desired mood is not a linear process. These components cyclically affect each other, and a synergy of all components is a requisite for the audience to have an immersive experience during the play. That moment when the borders between subject and object disappear, the audience has an immersive art experience, that is the moment of **Rasa** *Anubhava*- experience of *rasa*.

The theory of Rasa was put forth by Bharata in 5th century CE in India. This laid foundations to a school of thought. The theory was further elaborated by many philosophers like Bhatta Lollata, Sri Sankuka and Bhatta Nayaka. It reached its peak with Abhinavagupta's treatise *Abhinavabharati* (Pande, 1997) published in 9th century CE (Gopalakrishnan, 2017). Today, it's an integral part of the teaching traditions of Classical Indian Arts - dance, music and drama in India. Amongst the contemporary arts, the theory of Rasa finds easy applicability in movies which has almost all the components of the traditional drama. In order to further investigate the theory, this paper shall take up the Baahubali Movie franchise and analyse its settings from a socio-political-design perspective to supports the theme¹.

CASE STUDY: BAAHUBALI 2, THE CONCLUSION Introduction

The movie <u>Baahubali 2</u> offers two distinct kingdoms with experimental palace settings for architectural analysis. Interestingly, the palaces serve as backdrop in distinctly different parts of the movie's storyline.

Mahishmathi, the Imperial capital. The rulers of Mahishmathi control a vast empire. The struggle to control this empire between two cousins forms the bulk of the story. The mood is *veera* or valour.

Kuntala, a small, scenic kingdom at the border of Mahishmathi. One of the cousins, Amarendra Baahubali falls in love with the princess of Kuntala. The mood is *srngara* or romance

Methodology

As mentioned earlier, the process from mood/theme to art experience is not a linear one. Following is the broad structure that shall be adopted to analyse the sets.



Fig 2. Evoking user experience through the sets based on Rasa theory (illustration by authors)

The theme or mood of the play is understood through the *informing factors*. The plot is given in the story line. Apart from the cultural context defined in the story, the cultural context of the audience is also explored for a more holistic interpretation. These factors influence the choice of emotional experiences (*the intangible*) that will be expressed through more *tangible* elements like volume, massing, ornamentation etc.

Palace 1: Kuntala (theme: love)

Informing factors

Cultural memories of the audience:

When dealing with emotional experience of the user, it is useful to understand popular icons and stories which are embedded in collective conscience. Visual markers suggestive of these icons can trigger emotional states associated with these icons.



Fig 3: Radha Krishna is a popular visual icon of love (image: Radha Krishna jhoolamleela by Harish Malik)

The love story between the Hindu God *Krishna* and his childhood friend *Radha* was epitomised by the 16th century poet *Jayadeva* in his anthology of poems "*Geeta Govindam*" (Holcombe, 2008). These love poems and paintings interpreting them are popular icons of *srngara* in India. The elements of this *Radha Krishna* icon can also be seen translated in the entire settings of *Kuntala*.

Cultural settings of the story

Structure of governance-

The kingdom is ruled by a King and his unwed sister. No reference has been made to a formal administrative hierarchy indicating a simple structure of governance.

Relation between the ruling class and commoners The commoners seem to have easy access to the rulers to redress their complaints.

Kuntala with respect to other kingdoms In the story, Kuntala is described as a scenic but small kingdom without any vassals.

Design takeaway

the overall context suggests need for very low barriers in the design. There is no requirement to create awe in either the citizens or vassal states.

The Intangible.

Interpreting Function

A Palace is a place of administration and residence. However, given the above contextual parameters, the residential and administrative spaces are not separated rigidly. The Royal court doubles up as a large hall where the residents of the Palace themselves meet informally. The courtyard adjoining this hall serves to hold a large gathering during a *Durbar*.

Emotional quality of Site

The site is set in the foothills of mountains. The lush and verdant site is replete with streams of water. the overall emotional impression is of pleasantness. This pleasant quality of the site has been enhanced by creating gardens and pavilions-pleasant, informal, vibrant and colourful spaces.

Emotional theme to spatial experience

Meetings between lovers, preferably in casual, informal settings are ideal for the development of a love story. The experience matrix given below may be used as an aid to interpret the mood of love spatially-

Pleasant	Playful	Harmony
Informal	Vibrant	Spring colours
Accessible	Welcoming	Soft/romantic

Table 1: (Spatial) Experience matrix interpreting love

The Tangible

• Lighting: Soft, mellow lighting both during the day and in the night reminds us of candlelight and *romance*.

- Colors: Vibrant colours in the landscape remind of spring- beginnings, new and beautiful.
- Materials: *Soft* white marble and delicate yet intricate ornamentation has been used.

• Organizing Principle: The built structures are organised around gardens and courts. Multiple openings and balconies on the façade give an impression of a structure sitting lightly on the site (Design takeaway)

• Scale (horizontal v/s vertical): Emphasis of the horizontality of the structure gives it an appearance of being *accessible*.



Fig 4: Kuntala Palace: stills from the movie

Palace 2: *Mahishmathi* (theme: Valor) Informing factors

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Cultural memories of the audience:

The epic, *Mahabharata* is a popular subject in the Indian mind as a complex depiction of power struggle. Hierarchies of command, opposing coteries, physical power, strength of character and leadership qualities displayed by its characters seem to have influenced the writers of *Baahubali 2* also.



Fig 5: Artwork based on Mahabharata by Admirawijaya

Cultural settings of the story

Power Structure-

Mahishmathi is a large kingdom with a defined hierarchy of ministers. The Queen regent (*Shivagami*) is shown to hold all the power in the beginning. Subsequently, her legal son, *Bhallala deva* and adopted son, *Baahubali* are shown as potential inheritors of the throne.

When Baahubali is crowned the king to be, the court gets split into multiple coteries.



Fig 6: Multiple layers and nested forms reflect the hierarchy of power

Relation between the ruling class and commoners

The Commoners are almost never shown in the same frame as the Royalty and Nobles. The Queen regent and the crown prince are deified and worshipped by the commoners. This segregation is seen even in the design of the Royal court.

Mahishmathi v/s other kingdoms

Mahishmathi's control extends over a large geographic area with many kingdoms accepting its suzerainty over them. *Mahishmathi* seems to have controlled a powerful empire.

The Intangible.

Interpreting Function

The multiple power centres require various places of meeting. Even the residential quarters are designed with the capacity to host small meetings. Also, the context defined requires clear segregation and demonstration of Hierarchy.



Fig 7: Stills from the movie showing the design of the Royal court and personal court

Emotional quality of Site

The Fort of Mahishmathi is set on a hill overlooking fairly barren land, ideal settings for a battlefield. The Fort is designed with strict disciplined, linear forms with little scope for natural features suggesting a controlled environment. Everything in the settings suggests *martial qualities*.

Emotional theme to spatial experience

Given below is a set of spatial experiences that tie in with the theme of power and valour. Some words like aggressive don't immediately strike the mind as a spatial experience but this shall be further elaborated in the next section through diagrams.

Respect	Controlled/disciplined	Assertive
Formal	Aggressive	Martial colours
Hierarchy and segregation	Imposing	Vigorous/martial

Table 2: experience matrix for the theme valor

The Tangible

• Lighting: *Vigorously* burning torches have been used to light both interiors and exteriors. The effect is dramatic.

• Material and Colors: *Masculine* red stone has been used for the walls of the fort. Upholstery also continues in mostly tones of red, orange and yellow. Red is the color of blood and consequently is associated with war, bravery and "Masculinity". Thus, the choice of color serves to build the mood to bravery and valor.

• Organizing Principle: Unlike *Kuntala* where the forms were grouped around gardens and courts, the buildings of *Mahishmathi* are organised in ascending terraces with deep balconies

• Massing: Solid and monumental massing gives an impression of something formidable

• Scale (horizontal v/s vertical): There is an emphasis on verticality with all the structures towering over human scale. The scale may be interpreted as a statement of the overwhelming presence of the Royal Family in the lives of the Public.

ARCHITECTURAL FORM TO USER EXPERIENCE

In the following diagrams, architectural renderings of the sets (as understood from the movie) have been used to show how the architectural form may imply certain emotions, a bodily and sensual reaction to them.

I. Kuntala Palace: love / srngara



Fig 8: Plan of the Kuntala Plaza in front of the Palace (sketch by authors)

The palace courtyard planted with greens and flower beds softens up the atmosphere giving it a springtime, vibrant look. In elevation, the U-shaped plan, suggestive of open arms adds to the welcoming look. Soft lines on the façade are typical of the traditions in art and dance where soft lines are used when depicting a subject in love (*srngara rasa*).



Fig 9: Kuntala palace façade : U-shaped form and soft lines (sketch by authors)



Fig 10: Dancing Gopi, painting by Jamini Roy Fig 11: Dr Francis Barboza and Radha Anjali in Radha Krishna pose (source: avatarpakurooblog.tumblr.com)

The Royal court is open to the Plaza. Even the arches on the facade have low height screens implying low barriers, informality and easy accessibility.



Fig 12: Plan of the Kuntala royal court (sketch by Samyukta Raman)



Fig 13: Section through Kuntala Palace and Plaza (sketch by Samyukta Raman)

In the Kuntala palace, we find intricate details on the arches and screens. The ornamentation is suggestive of festive decorations also associated with wedding decorations.



Fig 14,15: Ornamentation details at the Kuntala Palace (sketch by Harshita Vangara)



Fig 16: Rama And Sita's Wedding, the divine loophole, Sanjay Patel

II. Mahishmathi Palace: Valor / Vira

Traditional tales of valor are usually associated with HEROES (not heroines) and their exploits in war. The imagery used in the Mahishmathi palace is also suggestive of masculinity and martial qualities. From the plaza, the royal court is closed off without any scope of interaction, reinforcing the segregation that is implied when royalty is deified. The plaza itself has mostly hardscape, even the water body flows in a rectilinear pool implying an atmosphere of control.



Fig 17: Schematic plan of the Mahishmathi Plaza (sketch by Samyukta Raman, Harshita Vangara)



Fig 18: View of Mahishmathi plaza as seen in the movie

The large plaza surrounded by imposing buildings is typical of Imperial capitals like New Delhi, India and Washington D.C., USA demonstrating the position of the fort as the capital of an Imperial power. A citizen from the plaza in Mahishmathi is forced to look up to the buildings. This reinforces a bodily memory of respect.



Fig 19: Elevation of the Mahishmati Royal court (sketch by Harshita Vangara)

Building facades sometimes imitate faces. In this case, the assertive body language of a warrior.



Fig 20: Comparison of façade with body language of a warrior



Fig 21: Plan of Royal court, Mahishmathi (sketch by Padmashri Maharaj)



Fig 22: Section thru the Royal court, Mahishmathi (sketch by Samyukta Raman)

While the plan and section reinforce hierarchy of the power structure, the enormous volume evokes awe and colossal statues of armed men it reminds us of discipline and control. All other ornamentation is simple and repetitive, like marching soldiers.



Fig 23: ornamentation details, Mahishmathi (sketches by Harshita Vangara)

CONCLUSION

Although both buildings serve as Palaces in the same imaginary time and broad culture. There is a huge difference in their form and the emotional impact it has on the architectural experience. Architecture could learn from other visual arts (including the visual aspect of performing arts) regarding popular imagery depicting emotional content. Popular images and cultural perceptions connect the intangible in the mind of the designer, the tangible expression of art and how they are perceived by the user. Shared cultural values between designer and user often serve to deepen the quality of the art experience.



Fig 24: Modifying Rasa Theory for Architectural design (Samyukta Raman)

NOTES:

¹ Footnote- The film franchise Baahubali 1&2 was made with a budget of \$ 70 million. The franchise became the second largest grosser in Indian cinema, grossing \$265 million (Forbes Asia, 2017). Larger than life sets were erected at Ramoji Film City in Hyderabad, India, where 2000 carpenters, painters and prop builders created a kingdom replete with two palaces and many statues. Visual effects were created by 3 dozen companies which helped simulate the terrains and battle scenes (Forbes Asia, 2017). The settings, therefore, provide rich visual material for study.

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ARCHITECTURE BEYOND THE BUILT FORM. UNDERSTANDING AND IMAGINATION

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INTRODUCTION

The aim of this paper is to reveal the importance of a deeper understanding of space and place prior to the design process. It also aims to reveal the importance of the role of the architect, irrespectively of drawings and modeling tables, but mostly connected to the world of text and language.

As a student in architecture myself, I soon realized during my undergraduate studies in Great Britain, as is also the case elsewhere, that studio work is based on assignments/ projects related to urban narratives as tools for imagining spaces and eventually create meaningful living spaces. Later on, working as an architect, I realized that the same was true regarding the importance of narrative into my work, when presenting my work to clients and sharing common metaphors of their own life integrated into an architectural narrative, which was deeply related with the place and landscape of the given site and environment.

The book *Confabulations: storytelling in architecture* reveals Frascari's exploration of architecture as an art that seeks an "expansion of architectural potential, integrating poetry and technique so as to engender, it may be hoped, fabulous buildings."¹ Teaching recently the course "Understanding and Imagination before Designing" at the School of Architecture of the University of Thessaly in Greece, and also a contemporary urbanism course, "Athens through time, space, narrative" in a studies abroad programme, allowed me to explore how the process of narrating and creating fictional narratives of space and place create a different understanding of what life is, in addition to creating a stable ground for the imagination to rely upon and flourish.

UNDERSTANDING BEFORE DESIGNING - A COURSE ON A FARMING LANDSCAPE

"Understanding and Imagination before Designing", is a course which is based on a case study on the traditional architecture of a village on the Cycladic island of Tinos. The course analyses life in the village through the creation of a file with a collection of observations, texts, interviews, narratives, stories that a new architect should be aware of in this space before beginning to imagine and creating a new piece of architecture in the traditional structure of a village or any other small community. What should an architect know beyond thinking or designing the structure of a building in order to analyse and understand an existing spatial and social situation in depth? In architectural theory, tools of interpretation are given through different approaches, so that architecture and art can be understood

as practices that were traditionally used to connect man with his community, place, religion, and environment. But how are they implemented?

Kampos, a Cycladic village, where the low boundary stonewalls still define the rural landscape, the structure of the village and the characteristics of its inhabitants. Initially, students had to develop tools for understanding and interpreting the landscape of a traditional village much closer to the University, both through the existing architecture and the everyday life of the villagers. Spatial, social and ethical boundaries were discovered through texts and stories about the village, through various public and community spaces, the structure of the family house, people's coexistence with animals, the influence of religion, and the everyday practices of the inhabitants in this complex territory. By examining twelve different spatial and social situations, the course sought to reveal the following: the structure of this society and the traditional village structure and its relationship with myth; the history of its construction; the basis on which the architect should use his/her imagination before implementing a new piece of architecture within this complex structure. In the course, extracts of narratives, contracts, maps, photographs and videos were used, so that the students could consolidate their understanding of the different issues of village life.

UNDERSTANDING NARRATIVE AND IMAGINATION - A COURSE ON URBAN LANDSCAPES

"Athens through time, space, narrative" course investigates Athens as a city evolving in time, bringing together historic and contemporary architecture, as well as spaces of the communal, public and private realm. The course is addressed to students from American Universities and different departments during a semester of studies in Athens (studies abroad programme). The purpose of the course is to reveal the complexity of the Mediterranean metropolis by asking students to create their own narratives about the city, based on an archive of observations, photographs and images, sketches and records. They will then be asked to write their own stories about the city through their experience and understanding of the city's places and urban spaces.

The course is composed of lectures followed by related field trips, single and group assignments which help them see and imagine life in Athens. It focuses on the Athenian landscape and its environs, on the social, cultural and urban fabric, in order to shed light on the boundaries and spaces of crisis, migration, but also of negotiations and coexistence, as this takes place between the ancient and the new, between the centre and the edges of the city.

The aim of the course is to help the students understand the urban characteristics of Athens, its complexity. This is a complexity that is interwoven with the coexistence of spaces, from the perspective of their spatial, cultural and social structure. Students have the opportunity to see how traditional planning is sometimes abstract and distant from reality and how the tourist image of 'quaint' is not at all what a city is about. This in turn puts the emphasis on the importance of dealing with the complete, in-place, reality of human conditions.

During the process of research before teaching this courses, I realized that, through listening and creating stories- from the citizen's life in urban or even farming landscapes, space and landscape consist of a series of metaphors on the nature of dwelling in every part of the world, in specific urban or farming landscapes, with a contemporary way of living, but still connected to contemporary life or tradition/ past as a mimetic action to the present time. The students of this course created their own narratives based on the metaphors of Athenians on their reality in the city, fused by their personal experience in the city as a variation of truth. During this study and experience I kept in mind the relevance and discovery of truth through fiction/story/myth as argued by French philosopher Paul

Ricoeur,²who claims that "what has to be questioned is the overly simple equation made between life and experience. A life is no more than a biological phenomenon as long as it has

not been interpreted." As he further explains, the "mediating role" of fiction as a weaving procedure of different things that make up life. This complexity of life is what narrative tries to imitate.³

Pérez-Gómez makes an even stronger claim in this direction, according to which "metaphor is more than the "master" figure of speech; it is the central form of linguistic expression for enactive consciousness once it finds itself facing external reality. It is an articulation of truth in the manner of the Greek *aletheia*, Heidegger's "revealing concealing" that must take the place of "truth as correspondence" as normative for human understanding".⁴ Imagination appears common both for language as narrative/ fiction/ story and architecture. Through fiction, students brought together understanding and imagination and were able to root their experiences and observations in the space of the city. Furthermore, Grassi also identifies another aspect of the role of fiction in general, namely the way this "metaphorical imagistic form of language," as he describes it, can offer another manner of philosophizing.⁵ Kearney, referencing Ricoeur, explores the ability of the language to open to new worlds, not as a collection of subjectivities, but through productive linguistic imagination,⁶ "the metaphorical imagination", as he states, that "not only combines the verbal and non-verbal, it also produces new meaning by confronting a literal with a figurative sense."⁷

THREE FOREIGNERS AND AN OPENING DAY - EXTRACT FROM FICTIONAL NARRATIVE ON THE VILLAGE OF KAMPOS

Extract from a fictional narrative from personal research on the Cycladic village of Kampos.⁸

"The village was silent, while the natural landscape at the outskirts of the village were inundated with the scent of pollen and the colors of spring. Footsteps were heard on the main village street. *Kyra* Anna and Foteini were approaching. *Kyra* Anna was older than Foteini; this is why people called her *Kyra*. They were both late and were now walking hastily towards the church. The church seemed dark and cold, compared to the light and warmth in the courtyard of the church this spring afternoon. That day, there were twelve women. They were all kneeling in front of the benches of the church with their *koroneta* in hand, each saying the prayer to the Virgin Mary, some with loud voices and some with lower voices. Their fingers rapidly moved along every bead of the *koroneta* following each prayer. When the prayer ended and the women went out of the church, they continued to socialize and chat in the courtyard of the church."

"*Kyra* Anna covered her head with a colorful scarf and said goodbye to the other ladies. She wanted to visit Xenoula at the museum and hear the news about this month's opening and celebrations. No sooner had she wrapped up her hair with her scarf than Eleni stopped her.

"Where are you going? Sooner or later the villagers will arrive to decide about the church's land." "Holy Trinity's land?" answered *Kyra* Anna with an expression of surprise.

"Aaah! You weren't there last Saturday at the church, when the priest announced that Mrs. Zana, the museum artist, asked for private use of the adjacent land to the museum, which belongs to the church! So the priest informed the parish committee and the committee invited all the villagers to decide whether to grant the request."

"*Kyra* Anna left the church courtyard and turned left, passing by the most remote part of the village where the doors of the houses were closed since the previous summer and the cellars looked forlorn

and empty. She passed under the old vaulted archway and left the old stables on her left and the beautiful old and luxurious house of Filippousis family, where the wild artichokes and fig trees had grown big to the point of covering most of the garden. She then turned right towards the house that Mrs. Zana, the artist, had had refurbished a few years ago. She passed underneath the vaulted archway that supported Mrs. Zana's newly refurbished courtyard that also formed its entrance door. A few steps further, she opened the old gate at the end of the passage under the vaulted archway. She walked through Simos' courtyard and the small open space, which was formed by Stratis' and Antonis' thresholds, courtyards, and houses. There on, she followed the alleyway that connected this area to the big set of steps that ended in an equally small open space formed by the front of Stratis' house, including those of Nikiforos and Katerina. She stepped down the last steps and leaned against the wall of the house that now had become part of the new museum's courtyard."

The in-between spaces in the village and its landscape –where conflict and solidarity coexist– as places of dwelling and negotiation revealed to me the importance of language for understanding the meaning of these spaces as private or communal, but also as deeply-rooted ways of dwelling. Dwelling is fully engaged with the environment, which is still imposed by nature's forces, the religious and ethical order as part of a traditional community life, within both the private and public realm. This psychosomatic equilibrium connected to human relations, the environment and architecture, and the village atmosphere, are conveyed through language in this and seven more fictional narratives.

In this study, a series of old contracts, which reflect a perception of the value of land and property connected with the land's production and cultivation, convey a pre-poetical, pre-hermeneutical description. This represents another anthropological description of the place, given so as to be reconstructed under different situations and conditions. There is actually a series of interpretations from contracts and interviews to fiction and then the interpretation of the fictional narrative. Then, phenomenology and hermeneutics can help to understand and interpret these spaces, which are created by a series of spatial, social, ethical boundaries and actually exists through the negotiation and narration of stories that take place in all spaces of the village or the city. As Gadamer claims "the principle of hermeneutics simply means that we should try to understand everything that can be understood"⁹

This research consists of a series of metaphors and interpretations, which in turn produce a series of realities, a series of truths. Archives were used with the intention to produce fiction as a way of interpreting and revealing the reality of the city or the village. The fictional stories are an intellectual construct of the things that make up this reality.

As stated by J. Malpas "narrative can be seen as structuring [...] both memory and self - identity, as well as the places, the landscapes in which self identity is itself worked out and established."¹⁰ Architecture, the spatial nature of boundaries in fiction and interpretation can be used for a deeper and better understanding of the different realities of the village or city structure and life. It is extremely important for architects to develop an understanding based on the different experiences that take place within the village structures and which can lead to interpretations in architecture and design closer to a human way of life and closer to life's actual complexities.

CONCLUSION

Within contemporary architecture that still seeks to keep novelty in architectural projects alive in contemporary and traditional societies, language and narrative forms can become tools of understanding and revealing the truth of these societies in relation to architecture and the

environment. Primarily texts, related literature, contracts, testaments, verbal history connected with the place can help us understand the community and the inhabitants' perception of ownership and dwelling through a different set of metaphors and interpretations.Gadamer claims that "in language and only in it, can we meet what we never "encounter" in the world because we are ourselves and merely what we mean and what we know from ourselves."¹¹ This knowledge from ourselves also involves emotions. This represents another way in which through fiction we connect ourselves with space and the environment. This is the reason why writing a fictional narrative helps students to understand, connect, root their experience into space and the environment, allowing them to imagine life as a social and cultural interaction where place, space and environment are involved.

Today, though we gravitate towards new contemporary sustainable ways of living, we search for things beyond the human way of life, beyond the complexity of architecture, we do not look for what connects us to social life, spatial qualities and the environment. In this course students are invited to understand this relationship between contemporary or traditional life and the complexity of architecture, place and environment. Students become equipped with tools to understand and interpret local traditions in modern life. Narrative and fiction equip students with a way of interpreting the local tradition and culture without responding to an architecture and a way of dwelling through form and fashion, but by revealing the social and ethical function of architecture as a substantial expression/reflection of the relation between architectural tradition, on the one hand, and people, places and the environment, on the other.

NOTES

1.Marco Frascari, *Eleven Exercises in the Art of Architectural Drawing*, (New York: Routledge, 2011), 68. 2.Paul Ricoeur, "Life in Quest of Narrative", in David Wood, ed., *On Paul Ricoeur: Narrative and Interpretation*, (London, New York: Routledge 2003) and (Taylor & Francis e-Library, 2003), 20-21. 3.Ibid., 27-28.

4. Alberto Pérez-Gómez, *Attunement, Architectural Meaning after the Crisis of Modern Science,* (Cambridge, MA: The MIT Press, 2016),182-183.

5. Ernesto Grassi, *Rhetoric as Philosophy. The Humanist Tradition*, (University Park, London: The Pennsylvania State University Press, 1980), 101.

6. Richard Kearney, "Paul Ricoeur and the hermeneutic imagination", T. Peter Kemp and David Rasmussen, eds. *The Narrative Path: The Later Works of Paul Ricoeur*, (Cambridge, MA, London: The MIT Press, 1989), 3-6. 7. Ibid., 15.

8. Maria Vidali, *Liminality, metaphor and place in the farming landscape of Tinos: The village of Kampos*, thesis submit ted to University of Thessaly in partial fulfilment of the requirements of the degree of Doctor of Philosophy, (University of Thessaly, School of Architecture, 2017), 101 - 103.

9. Hans-Georg Gadamer, *Philosophical Hermeneutics*, trans. and eds. Linge E. David, (Berkley, Los Angeles, London: University of California Press, 1976), 19.

10. Jeffrey Malpas, *Place and Experience: A Philosophical Topography,* (Cambridge: Cambridge University Press, 1999), 230.

11. Hans-Georg Gadamer, *Philosophical Hermeneutics*, trans. and eds. Linge E. David, (Berkley, Los Angeles, London: University of California Press, 1976), 20.

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TWO TALES FROM THE LIBRARY: THE EROSION OF PUBLIC REALM AND NEW FORMS OF SPACE

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INTRODUCTION

This paper posits that libraries are an integral part of the public realm and explores two key issues which relate to this conception of library spaces. Deep cuts to public spending have resulted in the closure of hundreds of libraries across the UK.¹ Whilst many criticisms over this have been voiced, these closures are not generally conceptualised in terms of how the community these libraries served loses a unique part of its public realm, and thereby a key place in which to meet. At the same time, the library environments that remain have been evolving; they are becoming much more informal places that increase the opportunities for – and nature of – public engagement and potential interactions occurring between their visitors. The paper goes on to discuss how reframing the library as an alternative form of indoor public space suggests that principles relating to urban design and placemaking can be applied to library spaces to enhance their role as a public meeting place.

THE LIBRARY AS A PART OF THE PUBLIC REALM

The value of high-quality public realm is unequivocal, yet libraries are not generally conceptualised in this sense. For example, a recent study analysing different reasons for upholding a public library service found that legitimations related to libraries' role as a meeting place and arena for public discourse were ranked as the two least important justifications for public library provision; the most important justifications related to much more traditional roles.² Interestingly, however, when evaluating actual use, the same study found that libraries do act as a community square meeting place, in which users bump into friends and neighbours, visit the café, and meet new people – even though its role was not perceived as such.³

Research has shown that the majority of public library users do not borrow or return library materials during a visit, but use the library for other purposes.⁴ In their study of the use of library spaces, Aabø **and** Audunson observed a complex range of activities, but which included low-intensive conduct that is characteristic of activities which take place within the public realm, such as patrons strolling and then sitting in the same way as one sits on a park bench, people visiting for no other purpose than to meet friends for coffee, and work colleagues spending their lunch break together.⁵

One feature of places where such low-intensity meeting occurs is an exposure to "otherness" – people representing different values, cultures and interests;⁶ arguably this is something synonymous with the plurality of the public realm.⁷ In this respect Aabø and Audunson observed the library to be a particularly democratic and tolerant place. They also consider the library can be a place that, "... is

public in the sense that it is open and accessible to all, but also confined and defined, for example, a park or a square in the city surrounded and confined by buildings."⁸ In another study, library users described them as a safe place that is inclusive of diverse backgrounds, cultures and generations, which provide opportunities to socialise and develop friendships.⁹ Like urban squares and parks, libraries are public spaces where differences in socio-economic status are invisible.¹⁰ Firley and Hogrebe aver that in the traditional European city, public space can be experienced as a space of meeting, place of culture, a scene for political discourse, and a refuge for those who do not possess private space¹¹ – a description that equally resonates with the public library.

Libraries have been described as an indoor public square – an inclusive place that is open to the whole community,¹² and the only sheltered public spaces where people are citizens as opposed to consumers.¹³ In an era when traditional, non-consumerist public spaces are being squeezed out of cities,¹⁴ Jochumsen et al. identify the unique role of the public library as a non-commercial public meeting-space.¹⁵ In a description of trends that define the twenty-first century public library, Gisolfi likens it to the village green, town square or the forum in an ancient city – a place of convergence and conversation.¹⁶ It is in these interpretations of the library as an indoor public square, providing for a rich variety of informal meetings and activities in an inclusive context of plurality and openness, it is argued here that the library constitutes a unique part of the public realm for the community it serves. However, it is one that is being eroded.

LIBRARIES AND THE EROSION OF PUBLIC REALM

The era of austerity initiated in 2010 resulted in the closure and transfer from public provision of hundreds of libraries across the UK.¹⁷ The Chartered Institute of Public Finance and Accountancy (CIPFA) reported a loss of 864 library service points between 2010 and 2018 – a reduction of almost twenty percent.¹⁸ Whilst convincing arguments have been made over the significance of these closures and transfers,¹⁹ an under-explored consequence is the impact on public space.

Given the high proportion of branch libraries that have closed, let us assume a relatively modest typical floor area for a library of 500m².²⁰ Multiplied across the reduction of library service points, this would equate to a total loss of approximately fifty hectares of public space. To put that into context, in terms of conceptualising such closures as diminishing public realm, it is the equivalent of more than thirty-five Trafalgar Squares in London.²¹



Figure 1. The area of public realm lost through the reduction of library service points between 2010 and 2018 might equate to more than thirty-five Trafalgar Squares.

In just the single year 2017/18 the CIPFA identify a net loss of 127 library service points.²² Assuming the same typical floor area, this would equate to more than six hectares of public realm lost – an area four times that of Rome's Piazza Navona in just one year.²³ If we conceptualise libraries as an agora for their communities,²⁴ this startling loss of public space is a significant additional dimension to library closures than their communities' loss of access to books, information and IT facilities. However, it is not the only way in which public realm is being diminished through changes in the landscape of library provision.

As well as closures, austerity also created a political ideology under which local authorities have been encouraged to adopt alternative models of library provision. Strategies include transferring them to be run by community organisations, volunteer groups or the private sector. When transferred, libraries can remain within or move outside of the local authority's statutory provision to provide a comprehensive public library service.²⁵ Even in the former scenario, this constitutes fragmentation of already diminishing truly "public" spaces. When transferred out of local authority provision they become subject to less scrutiny and control by public governance, and arguably lose their status as a "public space."²⁶

However, this consequence is particularly acute where libraries are outsourced to the private sector. Even though the concept of a public library managed by the private sector might appear a contradiction in terms, the private sector company Carillion ran the library services of the London authorities of Ealing, Croydon and Harrow from 2013 until the firm collapsed in January 2018. There are similar arrangements in the USA, Sweden and The Netherlands.²⁷

It can be argued this constitutes an additional dimension to the established trend of the privatisation of public realm.²⁸ In London, for example, the spaces on the Thames' Southbank around City Hall, Granary Square at King's Cross, and Paternoster Square beside St Paul's Cathedral are all privately owned public spaces (POPS).²⁹ POPS include private spaces developed for public use, but also existing public spaces that have been adopted by private sector bodies – therefore not dissimilar to public libraries adopted by private sector companies. Criticisms levelled at these pseudo-public spaces include: overzealous monitoring, restricting access, confining behaviour, inhibiting social interaction and encounters, supressing freedom of speech and individual expression, reducing social equity and being intolerant of the homeless.³⁰ They are certainly not traits that would be associated with the ideology of the public library.



Figure 2. Paternoster Square in London might appear to be public realm, but is in fact privately owned.

NEW FORMS OF LIBRARY SPACE

There is an established trend towards greater informality in libraries.³¹ What was traditionally a formal civic building – in both an architectural sense and in the way in which users occupied it – has

gradually been transformed by the presence of ever more casual spaces. Long gone are clichés of the "sshhh!" intimidating atmosphere.³² In some cases the traditional reading room has been supplanted by spaces offering opportunities for meeting and experiences.³³ The increasingly relaxed nature of library spaces is altering the way people occupy them; these informal spaces include sofas, terraced seating, bean-bags, bar-stools, landscaped roof gardens and armchairs clustered around coffee tables. Libraries are becoming a new "civic living room" of the towns and cities in which they are sited.³⁴ In their Four-Space Model, Jochumsen et al. propose the library as a meeting space as one of its four pillars; a space they describe as an open, public place that facilitates both non-committal, accidental meetings as well as more structured gatherings.³⁵ Black and Pepper describe libraries as "communal territories" that encourage social interaction, conversation and a mood of playfulness.³⁶



Figure 3. The Library of Birmingham contains a diverse range of spaces for relaxed and casual meeting as well as reading.

The informalisation of the library and the notion of the library as an urban living room are concepts that saw an early incarnation at Seattle Public Library. A space termed the "Living Room" is placed at the entrance level, and has been described both as a public space for the community,³⁷ and as a living room for visitors and inhabitants of the city in which to meet, socialise or just relax.³⁸ A study of users and passers-by found that the Seattle Library is considered as a social place, providing opportunities for people to interact across the generations, and plays an important role as a meeting place.³⁹



Figure 4. The "Living Room" at the entrance to Seattle Public Library provides a place for visitors in which to meet, socialise or just relax – not unlike a public square or city park. (Image: Paul Richardson)

One of the influences underlying new forms of library space are theories on learning that have gained increased prevalence over the last decade. For example, in socio-constructivist pedagogies, dialogue plays a fundamental role and learning occurs within a social framework of different conversations. As such, it has been argued that libraries should embrace and reflect a rich diversity of conversational possibilities, and that making the shift towards recognising the changing nature of activities within contemporary processes of learning, including collaborative and interactive modalities, is one of the challenges for the library's wider involvement in learning.⁴⁰

The Openbare Bibliotheek Amsterdam (OBA) library also embodies the concept of an urban lounge.⁴¹ Its sense of place as a meeting point starts on the plaza in front of the library, and extends throughout the inside where there is a rich diversity of places to sit, gather and socialise, including both a restaurant and café, right up to the roof terrace overlooking the city. At the Chocolate Factory library in Gouda, The Netherlands, the collection of books for adults has been shelved very densely in an area exclusively for stacks, and not interspaced with chairs or workspaces; this has reduced the proportion of floor space required for the collection from seventy-five percent typically to just thirty percent.⁴² This deliberate strategy of densification has enabled a wide variety of activities and uses centred around active participation to be incorporated within the building, including a rich mixture of social and gathering spaces, based on the concept that as a building-type the library must transform from a passive depot of information into a dynamic and active social setting.

As the public library has become more informal through its architectural and interior design, the increasingly relaxed nature of spaces is altering the way people occupy them. This is increasing both the opportunities for, and the nature of, potential interactions occurring between their users within such spaces, and their learning potential as facilitated through a richer diversity of conversations.

LIBRARIES AS URBAN DESIGN

Reframing the library as an alternative form of indoor public urban space potentially leads to a wider range of fields of influence for considering library design. Over the last decade public libraries have become an integral part of urban development and stimulating regeneration.⁴³ An interplay between

interior and exterior aspects of the public realm has always been a feature of library design,⁴⁴ and greater attention is being paid to stitching them into the civic realm through library squares and gardens.⁴⁵ However, it is argued here that this can be explored further, creating new opportunities and interpretations for the library as a meeting place and gathering space. The attention already shown toward the civic space surrounding the library and the role libraries have played in urban design and regeneration should be conceptualised as extending into and throughout the library itself.

Describing their unbuilt proposal for the Bibliothèque Nationale de France, Koolhaas and Mau write, "… liberated from its former obligations, architecture's last function will be the creation of the symbolic spaces that accommodate the persistent desire for collectivity."⁴⁶ In this regard the design of libraries can embrace principles of urban design and planning – such as creating a sense of place, and providing places to gather, pause and linger in informal, democratic spaces. Just as the public realm offers both hard-landscaped squares and soft-landscaped parks, so should libraries have a rich diversity of interior and interstitial spaces. Such spaces can be created at a variety of scales, from the civic to the intimate, provide for both planned and unexpected activities, embody a multitude of atmospheres from the serene to the bustling, provide different degrees of enclosure and sanctuary, and thereby facilitate gathering and human interaction in a diverse range of forms.

For example, a playful cascade of 'amphitheatre' seating creates a casual meeting space spanning between floors at the De Krook library in Ghent, Belgium; this is a device sometimes used in urban design to create informal gathering places, as seen at Granary Wharf in London discussed above. Similarly, in discussing how the concept of gathering works spatially in everyday surroundings, Clugston argues that passive spaces such as park benches are just as significant as more active ones; she observes that such passive spaces are often located on the periphery near thresholds, and if properly detailed such edges can be used to create places where people will naturally gather, thereby building a sense of place.⁴⁷



Figure 5. 'Amphitheatre' seating creates a casual meeting space spanning between floors at De Krook library.

In discussing key ideas for new library spaces, Watson avers that projects need to play their part in the evolution of the type and that there needs to be a variety of spaces that speak to the diversity of people using them – from highly active and engaging communal places to contemplative spaces for quiet reflection and deep thought.⁴⁸ Hvenegaard Rasmussen et al. conclude that the public library must be seen as part of a larger urban landscape that is challenging traditional cultural institutions to respond to a new urban context;⁴⁹ consequently, the library is being re-conceptualised in terms of its design, facilities and activities to create new public spaces and domains that reinvent it as part of the city. The library should form an extension of the public domain in which it sits – including interstitial spaces that act as a bridge between them – so that the public realm flows within and throughout the library's interior, seamlessly connecting it with surrounding outdoor spaces and creating a permeability that heightens interweaving between the two.

CONCLUSION

The systematic closure of hundreds of libraries across the UK has eroded the public realm in scores of towns and cities. Even where libraries have been kept open through transfer their status as public spaces has altered, further fragmenting the public domain. Yet the public libraries which remain have become more informal places, increasing the opportunities for, and the nature of, potential interactions between their users. This is aligning both the character of contemporary public libraries, and the activities that take place within them, more closely with those of public squares and parks.

Allen argues that new libraries will be considerably different from the model currently understood by most; this includes being more accessible, providing a wider range of environments, and encouraging social engagement.⁵⁰ Just as urban development is becoming increasingly centred on establishing cities as places of experiences,⁵¹ so too are libraries being re-conceptualised as places for meeting and gathering. Anderson posits that the library of the future is unlikely to be identifiable as a particularly distinct building type, but that it will continue to have a physical centre of gravity where people come together to gain energy from fellow human beings.⁵²

Lynch describes the elements of urban design as including: space, varying in scale, form, proportion, openness and complexity; visible activity, the sight and sound of other humans being more prominent than visible space; sequences, the landscape being also a dynamic network; communications, the signs and symbols through which a landscape articulates its meanings; and surfaces, the textures of which characterise the urban scene – variety of use leading to variety of material.⁵³ Whilst many of these elements are present in the traditional design of libraries, viewing them through the lens of urban design offers new interpretations of them; through such reinterpretations libraries can embrace ideas from urban design and place-making to enhance their role as places for human interaction.



Figure 6. Concept sketch of the library as a seamless extension of the wider public realm.

Just as elegantly designed public spaces nurture a rich and complex diversity of pluralistic, tolerant interactions between people, so should libraries foster the same interactions with their own interpretations of squares, parks, courtyards, arcades, promenades, streets, colonnades and cafés. As an integral part of the wider public realm, libraries can be conceptualised and designed as indoor urban spaces.

NOTES

¹ "By Authority," Public Libraries News, accessed May 17, 2019, http://www.publiclibrariesnews.com/about-public-libraries-news.

² Ragnar Audunson, Svanhild Aabø, Roger Blomgren, Hans-Christoph Hobohm, Henrik Jochumsen, Mahmood Khosrowjerdi, Rudolf Mumenthaler, Karsten Schuldt, Casper Hvenegaard Rasmussen, Kerstin Rydbeck, Máté Tóth, and Andrea Vårheim, "Public Libraries as Public Sphere Institutions," *Journal of Documentation* 75:6 (2019): 1403, accessed August 30, 2019, doi:10.1108/JD-02-2019-0015.

³ Ibid., 1409.

⁴ ABM-utvikling, "Hvem er de og hvor går de? Om brukeradferd i norske storbybibliotek [Who Are They and Where Are They Going? User Behaviour in Norwegian Libraries in Big Cities]," ABM-skrift 46 (Oslo: ABMutvikling, 2008); Kommunernes Landsforening, "Brugernes adfærd på folkebibliotekerne KL's trafiktælling [User Behaviour in Danish Public Libraries]," 2004; both cited in Aabø and Audunson, "Use of Library Space," 138.

⁵ Svanhild Aabø and Ragnar Audunson, "Use of Library Space and the Library as Place," *Library and Information Science Research* 34:2 (2012), accessed September 10, 2014, doi:10.1016/j.lisr.2011.06.002.

⁶ Svanhild Aabø, Ragnar Audunson, and Andreas Vårheim, "How do Public Libraries Function as Meeting Places?" *Library and Information Science Research* 32 (2010): 17, accessed August 2, 2019, doi:10.1016/j.lisr.2009.07.008.

 ⁷ Francesco Chiodelli and Stefano Moroni, "Typology of Spaces and Topology of Toleration: City, Pluralism, Ownership," *Journal of Urban Affairs* 36:2 (2013): 167, accessed November 14, 2019, doi:10.1111/juaf.12028.
 ⁸ Aabø and Audunson, "Use of Library Space," 143.

⁹ Leo Appleton, Hazel Hall, Alistair S. Duff, and Robert Raeside, "UK Public Library Roles and Value: A Focus Group Analysis," *Journal of Librarianship and Information Science* 50:3 (2018): 280-1, accessed September 7, 2019, doi.org/10.1177/0961000618769987.

¹⁰ Aabø and Audunson, "Use of Library Space," 147.

¹¹Eric Firley and Natan Hogrebe, "The Freedom of the Public Domain and its Value for Urban Life," paper presented at the annual RICS conference COBRA 2016, Toronto, Canada, September 19–22, 2016, 2.

¹² Alistair Black, "We Don't Do Public Libraries Like We Used To': Attitudes to Public Library Buildings in the UK at the Start of the 21st Century," *Journal of Librarianship and Information Science* 43:1 (2011): 42, accessed October 25, 2018, doi:10.1177/0961000610390991.

¹³ Caitlin Moran, "Alma Mater," in *The Library Book*, ed. Rebecca Gray (London: Profile Books, 2012), 93.

¹⁴ Xuefan Zhang, "Identifying Consumerist Privately Owned Public Spaces: The Ideal Type of Mass Private Property," *Urban Studies* 54:15 (2017): 3472, accessed June 14, 2019, doi:10.1177/0042098016677196; Bart Verschaffel, "Semi-Public Spaces: The Spatial Logic of Institutions," in *Does Truth Matter? Democracy and Public Space*, eds. Raf Greenens and Ronald Tinnevelt (New York: Springer, 2009), 141.

¹⁵ Henrik Jochumsen, Dorte Skot-Hansen, and Casper Hvenegaard Rasmussen, "Towards Culture 3.0 – Performative Space in the Public Library," *International Journal of Cultural Policy* 23:4 (2017): 521, accessed September 2, 2019, doi:10.1080/10286632.2015.1043291.

¹⁶ Peter Gisolfi, "New Trends that Define the 21st-Century Library," *Advances in Library Administration and Organization* 33 (2015): 175, accessed May 13, 2016, doi.org/10.1108/S0732-067120150000033005.

¹⁷ "By Authority," Public Libraries News; Alison Flood, "Britain Has Closed Almost 800 Libraries Since 2010, Show," The Guardian, December 6, 2019, Figures accessed December 9, 2019. http://www.theguardian.com/books/2019/dec/06/britain-has-closed-almost-800-libraries-since-2010-figures-show. ¹⁸ "CIPFA Library Survey," Chartered Institute of Public Finance and Accountancy, accessed May 21, 2019, http://www.cipfa.org. The CIPFA reported that there were 4,482 library service points - defined as any library, static or mobile, through which the public library authority provides or directly manages a service to the public - in the year 2009/10. For the year 2017/18 this figure was 3,618.

¹⁹ For example: Dawn Finch, "Closing Libraries Means Abandoning Society's Most Isolated and Vulnerable," *The Guardian*, August 2, 2019, accessed September 7, 2019,

http://www.theguardian.com/commentisfree/2019/aug/02/closing-libraries-vulnerable-mental-health; "Libraries Lose a Quarter of Staff as Hundreds Close," BBC, March 29, 2016, accessed September 7, 2019,

http://www.bbc.co.uk/news/uk-england-35707956; Haroon Siddique, "Government Has Failed on Library Closures, Says Children's Laureate," *The Guardian*, September 22, 2013, accessed September 7, 2019,

http://www.theguardian.com/books/2013/sep/22/government-failed-library-closures-malorie-blackman; "Library Closures - Written Evidence Submitted by The Bookseller (LIB 088)," The Bookseller, January 2012, accessed September 7, 2019, http://publications.parliament.uk/pa/cm201012/cmselect/cmcumeds/writev/library/lib088.htm. ²⁰ This is an area comparable to Walton, Fazakerley and Kensington branch libraries in Liverpool, for example.

²¹ The area of Trafalgar Square is approximately 12,000m².

²² "Libraries Lose Branches and Staff as Spending Continues to Drop," Chartered Institute of Public Finance and Accountancy, accessed August 1, 2019, http://www.cipfa.org/about-cipfa/press-office/latest-press-releases/libraries-lose-branches-and-staff-as-spending-continues-to-drop.

²³ The area of Piazza Navona is approximately 15,600 m².

²⁴ Mary Carroll and Sue Reynolds, "There and Back Again': Reimagining the Public Library for the Twenty-First Century," *Library Trends* 62:3 (2014): 591, accessed May 17, 2016, doi:10.1353/lib.2014.0003.

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STREETSET: TOWARDS A PHOTOGRAPHIC FRAMEWORK FOR THE EVOCATION OF URBAN CHARACTER

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INTRODUCTION

This paper will assess how photographic typologies made by urban citizens can help to evoke the character of places within cities. Character is a feature that local authorities seek to preserve when rapid change alters the aesthetic composition the urban landscape. It is also a value that is challenging to explicate because the word can mean different things to different people.¹ In addition, there is no accepted framework to capture information about character visually and as a result it is often spoken about in hypothetical terms.²

These problems have provoked the following research question: 'How can a digital platform allow city-goers to visually record the character of urban places before redevelopment occurs?'

There is much research being conducted into how photographic technology can provide us with a greater level visual information about cities from the air.³ In contrast, this paper will address how patterns gathered from photographic investigations conducted by citizens at street level, as opposed to holistic and expansive aerial appraisals, can be used to evoke the character of the street. One way of doing this could be to crowdsource photographic typologies of features that people notice repeating within the urban terrain.

The 11th of the UN's Sustainable Development Goals, Sustainable Cities,⁴ advocates that citizens should develop "a vision for [their] building, street, and neighbourhood, and act on that vision". Perhaps the more obvious message here is that urban citizens are being encouraged to assemble a picture of how their local environment could potentially develop in the future and to find ways to work towards that idealisation. Another way of reading the UN's statement is to understand it as an invitation to citizens to catalogue and collect the image of the urban landscape in order to understand what it means aesthetically to people today. From this assembled vision of an area, it might then be possible to discern positive and negative aspects of the environment, and then discuss how these features can either be protected or improved upon in ways that benefit local stakeholders.

The digital application Streetset will respond to this aspect of the UN's call to action by inviting urban photographers and local citizens to gather collections of repeating details within urban landscapes, geotag these images, write captions to explain the local impact and then flag whether the details should be protected or not. By inviting urban citizens to undertake this process, we might be able to understand more about what people perceive as the aesthetic details that contribute to an area's character and identity.

PHOTOGRAPHIC TYPOLOGIES AS TOOLS TO UNDERSTAND THE CHARACTER OF THE BUILT ENVIRONMENT

Urban photographers have historically demonstrated the potential of the photographic typology as a tool for raising questions about the urban landscape and the ways in which people perceive it. Charles Marville was a Parisian photographer who was employed by the City of Paris in the mid-19th century to photograph the city's old Medieval streets that were gradually eroding and being removed. In addition, he was also tasked to depict how Georges-Eugène Haussmann's new boulevards were making a positive impact on the city, and show how they were creating a new, uniform structure and control that aligned the with the government's military ambitions.⁵

One of Marville's most striking sets of images is his photographic typology of streetlamps. Haussmann introduced 20,000 gas lamps to the streets of Paris so that the city was far better illuminated after dark. Marville photographed many of these lamps in a very uniform manner, employing a striking central framing technique where the objects stare sternly and forthrightly out of the image. The lamps are almost cast as characters on a stage with the photographer observing how they interact with the surrounding mise-en-scene.



Figures 1-4. Paris Streetlamps, Charles Marville, cir. 1870

The investigative processes of Marville and his peers went on to inform a number of urban photographers throughout the 20th century. As a result, the process of collecting typologies of the built environment almost became a sub-field of architectural photography and is still popular in street-photography today.

The late Michael Wolf's urban typologies, collected on the streets of Hong Kong, are similarly puzzling excerpts that offer us new perspectives to decipher the modern metropolis. Wolf used to scour the streets for offbeat details and described being in a mode of collection as he put together typologies of subjects that were unique to the city. His project *Bastard Chairs* assessed the ways in which broken chairs left in the street were reconfigured in inventive ways using everyday materials. Wolf showed how these could be found everywhere in the back alleys of Kowloon if people would just take to look for them and admire their ingenuity.

In many ways Marville and Wolf used the photographic typology as a scaffolding to read the urban landscape. They demonstrated how such approaches might prove to be useful tools in urban research and can allow us to understand visual repetitions as signposts of fundamental aesthetic attributes that recur in urban places. The exploratory practice of these two photographers show how typologies can also help to reveal subjective aspects of urban character that are often very difficult to define. Therefore, it might be useful to find ways for people in cities to collectively gather such sets of images and to create a platform to share and archive them.

STREETSET: AN APP FOR COLLECTING URBAN TYPOLOGIES

With the above context laying the groundwork, an app was devised to invite people who live in changing urban environments to collect examples of patterns that they have noticed in their surroundings, and for them to create photographic typologies of these. It was intended that the users would be people who might already be taking and sharing photographs of the landscapes in which they lived.

The design of the app was built upon the common features that can be seen in popular photo-sharing apps such as *Instagram*, 500px and *EyeEm*. The reason for following this structure is that it was deemed necessary to follow the UI conventions that users might be familiar with⁶ so that they might use the application with ease. It was therefore decided that the interface and its functions should not deviate too far from the processes that have become commonplace in apps of this kind.

The low-fi prototype was developed after a holistic assessment of such applications. The app is only at a conceptual stage but its proposed functions are as follows:

Upload and share

Users would be able to upload groups of photos around urban themes that they might have observed. These typologies would be referred to as 'streetsets'. Users could then geotag and caption each image, before writing a description for the album. When uploading the album they could review the set of images on a map, users would then be asked questions about the specifics of their urban theme, whether the characteristics they have recorded are positive or negative contributions to the surrounding environment and whether they should be protected or removed.



Figures 5–7. Upload and share

Browse

Users can browse 'streetsets' on their home screen in much the same way that we are able to browse photographs on *Instagram* by scrolling down a continuous feed. Users can tap on an album thumbnail to see the whole set, they can then tap the images again to view them in high resolution with captions. Each 'streetset' has a map which details exactly where each photo in the album was taken.



Figures 8–10. Browse

Search / Follow people and places

Users can search for other users, places, specific themes or 'streetsets' that are wanted. Tags and hashtags are not used. Instead, users can follow other users, as well as specific cities, districts and buildings that have been designated a profile. This allows users to keep track of how such places change over time and ensures, to some degree, that the uploaded content is on topic.



Figures 11–14. Search

Create a profile

Users can create a profile with their details and links to affiliations and professional websites. Users can keep track of the 'streetsets' that they have uploaded so far and go back and edit them. This allows 'streetsets' to evolve over time, which is particularly useful if the album is addressing how an urban feature is changing or developing. Users can also follow other users, as well as specific places in cities, allowing people to keep track of how locations alter over time.



Figures 15-17. Profile

Map view

One of the more unique aspects to the application, in comparison to other photo-sharing apps that are in common use, is that each photograph is mapped, either automatically using the metadata embedded in the image or manually when the image is uploaded. Users can look at a world-map linking directly to each album via their location.



Wanted

Urban organisations, local authorities, planners and architects can post advertisements for 'streetsets' that they need. This allows the app to be used as a research tool, so that albums of images can be instantly commissioned where the visual documentation of specific details in cities is required. Photographers can browse these ads and respond to them by submitting a 'streetset' that they have already uploaded.



Figures 21–24. Wanted

TESTING THE CONCEPT WITH DESIGN STUDENTS

An operational version of the app is still under development but in order to test the viability of the concept, a small study was conducted with a group of design students in Funchal.

Funchal is a small city on the Portuguese island of Madeira, which is currently experiencing a period of rapid redevelopment following in the wake of the tourist boom on the country's mainland.⁷ The purpose of the study was to understand whether a mobile application for gathering typologies of architectural themes in cities might create useful and productive results for visualising the character of the urban landscape here before it changed as a result of ongoing constructions.

A group of 26 design students aged between 19–23 took part in the study, they were asked to produce three typologies each over the course of two weeks. The rationale for working with design students as a userbase were threefold: many of the students are aesthetes, familiar with and appreciative of the image of the city; the majority of this group already use social media for sharing creative work; and around 30% use *Instagram* to document places, cities and streets, so the students were therefore representative of a large urban photography community that exists online.⁸

The students were given a simple brief: 'What patterns do you see occurring in the built landscape of your city? Photograph these patterns and arrange them into typologies. Explain how these patterns contribute to your personal experience of the city.' The study produced some intriguing results about the types of patterns that these young people had noticed in their surrounding environment.

60% of the images depicted traditional architectural details such as doorways and window shutters, features which the participants felt were examples of heritage and should be preserved. 30% observed details of modernity such as apartment blocks and electricity cables. These were features which the participants were mostly ambivalent about, in terms of whether their contribution to the city was positive or negative. For example, a typology of low-rise apartment blocks was neither considered a special or unattractive theme but simply a common one. In this sense the feature was felt to be an essential part of the fabric of the city. The remaining 10% of the typologies looked at details that were more ephemeral, such as shadows cast by buildings in the late afternoon. Notably, none of the typologies were of 'eyesores' or ugly details in the landscape that the participants felt should be removed. Perhaps this was because they were keen to find aesthetically pleasing subjects that would produce picturesque images.

One of the more thought-provoking subjects, created by Sara Patricia, was a typology of vacant shopfronts within the city centre. The images are elegant in their uncomplicated exploration of urban decay but also poignant in their depiction of the economic struggles that the city has faced in recent years. The collection of unique typographic styles within the shop signs also acts as a mini archive of retail graphic design approaches from the latter half of the 20th century. The typology is at the same time a thoughtful comment on the present-day decline of the high street, and a catalogue of letterforms from archaic shop signage.



Figures 25–27. The void of emptiness, Sara Patricia Abreu, 2019

Funchal is a coastal island city, and the impact of the sea is never far away. Carolina and Diva were interested in the textures created by rusted objects on the coastal thoroughfares and their impact on the colour of these environments. The images are tightly framed and cropped so that contextual information is omitted, resulting in strange, almost painterly compositions. This was one of the more artistic representations submitted, here the images could stand alone as abstract, poetic artefacts plucked from the fabric of the city. However, Carolina and Diva have also focused on phenomena that many might overlook⁹ and has identified an integral aesthetic feature that makes an important contribution to the atmosphere of the environment and the image of the place.



Figures 28–35. Rust, Carolina Teixeira and Diva Castro, 2019

Laura looked at the doorways of the old town, how they are each so different in terms of their designs, their states of disrepair, size, and positions on the street. The theme of traditional doorways was a popular amongst this group of students and seven people in total honed-in on this particular

characteristic. Perhaps the popularity of the subject reveals that old doorways are one of the more aesthetically noticeable aspects of the urban landscape here. This might be because they are so visually striking but also because they are in such abundance. Laura's collection highlights that each doorway is unique, each with their own distinctive personality.



Figures 36-45. Doorways, Laura Rebolo, 2019

These projects exemplify that creating photographic typologies of architectural features in this way can offer outlets of creative expression for urban photographers. The works also individually demonstrate that there might be three main applications for such photographic collections in the context of urbanism:

Firstly, Sara-Patricia's work shows these sets of photographs can act as evidence or stories that attest to the present condition of cities. Secondly, Carolina and Diva's project shows that there is potential for photographers to use this framework to capture subtle, textural details that are integral to the aesthetic make-up of an area but which is difficult to see on mapping platforms such as Google Street View and therefore might otherwise be ignored or overlooked. Thirdly, Laura's project highlights how this photographic process can allow us to archive examples of architectural heritage and observe which themes people notice in abundance and why.

When considered together the typologies could be seen as a visual assemblage¹⁰ of patterns which combine to create a collective vision of the urban landscape which can in some ways attest to the city's relationship with its citizens.

CONCLUSION

In the mid 20th century there was a prevailing argument that successful urban places should be created through a visual understanding of locality and context.¹¹ Eventually these approaches were criticized for being too subjective and picturesque and were in some ways superseded by the structured rigour of the modernist movement¹². This might partially explain why we now strive to look at cities in a broad and holistic manner, often from raised, elevated perspectives using technologies such as aerial drone surveying and 3D photogrammetry.

While the authors acknowledge that such methods are now critical tools in the planning and building of cities, this research also suggests that photo-surveying instruments such as *Streetset* could offer urbanists additional tangible data about locality as perceived by individuals in cities.

As outlined in the introduction, the impetus to create the *Streetset* platform was provoked by a line within the UN's sustainable development goal Sustainable Cities stating that urbanites should build "a vision for [their] building, street, and neighbourhood, and act on that vision".¹³ From this statement a research objective emerged to create a framework for assembling a collective vision for a local urban area. The process of designing the *Streetset* application and the exercise of testing the applicability of the platform through the photo-challenge undertaken with the design students have demonstrated that the observation and collection of visual patterns, as seen and experienced by people in cities at ground level, might be useful accompaniments to the aerial survey. This is because such sets of images can depict what it might be like to inhabit spaces in cities while offering a personal and human-led understanding of these environments before they undergo renewal.

In future studies, it is intended that the visual products from this research will together form photographic maps of urban details which are, in various ways, significant to people. This might evolve an organic assemblage that could continually illustrate new recurrences observed by urban citizens in their surroundings, ultimately acting as a visual archive which would develop over time.

In this sense, 'streetsets' are individual pattern languages¹⁴ that, when compiled together, could help to evoke the character of certain places within a city. A platform of this kind might allow us to consider the significance of these examples and discuss the ways in which they contribute to the composition, organisation and mechanisms of the urban landscape in unique ways.

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NOTES

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DYNAMICS OF ARCHITECTURAL EXPERIENCE IN THE PERCEPTUAL FIELD

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KINDS OF SPACE

One of the fundamental problems faced by contemporary architecture is excessive emphasis on the scenographic and symbolic aspects of architectural meaning. Voices in the profession call for closer attention to the concrete, embodied aspects of experience and the multisensory awareness of space, light, sound and form. Thus, the architectural historian and critic Kenneth Frampton employs August Schmarsow's notions of *Raumgefuhl* (feeling for space) and *Raumgestalterin* (forming of space) in his search for architectural meaning generated by moving individuals rather than stationary spectators looking for intellectual insight. The challenge is to understand how space is articulated by the built environment and how this articulation is experienced by human beings in time. To begin this exploration, we recall a useful distinction between two broad conceptions of space by the philosopher Maurice Merleau-Ponty.

Space of Experience vs. Space of Intellect

In his lucid introduction into what was then a new approach to study of experience, the philosopher Merleau-Ponty made an interesting distinction between two concepts of space: the space of classical science vs. the space of "lived experience" (Merleau-Ponty, 1948/2004).

The space of classical science is familiar to anyone who studied geometry and mechanics. It is "a medium of simultaneous objects capable of being apprehended by an absolute observer who is equally close to them all, a medium without point of view, without body and without spatial position — in sum, the medium of pure intellect." We have no direct access to the space of classical science. In our daily affairs, here and now, the world is sensed and comprehended, i.e., experienced, from the point of view of a flesh-and-blood person. Regrettably, the nature of this space of lived experience has not been studied nearly as carefully as the space of the sciences.

Merleau-Ponty offered a reason for this neglect, noting that the apparent immediacy of the space of lived experience has blinded us to our ignorance about its structure and other basic properties.

Together with other aspects of the "world of perception," the space of experience "... seems at first sight to be the one we know best of all. For we need neither to measure nor to calculate in order to gain access to this world and it would seem that we can fathom it simply by opening our eyes and getting on with our lives. Yet this is a delusion." This is why Merleau-Ponty described the space of experience as terra incognita: "an unknown territory as long as we remain in the practical or utilitarian attitude." In other words, the apparent clarity of the space of lived experience dissipates as soon as we want to shape it for particular ends, as the case is in architectural and urban design.

We find it plausible that the lack of clarity about the space of experience is one source of the noted shortcomings of architectural theory and practice.

The Spectrum of Spaces

Since Merleau-Ponty pointed to a gaping hole in our understanding of experience, several disciplines made significant advances towards investigating both intellectual and experiential species of space.

Here we situate this progress on a continuum illustrated in Figure 1. At left, concepts of space describe reality in purely objective terms. And at right, the concepts describe the "socially constructed reality," in terms that are either subjective or are established by inter-subjective social convention.

At the leftmost position on the arc, we find the <u>physical concepts</u> associated with geometry, mechanics, theory of relativity, and similar. This is a family of the concepts of space described by Merleau-Ponty as the Space of Classical Science.

The next station on the arc represents physiological concepts concerned, for example, with the multiple representations of space in the brain (studied by neuroscience) and with one's sensitivity to certain spatial features of the environment (studied by sensory psychophysics). Researchers of physiological concepts of space investigate the perceived spatial layout of visual and auditory scenes, the meaning and value of sensory objects, and similar questions, including the cognitive maps constructed by individuals as they grow familiar with the environment (studied by cognitive psychology).

The demonstrably numerous <u>physiological concepts</u> of space could be divided, for simplicity, into three classes: (1) sensory or perceptual, (2) motoric or active, and (3) affective or emotive.

While physiological concepts of space mix intellectual and experiential concerns, the next stop: of phenomenology, has experience as its exclusive focus. This station also includes a variety of concepts tracing back to the seminal German thinker Franz Brentano, whose best-known philosophical heirs include Edmund Husserl and Martin Heidegger in Germany, and the just mentioned Maurice Merleau-Ponty in France. Phenomenological concepts of space divide into the realms of conceptual study (the "philosophical" branch) and the realm of empirical study (the "experimental" branch). The latter was promulgated by the Gestalt movement (also known as "experimental phenomenology") first in Germany and Austria, before it penetrated every corner of the perceptual psychology and sensory neuroscience.



Figure 1. A spectrum of concepts of space. (A) Two worlds of Merleau-Ponty. Physical and experiential concepts are represented by circles.(B) Here concepts of space are shown against a more general axis: from the "observer-independent" world discovered by natural sciences to "socially constructed" world of human culture. The white circles represent: "physical" concepts at left, "poetic" concepts at right, separated at center by concepts of individual experience studied by phenomenology. (C) A further division of concepts of space is represented by shaded circles: physiological concepts mediate between the physical and phenomenological stations; instrumental concepts mediate between the phenomenological and poetic stations.

Further, there are <u>instrumental concepts</u> of space, in which space is employed by communities toward practical ends: for basic communication (as in natural languages), for constructing representations (painting), for design of spatial environments (theater, architecture and urban design).

And finally, there are <u>poetic concepts</u> that convey spatial ideas in literature and art theory, studied systematically in literary criticism (notably by Mikhail Bakhtin and his formalist followers) and in architectural criticism (most famously by Gaston Bachelard).

On this continuum, the division proposed by Merleau-Ponty breaks the arc of Figure 1 to two parts, which we will call the space of intellect (at left) and the space of experience (at right). A similar scission exists in architectural thought, as we argue next.

THE STRUCTURE OF SPATIAL EXPERIENCE

The Sense of Space

The emphasis on conceptual and symbolic aspects of architectural meaning mentioned in the beginning of this essay is what Merleau-Ponty called the space of classical sciences, and what we are calling here the space of intellect (Figure 2). The tendency to reduce architecture from full-fledged dynamic experience to aesthetic objects is driven by highly speculative theories of architecture that are no longer relevant for individual and collective life.



Figure 2. (Left) Rem Koolhaas, Casa da Musica, Porto, Portugal (2005). (Right) Rem Koolhaas, CCTV Headquarters, Beijing, China (2012).

Tadao Ando addressed this problem in his essay "Shintai and Space" from 1986: "[The world] is to be articulated not abstractly, but as concrete places (topi) that are each related to a totality of history, culture, climate, topography, and urbanity. Man articulates the world through his body. Man is not a dualistic being in whom spirit and the flesh are essentially distinct, but a living, corporeal being active in the world."

Similarly, in his essay "Towards an Ontological Architecture: A Philosophical Excursus," Kenneth Frampton reminds us that the expression of architecture, as a building craft, should come from an understanding of the body itself. Frampton writes "...architecture is consummated by the 'body-being' at both a sensuous and a referential level, rather than as an aesthetic manifestation that is exclusively visual and abstract."

While there is a rich potential in experiential qualities of space, architects lack the training and a While there is a rich potential in experiential qualities of space, architects lack the training and a methodology to fully understand the space of experience and to design for the dimension of time.

A movement towards a better understanding of the space of experience started in the late 19th century, represented in the collection "Empathy, Form, and Space: Problem in German Aesthetics"

(1873/1893) introduced by the architectural historians Harry Mallgrave and Eleftherios Ikonomou. One of the first theorists to advocate a spatial approach in the study of architectural experience was August Schmarsow. In his essay of 1893 titled "The Essence of Architectural Creation," he writes: "Every spatial creation is first and foremost the enclosing of a subject; and thus architecture as a human art differs fundamentally from all endeavors in the applied arts."

The individual is able to create architectural space, Schmarsow thinks, because of his sense of spatial imagination. We might say that architectural space is an expression of the body. What is more, there is a reciprocal relationship between the body and space. Schmarsow insists on empathy between the artist and observer: "What is truly essential can only start in the mind of the artist and end in the mind of the observer." He sees the human being as an active agent who can complete the space according to his imagination and who has the power to change himself and the world around him.

We believe that these ideas hold the potential to reinvigorate our contemporary thinking about space. To begin, here we review several case studies of architecture that engages spatial imagination and elicits action and movement as an essential component of the spatial experience.



Figure 3. (Left) Le Corbusier, Carpenter Center, Cambridge, MA, United States (1962). (Right) Le Corbusier, Villa Savoye, Poissy, France (1931).

Le Corbusier was one of the modern architects to envision a new concept of space, associated with the architectural promenade. Le Corbusier employed a variety of tools to articulate dynamic space. Thus, moving along the ramp in Villa Savoye the observer fuses with the space, which changes according to the positioning of the body (Figure 3). Many of Le Corbusier's ideas about the potential of the temporal body were never fully analyzed.



Figure 4. Frank Lloyd Wright, Guggenheim Museum, New York City (1959).

Frank Lloyd Wright's spiraling ramp in the Guggenheim in New York City carves the space of the museum to facilitate movement and gathering, placing the individual at the center of the experience (Figure 4).

Alvaro Siza's Ibere Camargo Museum in Porto Alegre, Brazil is organized with its ramps wrapping around the building, guiding visitors in an experience which connects the building and landscape (Figure 5). In all of these examples, movement is not only a component of the spatial experience but is also a form-generating principle.



Figure 5. Alvaro Siza, Iberecamargo Museum, Porto Alegre, Brazil (2003).

Spatial Experience as a Field

We have considered the fact that there are multiple concepts of space represented schematically as an arc in Figure 1: dominated by abstract and mechanistic ideas at left, and concerned with live experience at right. Two scientific disciplines have approached the boundary between these two classes of concepts from the opposite sides: psychophysics from the mechanistic side and experimental phenomenology from the experiential side.

Studies in experimental phenomenology started with the Gestalt school of psychology early in the 20th century. One of the fundamental ideas of Gestalt psychology was that of the field. To illustrate, consider how the Gestalt-trained psychologist of art, Rudolf Arnheim, thought of architectural space using the well-known diagram by the Italian architect Paolo Portoghesi (Figure 6). Describing this drawing, Arnheim (1977) pointed out that "in perceptual experience, the spaces surrounding buildings [cannot] be considered empty. Instead these spaces are pervaded by visual forces generated by the architectural structures and determined [by] the size and the shape of their generators."



Figure 6. Perceptual field. This drawing by the Italian architect Paolo Portoghesi was used by the psychologist Rudolf Arnheim's to illustrate perceptual fields (Arnheim, 1977). The thick lines represent walls, and the thin lines represent potential effects of the walls on the person.

Arnheim clarified that "visual forces [must] be understood as components of perceptual fields that surround buildings" and that "a field of visual forces expands from the center and propagates its wave front as far into [the] environment as its strength permits." Evidently, Arnheim used the terms of "force" and "field" metaphorically; they were devoid of scientific meaning because it was unclear how the referred entities could be measured and how the proposed structure of experience could be validated.

On the other hand, psychophysical studies of visual perception discovered laws of perception that can help one to see how this sort of thinking can be implemented in scientifically valid terms. These studies, performed in tightly controlled laboratory conditions, revealed in detail how our ability to see objects depends on distance between the observer and the object (Kelly, 1979; Watson & Ahumada, 2016).

To see how this knowledge helps to articulate Arnheim's conception of the perceptual field, consider a plan view of space in which the star represents some object or feature of interest. The line represents an observer's trajectory. Given the law of visibility discovered by psychophysicists, we can predict that the object will be visible within a limited range of distances: not too far from the object and not too close to it, as shown in Figure 7.



Figure 7. The ring model of spatial experience. (A) A plan view of an area in which two elementary objects are represented by the black and white stars. The gray rings represent the regions from which the two objects are visible, as predicted by a model of visibility developed in laboratory studies of visual perception. The white object is visible from within the brighter ring and the black object from within the darker ring. The curved arrow stands for the trajectory of a mobile observer. (B-C) The dark shape represents the region of joint visibility: the intersection of two rings from panel A. In panel C, the mobile observer on the trajectory represented by the curved arrow will intermittently enter the region of joint visibility, where the arrow overlaps with the dark shape.

In other words, the object's visibility is confined to an envelope, which in the plan view has the shape of a ring. Just like physical walls of a building separate its inside and outside, the just described boundaries of experience separate the parts of space where an object is visible from the parts where it is invisible.

This simple model is an example of translating psychophysical laws from restricted laboratory conditions to conditions of immersive experience for a person moving freely on any path in this space. An interdisciplinary study confirmed predictions of this model using the apparatus illustrated in Figure 8 (Gepshtein, Lynn & McDowell, 2016).

This work transcended the layer of philosophical reflection about space and its experiential structure and added a layer of concreteness: a framework for analysis of experience that is open to scientific validation and practical application.

ARCHITECTURAL DESIGN OF SPATIAL EXPERIENCE

As we have just discussed, the space surrounding the body is not empty or neutral. It is a dynamic perceptual field, shared by the body and the built environment. The perceptual field encourages multisensory perceptions by the observer, which all lead to appreciation of space and atmosphere. We might think of the field as a medium which permits this to happen.





Figure 8. The experimental setup in the study of Gepshtein, Lynn & McDowell (2016). Using two industrial robots that carried a projector and a large screen, boundaries of visibility were mapped on the scale of architectural design.

A walk through a forest is an example of complete engagement with the world. The experience is multisensory in its very essence, but it also involves perception beyond the five Aristotelian senses, building upon the sensations of orientation, gravity, balance, duration, and stability, of which many arise through movement. Today architects simply do not yet know how to design for these senses, with a few notable exceptions.

For example, the staircase designed by Alvar Aalto in the Villa Mairea in Finland, with its wood posts reminiscent of the nearby forest, leads the visitor on a sensory experience (Figure 9). Gravity, measure, material texture and smell all play a role. These aspects of experience are embedded in a larger biological, psychological and cultural context: a symbiosis of body and culture.



Figure 9. (Left) Alvar Aalto, Villa Mairrea, Noormarkku, Finland (1939). (Right) Forest in Finland.

We could complement our discussion of perceptual field to include an understanding of aura in architecture. Just as the rings in the model of visibility convey sensory impact of the object on the perceiver, the concept of aura in architectural discourse conveys the impact of an object on a person over distance. Walter Benjamin wrote in his work "The Work of Art in the Age of Mechanical Reproduction" of 1936: "We define aura... as the unique phenomenon of a distance, however close it may be."

Benjamin went on to define aura as a "presence" in time and space. Schmarsow expressed a similar idea when he imagined what we call a perceptual field: "The intuited form of space, which surrounds us wherever we may be...consists of the residues of sensory experience to which the muscular sensations of our body, the sensitivity of our skin, and the structure of our body all contribute"

In Peter Zumthor's project for the Thermal Baths at Vals in Switzerland, a perceptual field is suggested by the spatial structure in this sketch plan (Figure 10). Fields, by their nature, encourage movement and invite exploration by the observer. In this building we never see the entire structure or a dominant form at once, but sense it gradually, over time, with our body, through the texture, temperature, and color of the stone, the sound of water, and the overall ambiance (Figure 11). From Zumthor's description: "Moving around this space means making discoveries. You are walking as if in the woods. The stone rooms were designed not to compete with the body, but to flatter the human form and give it space...room in which to be."

In summary, the scientific line of thought presented in earlier sections and the line of thought described just above bring us to the same conclusion. Space of experience can only be understood by recognizing that the perceiver is a freely moving individual. As a result, the experience is always sequential; it forms a spatiotemporal structure which we are only beginning to understand.



Figure 10. Peter Zumthor, Thermal Baths at Vaals, Switzerland (1996).



Figure 11. Peter Zumthor, Thermal Baths at Vaals, Switzerland (1996).

CODA

We have argued that the architectural profession needs to bring the full-blooded human being into its very core. In this brief essay we began tracing the contours of an investigation that attempts to do that. Sooner or later, the "human sciences" will intertwine with every step of architectural and urban design. Here we have concentrated on the sciences concerned with concepts of space. No doubt, these concepts have always been part of design, but they were recognized as central to architecture only in the late 19th century and they have never been pursued systematically.

We suggested how spatial thought in architecture could use elements of scientific exploration, which implies that we carefully separate intellectual and experiential species of space. This way, we began uncovering the hitherto hidden structure of space of experience, for which mobility is an essential condition. As it evolves, this work will concern the macroscopic structure of experience, illustrated here by a much simplified model of the field of experience, and also its microscopic fabric, which follows naturally from the same research that gave us the field model.

We have described an attempt to advance studies of experience toward specific tools that can be used in practice, as the architectural profession moves from abstract object-oriented design to humanistic experience-driven design. We have offered just one illustration of how space can be conceived in a framework that puts human experience in its center. Future studies will detail further steps in this investigation and demonstrate how the architect could use explicit knowledge about boundaries of experience in the process of design. We suspect that pursuing this line of inquiry will amount to a new discipline that will be as different from purely scientific practice as it is from traditional architectural practice.

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EXPANDING HORIZONS: INTERACTIVE SPACES MEET INTERCULTURAL ENGAGEMENT IN THE DESIGN CLASSROOM

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INTRODUCTION

Information architecture may be a relatively new term in the history of the design disciplines, but it is not a new practice—in fact, one could say it is as old as human communication itself.^{1,2} For as long as people have had information to convey, they have had to make choices about how they structure that information so other people can understand and use it.³ Information architects "take complex information and convey it to a target audience as simply as possible" in order to interchange information and communicate efficiently.⁴

With its basis in information architecture, the discipline of interaction design can work within built environments to envision unique spatial experiences. "An interactive architectural environment can not only facilitate lifestyles and behaviors, but also influence them. It is important to remember that our psychological and sociological interpretations of space are influenced by many factors beyond the spatial confines or interpreted definition of space."⁵ In the late 1940s, for instance, Mahmud Taymur wrote of his experience visiting the United States:

"In their magnificence, these tall skyscrapers expose the obvious (and not so obvious) truths about America: its civilization, wealth, genius, dynamism, and ambition. These skyscrapers are like the pyramids of Egypt. The sight of which captures the essence of a grand culture; they immediately conjure up the minute details of a civilization and its secrets. For example, you know at once that the grave was paramount in ancient Egypt: a repository of knowledge, art, and the rule of law."⁶

According to Jemtrud, "the breadth and depth of information received, manipulated and produced within personal and public realms are altering our relation to others and to the physical and (meaningful) cultural worlds."⁷ Within these shifting realms, designers from a range of disciplines have played an important role in creating environments that range from exhibition spaces and storefronts, to entire city blocks.⁸ By examining physical space in terms of its potential for social interactions and information exchange, designers open a door to consider different perspectives on social and cultural interaction(s) in such spaces. This paper examines how the interaction design of inclusive and playful social spaces might be an inclusive process in itself, ensuring that multiple perspectives and identities are addressed in the design and usage of social public spaces of the future.

Higher education has a significant opportunity to play in developing students' ability to reconceptualize physical environments that influence peoples' experiences in personal and public realms. One strategy to prepare young designers to understand inclusivity in these spaces is by expanding students' empathic horizons before entering the workplace and while in the classroom. Deana McDonagh and Howard Denton originally defined "empathic horizon" as an "individual's range of understanding of user experiences in different contexts."⁹ In addition to their audiences and users, this research investigates how to extend design students' empathic horizons in terms of their own teammates and what this means in terms of improving a team's working process and, therefore, its outcomes. In doing so, the authors consider ways that students can foster mutual respect, and develop an openness to the unique experiences of other people, societies, religions, cultures, social mores, and educational systems. Additionally, the aim is for students to learn to value diversity, deal constructively with conflict, and better understand themselves and others.¹⁰

VISUAL THINKING & BOUNDARY OBJECTS

One way to develop students' empathic horizons is through the triangulation of three distinct areas: visual thinking, intercultural engagement, and collaborative design. Collaborative design is a common occurrence in professional practice in information architecture and many other design disciplines. Intercultural engagement is essential to the success of creative teams who work across national borders to brainstorm ideas, iterate, experiment, make decisions, and produce design prototypes. Visual thinking involves the use of images that are either drawn, photographed, or sketched to make information more visible and accessible.

Based on the sociological concept of boundary objects, visual thinking can aid in expanding teammates' empathic horizons because of the ways in which the objects encourage dialogue, ideation, and communication amongst teammates. Boundary objects can be physical objects that generate shared understanding within diverse teams and/or when working across disciplinary boundaries.¹¹ Together with collaborative design and intercultural engagement, visual thinking is a strategy for students to expand their empathic horizons. Beyond artistic mediums alone, visual thinking involves healthy risk-taking, building trust, blending complementary skills, and mediating conflict resolution. The authors categorize and employ three different types of tangible objects, including: Thought Objects, Progress Objects, and Dialogue Objects.¹²

Thought Objects

Thought Objects show a process or explain thoughts or ideas in visual terms. In this way, they are related to design schemas.¹³ Thought Objects help an individual to better understand their own ideas and possibly communicate those ideas to their team.¹⁴ Design schemas are generally geared toward visualization as a route to clarifying concepts and structures that might underlie a larger design plan, project, or problem. Thought Objects, however, function specifically within a collaborative context to help individuals better understand themselves and their thinking in order to gain insights that enable them to be better teammates or to better express their ideas.

Progress Objects

Progress Objects have roots in generative design research in that they prompt a mutual engagement between at least two teammates.¹⁵ These objects cultivate communication between teammates which can aid in building interpersonal rapport between teammates and can also lead to a productive back-and-forth of idea development, which helps to move a process or project forward.¹⁶ Because generative design is concerned with making in order to support understanding, it is focused on the

evolution of the design process,¹⁷ rather than the nature of the collaboration itself. Progress Objects, on the other hand, are wholly concerned with the development of working relationships, processes, and communications within a collaborative team.

Dialogue Objects

Dialogue Objects prompt conversation or response from people outside of the team. These objects stimulate communication as well as critical thinking by eliciting discussion.¹⁸These can range from rough drafts to more polished works. Dialogue Objects are related to discursive design,¹⁹ often bringing different people together around an idea by giving it tangible form. While discursive design is primarily concerned with the way design can shape the future of society,²⁰ Dialogue Objects are more concerned with the way the team's ideas are received, adapted, and responded to within the present moment. As such, Dialogue Objects can be works-in-progress or an idea in sketch form, whereas discursive design is more focused on polished design deliverables. In the context of diverse teams who are navigating their differences, Progress and Dialogue Objects help to "create new meanings and narratives" around interculturality.²¹

CONTEXT

Intercultural Engagement

This project is part of a long-term study in intercultural design collaborations within academia. In this case study, the project took place between students at Virginia Commonwealth University in Qatar and the University of Michigan in the United States of America. Twenty-nine students were divided into seven intercultural design teams, which responded to a provocation to engage audiences in both cities in social, playful, and cultural experiences. In order to articulate their concepts to a wider audience, teammates collaboratively designed and produced video sketches to bring these imagined environments to life. The teams used tools such as a Google+ community, WhatsApp SMS messaging, videoconferencing, and email to virtually communicate, reach consensuses, build a rationale for their work, and use motion design to demonstrate their ideas.

Constructive Developmental Paradigm

A constructive-developmental paradigm suggests that people can develop empathy, critical thinking, and problem-solving skills by first constructing a broadly informed understanding of themselves.²² Based on the constructive-developmental paradigm, the study examines how design students generate their own ideas and "find their own voices"²³ through collaborative video. First constructing a deep and broadly informed understanding of themselves sets the stage for students to develop critical thinking and sophisticated problem-solving skills. The aim is to move students beyond simply learning about cultural differences and, instead, apply their learning to a deeper understanding of their users. The authors' research focuses on collaborative learning by addressing not just higher-order thinking and learning behaviors, but looking at the experience of collaborative learning and work holistically.

Data Collection: Survey & Written Reflections

Written feedback and survey data were collected throughout the study to provide insight into the learning process and team dynamics as it applies to intercultural collaboration. For example, students were asked to complete a written reflection at the completion of the project by either responding to a series of questions in an essay format or by responding to each question separately. This included

stories from their teamwork experience, records of correspondence, and other process materials to support the reflection. These prompts include questions such as:

• How did the intercultural collaboration shape the direction of your project, your ideas about spatial design, and/or influence the final outcomes?

- What are the benefits and challenges of working with someone from another culture?
- After completing this project, what do you now understand about team dynamics?

The following selection shows the type of questions included in the survey component of the data collection process. Respondents rated their level of agreement on a 5-point Likert scale at the interim and final phases of the project.

- How would you rate your level of understanding of collaborating across cultures?
- How would you rate your level of understanding of designing for spatial interactions/experience?

• How would you rate your understanding of designing for interactions that facilitate human connections, understanding, and/or play?

COLLABORATIVE DESIGN: PLAYFUL AND INCLUSIVE SOCIAL SPACES

The six-week remote collaboration invited intercultural teams to reimagine existing spaces in order to foster dialogue, encourage play between strangers, promote cultural awareness, or celebrate cultural diversity. In addition to engaging in research, process, critique, and ongoing dialogue, teams produced video sketches illustrating their final concepts. The project brief asked the teams to foster dialogue, encourage play between strangers, promote cultural awareness, or celebrate cultural diversity in a positive atmosphere. Teams were assessed based on four broad areas including research, process, ideation, conceptual rigor, realization, deliverables, and presentation.



Figure 1. Thought Objects created and shared in the Belief Brainstorm and Affinity Diagram activity enabled individuals to better understand their own and their group's collective ideas about the other culture. This process helped the group discuss stereotypes in order to help individuals overcome assumptions prior to connecting with their intercultural partners. Both groups completed the activity around the same time (USA, left; Qatar, right). Individuals formulated questions following the activity as a way to "break the ice" and begin a dialogue with their partners.

Phase 1: Thought Objects

Thought Objects empower individuals by using self-exploration and reflection as a step toward developing relationships and understanding with their colleagues or peers. For example, an activity called the *Belief Brainstorm & Affinity Diagram* (Figure 1) helped students to initiate a meaningful relationship between teams with partners located in Qatar and the USA. Both groups complete the activity separately, but at the same time. The brainstorm is composed of thoughts from each person

within each location. Articulating, discussing, and sharing unconscious and conscious biases enables individuals to move beyond assumptions and biases about people, cities, and even entire geographic regions. This process prepared teammates to interact openly and positively with their intercultural partners in the next phase of the teamwork process.



Figure 2. Teammates created a series of Progress Objects, including analog "remix" sketches such as those shown here. This involved low-stakes drawing atop black-and-white print outs of space documentation and combining and reconfiguring a variety of ideas from different teammates through a rapid process of ideation, exchange, and iteration.

Phase 2: Progress Objects

For the next phase of the scaffolded project, teams were asked to consider how their chosen spaces could account for different cultures through user-analysis and personas. Students shared short written and visual descriptions of their favorite documented space(s) and explained why the selected space interested them. This phase involved students in an activity which prompted them to consider, write, and reflect on questions such as:

- What is culturally acceptable or appropriate in these spaces?
- What opportunities are there to reinforce a personal connection or encourage a playful interaction?
- How might analog or digital technology encourage new possibilities for the selected space?
- Are there analogous spaces on the two different campuses or within the two cities?
- What interactions do you see happening in the space(s)?

Through a process of documenting, sketching, hacking, and exchanging remotely (Figure 2), some teams identified and designed for a singular space—for example, creating a safe and welcoming environment for conversations about world religions. Others selected what they determined to be parallel locations in both geographic regions (e.g. public community spaces on their academic campuses) in order to engage audiences in both cultures and consider how they might respond to the same concept. Along these lines, another team created a concept of an interactive "constellation" that addresses the universality of aspirational thinking. Comprising crowd-sourced life goals, this idea could be shared in any cultural setting, and the team's video prototype demonstrates how it might work in Doha, Qatar and Ann Arbor, Michigan (Figure 3).



Figure 3. In order to share their ideas more widely and receive feedback from outside of the two classes, each team created Dialogue Objects in the form of video sketches. These short video pieces visually explained the team's concept by illustrating how the interactive experience would work within their selected space(s). These video stills show the same interactive constellation concept within two geographically and culturally distinct locations (USA, left; Qatar, right).

Phase 3: Dialogue Objects

During this final stage, the teams began to translate their research findings into design concepts to encourage playful interactive experiences in their respective spaces. To accomplish this goal, teams were introduced to John Zimmerman's video sketching approach²⁴ as a strategy to bring the idea to life and showcase how the team's idea could encourage playful experiences in the space. To engage in this method, students first produced analog sketches of their spaces by printing multiple photos and using tracing paper to draw over the photos or highlight the most important features of the space. As a Dialogue Object, these sketches were then refined into a digital collage format and finally embedded in a range of motion design pieces (Figure 3).

The culmination of the project was a presentation to the team's respective university communities (Figure 4). These presentations served to prompt conversation or response from people outside of the team. Teams refined initial pitch statements about the proposed forms and how they were meaningful, what interactions were prompted by the project, and why the concept was the best approach for the chosen sites and audiences. Each team shared their ideas through a final visual presentation, which explained the conceptual framework of their design ideas to a broad audience. These presentations stimulated conversation and elicited discussion amongst all participants.



Figure 4. Members of teams at University of Michigan (left) and Virginia Commonwealth University in Qatar (right) share Dialogue Objects with university community members in the form of public presentations that extend the ideas to an audience beyond the course. These talks brought together members of each respective community to further discuss the ideas and how they could be applied.

ANALYSIS & DISCUSSION

The authors' analysis of survey data and written reflections highlight a number of key areas where students both struggled and flourished. Written reflections revealed that students were able to articulate specific thoughts about themselves and others, constructively deal with conflict, and ultimately discuss and make design decisions based upon the value of diversity and inclusion. Navigating differences in personal and cultural values were central to each team's process and their final outcomes. Moreover, the visual thinking activities developed as part of this research support the claim that collaborative teams work together productively when they engage with the production of tangible objects.²⁵ These activities enabled students to think critically about the social implications of space, design for more inclusive interactions, use motion design as a spatial storytelling and prototyping tool. For example, one student noted that:

"Our collaboration really showed us how to do this by designing something that could not only connect cultures, but transcend any boundaries so that the experience could be applicable to anyone. The intercultural collaboration shaped the direction of our project for the better, and made it more rich and interesting."

Survey data further indicate that creating Thought Objects and Progress Objects provided insight into individuals' thinking and invited dialogue. Being able to see visual representations of each other's ideas enables teammates to pause, consider, and interact with the visual in a way that they might not do when communicating with words alone. Similarly, visual thinking enabled teammates to interact with each other's ideas in a way that promotes low-stakes opportunities for teammates to interact with, hack, manipulate, and try new things by combining or playing off of each other's ideas, as suggested in the following written statement:

"The project is different as a product of intercultural collaboration because I think had it been conducted within one class, it probably would have been [completely] in English, and maybe the approach and even interaction would have been different. Also, the feedback from the other culture had an effect on the overall outcome and was different from the feedback we probably would have received from our peers in class."

In addition to building students' empathic horizons, some of the most significant findings relate to the ways in which students were able to develop their interpersonal communication skills. Some students participating in the study indicated a feeling of hesitation about discussing issues with their partner(s) directly because they did not want to cause conflict. For others, approaching challenges directly with teammates felt scary at first, but in the long run, it was a more effective strategy than relying upon faculty as intermediaries.

"...I was able to learn about the perspectives of different cultures, but also I learned to cope with teamwork problems and communication difficulties so that I can work out better with similar problems in the future. [...] this opportunity helped me to be prepared to work with diverse clients and learn to solve real-life problems."

Team dynamics benefited most from open conversations and problem resolution amongst team members. Students found that their growth as individuals and the ability to handle future collaborations in the workplace could benefit from their ability to tackle these complexities.

CONCLUSION

Ultimately, the findings indicate that intercultural design holds the potential of bringing very different perspectives together to expand empathic horizons in unique ways, and that spatial design opportunities can be a strong catalyst for cultural dialogues and connection. The outcomes of this case study reinforce the dynamic opportunities offered by intercultural engagement, spatial interaction design, and the process of producing collaborative video as symbiotic strategies to expand students' empathic horizons. "Architectural space can take advantage of an audience locally, regionally, and globally by reconceptualizing the role that the physical environment plays in shaping the viewer's experience."²⁶ Moreover, the designer's experience is enhanced by reconceptualizing interactive and inclusive spatial environments. Participating in visual thinking activities throughout an intercultural design collaboration facilitates teammates' interpersonal interactions and enables them to consider inclusion in new ways. Through gaining more insights into themselves, student designers become better equipped to understand a diverse array of perspectives and experiences among teammates and users alike.²⁷

NOTES

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²⁰ Ibid

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THE INFLUENCE OF GREEN WALLS ON THE PERCEPTION OF SPACE

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INTRODUCTION

Recently, general awareness of the importance of natural elements in urban environments has been growing due to environmental problems and changes that also influence the quality of the living environment. Modern urban planning strategies focus on improving and providing green spaces in cities and using sustainable construction materials, natural processes for improving the urban environment, and plant material in designing building envelopes.¹ High-density urban development limits the availability of green spaces, which necessitates a search for new alternatives. In this sense, planting green roofs and greening facades have become two of the most innovative forms of urban greening.²

This article explores public preferences and preconceptions regarding spaces with vertical greenery in two European countries, the Netherlands and Slovenia as countries with different cultural and economic backgrounds. It investigates people's visual preferences and preconceptions regarding green walls as exterior parts of a building that influence the perception of open space in terms of demographic variables. It examines how people perceive vertical greenery in the urban environment and how it influences the perception of open space.

Green walls as an integral part of architecture

Because facades are crucial in architecture and offer the first impression of architectural design, the way vertical greenery is used as a facade element is very important. Green walls should always be seen as an integral part of a built structure and at the same time as a living element. A 2011 study³ examined whether "vegetated houses" (with green roofs and facades) are preferred over non-vegetated houses. The results suggested that houses with certain types of building-integrated vegetation could be preferred. Although the differences were small, the results showed that the specific system and type of vegetation used in the construction influenced the respondents' opinions. However, new greening technologies and their multiple benefits are studied from different perspectives. The results of a study conducted in Singapore⁴ showed that vegetation can enhance visual interest in walls and roofs, and it found that there is a lack of technical information, maintenance instructions, and information on vegetation, which may become a barrier to convincing building owners to install vertical greenery systems on buildings. Nevertheless, the use of vegetation elements should be considered in terms of specific climate conditions. The aesthetic objectives of

integrating vegetation in buildings must be considered from the initial stage because they determine both design and maintenance. Even though green walls are expected to contribute to the visual appearance of urban areas, there is a lack of studies about the perception of green walls in European cities, which differ in cultural, economic, and spatial - environmental characteristic. With different spatial planning history, Netherlands was chosen for its developed concepts and processes and was one of the driving forces behind the European spatial development perspective in past⁵.

Spatial characteristics, urban greenery, and perception of space

This study focuses on the incidence of vertical greenery in the urban environment and its psychological and sociological aspect: the public perception and experience of urban space. Different vertical greenery systems have different appearances because of their physical characteristics (technical support elements, vegetation, etc.). The two basic types are green facades (usually ground-bound systems with climbing plants, directly or with a support system growing on or beside the facade)— and living walls (facade-bound systems in which plants grow from a construction medium attached to the facade). Because vertical greenery is always connected to built structures and surrounding open space, this study explores how people perceive vertical greenery in the urban environment and whether there is a difference in peoples' perceptions between spaces with and without vertical greenery facades.

Perception involves people's senses and can be described as a process composed of different phases⁶—sensing (in which a connection with stimuli is established), processing and organizing information (where the recipients' past experiences are important)—and as a cognitive process that includes interpretation and evaluation connected with the culture and social status of the recipient or subject. Perception of architecture and the built environment is a complex process and needs to be experienced.⁷ Intermodal perception is based on a combination of senses, among which most of the information is obtained through sight. It is connected to spatial characteristics; the relationship between solids and cavities is important, it is a matter of scales, proportions, surfaces, textures, rhythm, and so on. The hypothesis posited in this article is that open spaces that include green walls on buildings are preferred over open spaces without greenery, but that there are differences in the perception of green walls across the countries in Europe with different cultural backgrounds and sample groups studied.

RESEARCH METHODS

The research examined individuals' perception and preconceptions about green walls as they appear in different urban spaces. A visual preference survey was utilized. The methodology was based on exploring subjective responses: identifying and evaluating visual stimuli and personal opinions. Because the descriptive method of this study is intended to be followed by an experimental study that will also include a method for measuring brain response, the stimuli were prepared to be used in both phases.

Visual stimuli

The connection with neurological methodology (processing emotions through measuring brain activity of different hemispheres)⁸ required an examination of various types of stimuli in terms of hypothetical very pleasant on one side and very unpleasant on the other side; therefore, sets of three images were prepared, based on which brain responses could also be measured. The images used included the author's photographs of real places and 3D images produced by others; online available images were used in two cases. To prepare photographic simulations, the digital images were altered.
The aim of image editing was to generate images that best represented the different amount of vertical greenery in the ambience - the two extremes would be a situation with no greenery at all and the situation with a great abundance of greenery. The images were controlled as much as possible to minimize other (than greenery) factors. To investigate the influence of vertical greenery on preferences, besides the amount of vertical greenery also the type of vertical greenery was a distinctive factor.

Questionnaire development

To measure public perceptions and preferences in relation to the presence of green walls, a questionnaire was designed with three sections covering image preferences, preconceptions, and sociodemographic characteristics. The questionnaire began with a set of questions investigating the respondents' sociodemographic characteristics. Supplementary questions about the living environment were designed to determine the background of the interviewee and its possible influence on preference evaluation. Second, the respondents were asked to indicate their degree of preference for every digital image on a scale of -10 ("not at all appreciated") to +10 ("extremely appreciated"). The third section of the questionnaire examined the respondents' opinions and preconceptions about the potential benefits or adverse effects of green walls. The list of positive preconceptions and expectations of the benefit of green walls was derived from the most cited benefits in the bibliography.⁹ The participants were also asked to express their attitudes towards some negative myths stated in the literature ¹⁰ about green walls being installed or grown directly on buildings, using a five-point scale with responses ranging from 1 ("completely disagree") to 5 ("completely agree"). This section also included additional questions about the respondents' willingness to live in a green-walled building and their involvement in or contribution to maintaining vertical greenery systems.

Assessment

The survey was conducted in the Netherlands and Slovenia during the summer of 2019, from June to September (three months). In both countries the invitation e-mail was sent to different groups to gather representative samples. The questionnaire consisted of twenty different spatial situations (urban scenes) which were shown in three versions. All of the sixty stimulus pictures were grouped in random order, each image presented on single page. Although possible start and end effects were considered,¹¹ no additional image was added at the beginning and the end due to the large number of images presented and the future expansion of the study under the same conditions in the neurological experiment. The sample consisted of 223 respondents (valid pools), 131 from Slovenia and ninety-two from the Netherlands.

Data analysis

Most statistical calculations were made with SPSS for Windows, in combination with Microsoft Excel and Graphpad. Values for individual images were analyzed (i.e., a frequency distribution of the ratings and means was determined). The results were compared in terms of the demographic characteristics covered in the first section of the survey. The basic calculations for the first, visual section of the survey included the means and standard deviations, and a detailed analysis of the visual images was conducted by comparing the frequencies of answers provided for an individual image. Responses to the questions in the second section were analyzed in terms of demographic characteristics. This also included establishing correlations between the opinions expressed and the previously provided ratings of individual images.

RESULTS

Of 223 survey respondents, 58.7% were women and 41.3% were men. Both samples from the two countries included people of various ages, mainly the active working population and young individuals. In terms of education, the population was diverse: respondents with bachelor's degree and a master's degree represented more than half of the sample and a third of all had completed secondary school (mainly university students). The survey respondents came from various living environments. The share of those living in an urban environment was largest, following responders living in a downtown area, in a suburban area, in a rural area (in a small settlement), and the smallest sample of those living in the countryside.

Study of preferences: vertical greenery in the urban context

The perception analysis started with the evaluation of responses to all images. The frequency distribution of ratings of an individual visual stimulus showed a trend of concentration and skewing in a negative, middle, or positive direction. Figure 1 shows the frequencies calculated for three variations (A, B, and C) of one of the twenty open spaces presented in the survey.



Figure 1. Example of three visual stimuli, or three versions of the same urban ambience (one of twenty cases) and the frequencies for both samples: Slovenia (n = 131) and the Netherlands (n = 92)

The frequency distributions of individual images' ratings show differences between the Slovenian and Dutch samples, but nonetheless a similar trend of ratings can be observed in both countries. Mean values were therefore employed in further analysis. Based on the means calculated for individual images, an approximate score for every image was obtained in addition to establishing which images of individual urban environments stood out on the rating scale or which images were more attractive (see Figure 2).



= 223)

Based on ranking the mean values from highest to lowest, basic information about the most deviating images was obtained. The images evaluated were grouped according to three indicators: the preference for built space with or without vertical greenery and with regard to the wall greening ratio (versions A, B, and C), the type of vertical greenery systems, and the type of urban ambiences presented. Further evaluation included grouping all images according to three research issues.

First, the distribution of mean values in terms of the amount of greenery on the walls was analyzed. The evaluation of visual stimuli in terms of the facade green coverage ratio showed that the values of images featuring urban spaces without green walls (group A) are, on average, rated lower than images featuring green walls (groups B and C). On average, groups B (medium amount of greenery on the walls) and C (high amount of greenery on the walls) were evaluated as more attractive images or spaces, and there was also a difference between the values for groups B and C: images with dense greenery on facades had a higher mean value.

However, there are differences between the two countries studied. The comparison shows that the ratings of the Slovenian respondents were lower than those of the Dutch respondents. Slovenian ratings of images in all three categories (A, B, and C; n = 131) were lower than those of the Dutch (n = 92) by average of 0.65 points. Differences in the ratings appeared across all categories. Comparing the differences between individual images, the greatest deviations occurred when well-known themes were displayed, which suggests that, when using images of real-life environments, the aspect of familiarity or identification with known themes should be taken into account. In terms of the respondents' sex (Figure 4), the results show that the lowest ratings were provided by Slovenian men and that women in both countries rated the images of green walls higher than men.

The analysis showed interesting differences between the ratings of the Slovenian and Dutch respondents in terms of their place of residence, especially between those living in a downtown area. The results show that the residents of densely built-up areas in Slovenia evaluated variations A (built up space without vertical greenery) more negatively than the Dutch respondents. A major discrepancy in the ratings can also be observed between the Slovenian residents of downtown areas and those living in other urban environments. The latter rated built environments (A) less negatively than the former, while also rating green areas (B and C) higher (similar to the Dutch respondents). The reasons for this are probably connected with the fact that Slovenian residents of downtown areas are not used to green facades. The analysis of results by the respondents' professional background focusing on comparisons between the general public and architecture and urban planning students revealed that the latter rated images showing buildings with green walls approximately half a point higher than the general public. The comparison between architecture and urban planning and other students showed similar results, whereas the comparison between students in field of architecture and urban planning

alone revealed that urban planning students rated spaces with green walls significantly higher than architecture students.

Second, the images evaluated were grouped according to the type of vertical greenery system (i.e., green facades and living walls). A comparison of Dutch and Slovenian ratings indicates the same respondent preferences: both Slovenians and Dutch rated green facades higher than living walls. Figure 4 shows the difference in ratings between both types of green walls, which is slightly smaller in the Dutch sample. This result was partly expected because the basic green facade type has already been historically present in the area (through the traditional use of climbing plants). The results of comparing age groups show that the perception of green wall types among the younger population does not differ significantly from that of the older population.



Figure 4. Mean values for groups A, B, and C in both countries by sex (n = 223)



Figure 5. Mean values for groups W (bare walls), GF (green facades), and LW (living walls) in both countries by sex (n = 223)

In addition, the images evaluated were grouped into four categories or types of urban space (urban open space, public buildings, residential, and shopping/industrial buildings). There were six images (eighteen variations) of open space (squares, streets), seven images (twenty-one variations) of ambience with public buildings, five images (fifteen variations) of residential ambiences, and two images (six variations) of shopping areas. The basic categories were divided into subcategories, so that the results could be interpreted by specific characteristics of the urban space presented.

Taking into account that only a small sample of individual urban space types was used, the results can be interpreted as the respondents' opinions about concrete images, but these results are more difficult

to generalize. In interpreting the results, a distinction was made between images of real spaces (photographs) and architectural visualizations. Among the images of real situations, open public spaces where people can spend significant time and areas next to public buildings were rated the best compared to other types of spaces, and on average shopping and business areas were rated the worst, followed by residential areas. A comparison between the two countries shows that the average Slovenian and Dutch ratings of public open spaces were nearly identical and that the general public rated open spaces slightly higher and images of residential areas slightly lower. Greater differences can be observed with the evaluations of 3D visualizations, for which students rated the relevant spaces significantly higher than the public.

Study of preconceptions and opinions about vertical greenery

The aim of the questions in the last section of the questionnaire was to determine the respondents' preconceptions about vertical greenery systems, differentiating the possible advantages and disadvantages, and their attitude towards these elements on buildings. Benefits, evident from Table 1 are also listed in the literature; nevertheless, it is interesting that improved visual attractiveness and improved appearance of buildings were rated as high as architecture itself has important cultural value in both countries. The respondents had difficulty accepting that green walls could improve the energy efficiency of buildings (in summer) and did not make the connection between the attractiveness and other benefits and the effect on real property value.

Benefit	Mean	SD
Influence on microclimate	4.16	0.76
Sustainable rainwater management	3.89	0.84
Possible use of treated graywater	3.57	0.99
Improved thermal comfort	4.23	0.75
Improved building insulation	3.53	0.95
Reduced energy requirements for building	3.49	0.99
Increased real property value	3.58	1.05
Enhanced outdoor space value	4.21	0.77
Improved visual attractiveness	4.28	0.84
Creating space for food production	3.48	0.98
Enriched biodiversity	4.12	0.82
Educational role	3.65	0.90
Impact on noise reduction	3.70	0.97
Improved air quality	4.28	0.78
Improved wellbeing and health	4.28	0.74
Artistic value	4.28	0.72
Improved building appearance	4.28	0.70
Promoting green cities	4.32	0.80
Contributing to environmental goals	3.81	0.92

Table 1. Highlighted benefits of green walls: mean values of ratings on a scale of 1 to 5 (n = 223).

Regarding the disadvantages (Table 2), the potential problems and dangers with the highest average score included management responsibility problems, lack of maintenance, and the cost of

Problem	Mean	SD
Lack of maintenance	4.05	0.79
Management responsibility	4.08	0.78
Insects	3.61	0.96
Presence of small animals	3.43	1.01
Tidiness, falling leaves, etc.	3.35	1.04
Facade damage	3.33	1.02
Presence of allergens	3.29	1.01
Vandalism	2.88	1.10
Fire safety	2.98	1.04
Building safety issues	3.12	0.99
Wall moisture retention	3.53	0.86
Cost of adding vertical greenery	3.67	0.93
Management cost	3.67	0.89
Maintenance cost	3.87	0.85
Building identity loss	2.71	1.07
Appearance in winter	3.28	1.03
Neglected appearance all year round	2.97	0.97

maintenance. It is interesting that possible vandalism, fire safety issues, neglected appearance and building identity loss were the disadvantages with the lowest average score.

Additional questions about the respondents' willingness to live in green-walled buildings showed that more than 60% of the respondents from the Netherlands and Sloveniawere in favor of this. Regarding the opposite, approximate 5% respondents from the Netherlands and 15% of the respondents from Slovenia would not like to live in a green-walled building – the interesting difference between the counties can be seen also as one of factors of low popularity of those elements in Slovenia.

CONCLUSION

This study examined public preferences and preconceptions about spaces with vertical greenery as the general interest in potential greening of the cities as part of urban design strategies. Understanding people's attitude towards the urban environment and the presence of natural elements in it is key to defining quality criteria and guidelines for planning and design of these spaces. The study is comparing two European countries, the Netherlands and Slovenia, between which certain differences in perception were expected. Although the research does not focus on the origin of these differences as they derive from socio-economical characteristics of countries, the study shows some interesting points where the trend in evaluating different ambiences is similar in both countries and differences between specific demographic groups are spotted. In terms of demographic characteristics, the survey included a wide range of respondents. Its results have shown that the urban ambiences with vertical greenery presented are preferred over urban ambiences without green walls. It will be interesting to analyze the results revealing people's preference for densely vegetated walls over medium vegetated walls in the neurological study planned for the second phase and to compare the results of both studies. The findings show it would be sensible to pay more attention to other research on green

Table 2. Highlighted problems and dangers of green walls: mean values of ratings on a scale of 1 to 5 (n = 223).

infrastructure in cities - in the context of the studied green walls the comparison with other elements of the urban green systems is needed.

Study showed that green facades, which are traditionally a well-known type of vertical greenery in Europe, are the preferred type of green walls in all cases and all age groups. In European countries, vertical greening should be introduced as a possibility with ongoing research on priority areas of use, integration in architecture, and use of specific types adjusted to the architectural context and the functional aspects, taking into consideration the local stakeholders' and users' preferences for open space design. This study showed that sociodemographic characteristics and living environment influence preferences and perception. Further studies with a larger sample and more images are recommended, although the problem of overly long surveys should be taken into consideration.

This is an international survey addressing only visual perception. There is a need for future research on green walls that would also include other senses. Regarding the quality of space, the study addresses the possibility of evaluating the need for green features in urban areas, especially open spaces. Nevertheless, green walls should always be implemented and considered from all aspects of architectural design in order to perform as successful systems. Only well-maintained green walls can have a desired positive influence on people.

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DOORING: EXPERIENTIAL BOUNDARIES

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INTRODUCTION

Few devices lend themselves to debates on our physical encounters than the door. As 'dual phenomena' ¹ of *outer/inner, public/private* interdependencies, the door is hidden in plain sight and overlooked in the wider experiential discourse. The scenes and acts unfolding at the door are seldom used to reflect upon the shifting relationships between people, objects and environments. Reimagining the doorset as a conceptual stage-set, this paper frames the door as the architectural micro-site of serendipitous social interactions, transactions and occasional transgressions. As a context ripe for performative association, its physical anatomy also masks profound psychological needs in controlling and monitoring entry. Saturated with symbolic, metaphorical and psychoanalytical associations, the door is more than the mere sum of its physical parts. It marks the transition into private and unconscious realms as suggested in Atget's photography as, 'a meeting ground between domestic and civil life, the innermost plane of the private person's public face' ² Contrasted against the magnitude of the city, the ubiquity of the door reminds us that the true face of the city, as Benjamin stated, is revealed not in its outer materiality but in 'the sharp elevations of the cities inner strongholds' ³ and it is the door that is front-of-stage in these relationships.

Dooring

In rethinking the door, we might require a new addition to the lexicon; 'dooring'. *Dooring* suggests an alternate way of understanding the door and examining its potential ⁴. Equally, it is useful in exploiting Teyssot's 'dual phenomena' more playfully between its utilitarian purpose and its performative associations enacted in those serendipitous interactions. Here, the door is a conceptual origin point in which to speculate on the forms, technologies and behaviours that it accommodates when seen through the lenses of art, design and architecture. Viewing the door as a strategic and symbolic boundary device, it is also a site of self-expression, the occasional political encounter or temporary homeless sanctuary.⁵ This offers an interiorised 'line-of-sight'– a trajectory absent from the discourse of the experiential city and suggesting that we do not arrive in the city until we arrive at the door.

As a tactile encounter Pallasmaa's 'handshake of the building' reminds us it is the door not the 'architecture' that offers us that haptic experience – 'my body weight meets the mass of the cathedral

door, and my hand grasps the door pull as I enter the dark void behind.' ⁶ It is at the door where we pause to perform an act[ion], to caress, touch, insert, twist, push and pull on its anatomy whilst interacting with the *bell, letterbox, keyhole, doorknob....* the *door handles*. The door invites aesthetic interventions in ways normally prohibited by the architecture in which it is framed. In decorating a door the inhabitant's aspirations and identity become externalised inversions of the environmental psychologists term 'identity claims' where 'the minutiae of our private spaces hold the secrets of our true personality.' ⁷ Lo Ricci reinforces the haptic and performative allusion further '...even in architecture, the door has taken on a leading role; it is a secondary, instrumental element – if considered in relation to the complexity of an architecture - and yet it is the first thing with which people come into contact when entering a building: through the door you can enter other worlds', reflecting Bourdieu conceptual 'plane in which the world reverses itself.'' ⁸ Van Eyck's exploration of the metaphysical threshold – the 'shape of the in-between' reveals the liminal and poetic passage between interior, door as the city⁹ forming, as Zumthor suggests, points of tension between the outside and the inside ¹⁰. The threshold has its guardians, gods and spirits for they are symbols and, at the same time, vehicles of passage from one space to the other.'¹¹

Contexts

The door has a long history as a strategic and symbolic boundary device used to control entry or exclusion to a city or inner sanctuary. Its ubiquity is reflected in its leading role in diverse creative fields. From architecture, film, art, music and literature the door makes an appearance. In Dante's *Divine Comedy* the doors he encounters on his journey alter their size according to the places to which they give access to, whilst Duchamp's work, *Rue Larrey 11*- represents the 'double-essence' of the door by making the one door serve two doorways, i.e. both open and closed simultaneously. ¹² As architectural theory, Von Meiss explores the door / threshold relationship citing their *semantic, utilitarian* and *protective* features . Outlining the social, behavioural and cultural influences on either side of the limit where 'numerous rites accompany the passing of the domestic threshold- a bow, a prostration, a pious touch of the hand.' ¹³

Though diminutive against the stature of the city, the door remains a significant element in a wider collage of architectonic parts as celebrated in Koolhaas's '*Elements of Architecture*' at the Venice Architectural Biennale 2014. Here the door's elemental role was exhibited alongside its *ceiling - stair* – *corridor – façade* counterparts. Forever *on-stage*, the door was expressed as an actor in a theatrical diorama with other props and mock-ups. Koolhaas's focus however, centred around the door's ancient role as a secure boundary device examined in two extremes: a fifteenth century castle and the twenty-first century airport. In the Burg Hochosterwitz, Austria (1571) the door takes the form of fourteensecurity gates to defend its Christian inhabitants from the invading Ottomans. Symbolizing the fourteen Stations of the Cross each offers a unique security measure i.e. murder-holes, trap doors with spikes, windows for pouring hot oil to delay and dupe the antagonists. ¹⁴ A traditional element once invested with physical heft and graphic iconography has turned into a dematerialized zone. A gradual transition registered by the ephemeral technologies and body-scanners running concurrent with architectural, technological and societal change. Where once it privileged isolation it now aspires to movement, transparency, accessibility—which the door, by definition, stands in the way of. ¹⁵

Performance / Performance

The paper introduces the term *dooring* whilst toying with the suggested *design and performance* theme of the conference to examine the door's performative potential rather than its utilitarian performance framing the city from the inside out. Analogous with the natural fissure in a cave, the

door whether an immaterial membrane, dematerialised veil or an explicit object has played a significant role in the evolution of our cities and in understanding its physical, symbolic, ritualistic and conceptual characteristics. ¹⁶ Though simple in its conception and application, the conceptual fascination with dematerilaized door has surprising origins in our remote past. One could argue that the fissure in the cave represents the authentic dematerialised doorway. Expressions of the doors implicit membrane is evident in Magritte's *La Résponse Imprévue* 1933, in Christian Keretz's *Oberreealto Chapel*, Switzerland, 1992 and in Reyner Banham 1965 essay 'A Home is not a House' (and images by François Dallegret) where the *door* is replaced with an air-curtain.

Boundary Device

As a strategic boundary device, - a cybercrime term used in the IT sector, ¹⁷ the door's ability to monitor entry and exit responds to increasing territorial insecurities. This is more acute in exclusive gated communities whose technological dependency reflects deep-rooted anxieties about encroachment but are unwittingly 'paving the way for domestic designs that imprison free inhabitants in alarmed paradises.' ¹⁸ The doors components -the threshold- jamb -mullion- stile -rail, etc., offer a basic anatomy of an object. However, such simplicity has a more emotive and bodily expression in the elaborate baroque door at Casa Zuccari, Rome, 1591. Frederico Zuccari's use of anthropomorphic allusions reminds us of the symbolic representation that the door once held as the 'mouth', just as the 'window' held for the eye; the 'façade' as the face. This is now shifting as the door incorporates digital eves and remote ears through smart remote sensors whose presence on the door itself is remotely monitored by *absent* occupants. However, as Spiller suggests, the decorative aligns with the digital where, 'the aged doctrines of Modernism are being questioned; decoration and Baroque distortion are respectable again.' ¹⁹ Not unlike Koolhaas's dystopian observation of doors in airports, one wonders when more optimistic or playful counter-cultural technologies will emerge. Being at the door, rather than the plaza, suggests opportunities to reconsider the it as a spatial intermediary between the city, the interior and technology. Andrea Branzi's holds the view that 'the twenty-first century city is no longer just a bunch of boxes having transformed itself into a territory of commodities, exchanges, information and services... or posed as exterior to an interior-making. Instead, the city itself has become a continuous interior where there is no exterior side.' ²⁰ Notable commentators, such as Massey, Grosz, Castells, Thackara and Novak have discussed the forces shaping our understanding of the built-environment which Roscoe described as complex states of *digitalia*²¹ that brings opportunities for new hybrids and typologies to converge. Novak's speculations on a 'liquid architecture' suggests one way forward. 'Liquid architecture is an architecture that breathes, pulses, leaps as one form and lands as another....an architecture whose form is contingent on the interests of the beholder; it is an architecture that opens to welcome and closes to defend me... it is an architecture without doors and hallways; where the next room is always where I need to be and what I need to be.' Roscoe postulates how this will '...spill into, draw out, overlap and puncture the interior...' and one wonders if the door is an architectural mediating element in this change? Thackara, however, sees potential for physical spaces to become islands of salvation of the 'real' amidst a sea of endless data streams and digital saturation whilst Grosz argued that this is bound to affect perceptions of space, materiality and our reading of 'boundary' and the built environment. Doors are also geographical boundary-markers of specific limits in any city revealing themselves through their sequential place in a series of other related places, e.g., No10 next door to No11. As abstract but discrete post-codes they are also an opportunity to imagine more evocative, romantic personas - Cairn Duill; Rose Cottage, etc., whilst 'for Benjamin, the interior possessed both phantasmagoric and ritualistic qualities, with the threshold occupying a central place within the potentially enchanted space of the interior.'.' ²²

Enter Stage Left

Seen conceptually as an architectonic *mise en scène*, we might interpret *the door* as the theatrical backdrop and, if we continue that line-of-thought, imagine its counterpart -the threshold as the conceptual stage in our serendipitous interactions. These performative parallels recall the idea of the interior itself as 'a box in the theatre of the world' and as the hidden backstage to the city's frontedness.²³ Similarly, the architectural settings of Serlio explored parallels between the theatrical framing of street life and the fictional world of the stage, examining off-stage and on-stage worlds through the doors and thresholds of the Renaissance street to illustrate the drama of urban life through its entrances and exits. ²⁴ This theatrical analogy has its place in the immateriality of the digital where Bouman describes architecture in the digital era as becoming itself '. a migrant. There is a temporal aspect to this. Rather than creating place, designers stage-manage moveable situations. The relationship between the individual and the object becomes the relationship between dynamic places and (sometimes manipulated) states of mind.' To this theatrical thought we see the door itself as an actor- a door that gesticulates and annunciates. The door's dynamics, rotational actions and sweeping arcs offer a worthy parallel to the gestures and movements of a flamboyant thespian but also the dynamic ebb and flow of passage that addresses the door's temporal qualities. In the theatre, both farce and domestic comedy rely upon doors for their comic rhythm. These 'necessarily ambiguous and time-based constructs, refer to both the physical and the psychological states of being.' ²⁵ Gae McAuley's critique of the performativity of the theatrical setting observes that 'the nature of the door articulates the relationship between the here and the beyond.' ²⁶ We can unpack these *dooring* observations to invoke other conceptual *foldings* between interior, door and city as the 'constitution of an inside and interiority as a 'folding' of the outside ²⁷, or 'where the interior is produced through an *in-folding*' whose surface does not produce a hermetic seal against the external world, but rather is activated through the inhabitant's relationship to the city ²⁸. Viewed through a psychoanalytical lens, Fuss describe Freud's segregation of the two areas of his practice, psychoanalysis and writing, kept separate by a threshold that bisected his office.²⁹

@Home

Digital culture has hastened the erosion of division between inside and outside, taking 'inside' beyond the envelope and 'outside' within. In the context of dissolving interior boundaries and its own dematerialization, the door remains a powerful metaphor.³⁰ However, the door is increasingly complicit in remote surveillance signalling a shift in its digital armoury and architectural anatomy. How this evolves remains an intriguing challenge. This effect of digital technology has been described by Crary as 'the process by which capitalism uproots and makes mobile that which is grounded, clears away or obliterates that which impedes circulation, and makes exchangeable what is singular' ³¹. Massey citing Castells, describes the new spatial condition where we are '...moving from an age in which we lived in a *spaces-of-places* to an age in which we live in a *spaces-of-flow*...commonly evoked as a complete abandoning of spatial barriers...Instead, we continue to strengthen all kinds of barriers in the world.³² Sterling highlights similar shifts in which the door may be on the front-line. 'I think the reason people don't discuss domesticity any more is that they don't want to admit the wolf is in the living room...Amazon has rendered your house transparent. So even if you imagine you have the privacy that Reyner Banham was talking about in 1968...it's long gone! ...you can shut the front door, but nothing is private. It's the New Deal in the domestic sphere, people just don't realise it yet, but, really, the wolf is in the living room.³³

Installing / Installation

Artistic responses to the door offer architectural and digital practitioners' alternative strategies and counterpoints that are nuanced and revealing. Scott Snibbe's *Boundary Functions*, 1998 was one of the first hybrid interactive artworks to examine personal and collective space in an experimental threshold.

Using Voroni diagrams, computational projection and algorithms Snibbe captured the shifting boundaries and provided fascinating data more akin to space-syntax theory but useful to the wider understanding of the social choreography occurring at the door and city.³⁴ Similarly, the *architectonic ghosts* in Rachel Whiteread's *Untitled: Cast Iron Floor* exposes our preoccupation with a vertical door face rather than its horizontal threshold ³⁵ Both artworks raise questions, echoing Van Eyck ,asking how artistic practices lead to better design thresholds that challenges that digital armoury on the architectural anatomy of the door. In *Between States*, multiple doors and sequential encounters along a commuter's journey are explored³⁶ Using Rilke's notion of the *Dinggedichte*, or thing-poem, Louise Ritchie explores the door as an object or portal that 'does not come before the mind's eye as a mere isolated object, but as a phenomenon whose meaning is revealed through the manner in which it takes part in a larger context.' ³⁷

The door as an object holds properties expressing something of its inherent materiality but also absorbs the patina and interactions between the individual and the collective passage. If we consider this in the context of *Imponderabilia* by performance artists Marina Abramovic and Ulay, 1977, the door-threshold is, in this instance occupied by two naked bodies that invites an awkward or perhaps erotic passage for participants. This extreme proximity is not unlike that of the dance between commuters caught between strangers united only by the stops along the way. The forced intimacy and breaking of personal boundaries, although largely consensual and especially potent in the context of social-distancing, are often unsettling. The larger context suggested by Rilke, offers an expanded view of the door-threshold as a shared experience that transports individuals between spaces, between cities, between interior-exterior states both physical and psychological, revealing new and familiar places. These interconnected portals can operate as a sequential encounter of multiple doors along a journey or accessed as a series of considered or random improvisations with a myriad of potential entrance and exit points.

CONCLUDING REMARKS

Dooring as a concept unlocks a richer set of possibilities within the dualities of performance and performativity; the element and the elemental.

The door is not simply a question of design; it is deeply nuanced. *Dooring* offers a view of the artistic properties so often excluded when we question the door's role in the environment and allows us to speculate on the dramaturgy surrounding the door or portal as an intrinsic layer of poetic encounters throughout the experiential city. Aronson reminds us that on the stage, a door is a sign of the liminal, the unknown, the potential and the terrifying. Represented in dramatic performance to create and reinforce social hierarchy, it has been described as 'the most profound technological and scenographic development in the history of theatre.' ³⁸

Goethe offers that the 'threshold is also the expectation' ³⁹ whose existence is not simply to access one place from another. In this same way we might consider a stair or bridge as a mere device to get us from here to there but we offer it as a consideration through ritual, artistic or performative actions that may reveal promises for experience, escape and refuge.

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MATERIAL-TOUCH-EMOTION LEX DESIGN FOR WELLBEING

LEXICON EN

ENABLING

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INTRODUCTION

Emotions are highly complex and subjective and play an important role in mediating how one faces responsibilities and dilemmas in everyday situations. Positive emotions appear to motivate a person, facilitate wellbeing, and better coping, helping to build stronger interpersonal relationships. Although some negative emotions can be a motivating factor for performance, if experienced chronically, over time, can have unfavourable effects on the lifestyle of a person.^{1,2,3}

Our senses interact with everyday situations, including any physical materials we encounter, which can stimulate an emotional engagement and may contribute to the outcome of positive or negative experiences. Humans constantly explore and interact with their environment through touching surfaces.^{4,5} We use touch to learn about people and other objects through sensory experience or when memory is evoked associating them with experiences and meanings.⁶ Touch can be a strong foundation for feelings and emotions; studies suggest emotional development and wellbeing may also be affected by the touch of objects.^{7,8} Touch can include active touch where hands are used to actively explore objects or passive touch where objects are applied to the person; this project focuses on the experience of active touch of materials.

Emotions are often referred to as something intangible in design literature.⁹ Norman¹⁰ proposes that materials may be processed at different levels- visceral, behavioural and reflective. The visceral level is the immediate emotional response where first impressions are formed; visceral design is about the look, touch, sound, appearance and feel. The behavioural level of processing is about experience with the material while using/ seeing/ touching it. The reflective level is where the material is interpreted. This interpretation depends on several factors including memories, culture, previous experience, subjective differences and can create long lasting emotions. A real emotional experience with a material/ product/ object involves all three levels of processing.

Research suggests that sensorial properties of materials, which refers to the felt tactile sensations when a material is touched or handled, along with subjective perception, play a crucial role in evoking emotions.^{11,12,13} Touch perception is usually associated with more than one physical property for example, warm-cold, slippery-sticky, smooth-rough, hard-soft, bumpy-flat, wet-dry^{14,15} and the emotional experience of touching a material may be connected to these physical properties and the

way it affects sensations and perceptions.^{16,17} Although some studies may have used certain materials which are thought to promote calmness or evoke a positive response,^{18,19} there is no definite characterisation of materials based on sensorial properties and emotional responses. With the understanding that emotions influence our wellbeing and that the touch of everyday products and materials stimulate an emotional engagement, this study proposes to understand emotional responses to the touch of material stimuli.

From a psychological perspective, different emotions can be rated in terms of arousal and valence, as depicted in the representation of the Circumplex Model of Affect in Figure 1.²⁰ Many commonly used emotional words used in psychological research may be well suited to describe general emotional experiences but may not necessarily be well-suited to describing tactile -induced emotions. Considering that emotions that arise from touching surfaces have not been studied in as much detail as the sensory aspects of touch,²¹ Guest et al. had taken a step towards developing a touch lexicon consisting of sensory, emotional and evaluative aspects with the Touch Perception Task (TPT).²² This was further adapted in a study involving sensory and emotional perception of wooden surfaces through touch.²³ Another study²⁴ used sensorial word pairs and affective word pairs to evaluate tactile responses. A review by Schindler et al. (2017)²⁵ compiled subjective emotion measures to music, dance literature, painting, theatre, film/ television and consumer products but there is none specific to the domain of touch, to the best of the researcher's knowledge.



Figure 1. A graphical representation of the circumplex model of affect

Based on review of relevant literature in the field of emotions specific to material touch, a previously utilised emotion questionnaire may not be suitable for capturing the range of emotions elicited through the touch of materials. Thus, the aim of the current study was to develop an emotion lexicon for the material touch-elicited emotions. Building on previous studies by Guest et al.²⁶ and Davis,²⁷ the current study was designed to narrow down a list of emotional adjectives used to describe the touch of a material surface, thereby identifying and developing a material-touch-emotion lexicon. This lexicon would be a step towards supporting designers/ product developers to make informed and considered choices while designing with materials for overall emotional wellbeing.

METHODS Participante

Participants

Participants were screened for eligibility via an online anonymous Qualtrics survey. Inclusion criteria addressed the need for participants to be a healthy young adult within the age group of 18 - 30 years and have the required proficiency in English to follow instructions and complete questionnaires. The exclusion criteria addressed the participant's history of any diagnosed mental health disorder; the justification for this criterion was that we wanted to know how a typical sample of young healthy adults responded, therefore we excluded participants with a history of mental disorder.

The sample included 77 participants (32 females, 39 males, 6 no answer) aged 18 to 30 years old (Mean= 24.34, SD= 3.50). 57.7% described themselves as Asian, 17.9% as Australian, 12.8% as European, 1.3% as African, 1.3% as Brazilian and the remaining 9% as other.

The study design was granted ethics approval by the RMIT University Human Research Ethics Committee under Ethics Approval number 21615 and participants provided signed informed consent prior to participating.

Material selection

The collection of materials represented a range of everyday textures which were loosely categorised into sensorial groups of smooth vs. rough, dry vs. sticky, warm vs. cold and soft vs. hard, adapted from previous studies on touch perception.^{28,29,30,31} Figure 2 represents a diagram representing material selection based on bipolar attributes for the study.



Figure 2. A diagram representing material selection based on bipolar attributes

Experimental Setup

The materials were presented to the participants to touch by hand, one at a time, laid flat in a cardboard box, out of sight (Fig 3, 4 and 5). The absence of visual modality eliminated its influence over choices/ preferences made by participants by focusing primarily on the haptic.



Figure 3. Illustration of a person inserting hands into the cardboard box to touch materials



Figure 4. Participant inserting their hand to touch a material in the box

Procedure

The study was conducted in three steps:

<u>Step 1- Free association:</u> Participants were presented with materials one by one and asked to describe some emotional adjective words to depict each material.

<u>Step 2- Activation and Valence:</u> Based on Russell's Circumplex model of Affect (Figure 1), participants were asked to plot what the material communicated to them in the grid provided (Figure 6). The x- coordinate is the valence dimension from Unpleasantness to Pleasantness and the y-coordinate is the activation dimension from Relaxed (deactivated) state to a Stimulated (activated) state.



Figure 6. Step 2- Activation and Valence: participants communicated what they felt in the grid provided

<u>Step 3: Word Association</u>: Based on the emotion words from the TPT (Touch Perception Scale) as developed by Guest et al.³² a list of emotion adjectives was compiled from this paper. This list of emotion words was further added to the emotion words from the Circumplex model of Affect. Participants were given this combined list of emotion words in Table 1 to describe their emotions on touching the material. They were asked to circle any words that they found relevant for a given material.

Arousing	Desirable	Gentle	Pleasurable	Stressed
Alert	Depressed	Нарру	Painful	Thrilling
Annoying	Discomfort	Heavenly	Relaxing	Tender
Blissful	Exciting	Irritating	Sensual	Tense
Calming	Enjoyable	Joyous	Sexy	Upset
Contended	Elated	Meaningful	Soothing	Warm
Comfortable	Erotic	Nice	Sad	Weird
Creepy	Fatigued	Nervous	Serene	

Table 1. List of emotion words provided to participants to circle in Step 3

DATA ANALYSIS

The data for the survey in the first step, was examined through a thematic analysis according to guidelines established by Braun and Clarke.³³ The paper reports the findings of this analysis with anecdotal extracts from the data and relating it back to the research objective. The second and third steps were statistically analysed using descriptive methods and inferential techniques in SPSS. The independent results of the thematic analysis and the quantitative analysis was then linked, combined, compared and integrated to make conclusions.

RESULTS

Free association to the materials (Step1) was carried out before the other two steps so as not to influence participants with any given emotional adjective.

Step 1: Free Association

Step 1 involved describing the materials through free association using any emotional adjective that came to mind. During this step, the researcher prompted the participants to go beyond the immediate sensorial attributes of the material and think about their experience of how they felt while touching the material, by reflecting on past experiences and memories linked to that felt sensation. They were invited to think about how 'they' felt instead of how 'it' felt, 'they' referring to the participant and 'it' referring to the material.

Overall, participants felt it gave them an insight into their personal choices as the tactile sensations evoked personal experiences and memories prompting them to associate emotions to these sensations. Analysis of the free emotional association transcripts generated two main thematic responses, a positive response and a negative response for each material. Sensorial descriptions and neutral responses have not been taken into consideration for this study. The percentage of responses in Step1 is tabled in Table 2.

Material	Positive	Negative	Sensorial	Neutral
	response	response	descriptions	
Mat 1 (Cold - Aluminum)	40.26 %	29.87 %	24.68 %	5.19 %
Mat 2 (Rough - Sandpaper)	14.29 %	64.94 %	20.78 %	0.00 %
Mat 3 (Dry - Foam)	50.65 %	18.18 %	25.97 %	5.19 %
Mat 4 (Sticky - Silicone)	7.79 %	53.25 %	35.06 %	3.90 %
Mat 5 (Soft - Fur)	80.52 %	15.58 %	2.60 %	1.30 %
Mat 6 (Hard - Word)	25.97 %	24.68 %	40.26 %	9.09 %
Mat 7 (Warm - Fleece)	63.64 %	10.39 %	20.78 %	5.19 %
Mat 8 (Smooth - Satin)	58.44 %	6.49 %	32.47 %	2.60 %

Table 2. Percentage of responses for each material in Step 1

Positive responses

Material 5 (Soft- Fur) evoked the maximum percentage (80.52%) of positive response. Anecdotal evidence collected to support this are:

"Comforted, Relaxing, lying in bed, I used to have a sheep fur in my childhood bed"

"Fluffy dog - happiest. Warm, cosy, safe. Blankets, security, huggable, sexy to some extent, wind moving within the fur - calming. Swaying of the fur - a slow dance"

"Pet dog, warmth and comfort, will make your sad day happy"

"Hot, Playing with pets, Mountain, Evenings in front of chimney"

"Warm and fuzzy, makes me happy, carpets, soft toys, daydreaming, feel a little lost, stuffed toy, excited"

"Happy memories, cushioned, protected, floating, airheaded, comfortable, very happy"

"Relief, mum's smile, cuddling with my baby"

"Reminds me of my pet dog; has a similar feeling to roadside grass with really fluffy flowers; touching someone's head; feel happy, excited, a burst of joy on touching it; I would like to own a jumper/ blanket like this; feel like touching a cloud; calming, I feel like touching it more".

Negative responses

Material 2 (Rough- Sandpaper) evoked the maximum percentage (64.94%) of negative response. Anecdotal evidence collected to support this are:

"Hurt, Sharp, Unwelcome, Getting attacked, Harsh"

"Shards of glass, painful, hurtful, sharp words during arguments, rough but necessary part of life, cuts and bruises while playing"

"Hostile, hatred, hurtful, strict, firm, passive aggression, anger, hurting, rude, arrogant"

"Knee scrapes, scared to move my skin against this, reminds me of a road, dusty, dry, hard; makes me alert; would stay away from this material, keep my distance; reminds me of sanding wood and getting my fingers cut"

"Annoyed, brash, discomforting, prickly, itchy, unpleasant"

"Alerted, Anxious, Defensive"

It was observed that most participants used the recall method to verbalise their emotions. Memory is the ability to recall past experiences. Emotional response to the selected materials was dependent on the participant's subjective haptic memory linked to past experiences with similar sensorial properties.

Step 2: Activation and Valence

Bar graphs with error bars representing standard error of the mean were generated for the Valence and Arousal ratings for each material (Figure 7 and Figure 8).



Fig 7: Simple Bar Mean of Arousal ratings to materials



Fig 8: Simple Bar Mean of Valence ratings to materials

It was found that Material 2 (sandpaper) had the most positive arousal (p < .001, one-sample t-test against 0) (stimulated) and negative valence ratings (p < .001) (unpleasant). Therefore, Material 2 which is sandpaper with a rough attribute could be termed as a distinctly 'negative' material. Material (Mat) 5 (fur) had high positive valence ratings (p < .001) (pleasant) and negative arousal (non-significant, p = .204) (deactivated/ calm). There is another material, Material (Mat) 7 (fleece),

which had less positive valence rating than Mat 5 (though still significant, p < .001), but had a similar negative arousal as Material 5 (p < .05). On comparing the arousal ratings for Mat 5 and Mat 7, it was found that they are not statistically different from each other, but we can see that for Mat 7, the error bar is smaller than Mat 5.

The median values of the Valence (X axis) and Arousal (Y axis) for each material is tabled in Table 3 and Figure 9 is a representation of these median values when placed in the grid based on the Circumplex model of Affect. This representation suggests that materials 2 and 4 are the most negative and stimulating, whilst 3 and 5 are the most positive and calming, and material 7 is positive and moderately stimulating.

	Mat 1	Mat 2	Mat 3	Mat 4
Attribute	Cold	Rough	Dry	Silicone
Material	Aluminum	Sandpaper	Foam	Sticky
Valence (X axis)	0	-1.5	1	-1.2
Arousal (Y axis)	0	1.5	1	0.8

	Mat 5	Mat 6	Mat 7	Mat 8
Attribute	Soft	Hard	Warm	Smooth
Material	Fur	Wood	Fleece	Satin
Valence (X axis)	2	0	1	1
Arousal (Y axis)	-1	0	1	0

Table 3: The median values of the Valence (X axis) and Arousal (Y axis) for each material



Fig 9: Median values of materials (step 2) placed in the grid based on the Circumplex model of Affect

Step 3: Word Association

Through this word association step, we aimed to identify the most used emotional adjectives to describe each of the selected materials from a list provided to participants. From the results, it was uncertain whether the use of the adjective 'gentle' was intentional or unintentional or used in lieu of a

better describer as it was used extensively for almost all the materials. In view of this, Table 4 lists the ten most used emotional adjectives for each material except for 'gentle'.

Material 1: COLD	Percent	Material 7: WARM	Percent
ALUMINIUM	Material 1	FLEECE	Material 7
Calming	28.2%	Comfortable	48.7%
Relaxing	25.6%	Calming	42.3%
Soothing	23.1%	Warm	39.7%
Nice	21.8%	Relaxing	37.2%
Alert	17.95%	Нарру	26.9%
Blissful	14.1%	Nice	26.9%
Tense	16.7%	Pleasurable	23.1%
Stressed	14.1%	Enjoyable	19.2%
Nervous	14.1%	Tender	15.4%
Irritating	12.8%	Joyous	14.1%

Material 2: ROUGH SANDPAPER	Percent Material 2	Material 8: SMOOTH SATIN	Percent Material 8
Discomfort	51.3%	Sexy	34.6%
Irritating	43.6%	Desirable	29.5%
Alert	41.0%	Pleasurable	28.2%
Painful	39.7%	Relaxing	21.8%
Annoying	34.6%	Comfortable	21.8%
Stressed	26.9%	Calming	19.2%
Tense	21.8%	Erotic	17.9%
Nervous	20.5%	Нарру	16.7%
Сгееру	20.5%	Exciting	15.4%
Upset	17.9%	Enjoyable	15.4%

Material 3: DRY FOAM	Percent Mat 3	Material 4: STICKY SILICONE	Percent Mat 4
Comfortable	39.7%	Weird	48.7%
Relaxing	34.6%	Сгееру	44.9%
Calming	26.9%	Discomfort	43.6%
Soothing	23.1%	Irritating	29.5%
Pleasurable	21.8%	Annoying	29.5%

Page 125

Experiential Design - Rethinking Relations Between People, Objects and Environments

Enjoyable	21.8%	Tense	28.2%
Нарру	19.2%	Stressed	23.1%
Nice	19.2%	Alert	21.8%
Weird	19.2%	Upset	10.3%
Warm	16.7%	Depressed	10.3%

Material 5: SOFT	Percent Material	Material 6: HARD	Percent
FUR	5	WOOD	Material 6
Нарру	51.3%	Calming	23.1%
Relaxing	51.3%	Nice	20.5%
Comfortable	50.0%	Tense	17.9%
Enjoyable	48.7%	Relaxing	15.4%
Calming	48.7%	Fatigued	15.4%
Warm	46.2%	Weird	15.4%
Nice	43.6%	Alert	14.1%
Pleasurable	43.6%	Soothing	11.5%
Heavenly	34.6%	Desirable	11.5%
Soothing	33.3%	Comfortable	11.5%

Table 4: The most used emotional adjectives to describe each selected material (Step 3)

Material (Mat) 7 and 5 elicited mostly positive responses, while material (Mat) 2 and 4 elicited mostly negative responses. The other materials prompted mixed responses.

DISCUSSION AND CONCLUSION

A diagram representing the results from this study is depicted in Fig 10. It constitutes three levels: Level 1 (inner circle) -materials (image and name), Level 2- material sensorial characteristics and Level 3 (outer circle) - elicited emotional adjectives. The colours under the emotions represent those from the Circumplex model of affect.

To sum it up, material 1 (cold- aluminum) is perceived as a neutral material, the median values placing it in the center of the Circumplex model of Affect. Word associations support this result as emotional adjectives chosen include both positive and negative emotional response to this material. The bipolar material 7 (warm- fleece) elicited a stimulated- pleasant feeling evoking positive emotions. Material 2 (rough- sandpaper), is identified to be in the stimulated-unpleasant quadrant with negative emotions being the primary emotion in this case. Anecdotal evidence also suggests the same. The bipolar material 8 (smooth- satin) induced an overall pleasant feeling sitting in the middle of the arousal level. Material 3 (dry- foam) elicited an overall feeling of deactivated-pleasantness, mostly evoking positive responses while the bipolar material 4 (sticky- silicone) elicited a feeling of relaxed-pleasantness, evoking negative responses. The bipolar material 6 (hard- wood) was perceived as being a neutral material, with both positive and negative emotional responses. Free associations were mainly dependent on recalling experiences and haptic memories associated with the material.

Although some of the materials evoked almost all positive or almost all negative responses, there were mixed responses in all of the materials, with some materials having a greater degree of mixed responses. This inconsistency appears to be due to personal experiences and memories which influenced their emotional response. Overall, it was observed that soft fur (Mat 5) induced the most positive response while rough sandpaper (Mat 2) induced the most negative response. Material-touch-emotions were found to be dependent on subjective experiences and haptic memories and was quite a complex task, shaped by individual differences. The compilation of the material-touch-emotion lexicon is purely a guide for designers/ product developers to make informed and considered choices in their selection of materials. This research could also serve as a basis for future research where there is a constraint on gauging emotions to materials in controlled laboratory settings of temperature and material conditioning, which was not covered in this study. Compiling a lexicon of emotional words to describe haptic sensations was challenging as emotions are highly subjective; nevertheless, based on responses, we have compiled a lexicon (or list) of emotional adjectives to describe materials based on sensorial properties. We feel, this is just a guide and designers/ product developers need to address the context and their overall discretion while using the results of this study.



Fig 10: Summary of Step 3 with selected materials, bipolar attributes and emotional adjectives

NOTES

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INDIVIDUAL AND COLLECTIVE RELATION TO HISTORICAL ENVIRONMENTS - DESIGN INTERVENTIONS AS A MEANS TO INFORM, INCLUDE AND INVITE

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This paper will take its departure from a recognition of an individual view upon the build environment, and outline the current management approach when dealing with historical sites. Parallel to this discussion, the paper will describe a design intervention conducted at a Danish historical site in the fall of 2019 as a part of the authors doctoral study. The study used design as a means to inform, include and invite actors in and around the historical site.

THE INDIVIDUAL PERSPECTIVE UPON THE BUILD ENVIRONMENT

When an individual is sensing and experiencing build environments in general, these detections arrives from an individual perspective. It is possible to sense and experience similar emotions to other people, and find a common language for this, but every human perceives from a subjective lens. It logically follows that the perspectives from a group of people will have variations.

In 1892 a German magazine printed a drawing that was meant as an optical illusion. The drawing consists of one singular form, that takes the shape as a rabbit and a duck, or a rabbit, or a duck, depending on how the individual sees the drawing. This optical illusion exemplifies how each individual has an individual perspective, depending on the biological wiring, personal references, relation to the object, etc.

In 1945 the French phenomenologist Maurice Merleau-Ponty publish the work 'Phenomenology of Perception'. This work elaborates how everything is seen from a point of view, a personal and individual point of view, from a subject. In the following quote Merleau-Ponty states how the world is inseparable from the subject:

"The world is inseparable from the subject [...]. The subject is a being in-the-world and the world remains 'subjective' since its texture and articulations are traced out by the subject's movement of transcendence." (Merleau-Ponty 2012:497-498)

Merleau-Ponty writes how the world is 'subjective' due to the fact that it is being explained and drawn by the subject's way of experiencing the world. In this quote, the translation of Merleau-Ponty's French text uses the word 'transcendence'. 'Transcendence' refers to an experience beyond the normal or physical level. In relation to the build environment this can refer to the sensing of the environment, e.g. atmospheric sensing. In Ebeltoft, a small Danish town, a prominent, large, red building towers over the city center. The building is a former malt factory which, after the factory closed down, has been vacant and been fallen into decay. The elderly generation living in the town has an attachment to the building, due to the fact that this generation is comprised by people who has worked at the factory, or known people that has worked there. The younger generation of the town is attracted to the prominent building, due to its raw framework that tags into a desire of a place for creative and innovative expression. These two different perceptions of the malt factory are very generally described, but it underlines the relational aspect between the subjects and the built environment.

THE POWER OF HISTORICAL SITES

The built environment generates experiences that are perceived individually. When dealing with historical sites there are several relatable characteristics e.g.: tactile structures and the signs of use. Juhani Pallasmaa describes in his book 'The Eyes of the Skin – Architecture and the Senses' how materiality and the age of the buildings can have a positive emotional impact on people. Historical elements in the built environment can give an expression of time and age. Pallasmaa describes this as an enriched experience of the materials:

"Natural materials express their age, as well as the story of their origins and their history of human use. All matter exists in the continuum of time; the patina of wear adds the enriching experience of time to the materials of construction." (Pallasmaa 2012:34).

Historical sites can express a narrative describing a previous use and another age. The part of the built environment that represents history is, according to Pallasmaa, attractive to the modern person. He states in the following quote how people have a need to be reminded of history (time):

"We have a mental need to grasp that we are rooted in the continuity of time, and in the man-made world it is the task of architecture to facilitate this experience." (Pallasmaa 2012:35).

The last part of the quote is an appeal for architects and planners to facilitate thus. By allowing materials to show age and wear, the experience of the built environment has an added value to be perceived. The building could e.g. have an aesthetic quality, generate an intimate feeling or create a save environment, and additionally have a historical quality. The built environment can emanate an indirect "message" and this indirect message can (in relation to the historic quality) be of the buildings previous use or the age of the building. This is to be sensed and perceived according to the individual person and the individual relation to the building.

BRIEFLY: THE CURRENT MANAGEMENT OF HISTORICAL SITES

Historical sites have intrinsic abilities that is sensed by the individual. Besides these abilities, historical sites can have a national historical value and if so, it would in many cases be comprised by different planning regulations aimed at preserving the physical frames.

These regulations are decided and kept by the respective governmental planning authorities. No matter the structure of the country, the physical historical frames are often managed by a "top-down" approach. UNESCO is a universal organization that categorizes world heritage. The organization describes the main physical characteristics, demands towards preserving the site and elements that poses a threat towards preserving the site.

If a site is not categorized with a national historical interest, the site can be threatened by demolishing or alterations beyond recognition. Both aspects will naturally remove the intrinsic abilities of the historical site.

A NEW MANAGEMENT APPROACH

The current management of historical sites is, as mentioned, often managed by a "top-down" approach: a management scheme directed from the top, e.g. official institutions, planning departments, the establishment. The "bottom-up" approach is a collective effort by e.g. the larger masses, the local community, a non-profit initiative outside official institutions. The "bottom-op" approach is often characterized by a joined initiative that, in unison, lifts a project. This approach can be operated completely without collaboration with an official planning department, but it can also begin with an idea from e.g. a group of citizens, and then afterwards be supported by the official planning departments. The official planning department can also create an environment that encourages or supports "bottom-up" initiatives.

The benefit of "bottom-up" initiatives is the possibility for collaboration between the official planning department and the local community. The official planning department can gain knowledge about the local community and the local community can gain a stronger sense of ownership of alterations or new designs, which furthermore can generate voluntary and united maintenance of the respective site. Maintenance is to be understood in a broad sense, e.g.: no vandalism, small locally supported additions and voluntary care for the physical site. The psychological benefits a community can experience from "bottom-up" initiatives can be, e.g.: a feeling of being included in the decision-making, an increased feeling of ownership to a place, or being a part of the community.

HISTORICAL SITES AS A LINE OF EVENTS

Historical sites are a physical manifest of a previous way of life, e.g.: a demographic development, an industrial epoch or an exploitation of a landscape. Sometimes these sites are being forgotten and left for decay, and at other times the sites are preserved or/and incorporated in planning, and if so, the site typically experiences "new life". The latter would, without "new life" (a new occupation), be a historical site preserved as an empty shell (Scott 2008:11).

When a site is confined by preservation regulations, "the life" within the site can be restricted. Regardless if a historical site is confined by preservation rules, the site is a result of a previous way of life, and should be a part of "the present life". Historical sites can be seen as a line of events: an origin occupation, a current occupation and hopefully a future occupation (Scott 2008:144). The perception of historical sites as a line of events, and not something frozen in material form, is interlinked with the matter of historical sites having a value for people today. Australian professor Laurajane Smith describes in 'Uses of Heritage' from 2006 how: "heritage is something vital and alive. It is a moment of action, not something frozen in material form. [...] There is an interlinked relationship between the activities that occur at places and the places themselves" (Smith 2006:83). Smith underlines the aspect of heritage being alive, not an artefact that can be preserved in a glass case, and also stresses the link between the physical heritage and the life evolve around and in it.

(IN)TANGIBLE HISTORICAL SITES

Historical sites have in this text been described as a physical matter, but with a connection to its respective local community and a connection to the people that perceives it.

UNESCO operates with two different heritage lists: a tangible and an intangible. The intangible list comprises heritage such as folk dance, beer brewing traditions or wooden house structures. Some of these intangible heritage subjects is connected to a physical matter, such as the craftsman traditions of wooden houses. Likewise, are several of the tangible heritage sites tied to a non-physical value. An example of this is the Japanese villages Shirakawa-go and Gokayama which, according to UNESCO,

is an: "outstanding examples of a traditional way of life perfectly adapted to the environment and people's social and economic circumstances." (UNESCO Shirakawa-go 2020). In the description of the Shirakawa-go and Gokayama heritage site a section is dedicated to 'Protection and Management Requirements' and in this section, UNESCO states the following:

"Direct management of individual buildings is the responsibility of their owners, and all work is supervised as prescribed in the Preservation Plans. Routine repair work has always been carried out by the owners, and often through conventional collaborative efforts by communities, using traditional techniques and materials. The local and national governments provide both financial assistance and technical guidance." (UNESCO Shirakawa-go 2020)

This description underlines the community and their longstanding tradition. The heritage site is not comprised solely by wooden houses, but a synergy between the community and their living-tradition in these wooden houses (including the management of the buildings).

IDENTIFYING HISTORICAL SITES

The Shirakawa-go and Gokayama villages exemplifies the connection between the physical framework of the heritage and the life within it. In other words: the connection between the tangible and intangible heritage. If the lines between these two are erased, or if the understanding of heritage are broadened, the people living, working and visiting the historical sites becomes a part of the heritage.

As mentioned, historical sites are often managed with a "top-down" approach: by experts and official planning departments. If the understanding of historical sites is broadened, some historical sites will be described with a set of physical relevant parameters and a significate way of life within these frames. In Shirakawa-go and Gokayama the community sustained the management method of both their own houses and they helped each other with maintenance. This act is something that has been learned through the generations, and it is a part of the historical site.

Another example of a historical site that likewise is comprised by the people inhabiting the site, is the small Danish fishing harbor in the town Ebeltoft. The site is comprised by a dock area, small wooden sheds and two fishing boats owned by a 120-year-old fishing company located on the harbor. Without the fishing boats, and the harbor related activities, the site would lose its historical relevance. The small wooden sheds and the dock area, which comprises the physical characteristics of the area, does not have a high architectural or historical value. This is due to different alterations of the sheds made during the years and the architectural characteristics of the typology. There are no official preservation regulations for the site, and this is due to the quality of the physical framework, however the site has an unregistered historical value due to "the use" of the site.

LEARNINGS FROM A RESEARCH STUDY AT A DANISH HISTORICAL SITE



Figure 1: Intervention at the site (during two and a half day), credit: Mathilde Kirkegaard



Figure 2: Final design comprised by 22 signs, credit: Mathilde Kirkegaard

Introduction to the Site

As a part of the authors doctoral study a research study where conducted at the fishing harbor in Ebeltoft, Denmark, in the fall of 2019. The site where, as mentioned, not officially recognized as a historical site by the planning department and the politicians of the town. Thus, the site where described as something unique for the town and a site that had a special atmosphere.

The site where under the radar of development plans due to its location: near the city center and by the sea. Different non-harbor related businesses have inhabited the site and transformed the sheds into e.g. art shops and cafes. These new businesses have invited a larger segment of the local community into the harbor, but the new businesses have also demanded alterations to the already delicate visual framework of the site.

Due to the fact that the historical quality of the site is connected to "the use" of the site, the type of businesses that inhabits the site is relevant. Likewise, is it important that these new businesses tags into the current identity of the site.

As mentioned, the historical relevance of the site lies in "the use" of the site. This has a consequence in the readability of the site; hence it can be difficult to see and understand the identity of the site at the first glance. The history of each shed is not visible neither is the age of the fishing industry. The offset for the design intervention where a desire to underline the identity of the site.

Co-Design

As mentioned, the identity of the site is partly found in the physical frames, but mainly in "the use" of the site. Thus, the people in the site had to be a vital part of the design intervention. Their insight in what the site currently where used for, and their tales of what the original use had been for the site, became a theme for the design intervention.

The design intervention where narrowed to a fixed design comprised by wooden signs. These signs where to be placed on sheds, naturally with the owner's consent. Before the design intervention where to start, only about five shed owners where interested in the project and wanted a sign.

A team of three people: myself (who had been in contact with the actors at the site for 6 months), a handyman and a student assistant, managed the design intervention. The intervention took place at a central location at the site, the location where visible from all angles of the site and the work where conducted outdoor in the public space. The work "station" where comprised by a work table, several tools, and a social table with different snacks, drinks and chairs. The people at the site where invited to participate in the intervention. They had the possibility to stop by, sit down and discuss the different signs. They were also invited to make a sign themselves and decide the shape, size, placement and what should be written or drawn on the sign.

There were a great number of participants and a dedicated talk about the history of the site. After two and a half days the work team and the participants had co-created 22 signs for the sheds and small passages on the harbor.

Tracing the Effect by Qualitative Interviews

The transparent and collaborate design intervention allowed the actors in the site to have an impact on how they wanted to underline the identity of the site. The official harbormaster described in an interview after the intervention, his surprise by the number of participants and he offered to maintain the signs in the future. An interview with a local politician before and after the intervention identified a stronger wording when describing the narrative of the site after the intervention. The planning department in the municipality embraced the intervention by discussing the possibility for more signs at the site. These effects exemplify some of the immediate output of the intervention (winter 2019/2020).

Ten interviews were made in relation to the intervention: five before and five after. The interviews where made with a selected group of people. Five people with different attachments to the site: a tourist, a longstanding inhabitant of the town, a newcomer, a member of the union on the harbor and a businessman with a non-harbor related business at the site. After coding the interviews, it became apparent that there where a united reflection upon the site's historical value. This was expressed by their level of surprise when gaining an insight into the previous use of the sheds and the longstanding traditions at the site. It was something that the informants were not aware of, had thought of, or had forgotten. These interviews clarified how the intervention and final design (the signs) elaborated the history of the site - the history that where (and is) tied to the people at the site.
CONCLUSION

The transparent and inclusive design intervention allowed the actors at the site to underline *their* history of the site and invite "outsiders" to gain an insight into the intangible historical value of the site. Laurajane Smith describes how identity is something that is negotiated between people:

"Identity is not simply something 'produced' or represented by heritage places or heritage moments, but something actively and continually recreated and negotiated as people, communities and institutions reinterpret, remember and reassess the meaning of the past in terms of the social, cultural and political needs of the present." (Smith 2006:83)

A need to manifest the historical value of the fishing harbor in Ebeltoft initiated the design intervention, but the co-creation of the design and the transparent process allowed the partly fixed design (the signs) to be an organic part of the social and physical fabric of the site. The dialogue before, during and after the intervention invited the actors to negotiate their historical identity.

Historical sites, and official labeled heritage, consists of a physical framework, but it is being given a value by its social and intangible layer. Thus, these sites should be treated through means that include and inform the actors in and around the site, and invite them to become a part of the management.

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Smith, L. Uses of Heritage, England and New York, USA: Routledge, Abingdon, 2006. UNESCO Shirakawa-go 2020, 10th of January 2020: <u>https://whc.unesco.org/en/list/734/</u> Figure 1: "Intervention at the site (during two and a half day)", credit Mathilde Kirkegaard

Figure 2: "Final design comprised by 22 signs", credit Mathilde Kirkegaard

STACKS AS SHELTERS: LIBRARY LESSONS ON DESIGNING FOR HOMELESSNESS

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INTRODUCTION

Homelessness is a personal hardship and a societal plight. Both are difficult to resolve. Social programs proliferate, architects and contractors build facilities, and charities marshal resources, volunteers, and other support. Do these bureaucratized service sectors offer real assistance to homeless persons, or are these just stakeholders in the "sheltering industrial complex?"

From emergency overnight shelters to somewhat nicer "transitional housing" to even more supportive "permanent housing," the conventional approach of "earning your way to housing" reifies notions of the undeserving poor. The professional social worker imposes judgement on eligibility, the administrator impels compliance or turns away the needy "until they come around and start making better decisions for themselves."¹ Designs support only to a limited extent the person's ability to cope with crisis and stress, privacy, or sense of dignity and self-worth. Facilities "built to purpose" often inadvertently promote the view of the homeless as a marginalized group that must be controlled, managed, and made to adhere to rules. This punitive scheme has resolved neither hardship nor plight.

Let us then look for norms vis-à-vis sheltering that reflect where homeless persons choose to live. They may wake up in some temporary accommodation, but then spend their day in a park, at a clinic or jobs center, or, as is very often the case, in a public library.

Through a combination of observational data and spatial analysis, this paper locates within three libraries several key design and use elements rooted in Gilles Deleuze and Félix Guattari's rhizomatic structure of individual agency. Through rigidly centralized and ordered, but geographically distributed units – book stacks, carrels, study rooms, and meeting spaces – the public library reinforces communal safety and cohesion while affording users personal domain, privacy, and un-coerced access to educational and social welfare services.

CONTEXT AND RESEARCH QUESTIONS

Public libraries are spaces in which members of the public confront the reality that their communities include many members without stable housing. Libraries are, in fact, spaces in which respondents report encountering homeless persons (or persons perceived to be homeless) more often than in any other space.

As populations of these vulnerable persons become more visible in their communities, library administrators are recognizing that it is among their responsibilities to provide more than just a "place

to sleep"² for this cohort of regular library users. Librarians are seeking to understand the societal contexts in which these individuals live and the unique needs flowing from their situations to help them obtain information and material resources and services to improve their well-being.³

Among many such examples, the director of the Salt Lake City library system noted that "Dozens of homeless people frequent the library daily. Some come to escape the heat or cold, and others to read, access email or socialize. You see someone who appears to be a street person and they head for the Wall Street Journal and you learn something. These folks are not completely disconnected, and like most people want to be left in peace."⁴

WHY DO HOMELESS PEOPLE USE LIBRARIES?

Let us begin with a quick rundown of why homeless people use libraries. These "whys" reflect a combination of expert consensus and my own observations from visits to public libraries in several large and medium-sized cities in the State of Florida.

• First, libraries are safe and secure relative to the low-income areas of the city in which most homeless persons spend their days. Most are staffed with or patrolled by at least one full-time law enforcement officer detailed from the local police or sheriff's office. Perhaps counterintuitively, homeless respondents report that the presence of law enforcement increases their sense of personal security (despite also reporting higher than average incidents of harassment by law enforcement) and creates an environment that discourages drug and alcohol use and may reinforce their own intention to refrain from substance use or abuse.⁵

• Second, libraries provide opportunities to sit in a peaceful and quiet space for extended lengths of time without being disturbed. Reading, using their own phones or the library's computers for news, games, social networking, and entertainment, using power outlets for phone and tablet charging, accessing and completing employment applications or social benefits-related paperwork, resting, and sleeping are all reported by homeless respondents as reasons for frequent library use.

• Third, libraries offer access to amenities, such as toilets and washroom facilities without the stigma that attaches to using such facilities at for-profit businesses like restaurants or retail establishments.

In sum, public spaces in libraries are extraordinarily valuable to people who lack private spaces of their own.⁶ Amenities such as washrooms, comfortable seating, and access to the internet, all of which are not as freely available elsewhere as they are at libraries, made libraries first among homeless persons' preferred locations to spend an average day. In a study conducted by Jean Marie McKendry, some homeless participants reported having created new social identities for themselves as library users, which is far more socially acceptable than the stigmatized social identity of homeless person.⁷

As community-reflecting institutions, libraries are often at the leading edge of social and economic change inasmuch as they are repositories and distributors of services and information that the local publics self-select as valuable. As consummate data collectors, they are well positioned to know their users' needs – and needs well beyond the specific book titles most borrowed. Increasingly, libraries are partnering with social service providers to identify and meet users' needs for daytime shelter, welfare benefit information, mental health counseling, and personal hygiene facilities.⁸

Again among similar recent examples, in the San José, California public library system, over an eighteen-month pilot project period, homeless patrons were actively approached and encouraged to attend programs including computer classes, story hours, resume workshops, arts and crafts classes, literacy development, English-as-a-second-language conversation groups, and cultural programs. Task force members reported that client demand greatly outpaced library employees' ability to develop and

implement the most needed programs, and all felt that they were unable to do enough to help these regular patrons. 9

This inquiry does not, however, seek to detail and explore the wide range of library-based programs aimed at meeting homeless users' needs. Instead, I focus on an element that is often omitted from the data gathering and assessment process employed in such projects – the library spaces themselves. Research questions that guided this pilot study:

• What are the physical characteristics of library spaces that attract homeless persons?

• How might those physical characteristics be conducive (or not conducive) to users sense of individual agency within these "borrowed" spaces?

• What can designers, charity organizations, and governmental agencies learn from homeless persons' library use habits?

This study incorporates spatial data analysis and ethnographic observations undertaken in the book stacks, open seating areas, carrel suites, and computer labs at three public library facilities in Florida – Selby Public Library in Sarasota; Leroy Collins Public Library in Tallahassee, and Hallandale Branch Library in Broward County (Figure 1).



Figure 1: Top row: Selby Public Library in Sarasota; Leroy Collins Public Library in Tallahassee, and Hallandale Branch Library in Broward County, Florida. Photos by the author.
Bottom row: Images 1 and 2: Patrons in the Selby Public Library in Sarasota. Photos by the author. Image 3: A homeless person in a library. Photo by Stones15woon / Wikimedia Commons.

This study also embraces Deleuze and Guattari's proposition that "We require just a little order to protect us from chaos."¹⁰ That we, as people, are "highly predisposed to recognize order and attach significance to it," and that the overwhelming orderliness of libraries is a key aspect of their significance to all users (including homeless persons). Again, in the words of Deleuze and Guattari, "Form corresponds to what the man in command has thought to himself, and must express in a positive manner when he gives his orders."¹¹ In the library, I posit that it would be a mistake to assume that the "man in command" is the librarian, for, as detailed in my findings, the forms of the library enable a level of agency among patrons akin to that of a commander: freedom to move and freedom to be sedentary; access to one's choice of concealing spaces, spaces from which to observe, and spaces from which to be seen; and the services of professional staff tasked with helping you to use its resources to meet your needs.

Through this inquiry, I have developed a number of generally applicable conclusions. These conclusions are derived, in part, from findings that are common to each of these three public libraries

(and, what is more, common to most of the public libraries in the United States of which I am aware – in other words, the "model library").

HOW DO HOMELESS PEOPLE USE THE SPACES WITHIN LIBRARIES?

Among homeless persons, it is common to hear libraries referred to as shelters. This is not a coincidental adoption of the term. It illustrates one of the most frequently observed ways in which homeless patrons use libraries: as spaces in which they are protected, and where their possessions are protected. Homeless persons carry bags of these possessions with them wherever they go. As a general rule, in the library, they can put their bags down, sort through their belongings, leave their belongings on a table or chair, wander away from their belongings, and expect to find things much as they left them when they return. Where not prohibited by library rules, the homeless user can even sleep without fear of being disturbed or having their possessions disturbed (Figure 1).

Where they sit seems to depend upon personal preference. The layout of the library affords users a wide selection of more or less concealed locations, each of which has its advantages and disadvantages.

For some, the library is an intimidating extension of authority akin to the literal shelter where they must follow the rules or be evicted. These users may hide their bags, secret themselves in remote spots out of the visual range of visitors and administrators, and sit for extended lengths of time without using the resources of the library. For others, the library is a welcome source of regimented order in contrast to the disorder that they may encounter in the streets. These users are more likely to engage with staff, to read books or newspapers, and to seek access to and assistance with computer terminals, Wi-Fi, or other freely available technology (Figure 2).



Figure 2: These diagrams detail the results of a visibility analysis of the floor plans three libraries (Selby Public Library; Leroy Collins Public Library, and Hallandale Branch Library). The area in red are the most visible, and areas in deep blue are the least visually connected. The behavioral observations in the three locations indicate that unhoused persons tended to congregate in partially enclosed, but openly public spaces (outlined in white boxes). The least visually connected and most quiet and private areas remained unused. Among the observed populations the author noted high levels of "local" movements within the library (changing seating locations, frequent round trips to the bathrooms or outside the library), during prolonged stays in the library, high use levels of the computer areas, and low levels of interaction.

There are, of course, differences in the relative security and supervision that spaces within the library provide. A study carrel tucked away alongside a deep row of stacks is difficult to find and out of the sight lines of most of the reception or circulation desks. The homeless user can sit there for hours without being bothered. Their possessions, however, are not as secure if the person were to walk away for a length of time. The computer area is under the direct visual surveillance of a desk staffed at all times by at least one library assistant. The homeless user can sit there for the length of time allotted (and, if the day is not a busy one, indefinitely), but there will always be someone watching what they are doing, the websites that they are visiting, and the manner in which they are interacting with other

patrons (Figure 3, 4, and 5). For some, the library is a shelter into which they can retreat and hide from all authority. For others, the library is a shelter into which they can escape from an outside world without caretakers into a world with caretakers who are aware of the homeless users' presence, and who are watching to make sure that everything is all right.



Figure 3: Patrons in the Selby Public Library. The left image shows seating around the open atrium. The computer area is at the back of the space. The image in the center is of the second most used location – the curved space behind the stacks with large windows overviewing the front entrance to the library. Photos by the author.



Figure 4: Patrons in the Leroy Collins Public Library. The left image shows the visitor services desk and computer areas located at the back of the library. This is the busiest in terms of traffic and active use. The image in the center is of another location frequented by homeless patrons – a passage in front of the stacks with large windows overviewing a small library courtyard. Individual carrels flank the stacks area on both sides. Photos by the author.



Figure 5: Patrons in the Hallandale Branch Library. The left image shows individual carrels in a quiet study area. The image in the center shows the central area behind the visitor services desk and a computer area located at the back of the library. Photos by the author.

What ties these users together (and, indeed, all library users together) is the un-coerced nature of the experience and the extent to which they are treated as the recipients of a service to which they are entitled as patrons. Barring behaviors that would necessitate the intervention of a librarian or law enforcement officer, the user is free to come and go, to sit or stand or move up and down the aisles, to walk up and down the stairs, to go into and out of the restroom as many times as they like, to select a place to sit, to change their mind and sit somewhere else, to turn their chair to face the window, to take books down from the stacks over to where they are sitting, and to return them or not to return them to the stacks when they are finished. No questions asked. If the user does not turn the chair back around from the window, someone will come along and turn it back around for them. If the user does not return a book, someone will come along and return it for them.

In their book *A Thousand Plateaus*, Deleuze and Guattari discuss two structures of books as images of the world. The alikeness of books to buildings is unescapable. "First is the root book. [...] The book imitates the world, as art imitates nature, by procedures specific to it that accomplish what nature cannot or can no longer do. The law of the book is the law of reflection, the one becomes two," or what Deleuze and Guattari call a "binary logic."¹² In architecture, typologies reflect an awareness of the social forms that occur within the physical forms.¹³

There are library typologies – temples of knowledge manifested in rows of stacks designed in accordance with rules rooted in linearly sequenced historical precedents. The space plans of the libraries to the most part adhere to the root structure: an entry faced by a reception desk, followed by circulation desk, low-rise stacks, bookshelves, and media shelves, community rooms, a large centrally located staircase, then we encounter larger stack sections, individual and small group spaces, and computer areas are distributed throughout. The typological spatial structure presupposes typological navigational, behavioral, or use patterns exhibited by traditional patrons. They visit infrequently and stay for limited durations; they whisper, they check out and return books; they navigate the library by following predetermined circulation pathways.

At some point, however, in a changing social landscape, we discover that "the principal root has aborted" and a secondary root has grafted into it and is flourishing. Reality aborts the principal root functionally, but the unity persists formally. Urban homelessness has grown significantly over the past fifty years, changing the social landscape and seeking a space in which to flourish. It has penetrated libraries where it found a comfortable shelter (although not always welcoming hosts).

Introducing a new element – homeless patrons – has interrupted this order by penetrating into the public library new purposes, functions, and use patterns. A different, independent structure has grown and intertwined itself around the root of the typological library. Use and behavioral patterns are interconnected and heterogeneous, which leads to disorder. Homeless patrons assert their territorial claims more strongly than traditional patrons (staying in the library longer, using more services and amenities). Evidence suggests that libraries already mean much more to homeless patrons than to traditional patrons (as day shelters, as places of safety, relaxation, and associated with increased selfesteem). At some point, the share of library patrons who are homeless reaches a critical point, and the root services that the library performs will have changed.

IMPLICATIONS

It is important to recognize that the use, service, and patronage changes that are occurring in libraries can help us derive meaningful strategies for meeting homeless persons' needs when designing other support facilities for this population. First, and most obviously, we must consider how day centers and overnight shelters might be modeled after libraries.

Softer security measures ("resource officers" rather than criminal investigators) appear to be effective in creating a perception that libraries are safe places. With regard to community integration, it is no coincidence that the libraries most frequented by homeless patrons are located downtown or in the center of neighborhoods that are conveniently accessible by walking, public transportation, and personal vehicles. These are spaces that are open to the public that reflect the diversity of the community, and diverse patronage promotes tolerance to all other users.

Within the building, varying degrees of visual access to spaces that are accessible to all users (like book stacks serving as privacy screens) grants the user autonomy to determine for themselves how exposed they will be to surveillance. It also engenders a sense that they are a trusted patron with agency and delegated authority (to move freely through the space; to access books and resources; to move furniture to meet their needs and aesthetic preferences), all of which heightens self-esteem and self-worth.

Lastly, designers, charity organizations, and governmental agencies must recognize and respect the very likely outcome of the trajectory that we are already on. Libraries are shelters. The root functions of the typological library are now irreversibly intertwined with new uses, services, and programs that are yielding a hybridized facility. Through this conscientious joining of traditional library and social service professions under one roof, all users may find the library worthy of its centrality in civic life.

NOTES

¹ Craig Willse, *The value of homelessness: Managing surplus life in the United States* (Minneapolis: University of Minnesota Press, 2015), 144.

² Angie Kelleher, "Not just a place to sleep: Homeless perspectives on libraries in central Michigan." *Library Review* 62(1/2) (2013), 19-33.

³ See also Julie Hersberger, "The Homeless and Information Needs and Services." *Reference & User Services Quarterly* 44(3) (2005), 199-202 and Lynn Westbrook and Maria E. Gonzalez. "Information Support for Survivors of Intimate Partner Violence: Public Librarianship's Role." *Public Library Quarterly* 30 (2011), 132–157.

⁴ Sanford Berman, "Classism in the Stacks." Journal of Information Ethics (Spring 2007), 106.

⁵ See, for example, Aisha A. Harvey, "Homeless Perspectives of the Public Library." MLS Master's Thesis (2002).

⁶ Jean Marie McKendry. "Reading the Landscape of Public Libraries as Place: Experiences of Homeless Men in Public Libraries in Vancouver, BC." MLS Master's Thesis (2013).

⁷ Ibid.

⁸ Canham-Clyne, Melissa. "Organizing Together: The Library as Community Organizer." *Urban Library Journal* 15(2) (2009), 50–61; Rachel Cathcart. "Librarian or Social Worker: Time to Look at the Blurring Line." *The Reference Librarian*, 49 (2008), 87–91; and David P. Moxley and June M. Abbas. "Envisioning Libraries as Collaborative Community Anchors for Social Service Provision to Vulnerable Populations." *Practice* 28(5) (2016), 311-330.

⁹ Lydia N. Collins, Francis Howard and Angie Miraflor. "Addressing the Needs of the Homeless: A San José Library Partnership Approach." *The Reference Librarian* 50(1) (2009), 109-116.

¹⁰ Gilles Deleuze and Alex Guattari. *A Thousand Plateaus: Capitalism and Schizophrenia.* (Minneapolis: University of Minnesota Press, 1987), 201.

¹¹ Ibid, 81

¹² Ibid, 5

¹³ Ibid, see also Andrew Ballanthyne. *Deleuze and Guattari for Architects* (London: Routledge, 2007).

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CO-CREATING OUTDOOR ARCHITECTURAL DESIGN STRATEGIES FOR WELL-BEING IN A HONG KONG PRIMARY SCHOOL

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INTRODUCTION

The prosperous metropolitan city, Hong Kong, has associated with an emerging social crisis in young generations – emotional problems. As much as 70% of surveyed pupils in Hong Kong are emotionally disturbed¹; 63% reported having sleeping disorders; 27% showed self-harm or suicidal thoughts². Estimated rate of committing suicide of 15 to 24-year-old rose from 8.3 in 2012 to 9.5 (per 100,000) in 2016³. Nevertheless, the remedy-for-illness support is insufficient. For example, only one clinical psychologist is available for every twenty school⁴.

To respond, Positive Education as a whole-school approach has been introduced by some local schools as a preventive measure. According to Martin Seligman, Father of Positive Education, students flourish when positive environments facilitate positive experiences that full potential of a student's personality can be realised. A positive school environment promotes growth, fosters humility, resilience and social connectedness, and cultivates a sense of meaning in life.

Guided by these ideas, the JC-PEAR⁵ project co-created Positive Education programs with local partner schools using growth mindset⁶. A methodology of co-creating new pedagogies with teachers was adopted to support personal growth and learning motivation of students.

To create direct impact on well-being of students and teachers and complement the new pedagogies, novel architectural design strategies in place-making were implemented in JC-PEAR with the effective co-create approach. This paper discusses such co-creating process of place-making in one of the participatory schools.

OBJECTIVE

(1) To demonstrate how architectural design can be used to support positive education.

(2) To illustrate how the methodology of co-creation, which has been demonstrated to be an effective strategy in positive education, can be transferred to the process of spatial design.

BENEFITS OF CO-CREATING DESIGN

As Lippincott found that, newly renovated spaces did not lead to changes in student learning nor pedagogical practices by teachers unless they were involved in the design process⁷. Blackmore et al. reviewed that a generative or participatory design process will facilitates learning experiences of students with improved teaching practices⁸. Since attitudes and behaviours of teacher influences spatial use and learning outcomes, absence of their involvement could result in a negative orientation to spaces newly created⁹. A co-design approach involving learners can also improve quality of design, culture of participation, learning and well-being of students¹⁰, as Mäkelä concluded. Overall, co-creating design is substantial in leading changes in learning and teaching.

BACKGROUND OF SCHOOL

Located at Kam Tin, a rural residential area of Hong Kong, Pat Heung Central Primary School (PHCPS) is composed of two masses – a grade-III historic building built in 1921 and a new annex block completed in 2018 separated by a central vehicular access. Both non-standardised blocks are single-storey high with shifted axises of entrances.

Spatial provisions are minimal – only twelfth classrooms and four special rooms are provided while no assembly hall nor covered playground is built. A new basketball court is under construction. Site coverage is merely one third, with several outdoor pocket-spaces.

PROCESS OF CO-CREATE

Three stages are included in the co-creating process. In Stage I, scope of design is identified to consolidate a preliminary design direction based on wishes of school, site conditions, and design potentials. In Stage II, feedbacks from different stakeholders are collected to revise an effective design yet matching their needs. In Stage III, a final design is developed to enhance well-being based on previous discussion.

Stage I: Identify scope of design

Interview with school

To understand school's expectations on place-making, school principal and management team were interviewed. School principal described that a natural ambience has been shaped by the picturesque surroundings that makes it distinctive to other schools. Trees as part of nature signifies school's identity and history and some students expressed to school principal the desire for a treehouse around one particular tree at a prominent location. An initial scope of design was requested – to build an iconic, widely spanning two-storey treehouse around this tree. Nevertheless, a limited budget was informed by the school. Further investigation on site conditions with refer to available resources and feasibility was needed.

Site Inspection

Site inspection was carried out to observe constraints, implications and potentials in existing conditions (See Appendix).

One constraint is that the small tree crown could not shade a wide audience underneath. Given the adjacent vehicle access must remain clear, a limited planter size and difficulty in complying with statutory regulations with a multilevel construction, it is necessary to reduce the extent of treehouse structure.

Another constraint is that treehouse area is ambiguously defined. It was partly due to an incomplete and improper floor pavement design in progress and partly due to the leftover of old school gate and concrete columns which obstructed spatial connection between foyer spaces, treehoouse area and building entrances. Modification to redefine the area was urged.

In meantime, we observed some implications on natural relatedness. Some students made a squirrel house in cardboard and hang on a tree trunk for feeding. A small hut was hand-built with leaves of onsite palm trees by a Nepali school staff. A farm area was reserved for planting eatible vegetables by students.

Various flowers and shrubs were planted throughout the campus, including speices to attract butterflies. Despite of the biodiversity, the function of existing landscape remained visual with a low accessibility. Meanwhile an open lawn area with moderate area was left underutilised due to the suspended development of assembly hall. There are therefore potentials to develop such open area with an alternative landscaping approach.

Architectural input (Preliminary design scheme)

The role of architect as a mediator was stressed to derive a satisfactory yet effective design for all parties. We examined the goals and needs of school in the spectacle of positive education so that wellbeing of teachers and students could be promoted while addressing the needs.

Other potentials of physical setting to promote well-being were also identified as teachers might not be aware of. Teachers were then assisted to prioritize goals by linking design features with ideas in positive education.

As a result, a preliminary design direction was set. Firstly, a simplified tree-house pavilion was proposed. Different forms would be explored regarding the degree of spatial enclosure. Secondly, an outdoor playground at lawn area was suggested where various affordances around different senses could be offered. Thirdly, redefinition of adjacent areas was advised, including shaping of an assembly ground to link up two building wings and a clear demarcation for tree-house area.

Stage II: Solicit feedback from different stakeholders and improvise on design scheme

Presentation of scheme to principal and management team

A plethora of design ideas and affordances were presented to school and several feedbacks were collected from principal and management team of PHCPS. For tree-house design, an open form with semi-enclosure was preferred, with a few steps to reach higher part of tree trunk and allow seating to spectate sports event on the upcoming basketball court.

For outdoor playground, features for dangerous affordances shall be avoided such as skateboarding ground, staircase-seating of hard finishes and water puddle. Features of common and proprietary playground could be omitted including frame-climbing, swings and slides.

Subsequently, we exchanged ideas around sensory stimulation to improvise on a schematic design. For sound, an enlarged paper cone was brainstormed to amplify and interact with environmental sound and act as a stage for musical performances.

For taction, we discussed to have a sandpit for potential constructive play and interactive pedagogies such as treasure digging for flashcards in a Chinese lesson.

For body movements, the principal proposed a large and flatten grass field for physical activities including Mölkky – a Finnish outdoor game that it has been introduced as an unique school sports. An official Mölkky team was established to participate in international tournaments. Besdies, a hilly natural landscape was thought about for slightly adventurous play.

To school, both features can represent a literal relationship with context. The site and nearby district, *Lin Fa Tei* and *Shui Lau Tin*, could be translated into a land of lotus flowers and a field with flowing

water. Also the highest mountain in Hong Kong, *Tai Mo Shan*, is highly visible and is part of the pictureques scene of campus. Accordingly, school principal expressed that design ideas of hill and field highly matched with the surroundings.

School principal further suggested to rearrange existing vegetation by transplanting the species attracting butterflies from a corner to periphery of lawn area. This act serendipitously rediscovered and revitalized a historical terrazzo slide in a corner by emptying the overcrowding shrubs around it. A schematic design was then formulated with above ideas for further consultation.

Consultation with students

To understand creative ideas and wishes of students directly, two sessions were carried out.

First, we arranged a model making workshop to collect creative ideas in visual and physical forms. Five students from different classes with higher artistic senses were invited by teachers and asked to express desired features of outdoor play through model-making. Students supplemented ideas with drawings and verbal presentation.

Several specific features were implied. One student imagined an elevated level (as in a watch tower) to touch tree branches and have a grand vision of campus. One student described an area for running with audience seating. One student sketched a sliding tunnel with climbing cliches. Partcularly, one student proposed spaces for both solitary and group plays as individual time was important to her.

Second, we exhibited the schematic design proposal to all students during a lunch time, including panels with design renderings and a 1:200 physical model for a better visual understanding. Simultaneously, students were invited to write down on panels what they would would like to play and what to do with a natural environment.

Feedbacks were thematized on sports (cycling, swimming, soccer, roller skating, volleyball, golf) and play equipment (swing and roundabout). Reflections on activities related to nature remain abstract and superficial (watching at nature, looking at sun and moon, sleeping in a natural environment, picking up litters).

Therefore, field observations were conducted to obtain more useful and rigid information on existing play habits and activities.

Field observation of campus activities

Direct observations were recorded with videos in two separate periods - a full day roof-top surveillance supplemented with ground-level handheld videographing in summer and a five-day documentation with IP camera in autumn.

For the open lawn area, a suprisingly minimal amount of activities was observed in both periods. Only two students visited farm area before lessons in summer and only a group of six students chased each other during lunch break in autumn.

Nonetheless, some activities occured in other areas. Picnic at decking area outside artroom was observed. A group of twelve students played with handclapping games outside a classroom at old wing. Two students took turns to practice flute and violin with the hopscotching floor pattern.

The above observations had implied a lack of purposes at outdoor area and a narrow variety of play acitvities in existing environment, urging for novel ideas in upcoming design.

Stage III: Finalizing Design

After confirming with contractor on practical feasibility, a final design scheme is refined and formulated as a product of co-creating process (see Figure 1). Naturalness and playfulness are selected as main themes that address the goals of school on enhancing well-being of students, reinforce the

school's identity shaped by natural surroundings and repurpose open areas with play affordances under the inherited physical conditions. Benefits of both themes are examined with evidence and design of key features are discussed.

Benefits of Naturalness

According to Nisbet et al., developing natural relatedness is beneficial to subjective well-being¹¹. In the longitudinal study by Richardson et al., children with gardens had higher social, emotional and behavioral outcomes¹². Corraliza et al. studied that children can better deal with stress when nature is accessible, as it moderates the adverse effects of stressful events¹³. Martyn anad Brymer also suggested that connectedness to nature may reduce unhelpful anxiety¹⁴. Kuo and Taylor concluded that green outdoor settings can reduce symptoms of Attention-deficit/hyperactivity disorder (ADHD) in children¹⁵.

Benefits of Playfulness

For playfulness, Audain and Shoolbread reviewed that processes of free play is utilisable for development and learning outcomes, without deprivation of intrinsic motivation and freedom of play choices and affordance of play can yield to support well-being both on daily basis and currculum¹⁶.

Goldstein outlined benefits in three aspects – emotional-behavioral benefits that creates joy and increases resilience; social benefits that model inclusive relationships and improves nonverbal skills; and physical benefits that increases efficiency of immune, range of motion and decreases stress¹⁷. Additional advantages in cognitive development were described by Gill such as problem solving, self-efficacy and gaining perspective¹⁸.

As Refshauge et al. matched affordances-to-design with developmental characteristics¹⁹, stimulation of body sensations, including vestibular sense and proprioceptive sense are preferred for all ages.



Figure 1. Site plan (not to scale)

Key features

Individual feature is designed to contribute to different aspects of naturalness and/or playfulness (see Table 1 and Appendix).

Design Features		Naturalness	Playfulness	
1. 2.	Tree-seating Tree-seating and table	table ion ld iill EPDM) dpit stages 's)	Physical connectedness (1), (2), (3), (6)	Solitude (1),(2),(6)
3. 4. 5	Tree-house pavilion Play pavilion Sunken grass field			Group play (3), (5), (6), (7), (8), (9)
6. 7.	Climbing grass hill Semidome hill (EPDM)		Visual harmony (1), (2), (3), (4), (6)	Sound (4), (5)
8. 9. (reshaj	Hemispheric sandpit Mini s ped manhole covers)			Movement (4), (5), (6), (7)

Table 1. Design features related to naturalness and playfulness

For physical connectedness, tree-seatings afford close contact around trees. A low table is provided near assembly ground for teacher's daily duties under tree shade. The tree-house pavilion transforms

the tree from an object to a spatial enclosure around it and enables touching trees at a higher level. The topological grass hill is shaped to imply an intimate pocket space with another antique tree at the site corner.

To maintain a visual harmony with naturalness, a beige color scheme is applied to tree-seatings, treehouse pavilion and play pavilion with outdoor timber planks and steel structures painted in light brown. Furthermore, the extrusion of grass hill enriches a scenic vision from classrooms.

Moments for solitude are created through small-scale design of tree-seatings and the comparatively private corner space embraced by the grass hill.

Affordances of group play are achieved by numerous features to enhance peer and social relationships. In tree-house pavilion, platforms and steps afford potential peer interactions, games, and spectation of sport games. The sunken grass field enables mass and communal events. Vigorous free play such as chasing can happen at grass hill and semidome hill. Constructive play with others is afforded by the hemispheric sandpit. Mini stages, created by reshaping manhole covers, offer opportunities for spontaneous peer activities such as picnic.

As mentioned, the cone-shaped shell of play pavilion is designed for listening to environmental sounds and performing music. It is supported by adjacent sunken grass field to accommodate larger audience.

Play that promotes body movement is highly encouraged – climbing, sliding, rolling and jumping can be afforded by a range of objects. Abstract geometrical forms are adopted to encourrage imaginative play but canonical affordances²⁰. Safety is also concerned that soft finishing materials including EPDM and grass are offered. It is noteworthy that contrasting textures, forms, and materials in overall scheme are intended to trigger physical stimulus for play as well.

DISCUSSION

There are several advantages of adopting a co-create design approach. First of all, the scope of design could be expanded leading to larger impact on users. As demonstrated, a two-storey tree-house was substituted with pavilions and outdoor playground with a diversity of affordances aligning with well-being.

Next, involvement of various stakeholders has motivated them for further actions. Since the idea of playfulness was brainstormed together, the importance of play has been further emphasized that school principal has decided to extend recess time for playing by a quarter to twenty minutes upon completion of design.

Moreover, by exploring full potentials of entire site with various members, some serenditious findings are feasible to reinforce school identity. The historical significance of school as revealed by the terrazzo slide can be highlighted for didactic and branding purposes. This is not pragmatic without the effort of rearranging existing vegetation by school staff as well.

Despite the advantages of the process, there were also some hindering conditions. Initial goals between school and architect were misaligned – between publicity and actual impact. Preferences on aesthetics differed due to various perspective of professions. Degree of risky play was suppressed in earlier discussions.

To achieve, it was substantial to mediate between parties and compromise on conventional practice of overarching architectural manipulations. Time and patience from all parties were essential in making clear and in-depth illustrations of evidence-based designs and reaching concensus on design. There was no particular hierarchy on decisions over any parties but mutual agreements.

LIMITATION

As indicated, a sufficient amount of time is needed for the entire co-create process. Behavioral observations to understand inhabitation before designing may be limited. Development of design may be restrained depending on the efficiency, experience and ability of design team. Frequent scheduling with stakeholders may not be possible due to the overwhelming workloads of teachers.

Other aspects shall be studied in the future. Evaluation of impact through post-occupcacy tests will be beneficial as pre-test data regarding well-being was collected. An iterative review process with school members to facilitate changes in pedagogy, policy and operation is needed. More discussion on the role of teachers and their well-being should be initiated.

CONCLUSION

To conclude, this paper demonstrated how design elements contributing to well-being could be derived through a co-creating process. Novel design ideas of naturalness and playfulness were generated with response to exisitng context. Both together contributes to developing a comprehensive architectural design framework for positive education in the future.

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APPENDIX



The tree selected for designing tree-house pavilion



Modelling workshop with students on design ideas



Students exploring landscape design during lunch-time exhibition



Tree-house pavilion under construction



Extruded climbing hill, sunken grass field, mini stages and play pavilion under construction

NOTES

¹ Rachel Blundy, "All Work and No Play: Why More Hong Kong Children Are Having Mental Health Problems," *South China Morning Post*, April 22, 2017, <u>https://www.scmp.com/news/hong-kong/education-community/article/2089605/all-work-and-no-play-why-more-hongkong-children</u>.

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⁵ Jockey Club Positive Education Ascend and Radiate (JC-PEAR) launched by the Faculty of Social Science, The Chinese University of Hong Kong and The Hong Kong Jockey Club Charities Trust in 2017

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MODELMAKING IN ARCHITECTURAL SPACE PRODUCTION: STUDIO INTERACTIONS IN THE MATERIAL AND THE DIGITAL REALM.

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INTRODUCTION

This paper will question and reposition what traditional model making practices in architectural education have enabled and how the transition to digital model making ultimately also means a paradigm shift in the ways we produce, manufacture, design, use and experience architecture. To do so, I will argue that the shift that has taken place in architectural production from physical model making to using digital means of fabrication has not only created a shift in the way architecture is produced but also a shift in the type of architecture produced.

I begin by arguing that the change of medium from the physicality of a material to the terrain of a virtual environment, is at first glance a simple change of medium, a change in the tools and techniques used. But because it involves a different type of interaction, a different effect is produced. The paper investigates examples from student work and concludes that the physical handling of matter informs the development of ideas in architectural and design education in a different way than the engagement with a digital tool because of the different experience the software affords and because of the different embodied experience that an object's materiality offers.

FROM MANUAL TO ALGORITHMIC PRODUCTION: THE FOUR DIFFERENT PHILOSOPHIES OF DESIGN

The move from manual to the digital in architecture, since the early 90s, has effected a drastic change in the tools used in architectural production and representation¹. Various versions of Autodesk software, (i.e. AutoCAD Architectural Desktop 1998-2006), ArchiCAD, and Revit currently include ready-made components to be used in the process of design. Other software, such as Grasshopper and Dynamo require the designer to programme in their interface by imputing parameters. The philosophy of the produced design when using these different pieces of software, is not simply a difference in the interface used. There is a fundamental difference when a designer is dealing with a pre-determined number of components that are pre-existing in a computer, compared to having to create components, or representations of them that are not pre-existing in a software. In the case of the pre-existing components, a user has very little control over these, and the decision of which features to include in a design, starts from these components. In other cases, the user has an apparent freedom to design a new component by inputting new information but the way this information is input is still relying on a software developer to have predetermined the ways it can be created, and the relationships the different types of information that are allowed by the software still are part of the produced output.

Manual design production

Although the introduction of digital tools revolutionised architectural drawing, the shift in architectural production from the physical to the virtual has not always involved a major shift in the attitude to design. For example, drawing on 2D AutoCAD in the early 90's involved using commands that needed to be typed, and coordinates were inserted manually in the software. The production of the 2D drawing on AutoCAD during its early days was a simple change in medium, not a changing shift: instead of using pen and paper there was a simple transition to keyboard and screen. The ways of organising a 2D drawing were the same, but the tool changed. Of course, with this transition came a visual shift in the outputs produced, but the logic of drawing remained the same: Plotting a drawing (instead of drafting it on a drawing board), still required a calculation of how to centre the layout, identifying the appropriate scale to make your drawing fit the page or the other way around to find what page size you would use to fit your drawing at your desired scale.

The rationale of creating a drawing in this way was shared by drawing board and computer users. While the produced outcomes had slightly different graphic qualities and the production in the one involved a plotter, the actions of creating a drawing between the two methods was not far apart: it required a similar type of thinking and a similar process. Physical tools that had previously been used were replaced by commands: the rapidograph was replaced by the command "line", the tracing paper was replaced by "copyclip", the compass and French curve by "circle" and "arc" respectively. This was therefore a simple swapping of tools, not a ground-breaking shift in the methods used in architectural production, and can all fall under the umbrella category of "Manual Design Production" as presented in table 1.

Design with components

The move, however, to architectural creation in a 3D environment, where the user is interacting with a software to simultaneously visualise and create (create a space, create a building, or create an environment for an activity for a user), marks a shift in the way design is produced. This shift in the entire approach to design, originally took place when 3D design started developing from a set of ready-made components. Software like Architectural Desktop and ArchiCAD introduced this move to designing with components. Every object, library, component in these pieces of software was predetermined, and the designer had to rely on what was available to work with in order to create a design. It marked the first point of taking away some of the agency of the designer².

Components that were not ready made, were very difficult for a software user to input or create from scratch and required a very experienced software user. Hence, design ideas that were not possible to be visualised through the objects/libraries or components already included in software had to be abandoned in favour of ones that pre-existed, leading to "design with components" (Table 1). The emerging design result from using these software is therefore an outcome of the pre-existing versions of the objects that are already included and have been placed there by a software developer. The degree of personal input is limited by the choices made by a developer to include or not a component.

The agency therefore, software developers have over the creation of a design is not to be underestimated. A choice made for example somewhere in Autodesk's offices in Massachusetts or California, informs what a designer is attempting to produce in Japan or England. The genealogy of decisions from example about a wall that is designed by an architect in India, may be traced back to a desk in San Francisco. Some of the creative actions of design are delegated to the machine.

De Novo 3D design

This deterministic effect of component designed architectures was not as evident in other software such as 3D AutoCAD, and in dynamic modelling 3D software, such as Rhino and 3D Studio Max. For a designer, 3D Studio Max opened a world of modelling possibilities to a designer and enabled a myriad more ideas to be designed on the computer. They also had the ability to simultaneously move the designed object in space while designing. The effect a gesture made for example, in a building's elevation, was simultaneously evident in its plan and section. This type of approach was similar to producing a design through physical modelmaking. In the same way that an architecture student could manipulate a physical object to create a design, these software programmes enabled the user to visualise the effects of design gestures simultaneously in 3D. The cardboard and pen knife for example of physical modelmaking was replaced by the creation of a plane that represented a wall in 3D. Similar to how a designer would create a wall in the working model to understand its effects in space and enable him to visualise its extensive properties, the 3D wall on this software could also visualise this on the computer. The designed object was created "De Novo" (Table 1), without predetermined software effects, with the designers retaining their agency on the designed outcome. Dynamic software however, were introducing another form of computer determined architecture. Because the dynamic modelling capabilities were also decided by software development, they had the capability to model dynamically effects of movement, explosions, interactions of objects and perform calculations applying the laws of physics on the object modelled, but only based on how these options for dynamic modelling had been introduced in the software.

Algorithmic Design

More recently, design software has seen another change in its attitude as it can be produced through code writing in Grasshopper and Dynamo. A designer using these softwares is the author of the information input that will shape the design outcome, but is reliant on a programmer to be able to produce relationships between the types of information included. The designed outcomes of the software is often comes as a surprise the input is in the form of information and the output is authored by the machine.

MANUAL AND SOFTWARE USES IN THE DESIGN STUDIO

An environment that offers the ideal context in which to study the effects of the move from the manual to the digital, is the architecture design studio of architectural schools. Studying how emerging architects learn how to produce designs can help identify how different design philosophies affect the outcomes of design for students. This paper, presents observations following a semester-long teaching of two cohorts studying architectural design: one studying Architecture and Architectural Design and Technology.

The two groups were running in parallel at the same university, and their design studio was led by the author in both cases. Two distinct pedagogical approaches have been followed for each cohort: the first one (BSc Architecture, first year) was asked to design solely using sketching and manual methods of model making, without having any knowledge on how to design on the computer. The second one (BSc Architectural Design and Technology-ADT-, first year) was learning how to model in 3D on Revit, while they were expected to deliver their designs, so they had to develop their design while learning how to use the software. In the beginning of term, the open-endedness of design outputs was emphasised to both cohorts, giving them the option to develop in any which way possible and very limited constraints were posed in both briefs. Frequently, during the tutorial sessions, it was

emphasised to students that everybody can and does design. They were asked to use exclusively a digital model where they needed and to refrain from producing physical models. Both have been taught in the same year and all students involved were first year students, with either minimal or no prior experience in the designing. This means that they were learning to design almost from scratch. While this sounds as a challenge. It presents the opportunity to an instructor to guide the student through different approaches to design.

Observing the first cohort of BSc Architecture students in their modelmaking process, it is evident that physical modelmaking, provides them with an experience that is tactile as much as it is visual. This tactility, however, disappears in the case of BSc ADT students when they are engaging solely in digital modelmaking: Digital models do not allow them to perceive space through any form of embodiment. The tactile experience of designing through a model that is omnipresent in physical modelmaking, has disappeared when using the computer, making the experience a purely visual one.

More specifically, the second cohort, the BSc ADT students trained exclusively in Revit, displayed some common characteristics. Firstly, because of the students little prior ability to use the tool, they run the risk of creating spaces non-intentionally (or incidentally). It was common to propose spaces created with no purpose, simply because the software made easy for them to place a pre-determined component in a particular space. In several cases, spaces had started with a different intention but ended as something else because of the abilities of the software. Similarly, predetermined material choices, were often used because it was part of the default setting on Revit. The pre-existence of a specification was replacing an informed material choices. These materials were often also used in their predetermined state in terms of patterns, regardless of scale, and bearing little relationship to context.

Secondly, the students revealed a far greater level of empathy, both in understanding how these spaces were to be used, and also demonstrated by the absence of any human presence in the representations of their designs. Furthermore, physical models allow architects to view inside them in different ways, either by naked eye or a modeloscope. Being able to understand the building through the physicality of a model makes the experience a fully embodied and three dimensional one, something that is lost in the digital, since the only way to understand is through a two-dimensional screen. Even when the object designed in a virtual environment is in the third dimension, it is experienced in a domain where it feels artificial, and two dimensional. Juanni Pallasmaa refers to this ability of the architect as empathy. In his words: "architectural ideas and aspirations emerge as immaterial feelings of the designer"³. If this empathy is formed in the architect's imagination through the development process, then the means by which space is understood and envisaged becomes very important for the outcome.

The same author describes how architectural qualities are made in a building: "*True qualities of architecture are* [...] *existential, embodied and emotional experiences, and they arise from the individual's existential encounter with the material work.*"⁴ .For Pallasmaa, the term "*material work*" refers to everyday encounters of an architect with the physicality of the built environment. But if we are to assume that architectural imaginary is formed during the material confrontations of a designer, then it is also very likely to be produced in the very object that assist a designer develop a space. This is why the physicality of the model becomes important: a digital vs a physical model creates two different types of encounters.

As presented in the ethnographical accounts of Albena Yaneva, the physical manipulation of architectural models is a reciprocal interaction involving the designer, and the object. She presents, through her work on OMA, the way architects rotate, look into, tactile and imagine through models.⁵ Yaneva calls this interaction a dance⁶. A similar ethnographic observation of architectural production in the studio, reveals similar outcomes: it is a holistic experience that involves a range of materials used and a range of actions performed. Through this process, a student develops the ability to know

exactly how much pressure to exert on the cutting knife, to cut through his 3mm cardboard, what type of glue and the quantity needed for the type of connection he wants to create. Yaneva calls this process of continuously being transported from the physical model to the imaginary potential it offers, a rhythm- she does not see it as a linear process that architects follow to arrive to the building as a "known", but a continuous dialogue between architects, materials and shapes. Within these dialogues, Yaneva claims that there is continuous movement between what is "less known" and more known in buildings, and this movement is continuous and non-linear.⁷





CONCLUSION

The process of design materialises differently in physical model making compared to digitally produced models because it involves an embodied and empathic interaction with the physicality of the design process, something that the digital does not allow. The designer makes choices based on his empathic understanding of future users, sometimes in ways the users themselves never even realised. With the physical modelling process, the architect develops an affinity to the client, becoming able to materialise his client's needs and desires. To borrow a quote from the British architect Sir Denys Lasdun an architect needs to provide to their client: '*not what the client thought he wanted but what he never could have imagined existed*'.⁸

The new generation of architects are moving towards the production of spaces that are not designed empathically and emerging designers are becoming void of an ability to relate to their users. Their sentient ability to connect to others becomes less and less necessary as the design moves to readymade environments and further into a design where the machine claims significant authorship of the produced outcome. The question that remains from this observation is what this means for the cities of our future, if they are to be designed by a less empathic designer. Are we moving towards a future of the built environment that is less and less accommodating to the desires and needs of a user? The question of how this shift is transforming the built environment and the ways we will be living in it in the future requires further exploration.

NOTES

¹ Antoine Picon, *Digital Culture in Architecture: An Introduction for the Design Professions* (Basel: Birkhäuser, 2010), 69-71; Antoine Picon, 'From Ownership to Authorship A Historical Perspective', *AD Architectural Design* 86, no. 5 (2016): 37-38.

² Stephen Paul Coates, Ali Rachid, and Sara Biscaya, 'The Utilization of BIM to Achieve Prescribed Undergraduate Learning Outcomes,' *8th Annual International Conference on Architecture*, (Athens: 2018).

³ Juhani Pallasmaa; Harry Francis Mallgrave; Sara Robinson; Vittorio Gallese, '*Architecture and Empathy*'. (Finland: Tapio Wirkkala Rut Bryk Foundation, 2015), 11.

⁴ Juhani Pallasmaa, 'Empathic Imagination: Formal and Experiential Projection' *Architectural Design* 84, no. 5 (2014): 82.

⁵ Albena Yaneva, 'Scaling Up and Down: Extraction Trials in Architectural Design,' *Social Studies of Science* 35, no. 6 (2005): 870.

⁶ Albena Yaneva, *Made by the Office for Metropolitan Architecture: An Ethnography of Design*. (Rotterdam: 010 Publishers, 2009), 51.

⁷ Albena Yaneva, 'Scaling Up and Down: Extraction Trials in Architectural Design,' *Social Studies of Science* 35, no. 6 (2005): 874.

⁸James Lasdyn, 'The Master Builder,' *The Guardian*, 29 November (2003): https://www.theguardian.com/artanddesign/2003/nov/29/architecture.art.

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IN PRAISE OF INCONVENIENCE: RETHINKING FRICTIONLESS EXPERIENCE

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My experience is what I agree to attend to.¹

William James

Convenience decides everything.²

Twitter co-founder Evan Williams

INTRODUCTION

On the leafy suburban outskirts of Sydney sits the heritage-listed Rose Seidler House. Designed in the late 1940s for his parents by arguably Australia's greatest modernist architect, Harry Seidler, the house has all the hallmarks of an International Style machine-for-living: white free-standing planes raised on *pilotis* sheltering the driveway and entrance below. But perhaps the house's most striking feature is not architectural, but its collection of domestic appliances. What now seems quotidian—fridge, dishwasher, waste disposal unit—were unheard of luxuries at the time and it is claimed that the fit out of the kitchen cost more than the rest of the house combined³. The idea of convenience it promises is of a life quarantined from the Sisyphean drudgery of domestic chores. This is one version of convenience, the reduction of difficult and unnecessary labour. However, in the more than half-century since the house was built convenience has shifted from the physical to the cognitive realm. Digital technologies have refigured our social, domestic and work lives, transforming many activities that were once solidly corporeal into mental action. Contemporary convenience strives not only to reduce the burden of such actions, but to vanish them altogether and withdraw such experiences from conscious awareness. Convenience has come to be quantified not just as an absence of toil, but as frictionlessness interaction.

This paper argues that this version of convenience is antithetical to human experiencing in its fullest sense, what Dewey called "heightened vitality... (an) active and alert commerce with the world."⁴ As

digital technologies move from the interior space of the screen to increasingly supplement our physical environments, and as more of our social, domestic and work lives are engineered by such technologies, it is incumbent on designers to take stock of the kinds of experiences and interactions such technologies afford. Dewey posited aesthetic experience as non-dualistic, residing not in human-made artefacts but emerging from the "interpenetration of self and the world of objects and events."⁵ In such a reckoning the objects that populate our lives are not passive receptacles that compliantly yield to our demands, but rather the co-authors of our human lifeworld. As we strive to make interactions ever smoother and more effortless—ever more convenient—it is worth pausing to ask what may be lost in such transactions. Just as the reconfiguration of the built world around principles of ease has led to obesogenic environments that fuel rising levels of global obesity⁶, mental convenience and its culture of automised and habitual patterns of interaction posit challenges to our mental well-being.

This paper begins with an overview of design's relation to convenience before examining how principles of frictionlessness and non-intrusion have come to dominate the design of technological objects. It outlines key arguments that challenge the logic that efficiency should be the key driver of interaction design, and offers an additional critique: that if we are to concern ourselves with the design of experience then we need to consider not just the outcomes of interactions but the quality of mind they encourage. To do this the paper draws on Buddhist understandings of mindfulness experience and shows how 'thoughtless interaction' is directly opposed to such mental presence.

DESIGNING CONVENIENCE

Notions of convenience have reverberated through definitions of design since Vitruvius set out his principles of architecture as *firmitas* (strength), *utilitas* (utility), and *venustas* (beauty), forever intertwining use and aesthetics.⁷

Modernism's functionalist agenda further entrenched the belief that things are designed best when designed for clarity of purpose and ease of use. Universalism, standardisation and rational order became leitmotifs of Modernist design and Sullivan's form forever follows function, Loos' ornament is crime and Corbusier's ascetic vision of an engineered world, imbued utility with a particularly moral turn. But it was Taylor and his rigorous systemizing of human labour that most forcefully linked convenience with capitalism's propulsive drive toward efficiency. His assigning of machinic impulses to embodied action shifted convenient and efficient operation from a characteristic of objects to one of humans.

Throughout the twentieth century this version of convenience became central to the application of human capital, seeing it migrate from the sphere of work to colonise post-war modes of living. Activities and interactions whose focus had once been social and cultural, in other words richly experiential—cooking, shopping, socialising, entertainment—came to be dominated by ideas of efficient tasking: fast food, drive through culture, vending machines, online shopping.

Convenient Interactions

But it is in the field of HCI and ubiquitous computing that contemporary ideas of convenient interactions have been most forcefully promulgated. In his pioneering article, *The Computer for the 21st Century*,⁸ Mark Weiser put forth a vision of the modern computer seamlessly and invisibly integrated into the fabric of daily life. Weiser articulated a vision of distributed computing enabled by 'tabs', small electronic components that make smart the multifarious objects that populate our domestic, work and social environments. Railing against the arcane complexity of the personal computer, Weiser envisaged a time when, rather than us needing to bend ourselves to the requirements

of technology, computing power and its informational affordances would imperceptibly fold itself around us.

Weiser invoked Heidegger's ready-to-hand as an ideal of technological function: "a good tool is an invisible tool", a tool that "does not intrude on your consciousness"⁹ and notably introduced "seamlessness" into the conceptual vocabulary of electronic device design.¹⁰ Smart objects would integrate with each other and our needs so smoothly that their operation would allow them to "weave themselves into the fabric of everyday life until they are indistinguishable from it."¹¹

In many ways Weiser's vision has come to pass. Rather than spatially distributed, the smartphone has seen a unification of functions into a single device, but the Internet of Things has once again foregrounded utopian visions of a world populated with 'intelligent' objects. Perhaps the real lasting legacy of Weiser's vision however is his language of seamlessness, invisibility and non-intrusion. As our interactions with technological devices spread out into multiple facets of life, it seems more vital than ever to take account of the nature of our interactions and the kinds of experience they ease us toward. Convenience, and its principles of usability, efficiency, invisibility and frictionlessness have come to be, at least in practice, a largely unquestioned objective of the way we interact with much of the material world. While on the surface these qualities might seem to be self-evidently good, invoking here Heiddegger's hammer as the paragon of the tool in thoughtless use, these kinds of interactions contort us toward technology's needs as much as the clunky operating systems of Weiser's time, just in far more subtle (and potentially pernicious) ways.

CRITIQUES

The Functionalist Agenda

Despite its name, the personal computer first established itself within the domain of work, and it is the concerns of the workplace—utility, productivity, task-orientation—that have come to be considered the primary criteria for the design of human/technology interactions. This elevating of usability also owes something to the software engineering origins of fields such as Ubiquitous Computing and User Experience Design. Overbeeke et al¹² argue that research and development in these fields has tended to emphasise cognitive and rational forms of interaction as these are more easily abstracted into the logical operations of code. This can be seen quite visibly in the linear and branching diagramming methods that are so central to UX design processes and that by their nature minimise opportunities for ambiguity and non-linear interaction. The proposition that interaction should pursue outcomes other than pure functionalism has been taken up by a number of theorists (Redstrom¹³, Overbeeke¹⁴, Dourish¹⁵, Hassenzahl¹⁶).

Gaver et al, for example, argue that ambiguity, normally considered an anathema in Human Computer Interaction, should be utilised as a design resource to create greater levels of engagement. Rather than passive scripted interaction, ambiguity opens up opportunity for interpretation and through active interpretation, personal investment and connection. When strategically deployed, ambiguity can evade user frustration to instead be interpreted as "intriguing, mysterious and delightful."¹⁷

Critical Design

Much of the analysis of interaction that has emerged from the field of HCI has tended to critique its overemphasis on ease of use as a design goal. Instead, it is argued, "interfaces should be surprising, seductive, smart, rewarding, tempting, even moody, and thereby exhilarating to use." ¹⁸ Dunne, writing from the perspective of critical design, has offered a more radical and ambitious rethinking of the role of designed objects. Rather than just pursuing alternative forms of user satisfaction, his project is "relocating the electronic product beyond a culture of relentless innovation for its own sake, based

simply on what is technologically possible and semiologically consumable, to a broader context of critical thinking about its aesthetic role in everyday life"¹⁹. Rather than simply rethinking the ways that objects can serve the needs of the market in more engaging and 'satisfying' ways, Dunne's project reframes objects not as useful, but as propositional.

AN ALTERNATIVE CRITIQUE

Conscious Awareness

While undoubtedly profitable, the above critiques still frame interaction as purposive, privileging the *outcomes* of interactions: to either provide richer affective engagements, or a broader understanding of the cultural and critical value of design. Put another way, both take as their primary concern the *objects* of consciousness—what is held in the mind. In contrast, designers should also consider the *quality* of conscious awareness that interactions produce, that is, the experience of mind that happens when interacting with designed artefacts. This approach would constructively undermine the 'unconscious' or 'thoughtless' interactions produced by convenience focused design.

Experience emerges through attending. It arises from conscious choice. As James states: "My experience is what I agree to attend to."²⁰ Yet the culture of convenience that drives much contemporary design works against the sustainment of attention, either through unconscious and habitual interaction or encouraging what Linda Stone has termed "continuous partial attention"²¹. Dewey's previously cited description of experience as an "active and alert commerce with the world" is incompatible with artefacts that orchestrate passivity. His non-dualist dissolving of boundaries between the self and world sounds a lot like Csikszentmihalyi's flow;²² this kind of immersion is often the intention when designing tools to be more 'usable'. However, the focused attention and merging of action and awareness that characterise flow are qualitatively different from the kind of distracted and thoughtless interaction afforded by many of the physical and virtual objects that populate our lives.

This paper argues that convenient designs work to reduce cognitive load by automatising decision making. While this provides ease it also disaffords conscious choice, the result being we often find ourselves directed along paths we may not otherwise have followed. Netflix and Youtube's embedding of autoplay are but one example that point to a larger tendency. Algorithms ease us along a predetermined path, first seducing us to keep watching, then choosing for us what it is we watch. At its most pernicious ceding consumption choices to software manifests in the filter bubble effect and the kinds of political manipulation seen in Russia's interference in the 2016 US elections and the work of Cambridge Analytica. But automatising choice also undermines the idea of abundance that unpins the democratising rhetoric of the internet, leading us into cognitive 'swim lanes', where convenience corrals our free will into tightly structured patterns of action and consumption.

As technical artefacts become increasingly central to the orchestration of contemporary life, the qualities of technology come to be the qualities of the social and cultural. Activities that were once conscious, complex and variegated—face-to-face conversation, preparing and sharing meals, maintaining relationships, being in the world in all its infinite variety—are increasingly captured by technological systems and efficiently streamlined into tasks whose purpose can sometimes seem little more than their own performance. To scroll through Instagram, or numerous other forms of social media, is to engage in activity that can at times seem to have no end other than its own reproduction. Susan Grenfield, a professor of synaptic pharmacology at Oxford University put it this way:

What concerns me is that the current technologies have been converted from being means to being ends. Instead of complementing or supplementing or enriching life in three dimensions... (the Internet) seems to have become an end in and of itself.²³

Or to quote again from Evan Williams, co-founder of Twitter, "Convenience is all destination and no journey."²⁴

Buddhist Ontology

To understand and question the implications of this transference of convenience from the work of physical to mental effort requires an examination of how experience unfolds in the mind. It is worth stating that mind is more than the thoughts passing through it. While Western psychological examination has tended to focus on the *content* of consciousness—on the meanings and origins of particular thoughts—Buddhist philosophy and practice takes as its primary concern the nature of mind.²⁶ Buddhist ontology considers "consciousness (itself) as the primary subject of introspective investigation... and, in general, as the source of all phenomena."²⁷. As such Buddhism has developed a rich repertoire of practices for the observing of mental processes. Key among these is mindfulness.

The last two decades have seen an explosion of interest in mindfulness within clinical settings to the degree that it is now one of the dominant modalities used in psychological practice. Growing out of Buddhist meditation practices, mindfulness' popularisation in the West is in large part due to the work of John Kabat Zinn and the mindfulness stress reduction program (MSRP) he developed at the UNC School of Medicine. Kabat Zinn describes mindfulness as a nonelaborative, nonjudgmental, present-centered awareness in which each thought, feeling, or sensation that arises in the attentional field is acknowledged and accepted as it is.²⁸ It is outside the scope of this paper to survey the literature on mindfulness' efficacy, but hundreds of peer reviewed articles testify to its benefits to mental health and its impacts on mood, emotional regulation and the neurological structure of the brain²⁹. To understand the negative connection between mindfulness and the distracted and unconscious quality of mind afforded by convenience, it is worth unpacking how mind unfolds.

James coined the metaphor 'stream of consciousness' to describe the way thoughts sequentially advance through the mind³⁰. Despite our interior sense of our awareness moving smoothly through time, in James' reckoning this 'stream' is in actuality a rapid, discontinuous progression of single mental events. Thoughts arise and are displaced in quick succession, often without our conscious awareness. This explanation of how experience unfolds bears strong similarities to that of Buddhism's. In their paper Mechanisms of Mindfulness³¹, Grabovac et al outline a Buddhist psychological model of how the mind proceeds so as to elucidate the actions underlying mindfulness-based interventions. The following is a summary of their description.

An object enters our awareness when it either stimulates our sensory organs or arises in the mind as an object of cognition (a thought, memory or emotion). This awareness is transient. Mirroring James stream of consciousness, as multiple things cannot be held in awareness simultaneously, consciousness unfolds through the rapid appearance and cessation of these mental events. As each mental event arises it is accompanied by a 'feeling tone' or *vedana* (Pali). Vedana does not "signify emotion (which appears to be a complex phenomenon involving a variety of concomitant mental factors), but the bare affective quality of an experience, which may be either pleasant, painful or neutral.³² Buddhism maintains that an essential human character trait is the desire to recoil from negative feelings and move toward positive ones, termed aversion and attachment respectively. As mental events arise in awareness we habitually react to their associated feeling tone through this attachment or aversion. These habitual reactions rapidly produce further mental events, which in turn have an associated feeling tone, generating further attachment or aversion. In this way an initial mental event and affective response can produce a cascade of mental elaboration that may have little or no bearing on the initial impetus for the chain of thought. In this way mental events may proliferate through the mind

in a habitual and uncontrolled manner, creating incessant and unfocused mental chatter or what in Buddhism is referred to as 'monkey mind'. Mindfulness practices aim to dampen this disordered progression by bringing awareness to thoughts as they unfold and patiently and non-judgmentally refocusing the attention. In contrast, a state of unconscious mental action—mindless interaction—is precisely what convenience design strives to produce. I argue that designing artefacts around usability principles of efficiency and ease explicitly work against mindful and engaged experiencing.

CONCLUSION

In his study of more than a dozen Eastern and Western contemplative practices, Goleman reported that "the need for the meditator to retrain his attention, whether through concentration or mindfulness, is the single invariant ingredient in the recipe for altering consciousness of every meditation system."³³ In their Science published paper A Wandering Mind Is an Unhappy Mind, Harvard researchers Killingsworth and Gilbert et al document their research investigating whether such philosophical and religious traditions have any verifiable basis. Their study was the first large scale study of happiness in daily life. It found that what people were thinking was a better predictor of their happiness than was what they were doing and concludes with the assertion that "a wandering mind is an unhappy mind. The ability to think about what is not happening is a cognitive achievement that comes at an emotional cost."³⁴

It is therefore crucial that in crafting experiences—and all objects are ultimately experiential as they unfold through use—design must broaden its concerns to encompass not just the outcomes of designed interactions, but the quality of mind that such interactions afford.
NOTES

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THIS HERE NOW: TRADITIONAL JAPANESE BUILDINGS AND THE ARCHITECTURE OF THE INDIVIDUAL

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INTRODUCTION

This paper explains how early Japanese buildings acknowledged events in materials, space and time, as distinctive forms, objects, and moments. It suggests that the built acknowledgement of such events, in the form of individual materialities, fixed objects and perceptible changes, can help to affirm our uniqueness, location, and presence today. In addition to affirming the inherently individual nature of being, including our own, it is suggested that traditional Japanese buildings also demonstrate how buildings can enable us to transcend our individual embodiments to *share* the normally subjective experiences of this, here, and now with others.

METHOD

Examples of the manifestation of this, here and now in traditional Japanese buildings are analyzed to identify a group of generally applicable design strategies for affirming what, where and when we are in contemporary built environments, together with a set of architectural elements that enable us to *share* the experiences of this, here and now.

THIS

One of the common stereotypes of Japanese culture is that it devalues the individual.¹ Yet there are more than a dozen words meaning "singular" or "unparalleled" in the Japanese language,² and the most common contemporary adjective for unusual, *mezurashii*, is believed by many scholars to derive from the old verb *mezuru* $\not \equiv \vec{2}$, meaning to prize or value.³ In fact a fascination with the unique was central to Japanese culture from its very beginning. In early Japan, natural phenomena were considered to be manifestations of spirits, known as *kami*, and unusual forms were seen as embodiments of exceptional powers that needed to be placated. These objects, which included large trees, unusual rocks and even exceptional human beings, were considered to be "spirit bodies" (*shintai*), and were typically wrapped with a rice-straw taboo rope as a way of both honoring and containing the *kami* (Figure 1).



Figure 1. The spatial enclosure of the embodiment of an exceptionally powerful spirit.

Early Shinto respect for unique materialities was subsequently manifested in a range of traditional arts and crafts. It found its most direct architectural expression, however, in the individually recognizable tree trunk that formed the visible center of the tea room and the domestic Sukiya Style interior it inspired (Figure 2).



Figure 2. The individual tree trunk at the center of the traditional Sukiya Style interior

In addition to unusual objects, early Japanese respect for unique embodiments also included patterns *within* materials. During the 16th century, this was raised to the level of a conscious aesthetic in the notion of *wabi* associated with the tea ritual, and respect for the individual was further extended by tea masters such as Sen Rikyu (1522-1591) to include accidental flaws and inconsistencies in made and well as natural objects. As the founder of Japan's folk art movement, Soetsu Yanagi, explained, this mind-set made roughly-made Korean rice bowls especially prized as tea utensils in Japan:

"They [the Japanese tea masters] found charm when the glaze skipped in firing, when a "landscape" formed in the pattern of mended cracks. ... They ... delighted in natural runs and drips of congealed glaze."

"The bowls were not products of conscious effort by the individual. ... Ido bowls were born, not made."⁴

This was the antithesis of the contemporary notion of "quality control," and for Yanagi, it reflected a tact Japanese belief that such patterns were the traces of individual *kami*.⁵

Rikyu later extended this appreciation of the individual to include the personal taste of the host, in both the design of the tea room and the selection of utensils for each gathering.⁶ As Okakura Kakuzo, author of *The Book of Tea*, explained, this was no glorification of the personal ego, however, but rather a celebration of individuality itself; the inherently unique way in which each of us perceives the world: "Our very individuality establishes in one sense a limit to our understanding … … we see only our own image in the universe, our particular idiosyncrasies dictate the mode of our perceptions. The teamasters collected only objects which fell strictly within the measure of their individual appreciation."⁷

The message was clear: every object in the world was inherently unique, and to emphasize this, repetition of any kind—be it in form, color, or material—was studiously avoided in the choice of utensils for each tea gathering.

Each of these traditional Japanese building forms, from the first Shinto shrines marking unusual rocks and trees, to the individual tree trunk at the heart of the tea room and the Sukiya Style interior, point to the inherent uniqueness of all materiality, including, by implication, our own.

HERE

After confirming what we are, knowing *where* we are generally comes a close second. The anthropologist Mircea Eliade went so far as to suggest that "nothing can begin, nothing can be done, without a previous orientation—and any orientation implies acquiring a fixed point."⁸ Eliade's description of how humans first found their way in the world using unusual features in the landscape is an almost perfect description of the early Japanese response to the extraordinary in nature: "Something that does not belong to this world has manifested itself apodictically and in so doing has indicated an orientation or determined a course of conduct."⁹ Recognizable landmarks not only provided the early Japanese with a source of orientation but also meaning. These natural features constituted the first places in Japan, and their natural identity was reinforced culturally by being wrapped with taboo ropes. The positions of these natural places were effectively decided by the *kami*, but by relocating tree trunks into buildings the Japanese were able to create object-centered places in locations of their own choosing. The other strategy used to create made places was by visually integrating remote objects in the landscape, often mountains. Each of these examples, from relocated tree trunks to borrowed scenery, effectively gave architectural spaces a fixed, tangible center, and with it a visible source of orientation.

NOW

Most of the unusual natural objects singled out for acknowledgement by the early Japanese were considered to be *yorishiro*, or "things into which *kami* descend." Spirits were believed to occupy these material objects only temporarily, which made knowing when they came and went critical. The fact that the *kami* were invisible made this a challenge, but this was overcome by associating their movements with a more familiar invisible natural force, the wind. Wind-induced movement was interpreted as a sign of the presence of *kami*, and the material of choice for revealing their arrival and departure was paper, usually in the form of zigzag strips known as *shide* (Figure 3).



Figure 3. The wind-induced movements of paper shide revealed the presence of kami.

Japan was almost certainly unique in developing a building type dedicated to celebrating the present. The *wabi* tea ritual and its architectural container were essentially vehicles for sharing an extended moment. The tea room was designed to encourage its occupants to turn inwards, towards the here and now—the other guests and the simple acts of making and drinking tea.¹⁰ The selection of unique combinations of utensils, art and flora for each tea gathering was a way of acknowledging the unrepeatable nature of even these most mundane of everyday events, and was summed up in the famous Zen saying "*icho go ichi e*; which can be roughly translated as "on this one occasion."

According to Okakura Kakuzo, the philosophical basis of the way of tea originated in Chinese Taoism, which he characterized as "the Art of Being in the World," because it "deals with "the present,— ourselves."¹¹ For Okakura, then, the *occupants* of the tea room, both human and inanimate, effectively constituted "the present."

The Sukiya Style interior that developed from the aesthetics of the tea room had its own ways of responding to the moment. The contents of the domestic *tokonoma* alcove, for example, like that of the tea room, changed in response to the seasons and special occasions. And more immediately, its unobstructed *tatami* floor and sliding screens meant that the traditional *washitsu* could be adjusted to the particular needs of its current occupants—the present.

Early Shinto sensitivity to peculiar forms, places and events in nature, then, was later manifested in a range of traditional Japanese building types. The second half of this paper will attempt to identify which, if any, of these design strategies might be applicable to affirming what, where and when we are in contemporary built environments.

What We Are

The psychologist Carl Jung famously described the lake-side house he built at Bollingen, Switzerland as an unconscious expression of his essential self.¹² Clare Cooper Marcus have since argued that the physical environments we create for ourselves, including the personal objects we choose to surround ourselves with, likewise help to affirm who we are.¹³

Another well-known example of this phenomenon was the Italian writer Curzio Malaparte's cliff-top villa on the island of Capri. Much like Jung, Malaparte recalled: "The day I began building my home, I didn't think I would be creating a self-portrait." Deliberate or not, Malaparte always described the villa as "a house like me," and he was famously self-contradictory, having flirted at various times with, among other things, Fascism, Communism, Surrealism, Catholicism and Taoism. In its relationship to its site, his home is similarly ambiguous, both merging with and at the same time differentiating itself from its natural setting, and simultaneously resembling both a retreat and a prison.¹⁴

In contrast to Jung and Malaparte, the American architect Bruce Goff claimed that he had never designed a house that he would personally want to live in.¹⁵ Indeed, his work was dismissed for decades as idiosyncratic because it did not seem to employ any kind of consistent personal style. It has only been within the last twenty years that this inconsistency has finally been recognized for what it actually was, a self-effacing commitment to expressing the individuality of his clients.

Most of us are not in a position to have a house purpose-designed to reflect who are, but there are much simpler and equally effective ways to express our individuality in our built surroundings. The relocated tree-trunk that forms the center piece of the traditional Japanese interior, for example, is not only a celebration of a unique object but also of the individuality of the person who selected it. The use of one-of-a-kind materialities, then, is a widely applicable means of expressing our own uniqueness.

Where We Are

One of the consistent ways the early Japanese used to create built places was to center buildings on relocated tree trunks. Some contemporary designers have even surpassed this, and incorporated living tress into interior spaces (Figure 4).



Figure 4. Built-in objects, either natural or made, provide visible centers of orientation.

It isn't necessary to adopt this particular architectural language to achieve the same effect, however. A range of made built-in objects, from chimneys, to tables and desks, can provide the same kind of visible center and source of orientation.

When We Are

Traditional Japanese buildings included the present in the form of both perceptible environmental change and amenability to change by people, and both are equally applicable in contemporary contexts. Seeing live movement in indoor environments, for example, has been shown to generate a heightened awareness of the moment (Figure 5).¹⁶



Figure 5. Visible indoor movement, such as reflections from a wind-animated water surface, helps keep us in the present.

Just as perceptible change helps to make us aware of the present, creating change in our surroundings can achieve the same effect. Exerting ourselves to manually adjust part of our built environment, for example, affirms our physical presence, without which such change would not have taken place. Although it is our own body that ultimately defines what, where and when each of us is, buildings hold a key advantage over the body in helping us to visibly affirm these experiences, because they can be deliberately *designed* to do so.

BUILDINGS AS A MEANS OF SHARING THIS, HERE AND NOW

In the early part of the 20th century, the philosopher Edmund Husserl presented a radical proposition to the world: that we can "know" nothing except through our own direct experience. This was nothing less than a frontal assault on the notion of the "objective" conceptual theory that had formed the core of Western thought since antiquity. That was the perspective that Thomas Nagel memorably described as "the view from nowhere," because it did not reflect the way any real person actually experienced the world.¹⁷ To Husserl and the subsequent phenomenologists who followed him, only direct sensory perception could be trusted, and because this derives from the individual body, our experiences of the world around us are inherently subjective.

Ever since then, philosophers, and phenomenologists in particular, have been concerned with how human beings can overcome this fundamental separation to share experiences with others, a state described by Husserl as "intersubjectivity."¹⁸ Various ways of transcending the self have been proposed, from empathy, as first explored by Husserl's assistant Edith Stein and later Husserl himself, to Merleau-Ponty's studies on physical intimacy as the closest human beings can approach to overcoming the limits of their separate embodiments.¹⁹

We have seen how built forms can affirm our personal this, here and now, in the process, effectively serving as extensions of the individual body. This is by no means a new idea. In explaining Buddhist thought in relation to the Japanese tea room, for example, Okakura, drew a similar analogy:

"Zennism, with the Buddhist theory of evanescence and its demands for the mastery of spirit over matter, recognized the house only as a temporary refuge for the body. The body itself was but as a hut in the wilderness,"²⁰

While the notion of buildings as extensions of the body is not new, however, buildings possess a key characteristic that our natural bodies lack, and which appears to have been largely overlooked: they are

*co*habitable. In this defining characteristic, architectural space offers us the unique opportunity of transcending our individual body to share the normally subjective experiences of this, here and now with others.

Contact with the body changes an object from a "that" to a "this." So mutual contact with a surface means that we can effectively share the same "this." The treatment of the floor in the traditional Japanese tea room and domestic interior is instructive here. By eliminating the furniture and footwear that normally separate our bodies from contact with the floor, the *tatami* room places all of its occupants in contact with the same surface, enabling them to experience a common "this."

Since the location of our body defines "here" for each of us, bringing people into close proximity can similarly create the sense of a shared "here," and spatial enclosure is especially effective in achieving this effect. When roll calls are made, for example, everyone in a room is considered "here." In other words, spatial enclosures routinely take the place of the individual body in defining the limits of "here."

Our individual sense of "now" is whatever happens to be occupying our personal attention at a given moment. Built spaces that are designed to focus the attention of a group on the same event, then, can help us to share a common "now." For centuries the hearth effectively performed this unifying role in dwellings across the world, only to be briefly usurped in the late 20th century by the television. With the rise of personal digital devices, the importance of the TV has itself dramatically declined of late, but the multisensory experience of a fire can still create the sense of a shared present.

CONCLUSION

In a fundamentally anthropomorphic process originally intended to acknowledge the embodiments, locations and movements of supernatural spirits, a range of traditional Japanese building forms included unique materialities, tangible centers, and changing events. These strategies seem equally applicable in affirming the uniqueness of what, where and when we are in contemporary built environments. Traditional Japanese buildings also exemplify how the most ancient of architectural elements, the floor, the enclosure and the hearth, can enable us to effectively transcend our individuality to share the normally subjective experiences of this, here and now with others.

NOTES

¹ See, for example, Birga Mareen Schumpw and Hans-Peter Erb, "Humans and Uniqueness," *Science Progress* (2015), 98(1): 1 – 11.

² Contemporary Japanese words meaning singular or unparalleled include: *ichii* (一意), *yuiitsu* (唯一), *tokui* (特殊), *tokushu* (異色), *ishoku* (一流), *fuji* (不二), *narabinaki* (非凡), *sangokuichi* (三国一), *mata nai* (又無い), *dokusō-teki* (独創的), *hirui no nai* (比類のない), *narabi nai* (並び無い), *mata to nai* (又と無い), *yuiitsu muni* (唯一無二), *hoka ni nai* (ほかにない).

³ See for example, Tetsuro Watsuji, *Fudo* (1935), *Climate and Culture: A Philosophical Study.* Trans. Geoffrey Bownas (Tokyo: Japanese Government Printing Bureau, 1961), p. 156.

⁴ Soetsu Yanagi, "The Kizaemon Tea-bowl" (1931), in *The Unknown Craftsman: A Japanese Insight into Beauty*, Adapted by Bernard Leach (New York: Kodansha International, 1972), pp. 193, 194.

⁵ Soetsu Yanagi, "Zakki no Bi" or "The Beauty of Common Objects" (1926), quoted in Kageo Muraoka and Kichiemon Okamura, *Folk Arts and Crafts of Japan,* Trans. Daphne S. Stegmaier (New York: Weatherhill/Heibonsha, 1973), p. 9.

⁶ Kakuzo Okakura, *The Book of Tea* (Boston: Fox Duffield, 1906), p. 91.

⁷ Okakura, *The Book of Tea*, p. 114.

⁸ Mireca Eliade, The Sacred and the Profane: The Nature of Religion (New York: Harcourt, 1959), p. 22.

⁹ Eliade, p. 27.

¹⁰ To this day, for example, the wearing of a watch during a tea ceremony is frowned upon as antithetical to the goal of focusing on the present: the other guests and the simple act of making and drinking tea.

¹¹ Okakura, The Book of Tea, p. 58, Okakura even claimed that "Teaism was Taoism in disguise," p. 44.

¹² Jung suggested that following his wife's death in 1955 he felt an urgent need to fully "become what I am myself," and proceeded to add a final tower to the part of the house he had identified as representing himself. Carl Gustav Jung, *Memories, Dreams and Reflections* (New York: Vintage, 1989), pp. 251, 252. Of the mandalas he himself drew each day and had his patients draw, he suggested similarly: "... I knew that in finding the mandala as an expression of the self I had attained what was for me the ultimate." Carl Gustav Jung, *Memories, Dreams and Reflections*, p. 197. On Jung's house at Bollingen as an unconscious expression of himself, see Vaughan Hart, "Carl Jung's Alchemical Tower at Bollingen," *Anthropology and Aesthetics*, No. 25 (Spring, 1994): 36-50; also Clare Copper Marcus, *The House as a Mirror of Self: Exploring the Deeper Meaning of Home* (Lake Worth, FL: Nicolas-Hays, 2006), pp. 48, 49

¹³ See Clare Cooper Marcus, *The House as a Mirror of Self*, p. 64.

¹⁴ See Michael McDonough, *Malaparte: A House Like Me* (New York: Clarkson Potter, 1989), pp. 8, 11.

¹⁵ See, for example, Bruce Goff, "Individual Architecture: By and For Individuals," *Palette* 46 [Delta Phi Delta Honorary Art Fraternity], Spring 1967. On the house as an expression of the self, see Clare Cooper Marcus, *House as a Mirror of Self: Exploring the Deeper Meaning of Home.* San Francisco: Conari Press, 1995.

¹⁶ See Kevin Nute and Zhuo Job Chen, "Temporal Cues in Built Environments," *The International Journal of the Constructed Environment*, 9, No.1 (April 2018): 1–18.

¹⁷ Thomas Nagel, *The View from Nowhere* (New York: Oxford University Press, 1986).

¹⁸ Specifically in his fifth "mediation": "Transcendental Being as Monadological Intersubjectivity," in Edmund Husserl, *Méditations cartésiennes: Introduction à la phénoménologie* (Cartesian Meditations: An Introduction to Phenomenology), trans., Gabrielle Peiffer and Emmanuel Levinas (Paris: Armand Collin, 1931).

¹⁹ Edith Stein, *On the Problem of Empathy* (1917), trans., Waltraut Stein (The Hague: Martinus Nijhoff, 1964). Edmund Husserl, Gabrielle Peiffer and Emmanuel Levinas, trans., *Meditations Cartésiennes: Introduction à la phenomenology* (Paris: Armand Collin, 1931). Edmund Husserl, *Ideen zu einer reinen Phénoménologie und phänomenologischen Philosophie II: Phänomenologische Untersuchungen zur Konstitution* (Ideas II: Studies in the Phenomenology of Constitution) ed., Marly Biemel (The Hague: Martinus Nijhoff, 1952). Maurice Merleau-Ponty "The Body in its Sexual Being," *The Phenomenology of Perception* (1945), trans., Colin Smith (London: Routledge, 2005), pp. 178–201. Also see Scoot L. Marratto, *The Intercorporeal Self: Merleau-Ponty on Subjectivity* (Albany, NY: State University of New York Press, 2012), and Jennifer. Bullington, "The Lived Body: Merleau-Ponty's Phenomenology," in *The Expression of the Psychosomatic Body from a Phenomenological Point of View* (Berlin: Springer, 2013). On other interpretations of Husserl's notion of intersubjectivity, see https://philpapers.org/browse/husserl-intersubjectivity

²⁰ Okakura, *The Book of Tea*, p. 63.

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EXPRESSION OF DEATH IN ARCHITECTURAL SPACE: A STUDY IN POETICS

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INTRODUCTION

The first task of architecture is to mark man's place in the world. In Martin Heidegger's words, we are "Thrown into the world, through our physical and mental constructions we transform our experiences of outsideness and estrangement into the positive feelings of inside ness and domicile".

Architecture enhances the aura of space and gives back its animistic essence. As Maurice Merleau-Ponty writes "How the architect could do otherwise, we can ask." In Bache lard's view "Experiencing a space is a dialogue, a kind of exchange – I place myself in the Space and the space settles in me". Through the entire history death has been studied and expressed in various ways but with time, the meaning of death changed and foremost the consciousness that comes with the whole perception. The concept of death is so dense that even the existence of the whole notion sometimes becomes non-existent particularly for a single being. Death is generally associated with a human being as an end of his life, an end to the connection with this world and the being's own physical body. But the obsolete impact of the idea involves every being's association with that single being. The approaches to understand death has varied widely across history, throughout the early centuries, the middle Ages and in the modern age. As modern times have changed the way we live, feel and understand things thus the approach towards seeing and understanding death has also differed concluding towards the exploration of death in modern times, studying the views relating death, its importance, its place in the world and the translation of the idea through various expressions and forms, which adds a significant number of new facets to the critical exploration of this ever-present phenomenon of death.

PHILOSOPHY

Sigmund Freud (1856-1935) a neurologist, introduced the death drive principle i.e. the drive towards death (Thanatos) which satisfied his conviction that the mind is intrinsically connected to the material world. If we are to take it as a truth that knows no exception that everything living dies for internal reasons — becomes inorganic once again — then we shall be compelled to say that 'the aim of all life is death'. "An urge in organic life to restore to an earlier state of things" (From 'Beyond the Pleasure Principle' Essay- 1920). However Sartre, an existentialist philosopher has extensively discoursed on the subject in his philosophical and literary works, Sartre writes "Death, therefore, or more precisely my death, cannot appear in a situation because death is that which "comes to us from the outside and transforms us into the outside". For Sartre the real significance of the concept of death was contained in its metaphorical nature where death referred to a continuous process of degeneration of fixated

notions about life and one's self so that the being can travel towards a path of "nothingness" and again reinvent itself from "nothingness". Martin Heidegger on the other hand defined the phenomenon of 'being towards death', which means that, at each moment of its life, death completes Dasein's (being) existence. As Heidegger explains: Death is thus the "possibility of the impossibility of any existence at all" (Being and Time 53: 307).

LITERATURE

We can find various perspectives of death throughout literature of modern times, one such example is of Leo Tolstoy's story of "Death of Ivan Ilyich" (1886) which forces us to consider how painful it is to reflect on a life lived without meaning. As the character 'Ivan' people also see death as an objective event rather than a subjective existential experience. In Kafka's "Metamorphosis" (1915) we understand the character hidden self, the self that had been stifled for so many years which could only be achieve liberation through death. In The novel "Siddhartha" (1922) the author Herman Hesse portrays death as ultimately insignificant unlike enlightenment. The character Siddhartha experiences the death of a part of himself as a step towards spiritual salvation. Sartre's short story "The Wall" (1939) is a meditation on existence. The wall in the title of the story could either be viewed as a barrier or a space which is letting the being encounter events that can enlighten it. What flares up between this wait for the inevitable and death is intense existence of the being. "The Stranger" (1942) by Albert Camus however, gives expression to his philosophy of the absurd and that the real freedom is to be aware of life in its totality of its beauty and its pain.

PAINTINGS

Paintings are studied in order to find various expressions of death by artists from modern times, how they particularly view death, what was the impact of death on their inner thoughts and the expression of it. (Fig1-7)

SCULPTURES

The translation of expressions through forms can be understood through sculptures e.g. Alberto Giacometti "*Hands holding the Void*" (1934) and "*Head-Skull*" (1933-1934) 'Hands Holding the Void embodies that terrifying line between two states of being and the unimaginable moment between. The figure's hands, positioned as if holding or offering something, forever sought and never recovered, suggesting a move towards metaphysical questions of life and death, absence and presence, existence and nothingness. Though Head/Skull is cold and mechanical. It has a presence in life and death. It is what unites life and death both of the face, head and the bones. (Fig8-9)

FILM

Andrei Tarkovsky, a Russian Filmmaker (1932-1986), revitalizes our sense of the poetic. Tarkovsky's approach to filmmaking was uniquely cinematic in order to communicate emotions. Tarkovsky's architecture is an unforeseen chamber music of space, light and slowed time. The characters are etched into their spatial settings and the external spaces are the inner mental spaces of the characters.Tarkovsky creates an architectural metamorphosis. He takes away the building's mask of utility, which addresses our reason and common sense and reveals the vulnerability of its structures, conceived for eternity. (Fig10)

CASE STUDIES

Various case studies are studied to understand the translation of ideas relating death in architectural space e.g Carlo Scarpa in his Brion Cemetery-Altivole (1968-1978) has highlighted the inwardness through the cemetery's form, Once the visitor has entered the enclave they are at once engulfed by seamlessly harmonious architectural structures acting to memorialize not just death, but celebrate life. Formal, symbolic, and unconscious methods are employed to create a cemetery that breaks free from the box, and invites the community to this place of tranquility for peaceful meditation and reflection rather than sorrow. (Fig11)

Peter Eisenman's idea in Jewish Memorial-Berlin (2003-2005) was to create a "sea" of cement in jewish memorial, in which there is no main entrance and point of departure," a space filled with "sensuous and emotional power.", the idea was to create a particular experience in the space by being in that space. The duration of an individual's experience of it grants no further understanding, since understanding is impossible. (Fig12)



Figure 1. Ophelia (1852) Sir John Everett Millais



Figure 3. Death in the sick room (1895) Edvard Munch

Figure 10.Mirror (1975)

Andrei Tarkovsky



Figure 2. Guernica (1937) Pablo Picasso





Figure 4. Death and Life (1910) Gustav Klimt



Maiden (1915) Egon Schiele



Figure 6. The Suicide of Dorothy Hale (1958) Frida Kahlo



Figure 7. Untitled (Black on Grey) (1970) Mark Rothko



Figure 8. Hands holding the Void (1934) Alberto Giacometti



Figure 11. Brion Cemetery- Altivole (1968-1978) Carlo Scarpa



(1933-1934) Alberto Giacometti



Figure 12. Jewish Memorial, Berlin (2003-2005) Peter Eisenman



STUDYING T.S ELIOT'S "THE WASTE LAND" IN REFERENCE OF DEATH

T.S. Eliot (1888-1965) was born in St. Louis, Missouri, in 1888. He published his first poetic masterpiece, "The Love Song of J. Alfred Prufrock," in 1915. In 1921, he wrote the poem "The Waste Land which went on to become one of the most talked about poems in literary history.

Main Theme

The theme of the poem is the spiritual and emotional sterility of the modern world. Pilgrimage of spiritual and psychological torment and redemption. Man has lost his passion, i.e. his faith; consequently, the life in the modern wasteland is a life-in-death. Eliot speaks through many voices, and characters in the course of the poem; all of them see what is around them as a waste land. The reader gets a variety of insights into the state of consciousness which the poem is portraying.

Spatial Instances in Wasteland

Eliot is inviting the reader to consider spatial instances for themselves. Eliot uses foils and oppositions as tools within his depiction of space to fully express his vision of the world. Where one type of space may construct the foreground of the poem's setting, another may act as the background, allowing the reader to fully witness the bigger picture. Furthermore, each spatial instance, offers a glimpse into the real psyches and thoughts of his poetic characters.

These drawings are representations of the inner and surface meanings understood from the poem. 'The burial of the dead'(Fig13) is chiefly concerned with the world within the mind, arousing various memories going deeper into the dark memories of the speaker arising questions of what lies beneath the surface. 'A game of chess'(Fig14) focuses on the images of the world existing outside, with a certain melancholy present in between, death is being brought on the surface slowly undergoing transformation. 'The fire sermon' (Fig15), deals with the pursuit of aimless pleasures. It connects with poet's own spiritual malaise, the inner self screaming towards its own fall. 'Death by water' (Fig16) however, reminds us of the survival of consciousness after death. And lastly, 'What the thunder said' (Fig17) speaks about divine guidance concluding in an understanding of peace i.e. 'Shanti'. The poet's own self-examination reveals the barrenness of one's existence enabling him to achieve a certain peace of mind.



ARCHITECTURE AS A MODE OF EXPRESSION

The final phase revolves around building a relationship between death and space through a performative/poetic text, based on a specific understanding that is achieved through research extracted from various studies specifically Eliot's "The Wasteland" which further forms the premise of the final constructed "Five Spaces". Architecture is used as a mode of expression, the narrative unfolds itself in spaces, slowly extracting death and exploring the intangible elements of the space followed with the drawings i.e. architectural visualization of the essence of each frame, following a journey towards one true hidden self.

The Five Frames

AWAKENING

SUFFOCATION & HELPLESSNESS

I found her silhouette at a landing, confused as if lost her way, for the sky was too far and only the earth was close by. Is this all in my head? She wondered, or are the pathways getting narrower, is this real? Is this happening? Because the walls are getting closer. Far away, from the Nothing rises a life in a void full of light But

what to do with the light? That would soon fade away with night,

thick the wind moaning against the walls, trapped inside, to free her flight. She moved her hands to reach into the void.....unable to touch, unable to hold on to it, so close it was, unable to reach that speck of light. Standing at the bottom of the stair, Unable to climb! She stood nowhere with fright, huge walls hiding away the she everything with her anxious the wanting fight, saw eyes, soul to But were lost in the smoke rising up the void, Now, empty with light. (Fig19, 19.1)

INDIFFERENCE & SURRENDER

The sun was still there and so were the shadow. Though, the lashing of the wind has lost its touch, the dust doesn't choke anymore, the water in the well has lost its reflection, the pathways their direction, and so the walls stood in silence. She found everything in the nothingness of it, seeing the unseen in that silent light, the spaces getting tight in the void, the light fading away at night – didn't matter! The eyes surrendered and so did the soul, it was tired and just wanted to hold. Hold on to that last glance of light leaving the wall, to the rays diffused in the dust, the shattered reflections of the sky, unveiled! She saw the stories at every step reminding her of her own. Finding herself within, melting away with the light, hence, was awaited so forth. The corridors freed themselves from the surrounding dust, giving themselves up to the light of the clear blue sky.....And up it goes! (Fig20, 20.1)

REMEMBRANCE

With the darkness approaching her sight, she could finally sense the presence of the loved ones left behind, what is that noise? Is that the silence of the water, echoing in her ears, where was the water? Where was it? It was buried! Buried under the weight of the quiet walls, lying still in the darkness of their own existence. She dug the damp soil with her numb fingers, there it was! She saw the blink of calmness through the rotting soil. And suddenly, Behind the closed door, thudder! And there lay one more. (Fig21, 21.1)

REACH

She understood that noise! Now withstanding at the top of the stair, foreseeing the withered shadow behind her. She reached that light in a void. She now, understands the infinity of the sky, the stillness of the silhouette, the depth of the stairs and the door being closed. Amidst all that, she met the one more. (Fig22, 22.1)



Figure 18 Awakening



Figure 18.1



Figure 19 Suffocation & Helplessness



Figure 19.1





Figure 20.1



Figure 21 Remembrance



Figure 21.1



Figure 22 Reach



Figure 22.1

CONCLUSION

The purpose of writing this paper is to understand space in a reference of death, not only as a storyteller, but as a spatial builder, a poetic art of space of life. When the reality of death occurs it changes us in ways no one can possibly imagine. The five frames comprises of "Five Spaces" based on poetic frames of text, in accordance to the spatial understanding of death. The idea is to understand the sculpted spaces in reference with the drawings and poetry and find its absoluteness in architectural space.

The poetry of death is a journey of self, the journey which is followed by one's self to its deep-rooted layers of consciousness, preparing one for the inner transformation in the 'awakening'. The space in the 'awakening' creates a dialogue by letting the being experience its senses, initially hearing the echo of the space followed with the imagination in a huge dark space and then with remembrance by the 'passing of light, shadows leaving the wall'. The space enables one to recognise its existence, prepare for what follows. The self now travels outside his consciousness in to this enclosed compressed space suffocating in the sharp light which slowly transforms itself into a void 'filled with light, unable to reach'. The space allows the realization of its own agonized state i.e. loss of self, 'finding the void empty with light'. The suffering of self continues in a space of stillness towards a blank wall, carrying the burden of heightened emotions in the space of darkness. The tired, exhausted self had to let it go, 'finding herself within' and surrender itself completely in the light going up. In a split of a longest moment, the self finds its lost parts, buried under the layers in 'remembrance' subsequently experiencing light as a whole in space of 'reach' re-uniting with his own true self.

This paper is about using architecture as a medium of expression. The following five spaces can serve as pure ideas, for practical spaces and on a deeper level as an idea for the people to experience and understand the metaphysical presence of death on a spiritual level, serving as a balm to mind states of emotional detachment and loneliness by speaking out to one's own spiritual pain for only then can one truly understand the real meaning of life dwelled beneath the layers.

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- Drobot Ana, "Freud on Death"

QUANTIFYING HUMAN BEHAVIOR WITH NON-INVASIVE SENSORS

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INTRODUCTION

Research has proven the existence of a correlated link between the interior design of space and the human behavior within the space¹. Furthermore, studies show that interior design is capable of influencing human behavior thus stimulating certain types of activities ^{2,3,4}. This study presents an automatic and resource-limited method in line with GDPR regulations5 to quantify human behavior with a high statistical power. The aim is to increase the volume of data in order to increase the statistical significance of the correlation of patterns in human behavior with interior space design attributes compared to former studies.

Prior research of the relationship between interior design and human intellectual behavior is primarily based on methods such as manual observations ⁶, participants carrying wearable devices or through interviews and surveys ⁷. On the other hand, these types of methods can provide deep insight into user behavior but have natural limitations in data volume. Manual observations require the presence of a human resource. This is an accumulative expense and replication of data comes with the possibility of reliability issues⁸. Furthermore, wearable devices require the acceptance of the users of the specific space. Depending on the space and size – there will be a natural limitation on how large of a user fraction can be involved. It is both resource intensive and costly as the number of users involved increases. Furthermore, users offered to carry wearable devices are at risk of being biased⁹. To obtain a high unbiased response rate on questionnaires, it is necessary to assign manual resources to the task. Besides coming with a high cost, if aim is to involve the majority of the users – it also comes with the implication of being a static data feed. Common to these methods is that the cost for collecting data is proportionally increasing with the amount of data.

The type of activity and behavior in focus in this study is intellectual desk work. The space to be experimented is within a public library in Aarhus, Denmark, hosting primary academic students within the age 21-30. This is performed either as an individual or in groups. People in groups can either be working independently within the group or collaboratively and thereby socially interacting with other group members. Recent years, libraries in the western world has shown a transition from being book providers to become space providers for different purposes for the local community ¹⁰. In this new role libraries are still considered an important element in supporting the development of the local society such as social capital¹¹. A study conducted by ¹² indicated that frequent library users have a higher degree of social capital compared to less frequent users. Furthermore, studies in work related environment has shown that experiences of social interaction have a positive effect on human capacity

such as recourse-fulness and physical health¹³. A key interest of the architects involved in this project and the client (in this case the library) is to understand how to measure whether a space attracts singles or groups, the level of social interaction and whether design can stimulate these parameters.

The selected space is subjected to what is considered a radical change halfway through the period. Based on the collected and analyzed data, the intension is to identify a number of insightful behavioral routines that are quantitatively calculated, and detect a difference in behavior, before and after the radical design change. The focus of this study is not to address the architectural design changes and its impact on user behavior, but rather on the methodology that can measure and quantify this change. The purpose is to present a tool that can be used to experiment and validate different architectural considerations.

METHOD

Space and design changes

The selected space within the public library covers app. 1,600 sq. ft and is equipped with four identical tables each with a capacity of 10 seats (with corner seats, the layout of the space appears on Figure 1A). The design change is illustrated with two images showing the space with view (Figure 1B) and with blinders (Figure 1C). This change is considered radical due to window view being ranked among the top three space attributes impacting self-perceived space satisfaction ¹⁴. Furthermore, with a 19 ft. high glass section going from top to bottom and covering the two facades, the view represents a relatively large element of the space identity.



Figure 1 – Selected area for testing – setup and design change

Therefore, an altercation of this space attribute will most likely have an impact on utilization of the space. The experiment is set to last eight days, with the first half being with view, while the last is with blinders. Each day begins at 8.00 am and ends at 19 pm. In addition, to ensure comparability between the two periods, the four days are selected to be Monday to Thursday for two consecutive weeks in

ultimo September. By then, academic students have settled into the new semester and weather conditions for the two weeks are relatively similar (<u>https://www.dmi.dk/vejrarkiv/</u>).

Non-invasive sensors

To measure human behavior 3-dimensional (3D) depth cameras are positioned above each table. Based on a depth-image, an algorithm can identify a human being with centimeter accuracy. The output of the non-invasive sensor is x and y coordinates measuring the center of the head for the identified person(s). Depth data is not personable and thereby this technology differs from conventional optical images, why the method fall in line with regulations and restrictions regarding measures concerning person sensitive data5.

For validation purposes, optical videos of the four tables are recorded in parallel. These optical videos are blurred so that individuals cannot be identified, but still with suitable quality so the activity type of individuals and the group composition at the table can be recognized by manual observation. Human behavior quantified

Compared to parameters such as temperature and speed, there is no clear metric to define human behavior¹⁵. Therefore, it is necessary to define quantitative metrics describing human behavior within an indoor public space. Basically, there are no immediate constraints, but it depends on what data type the selected sensors can provide as well as what specific type of human behavior and/or changes in human behavior are relevant to understand, in this case from an architectural point of view. As mentioned earlier, the selected space primary hosts academic students studying alone or in groups. Based on interviews with architects (experienced in designing public spaces) and the building-owner,

following human behavior metrics have been selected to be quantified:

A - seat utilization (percentage occupancy of tables and seats)

B - table/seat preferences (quantifies users' primary choice of seating)

- C group histograms (group sizes occupying the tables)
- D length-of-stay (duration of time spent at the tables)
- E activity type and level of social interaction

Going from xy-coordinates to human behavior metrics

To calculate the mentioned metrics all coordinates are converted to a 2D probability-density-function (2D-PDF)¹⁶. This represents a profile of a person's 2D body-language based on the movements of the head-center-point in a given time period. The 2D-PDF is illustrated on Figure 2A consisting of a nine celled-circle: one center-cell (no. 0) surrounded by eight pie-formed cells (no. 1-8). In a PDF, the sum of all cells always equals one.



Figure 2 - Going from people coordinates to human body language

Figure 2B exemplifies how a given output of coordinates from the sensor could be distributed for one persons over a period of time. Converting these coordinates into the 9-celled 2D body-language profile

provides a heat map with details about the behavior of the specific person during a given period of time, Figure 2C. The body-language profile complements two characteristics about the persons, 1: center-point-time (CPT): time spent in the center cell (cell no 0), 2: direction: dominating directions away from the center-point (cell no 1-8). A high CPT-value represents a physically still person. Based on manual observations and video recording, a high CPT-value correlates positive with a person more focused on independent activities such as reading a book, taking notes, using a laptop, etc. On the other hand, a low CPT-value correlates with a person having a higher outward activity: someone who is more involved with his/her environment, most likely being socially interactive with the neighboring people. The component direction complements by putting a direction and size on the outward activity. Sudden moves, such as stretching or moving from backward leaned to forward leaned position adds noise to the method. Due to the massive amount of sampled data such disturbances can be neglected. This is possible due to each person identified by the 3D-depth sensor generates 240 xy-coordinates pr. minute. Such a resolution of coordinates, both in time and space, provides a grid of values containing not only the center point of the person, but also a high-precision insight into how much and in which directions the person physically moved. The 2D body-language profile is also essential when predicting group members, activity type and level of social interaction. Figure 3 exemplifies how this is performed.



Figure 3 – Applying the human body language to identify behavioral metrics (fictional example)

Figure 3A and Figure 3B shows three users occupying a table and their associated coordinates over a given time period (fictional examples for illustration purposes). Based solely on the component proximity (Figure 3C), detecting group members and sizes comes with a varying level of uncertainty depending on where the users are seated. By including the body-language (Figure 3D/E) and thereby adding two components (CPT-value and direction) to the detection of the group members/sizes it becomes possible to strengthen the detection rate. In the fictional example (Figure 3E), the body language shows that person A and B have a high level of direction facing each other (positive correlation), and a relatively lower self-centered value. This is an indicator of two persons socially interacting since the component direction peaks in the cells facing each other in the same time window. Person C, on the other hand, has a high CPT-value and a weak dominating direction which also is not directed towards the others.

Data

The eight days of study resulted in app. 350 hours of recording. In order to validate the efficiency of the developed algorithms the camera also recorded a blurred optical version of the tables/peoples. In total, the area has more than 250 visitors over the eight days which sums up to app. 13M xy coordinates.

RESULTS AND DISCUSSIONS

Seat utilization (metric A)

The absolute utilization of seats during the test period is shown in Error! Reference source not found.. Based on utilization rates, seats along the table long sides (seats 1-4 and 6-9) will be in focus (seats 5 and 10 are corner seats). As illustrated in Figure 1, due to the orientation of the tables, seats 1-4 have a lower degree of direct exposure to the window view compared to seats 6-9.

					Seatin	umber					
	1	2	3	4	5	6	7	8	9	1.0	Subtotal
4 days with open w	indow view										pr. table
Table 1	27%	18%	20%	29%	2%	38%	14%	48%	39%	14%	25%
Table 2	31N	12%	28%	38N	9%	2426	21%	37%	60%	2%	29%
Table 8	43N	36%	37%	38N	12%	56%	30%	12%	6376	5%	33%
Table-6	21%	16%	37%	SSN	13%	56%	29%	30%	47%	216	29%
Subtatal pr. met	30%	20%	28%	40%	- 9%	56%	24%	35%	52%	6%	
t days with bilinder	s blocking	the window	view								Sabtotal pr. table
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Table 1 - seat utilization, 4 days with open window view + 4 days with blinders

All tables have comparable levels of utilization rates (subtotal pr. table on Error! Reference source not found.), whereas the utilization rate of the specific seat differs significantly. Across all tables and in both scenarios (with view and with blinders) the edge seats (in the longitudinal direction) on both sides of the table (seats 1,4,6 and 9) comes out as most utilized. Furthermore, it also appears, that having a better window view results in a significant higher utilization rate (39%) for seats 6-9 compared to seats 1-4 (30%). Blocking this view with blinders equalizes this difference. The results indicates that users of the space have a preference for edge seats independently of the direction of the seat or the orientation of the table relative to the window view. Furthermore, the results also indicate a correlation between choice of table side to be seated and window view. In this case, with a view, the average utilization of seats 6-9 at all tables exceeds the average utilization of seats 1-4. This clear difference in preferences between the table sides vanishes when using blinders. The risk of sun glare is present when facing spaces with direct exposure to sunlight. In this case, random chosen users (n=121) were asked (at all tables and different days) specifically about glare issues. In all cases the impact of sunlight and glare did not have any influence of their choice of seating and behavior during their stay (self-perceived answers).

Table & seat preferences (metric B)

When all tables and/or seats are empty, a special insight into the users' preferences is obtained, as there is absolutely free choice. The user arriving at an empty space will not be influenced by other users in their choice of table or seating. Table 2 presents a histogram of the order in which the respective table was selected, ranging from 1-4. For example, with view table 2 were occupied as the

first table three times and one time as second choice. Whereas, with blinders, table 2 were never selected as the number one choice.



Changes in preferences do occur between the two periods. It is clear that table 2 is replaced by table 4 as the most attractive. An explanation for this could be that table 4 is adjacent the nearest window section without blinders.

Another preference study covered which long side users chose when the respective table was empty. The interesting aspect were to analyze whether blinders would affect their choice. With the view, the seats facing the view were preferred app. 80% of the time. Using blinders made this preference not only vanish, but users preferred the seats facing the hall (63%). This study is limited to the number of days as this free choice disappears as soon as the first user has established herself.

Group histograms & length-of-stay (metric C)

The majority of groups (>90%) occupying the space consists of maximum three members why larger groups are excluded. The percentage distribution between these three group sizes are singles: 60-65%, groups of two: 20-25% and groups of three: 7-9%. Furthermore, users spend app. 20 minutes more in the space (2 h. 30 min) without blinders compared to with blinders (2 h. 10 min).

Activity type and level of social interaction (metric E)

To illustrate how the predicting of activity type and level of social interaction is performed, a specific case from the Dokk1 has been selected as a go-through example. Figure 4 (LHS) shows a snapshot from the table 1 validation video. In this case, the analysis covers the time span from 5:10-5:30 pm. Manual observation of the video clearly shows five persons at the table, one group of three and two singles. During the 20 minutes time frame, persons 4 and 5 are relative physically still with limited movement. The members of the 3-person group behave differently. Person 2 and 3 have a higher degree of interaction with each other whereas person 1 tends to work more independently and behave physically more still.



Figure 4 – Validation video and group dynamics

Figure 4 (middle) shows the group structure (categorized by colors) predicted by the algorithm, which is consistent with the manual observations. Furthermore, the positioning of the 2D body-language template shows person 2 and 3 are closer to each other compared to the last group member. As expected, the CPT-values (Figure 4 RHS) for persons 1, 4 and 5 are found to be higher. These persons spend more time physically concentrated around their own center point compared to persons 2 and 4, who have a much higher physical activity towards each other.

Figure 5 (LHS) shows the correlation value of the component direction between adjacent persons occupying the table. A positive correlation is calculated for the persons within the group, whereas the correlation between the group and non-members is negative. This indicates that the persons in the same group have direction values that have mutual patterns within the selected time frame.



Figure 5 – Level of social interaction

These variables can complement to identify the level of social interaction within a group. Figure 5 (RHS) takes a closer look at the group of three (from 16:40-17:30) and based on the 2D body language components it is possible to detect the state-of-work for the group.

CONCLUSION

As architects, we are challenged on the extent to which our design solutions are able to fulfill the purpose. It is therefore necessary to continue the maturation of evidence-based methods to measure the relationship between design and behavior. Such a tool will provide the opportunity to customize the interior design of a specific space to the respective users. Given that humans in the West spend most of our time indoors, it must be stated that optimizing the indoor environment comes with great societal and business benefits.

The study has shown an evidence-based method to analyze human behavior in indoor spaces. Due to the applied technology, this comes with a significant statistical power, high resolution and low uncertainty making it possible to strengthen our understanding of how people behave in indoor spaces. Furthermore, it delivers a tool to the field of architecture to conduct in-the-field experiments. This opens doors for future studies to experiment with more sophisticated design proposals, thus pushing the research of human behavior in indoor spaces from laboratory environments and into more practical settings in-the-field.

NOTES

1 Hoskins, "Employees Perform Better When They Can Control Their Space."

2 Augustin, Frankel, and Coleman, Place Advantage.

3 Mahmoud, "Interior Architectural Elements That Affect Human Psychology and Behavior." 4 Allen and Henn, "The Organization and Architecture of Innovation: Managing the Flow of Technology." 5 "Regulation (Eu) 2016/ 679 Of The European Parliament and of the Council - of 27 April 2016 - on the Protection of Natural Persons with Regard to the Processing of Personal Data and on the Free Movement of Such Data, and Repealing Directive 95/ 46/ EC (General Data Protection Regulation)."

6 Montgomery, "Library Space Assessment."

7 Cha and Kim, "The Role of Space Attributes in Space-Choice Behaviour and Satisfaction in an Academic Library."

8 Denis, Lortie, and Bruxelles, "Impact of Observers' Experience and Training on Reliability of Observations for a Manual Handling Task."

9 McCambridge, Witton, and Elbourne, "Systematic Review of the Hawthorne Effect." 10 Aabø and Audunson, "Use of Library Space and the Library as Place."

11 Kretzmann, Rans, and Urban Libraries Council, The Engaged Library.

12 Johnson and Griffis, "A Place Where Everybody Knows Your Name? Investigating Relationship between Public Libraries and Social Capital."

13 Heaphy and Dutton, "Positive Social Interactions and the Human Body At Work: Linking Organizations and Physiology."

14 Cha and Kim, "The Role of Space Attributes in Space-Choice Behaviour and Satisfaction in an Academic Library."

15 Barakova et al., "Trends in Measuring Human Behavior and Interaction."

16 Chen, "A Tutorial on Kernel Density Estimation and Recent Advances."

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(DE)OTHERING: EMPATHIC DESIGN FOR IDENTITY, CULTURE, HISTORY, MEMORY, AND PLACE

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INTRODUCTION

(de)othering is an empathic design thinking approach, integrating untold historical narratives of the other in ideologically saturated cultural landscapes. Working against dominant spatial imaginaries - such as public county squares dotted with Confederate iconography - (de)othering provides a forward-moving methodology, recently implemented in the small Southern city of Charlottesville. The approach excavates accurate historical narratives, reshaping architecture from a long-repressed African American perspective. (de)othering redefines social space by reframing existing site conditions, creating new spatial experiences that prompt new emotional connections through a deep understanding of architectural empathy. (de)othering addresses a designer's (citizen, professional, and public) need for new ways of thinking, modes of inquiry, and methodologies for introducing historical narratives of the other, and in some locations, for the first time. The approach rethinks our built environment, developing a structure for creating aspired values of inclusionary designs. Practitioners, organizations, communities, and citizens benefit from this innovative empathy focused design thinking, successfully integrating complex topics of identity, culture, history, memory, and place.

Regional Background: Central Virginia

The approach generates from the design revolution well underway in the cultural landscapes of the American South. Throughout the region, a rethinking of the built environment by invested citizens steadily increases awareness of the true origins and intentions of Central Virginia's cultural landscapes. Presidential "mansion homes" of Thomas Jefferson, James Madison, and James Monroe feature stories told as the plantations that they genuinely are. This rethinking influences design – and design thinking - of how to reflect in form accurate tellings of history and in what modes to inform all successfully. This long-repressed knowledge requires new methods of design thinking for aspired values of inclusive space. Methodologies are necessary as resistance in regions such as Central Virginia, where selective accounts of the "founding fathers," and myths of the *Lost Cause* continue. The *Lost Cause* is defined by Caroline E. Janney of Virginia Humanities Encyclopedia Virginia as:

"an interpretation of the American Civil War (1861–1865) that seeks to present the war, from the perspective of Confederates, in the best possible terms. Developed by white Southerners, many of them former Confederate generals, in a postwar climate of economic, racial, and social uncertainty, the Lost Cause created and romanticized the "Old South" and the Confederate war effort, often distorting

history in the process. For this reason, many historians have labeled the Lost Cause a myth or a legend."¹

In 2020, as the *Lost Cause* continues to recount the Civil War as the "War of Northern Aggression," and design must respond to those still in this belief system. Legal shifts from Virginia's General Assembly could change the Confederate spatial legacies represented in the regions public spaces – recently combatted by recent, well-populated gun rallies at the state capitol of Richmond, strategically held on Martin Luther King Day 2020. At this rally, Confederate flags contrasted the crisp blue skies, and the backdrop of the Thomas Jefferson designed Capitol building in the masses of gun-clad individuals.²

The approach aligns with the definition of Design that the political scientist, cognitive psychologist, and economist Herbert A. Simon, stating in *The Sciences of the Artificial*, that "to design is to devise courses of action aimed at changing existing situations into preferred ones." Central Virginia's new courses of action have produced once unimaginable, inclusive strategies of interpretations of enslaved African Americans at the "grand mansions" of Virginia's founding fathers. A visit to these mostly thought "grand mansions" now allows for local, national, and global audiences to learn of the actualities of the plantations structures of racialized capitalism, new knowledge of the foundational spaces, and cultural landscapes of the nation.

Local Background: Charlottesville, Virginia

The shift continues at Thomas Jefferson's University of Virginia, home of the iconic Academical Village - now understood as an academic plantation through the work of the University's President's Commission on Slavery and the University, student charged research, new inclusionary curriculums, accurate historical tours, and exhibitions. Excitement builds for April 2020, when the newly opened memorial to the Enslaved Laborers opens just east of the Rotunda by Howler and Yoon Architects, designed genuinely with University and the local community. The memorial shares an African American narrative in form for the first time, starting with the construction of the University by the enslaved in 1817, to the end of the Civil War.

Yet just a few miles away in the City's main square, Court Square, the Confederate statues remain - the same statues iconized in the Unite the Right Rally and accompanying violence and deaths in 2017. In response, public tours from Dr. Jalane Schmidt and Dr. Andrea Douglas in the Marked by these Monuments continue to educate the public of the real origins, and design thinking.³ It is now common that most know that standing at the base of the Stonewall Jackson statue in Court Square lies atop the location of the mixed-race neighborhood that once stood there, McKee's Row. This knowledge is essential to the author; an African American architect asked to design the installation of an African American narrative, the first of its kind, in Court Square, raising a series of empathic design thinking questions:

How do we add an accurate historical narrative of the other in the shadow of ideologically held monuments in public spaces?

How do we deconstruct these spaces, systems, objects, products, graphics, and experiences through an inclusive socio-cultural lens?

How do we design for inclusivity in our cultural landscapes?

How does this shift in knowledge influence our design intentions to create an inclusive built environment at urban and human scales?

What are the design and design thinking (systematic methodologies and modes of inquiry designers utilize) for this work, and how can you perform them being the other or the dominant culture?

Architectural Empathy

Karla McGrath, who coined the term empath, defines empathy as "a social and emotional skill that helps us feel and understand the emotions, circumstances, intentions, thoughts, and needs of others, such that we can offer sensitive, perceptive, and appropriate communication and support."⁴ Following McGrath, empathic design helps us re-engage with public spaces and read the nuances, subtexts, undercurrents, intentions anew, thoughts that structure (Southern) social space.⁵

Constructed in the early 20th century, the Square's statutes are representations of *othering* enforcements of Jim Crow (the period from 1877 to 1965 of state and local laws to enforce racial segregation in the Southern United States after Reconstruction). Sherrilyn Iffil, president and director-counsel of the N.A.A.C.P. Legal Defense Fund, speaks of the irresolution social spaces in the South pose for African Americans:

"public spaces have yet to become a part of the formal reparation or racial reconciliation conversation for black Americans. It is a curious omission because in towns all over the United States... public spaces were used to enforce the message of white supremacy, sometimes violently. An alarming number of lynchings took place not in secret, in the woods, but in public, on the beautiful lawns that are still there in all these communities...and there is nothing to commemorate these lynchings on those lawns, which are in the center of every town in the South."⁶

Today, the account of the lynching of John Henry James on July 12, 1898 stands in the public square of Charlottesville. James was an African American ice cream salesman accused of assaulting a white woman from an esteemed Charlottesville family in 1898. Instead of being held at the County Jail at Court Square, James was taken by officials west to Staunton to avoid the lynch mobs, which often included University of Virginia students that gathered on the Square's brick landscape. When James was returned the next day, an overpowering mob of whites intercepted the train transporting him just west of town. After thwarting a group of blacks who stood in their way, they attached a noose to his neck, strung him up in a tree, and shot him over 75 times.⁷

The Equal Justice Initiative's (EJI) empathic system of delivery tells James's narrative, starting with the collection of soil from the lynching site and community pilgrimage to Montgomery, Alabama's National Memorial for Peace and Justice.⁸ From Montgomery's nucleus, an African American narrative takes form in each county where lynchings occurred, made visible through EJI's historical markers and duplicates of the 800 anthropomorphic Corten steel (black) body columns designed by founder and Executive Director of the Equal Justice Initiative Bryan Stevenson and MASS Design Group.⁹

How is black absence made tangible? This inquiry prompts a spatial position for the black body in space, as noted by Craig Wilkins in "(W)rapped Space, The Architecture of Hip Hop":¹⁰

The anthropomorphism in hip hop space is not concerned with typical Western understandings of the concept that focuses centrally on the physical attributes or appendages of the body. It is instead concerned with a holistic understanding of the place the body inhabits. It is similar to the DJ/producers' call of "who we are" and as such, is intimately connected with the identity of the body within space. Unlike in the West, where "architectural anthropo- morphism had its primary basis in

the valuation of the human body as an expression of God's creative perfection, African architects more characteristically see in the human a model of life and vitality and an expression of social relationships and values.¹¹

(DE)OTHERING - PRINCIPLES

With this position in mind, *(de)othering* oscillates between two principles, creating productive tensions of black absence for the visitor (Figure 1):

Principle 1, the first is about you – as an embodied participant in a space, as noted by architect and humanist Robert Lamb Hart that we "read relationships between buildings, landscapes, and streetscapes in social terms, too, imagining their dialogues and conflicts and sensing them rejecting or welcoming us, almost like a family member or a friend.".¹²

As an African American, being in the space of Court Square, in the shadows of Confederate statues evokes the cornerstone of the statues, stated in the Cornerstone Speech by then Vice President Alexander Stevens on March 21, 1861 in Savannah, Georgia.

"Our new government is founded upon exactly the opposite idea; its foundations are laid, its cornerstone rests, upon the great truth that the negro is not equal to the white man; that slavery subordination to the superior race is his natural and normal condition. This, our new government, is the first, in the history of the world, based upon this great physical, philosophical, and moral truth. This truth has been slow in the process of its development, like all other truths in the various departments of science. It has been so even amongst us. Many who hear me, perhaps, can recollect well, that this truth was not generally admitted, even within their day."¹³

Principle 2, the second is *Einfulung* - an aesthetic (feeling into), a dialogical act of projecting oneself into another body or environment.¹⁴ This occurs through experiencing the body column at grade - face to face.



Figure 1. Site Plan of Charlottesville's Court Square. (Image by My – Anh Nguyen)

(DE)OTHERING - PRECEDENT

In David Adjaye's Form, Heft, and Material, Okuwi Enewezor describes the symbolism of the National Museum of African American History and Culture (NMAAHC), and it's architectural reading of the African diaspora in the National Mall.¹⁵ The NMAAHC creates new sightlines, allowing the visitor to view the Washington Monument through strategic apertures on upper levels of the corona,

mobilizing its Egyptian (obelisk) influences to indicate newly learned knowledge of Martha Washington's slaves building Renwick Castle, the original Smithsonian.¹⁶ The building views southeast to the Renwick Castle, where Washington's slaves labored, framing the Department of Agriculture to emphasize new representational thematics.¹⁷ New sightlines angle southwest and further west to reposition the Jefferson and Lincoln memorials, questioning the intents and effects of emancipation.¹⁸

Principle 1: (Urban) as an embodied participant - creating emotional and inclusionary architecture through various scales. The open base of the museum arrives visitors into the transparent *Heritage Hall*, in contrast to the solid classical, Eurocentric, bases of buildings on nearby Constitution Avenue.

Principle 2: (Human) aesthetic "feeling into" - sociocultural emotional connections at a human one – to one scale, through the design of the Corona, directly referencing human-scaled African representation, modeled on the ironwork of the enslaved in South Carolina and Louisiana.

(DE)OTHERING - METHOD IN ACTION

(*de*)othering at Court Square follows this precedent, disrupting and creating dissonance through the siting of the historical marker and body column. These insertions leverage existing visual / resignifying connections, established at-grade, to create *Einfulung*.

Action, Scene, today:

A visitor comes into Court Square and experiences its axiality as an expression of dominance, also echoed in its Confederate Monuments (Figure 2). As one encounters the monument, a visitor experiences Principle 1, thinking about how "I" (whatever particular body in which "I" lives) relates to the body column etched with James' name and date of the lynching, a scale object, on a slate foundation representing the vitality of enslavement (Figure 3). Buckingham slate comes from the heart of the state (the birthplace of Dr. Carter G. Woodson, "the father of black history"); it was quarried by the enslaved and used at the nearby Academical Village. Rust of the body column evokes the act of lynching between two large pin oak trees, prompting refrains of Billie Holiday's Strange Fruit.¹⁹ The viewer is free to have whatever experience their particular body and life experience elicits. Visitors to the square connect to features and sightlines that invite them into spatial dialogue/confrontation with the marker and body column, such as the slave auction block and Monticello Historical Marker on the left and right. Visitors continue evaluating the Square's symbolic objects/spaces, such as the 1909 Johnny Reb Confederate Statue and the 1921 Stonewall Jackson statue in the distance through the lens of this disruptive/affirming/infinitely shifting experience.²⁰ One contemplates the perspective of Enwezor - that monuments, "rather than simply being devices to make memory, history, or structures of remembering, are fundamentally representational spaces designed to explore ruptures in memory, opacities of history, and fractures in remembering."²¹ Both principles resist the ability for you to put yourself in place of James. In essence, the proximity of the column at ground level does not allow you to project yourself as a centered, dominating viewer.



Figure 2. John Henry James Historical Marker installed July 12, 2019. (Image by My – Anh Nguyen.)



Figure 3. The Body Column of John Henry James. (Image by Gabriel Andrade.)

Through empathic design research and the deconstruction of social space, (de) othering places viewers in new relationships with space and time with the introduction of the narrative of James. Visitors to the Square, whomever they may be, engage in empathic conversation with themselves and others through this new set of spatial relationships. Daily routine in the unresolved square shifts, placing individuals in new relationships to one another, creating opportunities for sharing an African American narrative - in opposition to a recent ruling, from the 1762 Court House in this very site, that the statues must remain.²²

NOTES

¹ Caroline E. Janney, "The Lost Cause" Encyclodeia Virginia, Virginia Humanities, accessed March 20, 2020, <u>https://www.encyclopediavirginia.org/lost_cause_the</u>

² Rodrigo Arriaza, "Gun Rally Draws Thousands," Richmond Magazine, accessed April 2, 2020, <u>https://richmondmagazine.com/news/news/thousands-flood-downtown-richmond-for-gun-rally/</u>.

³ WTJU, "Marked By These Monuments", accessed February 23, 2020, https://www.thesemonuments.org/.

⁴ Karla McLaren. *The Art of Empathy: a Complete Guide to Life's Most Essential Skill* (Boulder: Sounds True, 2013):4.

⁵ McLaren, *The Art of Empathy*: 5.

⁶ Sherrilyn A. Ifill, and Bryan Stevenson. On the Courthouse Lawn: Confronting the Legacy of Lynching in the Twenty-First Century (Boston: Beacon Press), 2018:16.

⁷ Brendan Wolfe, "The Lynching of John Henry James (1898)." *Encyclopedia Virginia / Virginia Humanities*, Accessed December 2, 2019. https://www.encyclopediavirginia.org/JohnHenryJames_1898.

⁸ Albemarle County, "EJI Community Remembrance Project," *County Executive*, accessed October 21, 2019, Albermarle County Office of Equity and Diversity

⁹ Charlottesville currently stands to be the first City in the United States to have both an historical marker and body column from the Equal Justice Initiative by the end of 2020.

¹⁰ Craig L. Wilkins, "(W)Rapped Space: The Architecture of Hip Hop," *Journal of Architectural Education* 54, no. 1 (2000): 7–19.

¹¹ Wilikns cites Suzanne Preston Blier in the JAE Article 54:1 along with this quote, *The Anatomy of Architecture: Ontology and Meta- phor in Batammaliba Architectural Expression* (Chicago: The University of Chicago Press, 1994):118

¹² Robert Lamb Hart, "Architectural Empathy: Why Our Brains Experience Places Like People," *Metropolis*, accessed October 5, 2019, https://www.metropolismag.com/architecture/architectural-empathy-why-our-brains-experience-places-like-people/.

¹³ American Battelfield Trust, Cornerstone Speech, accessed July 13, 2020, https://www.battlefields.org/learn/primary-sources/cornerstone-speech.

¹⁴ Lanzoni details *Einfulung*, an aesthetic reading of Empathy as "the power of projecting one's personality into (and so fully comprehending) the object of contemplation. Susan Lanzoni. *Empathy: A History* (Yale University Press, 2019):21

¹⁵ Okwui Enwezor, Zoë Ryan, Peter Allison, and Douglas W. Druick. *David Adjaye: Form, Heft, Material* (Chicago: Art Institute of Chicago, 2015):172-174.

¹⁶ Mark Auslander, Scott Nesbit, Kwesi DeGraft-Hanson, Anthony E. Kaye, "Enslaved Labor and Building the Smithsonian: Reading the Stones," *Southern Spaces*, accessed October 12, 2019, https://southernspaces.org/2012/enslaved-labor-and-building-smithsonian-reading-stones/.

¹⁷ Enwezor, David Adjaye: Form, Heft, Material:174.

¹⁸ Visitors experience *Einfulung* in the underground circular water ring NMAAHC's Contemplation Court, evoking the location of the former shoreline where slave markets existed, with empathic design symbolic connotations of the ring (implying shackles and the African traditions of the ring shout).

¹⁹ Personal design projects uncovered design connections of the trees to the realities of the historical narrative, as well as conversations with citizens.

²⁰ A review of Daniel Bluestone's research of Court Square is a precedent for historical and spatial understanding in (de)othering. Daniel Bluestone, *Buildings, Landscapes, and Memory: Case Studies in Historic Preservation* (New York: WW Norton & Co, 2011):222-230.

²¹ Enwezor, *David Adjaye: Form, Heft, Material*:173.

²² Tyler Hammel, "Judge to Award Attorneys Fees, Rules against Damages over Confederate Statue Shrouds," *The Daily Progress, accessed April 3, 2020, https://www.dailyprogress.com/news/local/judge-to-award-attorneys-fees-rules-against-damages-over-confederate/article_24de3949-37f9-5c91-bc79-bac74347386e.html.*
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BECOMING THE UNBECOMING AN ARCHITECTURAL MANUSCRIPT OF THE ABSURD

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INTRODUCTION

Absurdity, despite being a feeling that human existence regularly encounters has been pushed far from its intended meaning. Wearing a cloak of non-sense and ridiculousness, we often oversee the implications and the potential that an absurd approach might bring to the table. John Silber in his "Architecture of the Absurd" speaks of architecture that is not performing its function, however the absurd he talks of is ridiculousness in disguise.¹

The intent of this paper is to look beyond that façade we have placed upon Absurdity and decipher the possible role of absurd behaviors in the perception of architectural space, taking the help of three narratives.

RE-UNDERSTANDING ABSURDITY

The word itself has travelled far to become what it is today- misunderstood. Starting out with the Latin word absurditās, which depicted "dissonance"², in Arabic meaning deaf and carrying the 'surd' at the core of its meaning,³ Absurdity has evolved into "something that is ridiculously unreasonable, unsound, or incongruous."⁴

The dissonance of its meaning became an out of tune relationship with reason, yet that disconnection does not imply an absence of purpose, as in absurd scenarios a result is achieved however in an unconventional or incomprehensible way. In order to separate Absurdity from the mutation of its meaning it is pertinent to look how thinkers have perceived and defined that same word.

Thinking Absurd

Beginning with the father of existentialism, Soren Kierkegaard explained the absurd to be something that goes against rational reasoning. Quoting the incident of Abraham's sacrifice of Isaac, he raises the question of the rationality of such an act to people of no faith. At the core of this event is the concealment of intentions, Abraham is not to tell anyone of his predicament. In rational terms a father should not have to kill his own son, however it is through to faith that the act becomes justifiable. Here the act is absurd because of the concealment of intention behind it, creating a conflict with rational reasoning. A conflict that is dispelled through Faith.⁵

A similar concept of absurdity or the absurd act is found in the existential crisis of Leo Tolstoy, who found himself in an absurd position. The concealment of the meaning of life and the certainty of death made him draw a logical conclusion of suicide. Yet, because he acted against logic by staying alive his

mere act of continuing to live was absurd. It is the concealment of the meaning of life that births the experience. Tolstoy similar to Kierkegaard seeks to fill the void with Faith.⁶ In the theistic worldview the absurd becomes something that is necessary to solve in order to exist.

Following Tolstoy's internal discovery of Absurdity, an atheistic view was brought forward in the 19th century by French philosophers Jean-Paul Sartre and Albert Camus. With Sartre emphasizing on the conflict created from the duality of being – the captive and the warden. The Self possesses ultimate freedom, yet terrified of responsibility puts itself in the cage of bad faith. This Absurdity again is to be resolved through Self transformation.⁷

The concept transformed with the involvement of Camus, the father of absurdism. The aspects of concealment and conflict became indispensable from this point on, as he defined absurdity being birthed from "the confrontation between human need and the unreasonable silence of the world." However his valuable addition to the concept is the necessity of living with it as a driving force rather than an issue that needs to be solved for life to happen. Quoting Sisyphus as the ideal absurd hero and a metaphor to existence, Camus preaches the powerful message of absurdity being a driving force of life rather than an obstacle and the source of happiness.⁸ A message reinforced by Thomas Nagel, who spoke of the absurd experience being entangled with human experience as it can only be perceived by man.⁹

By associating Absurdity with happiness and the human experience it has transformed from a simple conflict with reason and has become a tool to escape despair rather than being the cause of it. This extensive study not only shows how the notion of Absurdity changed throughout time, but also highlights the depth that lies underneath it.

Differentiating it from non-sense, it can be defined now as something that created from a conflict caused by concealment of intention. An absurd behavior then becomes one that puts man in conflict with his surroundings and an absurd experience becomes an ordinary one that has been reframed.



Discovering the Absurd

Figure 1 Sisyphus, Franz Stuck 1920

Discovering the Absurd

The Dadaist and Surrealist movements produced art dubbed as absurd, as they often opposed rationale.¹⁰ The most prominent incident being Marcel Duchamp's "Readymades", which expanded the definition of art. Through an absurd act a question is generated, spiralling into a discussion about a concept perceived to be iron-clad¹¹. The artist reflected the Absurdity he saw in his environment into an absurd art.¹²

In a similar manner Rene Magritte with his "Treachery of Images" used the conflict he generated in the image to provoke a question of the known, a starting point of investigation.¹³ That element of investigation can also be seen in his "The Son of Man", the apple concealing the face is a symbol of curiosity. The fruit appearing throughout human history in relation to Inquisitiveness, be it Newton or Eve. Similarly "The Persistence of Memory" by Salvador Dali questions the concept of time created by man, the absurd imagery in all cases triggering a conversation about the self-evident.¹⁴

The eccentric spirit of this movement can be found in the work of Architect Douglas Darden, who in his work "Condemned Building" turns common notions of architecture on their head on a quest of rediscovering architecture. Darden's approach is what he says is to look at the underbelly, an analogy to a turtle, whose underbelly is never really seen until turned over. Architecture, holding the same quality, should be experienced and thought anew and absurdity was the tool to accomplish this feat. By catering to the marginalized concepts of architecture and using fictional narratives he created absurd designs that broaden the horizon of the act of building.



Figure 2 The Son of Man Rene Magritte 1964

One of these narratives gave birth to the Oxygen house. A fictional client suffered from a collapsed lung due to an accident. Years later he buys the land where the accident occurred and hires an architect to build his final residence. The space should facilitate his living body and ultimately become a mausoleum for his corpse. Darden accomplishes this feat by creating architecture that transforms life to death. Essentially collapsing the oxygen tent in order to place a tree on the platform while the body moves underground. It makes one rethink architecture and its relation to human life in a simple but effective way. The whole project carries within it the tension between life and death, a conflict that causes the absurdity of the whole structure.¹⁵

In his architectural illustrations Tom Ngo questions common design practices and in turn sheds light on design imprisoned by rationality and convention. Like Darden he uses absurdity to unlock the potential architecture that is overlooked¹⁶.

Thus Absurdity is a useful tool to spark an investigative process and to re-evaluate existing behaviors and conditions.



Figure 3 Oxygen House Douglas Darden 1993

STUDY OF TWO TEXTS

The Fall of the House of Usher by Edgar Allen Poe

In this short story Poe uses the same vocabulary for the dweller as well as the estate, creating an eerie connection between the two. The protagonist himself claims that the estate of the Usher family is what is causing his demise. Spaces express entrapment and suffocation mirroring the lord's mental state. The narrator describes the manor only at the beginning, speaking of its somewhat hostile character towards the inhabitants and its failure to comfort the inhabitants.¹⁷

The Absurdity of the tale derives from the overall vagueness of the tale. Roderick's behavior appears absurd as there seems to be no rationale behind his acts, since his fear according to the protagonist is unfounded. From the beginning till the final events of the stormy night he holds unto reason in face of the absurd until rationale fails to explain the happenings.

An experience that is similar to Tolstoy's encounter with the absurd. In this story the architecture serves as a curator of absurdity, without any absurd behavior sustaining the structure, the structure itself is falls apart.

The Burrow by Franz Kafka

His unfinished short story "The Burrow" deals with the obsession of the protagonist in the pursuit of the ideal construction. The narrator, argued to be a mole-like being, is detailed in his description of its dwelling and focuses on the silence of the spaces. His account is very technical, a testament to its intellect and ability to reason. Throughout the story the protagonist describes plans of improvements for the burrow, despite priding himself in his creation.¹⁸ These plans are a result of the protagonist's

struggle between the dwelling and the outside world. It is determined to create a burrow completely separate from the outside world, but is unable to do so, as the threats of that world continue to cause him anxiety.

In his philosophy Camus speaks of a desire for clarity that puts man in conflict with the world in 'The Burrow' the desire for safety and isolation of the protagonist puts it in conflict with the external. In the result of that conflict the protagonist's construction itself becomes an Absurdity.

Architecture and Absurdity find themselves in an intertwined relation, where space can become an absurdity because of an absurd behavior or it can be an expression of it.

BECOMING THE UNBECOMING

After understanding Absurdity and its relation to architecture, it was not difficult to observe absurd practices and behaviors throughout Lahore and Pakistani society. One that was glaring in the urban fabric was the creation of malls, which promised a bubble for the shoppers. Giving an experience of being cut off from the poverty outside, it gives way to an absurd escape and caters to consumerist behavior.

Another absurd behavior of society was translated in the urban fabric in the form of the decay of Sikh and Hindu monuments. Where Islamic and Mughal architecture was celebrated, the utter neglect and ignorance of this part of Lahore's history is a testament to the absurd attempt of removing these minorities from the story of the city

On a smaller scale the designs of homes were absurd in the sense that they all were essentially the same, however the façade was designed as a face to hide the inner character of the spaces. With no connection between the inside and outside, elevations seem pristine, not giving a single inclination of human activity. This practice turns streets, which were once extension of human activity, into a museum of facades.

Be it the construction of malls fuelling absurd consumerist behavior or the trend of omitting historical landmarks of minorities, once discovered it was impossible to look away from the absurdities of society and how they manifested themselves in space.

In order to highlight this concept three narratives were written, based on societal issues in Pakistani society with regards to women. Rooted in local Pakistani context these stories have been translated into a graphic novel, depicting the spatial experience of each woman in different stages of life; from infancy to adulthood.

Act I – A Place Unfinished

The first absurd behavior deals with female infanticide, a practice still widespread around Pakistan with 375 baby girls found in 2019 in Karachi alone¹⁹. The first act describes the experience of space of the infant, the transformation of space from the protective womb to the world and ultimately to her grave. Society's absurd behavior contributes to her absurd experience of the world, which essentially deprives her of any space, be it public or private.



While she is in the womb of her mother, she has a place in the world slowly forming, as her space is associated with her mother. As a fetus is able to hear noises from the outside, she starts to imagine. The outside world is one of dreams and unfound paths, a display of potential. The light beacons her outside of the protectiveness of the womb, promising a complete space.

However contrary to her expectations, once born there is no tangible space for her. Through society's absurd behavior she experiences this world, which consists of all our spaces, as nothing more than a threshold.



The only experience of a complete space she has is that of her grave. Enclosed with no interaction with the world around, which due to an absurd behavior deemed her unbecoming of life. She leaves behind the void of what could have been.



Act II – A Place Unfree

Haq Bakshish (Renouncing the right to marry) is the absurd behavior that is explored in the second act. In Pakistan there are many families with strict cultural values, which often leaves girls with only one way out – marriage. Yet in this practice the girl is not married to another person, but to the Holy Quran. With no roots in religion, this act is simply designed to keep properties within feudal families²⁰. The girl is expected to live in her room devoting herself to reading and studying the holy book till her last days. Through this marriage, she has an absurd experience of space as she is denied of a public domain.

As she grows up she dreams of escaping her current situation and imagines marriage as a bringer of possibilities and ultimately freedom. The different paths are her different aspirations and ambitions. In her room she silently whispers her desires to the walls around, creating her own dream world.

The day of her marriage nears, her imprisonment slowly creeping in on her. Yet, she holds onto hope of escape. Depicted through light and the window, her desire for freedom overshadows all her other aspirations.





Ultimately she is imprisoned, the walls she used to dream in are now her only companions for eternity. Despite the heaviness and darkness of her enclosure, the one desire for freedom remains.

Act III – A Place Unbecoming

Finally in adulthood the everyday of a Tawaif is explored. Once a respectable courtesan, promoting poetry and dance, these women have now been reduced to prostitutes. The culture to further artforms has long since disappeared, now only the wealthy hide their faces while visiting the red-light district Hira Mandi in Lahore²¹. In Pakistani society this kind of activity should not exist since women are a symbol for honor, yet it does - a clear absurdity that is overlooked. It is the absurd behavior of these individuals visiting that distort the experience of space for a Tawaif. While they hide their women at home under the name of honor, here they are exposing others for their own needs. The bedroom a usually very private space, becomes a marketplace for her body every night, distorting her experience of this space.



During the day she sits under a veil, a symbol of protection and honor in society. Despite being aware of being in a marketplace, her space is safe and her own.

As the night approaches the wall she hid behind is forcefully overrun by society. A path is created through her very space, facilitating the character of the market around to penetrate and remove her veil against her will.

Darkness falls and the space that she felt once protected in, becomes a coliseum, where everyone gathers to watch the spectacle. Her veil completely disappeared, her whole being exposed for the world to see. The visitors themselves stay away from the spotlight, not showing their faces. It is unbecoming for them to be seen at her coliseum, at the same time they deem her unbecoming of honor and safety.





Unbecoming Adjective. (of behaviour) not fitting or appropriate: unseemly.

In a world of stairs leading to nowhere and unsurmountable walls standing in paradoxical ways, where things are not always what they seem and peaceful tranquility can turn into a space of terror without a single warning light. On this treacherous ground the stage is set for those whose story is about to be told.



Anticipation and fascination found an abrupt halt. The number of paths had decreased all merging into one single threshold she had to take.



Still hinting towards the playground she imagined, however now more like a shadow of what should have been. What used to be concrete had become fleeting and unassuring.

Carefully she tread towards the light.

Her place, with its wound stairs and extending paths was no more, the promises the light had given her all faded into the darkness of this bunker. All she could do was wait before she could voice the question that hung in the silence of her confines.

In defeat she accepted the deal the world had offered her.









Eyes opened, staring at the heavens that were concealed by an ominous presence. All that remained from her dreamscape was the shadow of the freedom she desperately longed for.







The curtain falls, the stage empty for the actors returned to their catacombs, waiting for the instruments around to change. Brick and concrete, lackeys to the dwellers, watch in silence over those that have been entrusted in their care, waiting in silence for the shift in the winds.

Set in stone, the mechanics do not change, the dwellers, actors and the space are woven tightly together in their journey to become the unbecoming.

CONCLUSION

Starting from Absurdity as something nonsensical, it is established through research that the absurd experience is a result of the concealment of meaning and inherent to the human experience. Through the three narratives above it is shown how absurd behaviors impact the experience of space for each

individual. From birth to youth to adulthood, absurd experiences of space is not constrained to a single moment in life, rather it is an ongoing transformative experience. Each of the characters are deprived of the meaning behind their predicaments, which results in their own perceptions of spaces. Architecture, society and the individuals are interlaced in creating the absurd experience. In Act Two a space she was familiar with turns absurd because of the absurd act that is committed; the character of the space transforms to absurdity. In the case of the Tawaif the whole architecture is designed to make a spectacle of her, as this is a designed space to facilitate this absurd behavior. Which raises the question if we as designer have overlooked our responsibilities in catering and festering absurd behaviors. Although absurdity is not separable from human existence, it is possible to transform certain absurdities. A brothel that gives honor to its inhabitants, is one of the examples of how absurdities can transform through intentional design.

The absurdities around us should be observed and taken as an opportunity for evolution rather than something set in stone. This a necessity to transform stagnant design practices that have failed a significant portion of society.

NOTES

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ALIENATED SPACES IN CONTEMPORARY HOUSING

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INTRODUCTION

Quite often, studies suggest alienation as a loss of a former connection or affiliation to a certain place, thing, or a person. Philosophers and authors have worked in the past to seek a connection between the term alienation and humans in general. Numerous findings link various events which leads to its occurrence, focusing either on its negative or its positive outcome. The focus of my paper is not to investigate alienation on the bases of its causes and effects but rather to highlight its prevailing existence in the built environment. Like the architectural scenes painted by Edward hopper that speak of the time of great anxiety and depression, using the same lens, I studied the contemporary situation of houses in Lahore, depicting the loss of spatiality of its essential spaces.

Architectural spaces have the power to impact behavior and interaction even when it is not physically inhabited. This dialogue that is established by the space has been replaced by the external forces. Spaces which once gave meaning to the entire dwelling have been pushed aside. The shift in spatial dialogue has forced the spaces into a state of alienation. In this paper, I explore alienation from a spatial perspective to show how alienation in the contemporary housing of Lahore has become an inevitable reality.

ALIENATION AND DIALOGUE

In his book, The Sane Society, Ericc Fromm, defines alienation as "mode of experience in which the person experiences himself as an alien. He has become, one might say, estranged from himself".¹ In other words, a person experiences alienation when a former connection within the self is broken and no longer feels connected to oneself. The forces which kept that connection alive either become irrelevant or are replaced by other forces, resulting in meaningless experiences. Although alieantion defined here was from a human perspective, for the built environment this could be seen as the space lossing its capacity to enagage its dwellers, thereby loosing its presence. The loss of powerful experience with in the space leads to alieantion of space.

Like other art forms, architecture too gauges man on both spiritual and physical level. A powerfull space has the capacity to generate emotions. In his book, Eyes of the Skin, Juhania Plasma talks about the powerful experience of architecture and how it numbs us to external noises and directs us towards our solitude.² The dialogue that is established between the dweller and the inhabited space, pushes the viewer from physicality into another dimension of self-awareness. In the essay, Building, Dwelling Thinking, Heidegger discussed this dimension in detail, expressing dwelling as the manner in which

mortals are on earth.³ An architectural space comes to life when it moves the dweller to experience the space through all the five senses. The dialogue that generates as a result of this encounter, triggers emotions and develops a connection with the space. This connection does not just give meaning to the dweller as they experience themselves through the physical space, but the space itself becomes truly inhabitable. Alienation of space occurs when the sense of presence within the space is lost due to the shift in spatial dialogue.

When we analyze the trending residential architecture of Lahore from spatial perspective, we notice that the spaces which once evoked sense of belonging have lost their emotional significance. Post partition, the houses built in Lahore were majorly influenced by "Haveli" architecture. The homely experience of a Haveli was dependent on its gathering and transitional spaces i.e. Courtyard, Veranda, Balcony, Roof and Lounge. Theses spaces acted as communicating devices and integrated a family as well as the neighborhood, with in its surrounding context. The combination of these architectural elements sustained not only basic security and privacy concerns of a shelter, but also gave birth to numerous activities that fulfilled both traditional and cultural aspects. Consequently, the exchange of experiences and interaction enabled through three-dimensional space, brought people together, fostering a sense of rootedness in them.

Due to the shift in spatial dialogue, the former connection with the space became weak and is now replaced by other connections. In the Marx's Theory of alienation, Karl Marx explained how dehumanizing working conditions in a capitalist society results in the alienation of worker from his work and his own human essence.⁴ In contemporary houses, inhabitants undergo dehumanization as their relation with the space is divorced from spatial experience.Consequently, the meaningful dialogue within the space is lost, leaving the dwellers detached from their own presence and neighborhood.

Alienation of space is not a contemporary phenomenon. Looking at the historical paintings of Edward hopper, we witness the alienation in the built environment of the early 20th century America. His works speaks of the time when the arrival of machine replaced and disintegrated man from himself as well from his surrounding context. Although Hopper once stated that he chose certain subjects that he believed "to be the best medium for a synthesis of my inner experience",⁵ yet the architectural settings he chose were directly influenced by the America's urban fabric at the time. This further reveals how those settings emotionally and psychologically impacted the artist.⁶ Although most of his paintings revealed the figures detachment from their surrounding context yet his paintings also speak of the prevailing silence in the built environment. In other words, his paintings were showcasing the feelings of self-estrangement and escapism experienced by the people due to the surrounding bleakness of the urban settings.

The situation of modern houses in Lahore mimics the psychological expression painted by Hopper. In most of his paintings, hopper emphasized on mundane experiences with the rigid repetition of certain architectural elements such as window frames in Early Sunday Morning, facades in Second Story Sunlight or roof top in Room in Brooklyn. Due to the assertion of certain bylaws and the lack of responsibility towards design, repetition in architectural elements has become a norm in present-day housing projects. Thus, the recurring spatial planning, ignites anxiety and entrapment in every modern dwelling.

The focus of the modern house is to acquire maximum indoor space which results in subsiding the essential interactive spaces while making their presence nonexistent. This results in abandoned balconies and inaccessible roofs, deliberately cutting human contact from their vicinity. Disconnection between the exterior and interior of the house pushes the indoor spaces in to complete isolation. Just

like Hopper's empty rooms and closed off interiors metaphorically suggests escapism, the monotonous rooms of modern houses stir feelings of imprisonment.

Although, it is not necessary that every dialogue resulting in alienation leads to escapism as German play writer Bertolt Brekht used "alienation effect" in his theatres to avoid escapism, instead he used it to engage the audience to contemplate on the issues addressed in his plays.⁷ Yet, in the technologically advanced age, the communication means facilitates the process of escapism by detaching humans from their immediate environment and connecting them to a virtual world. Whether the space has lost the capacity to engage or not, in the current age, the technological means have become overpowering. In his series of digital manipulation, Kamil Kortaba, expresses the alienation of the digital age, showing how people physically inhabit a certain environment yet consciously exist in a virtual reality.⁸ Instead of dialogue in architectural space playing a major role in transforming behavior and interaction towards wellbeing, the spaces we inhabit forces us to dwell in a fantasy world. Consequently, the reality we experience is a mere fabrication of the actual reality and the sensory imbalance we undergo due to ocular centrism, deprives the conscious mind from essential human experiences.

Excessive use of digital means shifts our perception of the space from real to virtual, thereby, disintegrating us from our surroundings. Therefore, the sense of place is lost. In her analysis of architectural space in E.M Foster's "The Machine Stops", Susana Oliveira talks about the horrors imagined by Foster, as a result of a dystopian interpretation of the rapidly developing modern world. The built environment depicts a complex underground network consist of people living in separate pod like rooms, completely disconnected from the surface and nature. The writer describes the relationship with space as an essential embodied experience in order to comprehend reality. He emphasizes on "Man is the measure", only through increased possibilities of the body in relation to space, one can recover the "sense of space". Thus, the experience of space is enabled by being able to move and have bodily experiences.⁹

With the rising demand of housing in Lahore, many gated communities as well as local authorities took the initiative of developing several new projects every year. The rapid mass production of houses led to new construction styles and bylaws which restricted freedom of spatial orientation. As a result, the contemporary houses are now deprived of thoughtfully designed spaces. When we look at the current housing style in Pakistan, we observe a great influence of technological means shaping architectural spaces. Instead of human centered design promoting social interaction, the contemporary style encourages the use of technological means to satisfy the experiential needs of dwellers. With digital means serving the purpose in place of three-dimensional space, the contemporary houses are becoming much like Foster's pods, depriving its inhabitants from basic human connections and forcing them to enhance their experience of reality on virtual grounds. This leads to alienation of physical spaces as well as man from its immediate context.

In the current situation, to escape the dreary spaces, dwellers unconsciously switch to digital means for emotional stimulation. Thereby leaving spaces completely uninhabited. Historically, this stimulation was experienced through interconnectivity of transitional spaces such as courtyards with verandas, balconies with streets, and rooftops with adjoining roofs. Social narratives which generated as a result of these connections enabled a direct relationship among people as well as with nature, which helped establish sense of presence within a physical space. Currently, this aspect of design is forgotten. By accommodating digital means, the contemporary design keeps the dweller detached from their physical reality as well as from the experiences generated through three-dimensional space. With the shift in spatial dialogue from physical to virtual, the spaces which once lived through social gatherings, have lost their spiritual power to hold meaningful connections. To highlight this shift in dialogue, I am focusing on the five major interactive spaces of the house i.e. courtyard, veranda, balcony, roof, and lounge. Through series of paintings, I will discuss the metaphoric importance of these spaces and currently how they have become a part of ever-growing alienation.

Courtyard

At the heart of the Haveli, lied a central courtyard where all the arteries connected to give life to the dwelling. The binding nature of the courtyard mediated the gaps between suffocating boundary walls and exposed street life. Free from the confinements of the roof, the open field welcomed the dwellers to explore freedom under the infinite sky, yet the walls guarded them against the harsh realities of the outside world.



Figure 1. Humna Syed, Courtyard Series, 2019, Soft pastels on paper.

The ground which once served as a safe haven for kids to roam freely and engage in a dialogue with those living next door, has been abandoned. As a threshold, it stood like a barrier between the street and the intimate spaces of the house. Those streets which gradually stepped into the house, now lie at the doorstep of their chambers, forcing the doors to be completely shut and their kids to remain hidden inside.

Confined to the impenetrable walls, they have been suppressed to look beyond. Those voices that once dragged them out of their seats to meet the fellow next door, have not been heard for a while. The sealed windows partly reveal what might lie beyond but the walls in between conceals their existence.

There was a time when being the nucleus of the house, it served as a canvas upon which they painted memories of the past. With every passing hour, they encountered various activities shifting from morning tea to the household chores, to the kids playing around on its vast field, to the beds lying close to one another under the starry night. In times of sorrow, it served as a mourning ground while celebrations were hosted under its embrace. What once was known to be the center of attention, stands displaced by the virtual interaction. A breathing space that rejuvenated them through its fresh air, stands far from sight, diminishing in the dead ends.

Veranda

Being a buffer between rooms and courtyards, veranda served as the extension for both indoors and outdoors. Sitting under its shed, the corridor running on the edges of the courtyard served as an enclosure for their daily chores, yet the sky peeking through its arched openings infused a sense of freedom in them. While passing through its pathway, the windows mounted on its wall seemed like the art pieces hung in a gallery but soon as the curtains were pulled open, it revealed another dimension into its vicinity. Fluidly merging the dark rooms with the bright sky outside, forged a sense of connection throughout the dwelling.



Figure 2. Humna Syed, Veranda Series, 2019, Soft pastels on paper.

With the disappearance of these openings, the relationship with the inside is lost. The absence of courtyards too, displaced its position from being a threshold to a mere passage. Surrounded by the dead walls, visitors swiftly move through it, denying its existence.

Windows and doors that opened into its enclosure, were the breathing pockets for indoors while the extended roof served as the shield against the scorching sun. By removing the protective layer in front, the windows stand exposed to the unbearable heat, forcing the green veils to drop. Those apertures that framed several scenes from the courtyard, helped them locate their kids through a distance. With the ugly veils drawing on their faces, they fear of losing sight of their kids. Keeping their kids close to themselves, they secure them in suffocating walls.

For some it was a reading nook where summer mornings were all about sitting under its shed reading papers. While residing in it, they revealed each other untold stories of the past. The space that lived through story tellers has gone missing along with their stories, leaving it to rot in silence. A shelter which once served as the breathing ground for unspoken connections, stands isolated as a dead garage.

Balcony

Hanging on the facades, balconies acted like communication devices, bringing the neighborhood together. Sounds from the streets were a pleasant knock on its window. The cheerful voices of the kids passing through the street, wakes the life behind the closed curtains. Intrigued by their voices, the residents used to come out of their isolated cells, giving life to the silent facades.



Figure 4. Humna Syed, Balcony Series, 2019, Soft pastels on paper.

With the streets fading away along with its strollers, the dwellers who were once welcomed to engage with ongoing narratives of the street, never seem to appear anymore. Those who travel by cars, quickly move past the protruding windows, belittling its existence.

Extending itself in the air, hanging above the walking heads, the balcony enabled the dwellers to connect with the other side. Standing on its boundary, they sought joyful faces to carry them away from the bleakness of their rooms. The cantilevers which once broke the monotony of their rooms, have become as lifeless as the streets outside. Whether facing outside or inside, there is no room for them to escape the prevailing silence.

Unable to bear its meaningless existence, they decorate it with various vines and climbers. Covered in a dark dense foliage, with not a scene in sight, the balcony seems to vaporize under the leafy veil.

Roof

On top of their houses was a landscape, bringing strangers together. In search of the utmost freedom, was a ground free from the rigid parameters. The designated chunks of land that grew from the ground, turned into a vast playground for all. Travelling across the boundaries, costed only a friendly hand pulling their fellows in to their side. Leaving behind their worries on the ground, they sought refuge under the open sky along with their surrounding residents.



Figure 4. Humna Syed, Roof Series, 2019, Soft pastels on paper.

Adjoining walls which tied their roofs into a single platform, have been ripped apart. The unbridgeable voids between their territories, entraps the dwellers within its constraints. Hopeless to reach the other side, they found virtual means to seek connection.

Up in the air, they use to gather to celebrate magical times of the year. From running across the field in heavy showers to flying kites, they cherished every moment together. Songs which echoed throughout their weddings, brought the soundless field to life. The festivities which kept it alive, left it barren for alternative resides.

Divorced by the human connection, the land of diversity has been molded into a bland shape. Like the hilly plains, the housetops ran up and down, inducing curiosity in its dwellers. With not a soul to cherish its presence anymore, it has been sealed into a land, echoing silence.

Lounge

Lying between their private chambers was a family hall, where they assembled to greet each other. Sitting on a couch, next to each other, they bonded over lengthy conversations. Planning ahead with their loved ones involved, they solved difficult matters together.



Figure 5. Humna Syed, Lounge Series, 2019, Soft pastels on paper.

The room which brought them to a common platform, no longer witness their attachment for each other. Sitting in the lounge along with each other, they lose themselves to the virtual territories. Residing under the same roof they are blinded to each other's presence.

The interior of the room was flexible enough to mold itself according to their will. From cozy dinners to ceremonial gatherings the room enabled multiple orientations. The enclosure, which was shaped according to their desires, has fixed them instead, in a designated position. They sit like mannequins, facing the quiet walls, unable to see their human needs. Displaced from being the center of attention, they have been tricked in to worshipping the dead screens.

The windows which peeked into the alley, have been enclosed by the boundary walls. Withdrawn from the views and sounds of the street, nothing compels them to draw the curtains anymore. Clueless of the life outside, they remain tied between closed windows.

CONCLUSION

The contemporary houses of Lahore are struggling against unique forms of alienation depending on its connection with its residents, nature, and surrounding context. Whether it is the political powers that shape the current housing design in Lahore or the excessive dependence on technological means that leads to alienation of spaces, the historically established dialogue with in the house is gradually dissipating. With the shift in spatial dialogue, the existence of local cultures and traditions also came under threat of extinction. Following the loss of spiritual capacity of a space to engage its dweller, the alienation of contemporary spaces has led to the erosion of local values. Resulting in identity crises and disconnection within a community. Therefore, it has now become essential to realize how these spaces will impact a society at large if the alienation in the contemporary spaces can reverse the lost sense of belonging or the adoption of rapidly developing technology is the way forward.

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TRUST THE PROCESS

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INTRODUCTION



This paper presents three practical workshops from a module on BA (Hons) *Graphic Arts and Design* (or *Graphics*) at Leeds Beckett University in the UK. *Graphics* is a course unique in its use of experiential teaching methods, diversity of creative practices and the fostering of a non-hierarchical, collaborative learning environment. In the second year of the degree sits the module *GAD5.2 Process-led Studio Practice* (or *Process Brief*) which on the surface appears to be the ubiquitous, art-school *Graphic Processes* unit where students explore a breadth of processes in order to expand their creative practice. The focus of the module is experimental and presents students with opportunities to discover new approaches to *Graphic Arts and Design. Process Brief* isn't so much about practical processes as much as developing attitudes as to material: what this is and more importantly, what this could be. Margaret Iversen writes:

"...there is something terribly arid, not to say mechanistic, in the idea of a world where all our purposes result in predictable consequences, where we are completely transparent to ourselves and where intentions always result in expected actions." (Iversen, 2010, p. 25)

An experimental module that is concerned with newness and discovery runs the risk of being incompatible with the university convention of Learning Outcomes. As such, during its revalidation, one of *Process Brief*'s objectives was written specifically to give licence to an unorthodox interpretation of an art school standard:

"You will be able to show a developing ability to embrace ambiguity, uncertainty and unfamiliarity in relation to your individual creative practice and to harness this in the production of meaning." (Hassall & Winterburn, 2012)

The module requires that students pursue a process-led approach for the duration of the unit, as opposed to being *concept-led* or *design-led* where an idea or a problem to solve can often dictate a predictable and arrived-at-too-soon end-product. As such, *Process Brief* is not about the outcome, but the activity: *the doing and the making*. Of this educator John Holt writes:

"The 'outcome.' Why does there always have to be an 'outcome?' When I go and see something that interests me, I don't have to do a dance afterwards or make a six-foot papier-mâché map and hoist it up to the ceiling. I can decide for myself what sort of outcome, if any, I want to have for my experience." (Holt, 1976, p. 120)

The submission requirement for the module is a one-minute film, which serves as evidence of having adopted a process-led approach. We find that a time-based submission is better for documenting activity than a 'finished' physical outcome as it is able to convey the *making* as well as what was made. "The problem in the world today is that we only see the final product" (Syed, 2015)

The three workshops from *Process Brief* are *Magnet Fishing*, *Cave Drawing* and *The Workshop That Must Not Be Named*. Each workshop seeks to loosen the expectation and convention of education in which learning is perceived as a downwardly linear process of guaranteed outcomes. On *Graphics*, we hold the belief that teaching should be mutual, collaborative and experiential. In this way the approaches detailed in these case studies are not just limited to art school: these can be applied to all disciplines; creative, educational or not.

MAGNET FISHING



On the very first day of the module we go *magnet fishing*, an activity which involves taking a collection of high-strength, retrieval magnets to the Leeds Liverpool canal. Preparation for the workshop is minimal, which mainly involves filling a bag-for-life with magnets and completing a risk-assessment form. The intention of the session is for us to discover submerged, magnetic material which the students can then turn into new work via a series of creative processes. Previous developments from the session have included assemblage, drawing, photography, sculpture, sound and soft furnishings. Obviously these are the physical, measurable outcomes of an activity which is in the main experiential and social.

The context of *Magnet Fishing* is important in two ways. Firstly, the session involves taking the students off-campus, which frees us from the convention of learning associated with it. *Graphics* exists in an art school setting, but an expectation still exists that teaching is linear delivered by tutors and received - often passively - by the students. Away from these associations, the workshop attracts high numbers as there is an assumption that *Magnet Fishing* is not going to be *work* and will be fun. The students are free to join in with the activity or not, it's entirely up to them. They can take part, sit and watch or do something entirely different, which includes leaving the session. The context of the canal is also key: the water is murky, and we are unable to see what we are fishing for, creating natural conditions of uncertainty; we have no control over what we might find and we are happy to surrender to this unknowing.

There isn't a set way to *fish* with a magnet and as such the workshop does not offer any instruction. The magnets are distributed and their use has to be worked out via a process of experimentation. As tutors we take part in the activity too with some of us having been magnet fishing before and others to whom the activity is completely new, sharing this experience for the first time with the students. This normalises the not knowing; we don't know what to do, but we'll try something and see what happens. The session is an opportunity for self-instruction where the students (and staff) instruct *themselves* how to *fish*. When children don't know what to do with something, they play with it to work it out, and in the same way we author our own methods for *Magnet Fishing* by playing with the tools and materials that we have been given.

What is always surprising about *Magnet Fishing* is the way in which the participants become engaged in the activity. Often the session is timetabled during October and as such the weather is cold and wet. In spite of this, participants are still eager to fish in torrential conditions and it can be difficult to drag them away. On one occasion, a student of the group discovered a large object and was having trouble bringing it to the surface. He asked another participant for help and with two magnets they were able to see that the difficult catch was in fact a rather modern bin. Despite knowing that this object wasn't anything of value, he persuaded two others to help, training a total of four magnets on the bin to see if they could haul it out. After half an hour of bringing this to the surface and then seeing it sink back down, the bin was eventually retrieved. By this point all the participants were soaked from the rain, but ecstatic with their achievement and the activity. The student who originally discovered the bin insisted on carrying this proudly through town back to university.

This combination of not-knowing and self-instruction mirrors the conditions required for discovery learning. In *Child's Play* for New Scientist, Jerome Bruner details a study in which three groups of children who were required to perform a task of combining tools in order to retrieve a prize from a box. Each group was given different forms of *training* with one being 'simply allowed to play with the materials' (Bruner, 1974, p. 127). The *untrained* group performed as well as those that had been instructed, with an additional important observation:

"What was particularly striking was their capacity to resist frustration and 'giving up'" (ibid., p. 127) From having staged *Magnet Fishing* on a number of occasions, it has become clear that the material that we gather at the canal is not important (it's a red herring). It's not what we discover, but what we *might* discover. The workshop offers an opportunity for participants to experience an ongoing state possibility, encouraging faith and belief in a process even if they come away with nothing.

CAVE DRAWING



Cave Drawing involves setting up a large-scale opportunity for painting within the studio. The intention of the session is to *just draw* without the suggestion or distraction of there being a right or wrong way to draw. We cover tables with rolls of paper and put out mark-making materials such as inks, brushes, sponges and sticks. These tools are purposely uncontrollable and unconventional in order to encourage experimentation and *mistake-making*. From schooling, students are still anxious about getting things wrong and being asked to do this in public can be a daunting prospect. There is an assumption that their performance will be judged both by their peers and by their tutors, and this can be a hindrance to an experimental module. To remedy this, the tutors draw too. One could be reminded of Mr Sugden, the overbearing PE teacher in Ken Loach's film *Kes* (as played by Brian Glover) who joins in the pupils' football game in order to win, but this is all about *levelling*. In taking part, we're exposing ourselves to these same judgements, and this vulnerability leads to trust. Of this approach, Herbert Read writes that 'the teacher must be no less active than the pupil' (Read, 1966, p. xiv), and by joining in, the aim is for the workshop to become as near to a non-hierarchical collaboration as possible.

One aspect of the *Process Brief* that we are keen to establish is the concept of following one's instincts and letting the material lead the way. To encourage this in *Cave Drawing*, we listen to the audio of *I Contain Multitudes* by Ed Yong (2016), a lecture which describes the microbes that live within our gut, often guiding us and making decisions on our behalf without our conscious knowing. The dialogue is scientific and literal, and serves to divert our consciousness away from the drawing. Whilst the mind is distracted, this enables the mark-making to become an embodied act where the body chooses what to paint. This doesn't happen immediately; the session begins with caution ('do you think this looks like a woolly mammoth?...') and often mistrust, but knowing that we are all drawing together eases this apprehension and allows the ink to flow freely.

As we inevitably run out of space on the paper, the collaborative nature of the workshop becomes acutely apparent. Marks begin to overlap and spill over into other people's territories, and we rotate positions around the tables to actively encourage trespass. Fellow tutor Jo Hassall has a saying: 'it's only paper', which is a stark reality that enables us to loosen up and be more open to the experimental nature of the session. Socially this enables the crossing of communities or cliques that can develop within the undergraduate cohort. Creatively this teaches us to be less-precious about material and allows for accidental hybrids which can then be developed via new processes.



THE WORKSHOP THAT MUST NOT BE NAMED

The Workshop That Must Not be Named (or TWTMNBN) is a workshop which involves absolutely no preparation other than a room booking; a date, a time and a place. The session takes its title from a Harry Potter themed shop in York, which is itself a play on *He Who Must Not Be Named* from the book by J. K. Rowling (Rowling, 1997, p. 65). To talk or even *think* about the workshop before it takes place would go against its strict no-planning rule. When we imagine what might happen we create an expectation, and this can be problematic in education. Students expect to learn in a set way, which is often the school convention where the teacher leads the class and the pupils follow their instruction. Educators we have expectations of learning too, and prepare for a multitude of scenarios in order to fulfil externally applied requirements. If a workshop or lesson doesn't match this prediction, then it is written off as a failure. But every situation, even those that don't go *right*, are an opportunity for learning. The well-worn (potentially paraphrased) adage 'fail to plan, plan to fail' applies appropriately here, as it is these unexpected mistakes that will lead us to newness and discovery. The more that we plan, the more likely we are to arrive at the same predefined outcomes, and so removing permission for this will unlock invention.

TWTMNBN is about spontaneity and creating something from nothing. But we never truly come to any situation with nothing; we arrive with experiences, skills and strategies that we instinctively apply to new scenarios. The workshop also takes place in an institution rich in resources both material and technical, which we can call upon too. At the start we declare that the session has no plan and as such we don't know what will happen. We don't give the students instructions in what to do: their guess is as good as ours. There is the inevitable moment of doubt at the start where no one knows what to do, but work starts to take place: students locate materials with which to experiment, staff find projectors and stick things to the wall. Creative journeys start, develop and end up where we didn't expect it to. Some participants take pictures of the overlaps between theirs and somebody else's work highlighting the collaborative hybrids that can take place. As the activity unfolds both the students and staff have democratically assumed responsibility for the learning that takes place.

In a module that asks students to 'embrace uncertainty', it's only fair that as tutors we place ourselves in unfamiliar situations too. But just joining in with the activity isn't enough; we are still in control of the session. This discomfort has to be meaningful, so in removing the possibility to plan a workshop exposes us to the same discomfort as the students. This signals to the collaborative community that we trust that what we are doing will lead us somewhere interesting.

CONCLUSION

The key to these workshops from *Process Brief* is stepping back. As tutors we often assume the bulk of the responsibility for learning which can perpetuate a passive learning model. In each session detailed here, we step back but not away; we step back and join the community, taking part in the activity too. In this way the responsibility for learning and teaching is shared. In fact, there comes a point in the module where the students forget that they are learning, and we as tutors forget that we are teaching. In loosening the conventional hierarchies of education we enable a more trusting environment. The students need to trust that despite the experimental nature of the module, they are not being tricked. If we include ourselves in the collaboration and subject ourselves to the same unfamiliar situations, then this reinforces our belief in what we are doing.

Each workshop features the same moment of doubt: in *Magnet Fishing* it happens before we instruct ourselves; in *Cave Drawing* it happens before someone 'breaks the ice', applying the first mark on the canvas; and in *The Workshop That Must Not Be Named* this happens when we realise that doing something is better than doing nothing. As educators, it is incredibly important that we hold our nerve during this uncomfortable phase and remember that often the best thing that we can do to facilitate active and autonomous learning is *nothing*. If we trust ourselves and trust the process, things will work out alright.

I would like to conclude with some advice from a report from 1862 which sums up this theory:

"Leave the pupils mainly to their own spontaneous, self-activities. The teacher may awaken and give direction to their curiosity by an occasional adroit question; but he should chiefly rely upon the action of his pupils' own powers for the discovery of new facts. As a general rule, nothing should be told to pupils which they can discover for themselves." (Michigan. Dept. of Public Instruction, 1862, p. 54)

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EXPRESSIONS OF CURIOSITY: INDIVIDUALITY AS CONTEXT

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INTRODUCTION

Passion is not fostered by a discrete or prescribed precedent, but rather from a unique set of experiences and encounters. Individual and sometimes seemingly trivial fixations on specific sets of ideals, interests, and motives define identity – what makes us human. Leveraging the power of these interests as an educational tool has the ability to transform a classroom from a place of formal learning into an environment where students harness their individual and creative differences, cultivating ownership of their work. Born as creatures of curiosity, children discover, question and challenge the objects and environments that confront them. After years of traditional schooling, standardized testing, evaluations and examinations, students become fixated on scores, grades and assignments. The innate curiosity that guided them through outdoor adventures and discoveries is replaced by checklists with little opportunity for creativity and self-expression. In opposition to this mindset, design education challenges students beyond their comfort zone to experiment, iterate, and explore throughout the process. The Everyday Investigation outlined in this paper deployed a heuristic approach as a means to mediate between the drastically opposing learning environments.

While this process is experimental, the following framework and guiding questions were carried through each iteration: How might we encourage the pursuit of curiosity and normalize individuality in the process of learning through an everyday investigative study? How might this exercise challenge traditional formats of research? In what ways might a student's own body of work exist as context?

THE EVERYDAY INVESTIGATION

Inundated with developing technologies and the demand of work, school, and homelife, students often feel overwhelmed by the amount of time it might take to learn or master a particular skill. The subtle comparison frequently discussed in class is the pressing role of technology in our lives. Without hesitation people are able to carve time out of their day to scroll through social media. Although in small sessions, at the end of the day, it all adds up to a considerable amount of time. On the contrary, when approached with a task or challenge, for example learning a song on the piano, how to utilize a new visualization software, or screen print, dedicating the time to begin becomes daunting. When students lack confidence in their own capabilities they dwell on the obstacles, the possibilities of failure, and their own personal deficiencies; they are not yet able to concentrate on how they could be successful.¹ It is not for a lack of time that students struggle to take on new endeavors, but rather inhibition. However, what we are able to take away from this is that students make time for what they

find interesting, pleasurable, or valuable. The Everyday Investigation explores taking these small amounts of time each day and using them for students to investigate their own interests while applying them through experimental representation. As the students join their own interests with design thinking and break through the initial barrier to getting started, their assurances of their own abilities start to build. This develops a student's self-efficacy, which Albert Bandura explains will have a profound impact on how they approach the work:

"People with high assurance in their capabilities in given domains approach difficult tasks as challenges to be mastered rather than as threats to be avoided. Such an efficacious outlook fosters intrinsic interest and a great engrossment in activities. These people set themselves challenging goals and maintain strong commitment to them. They heighten and sustain their efforts in the face of failure."²

By applying the same logic, if these pockets of time are conjoined with educational interests, the result would provide students with opportunities to take ownership in the pursuit of their own knowledge. To leverage this incremental process, the Everyday Investigation engages students through experimental representation.

While establishing students' confidence through their own exploration, the Everyday Investigation deploys a didactic approach in which students gain tangible experiences by expressing thoughts through a variety of mediums. The pursuit of curiosity in design education is positioned between the rich dichotomy of speculative and generative conception. Embracing this interplay, the Everyday Investigation allows students to engender their own interests through the framework of an iterative design process. It is at the intersection of making and thinking wherein students gain a haptic knowledge of the world around them.³ As students develop this knowledge by simply investigating their curiosities, a newfound confidence imbues their body of work. Suddenly the knowledge is no longer mere information, but rather a set of skills directly tied to design sensibility. As John Dunningham explains, "This type of knowledge guides decisions about how tools should be applied to materials while helping to organize the possibilities of the whole endeavor, relying on critical thinking as much as intuition."⁴ In the Everyday Investigation a student's interests are applied to develop design thinking skills through making.

To begin, design students are asked to select a curiosity that they find captivating for an investigation. Framed uniquely for the first-year and third-year studios, students are asked to curate their own subject for the indicated timeline. Using analog representational techniques, the students study a subject of their choice, encountering it every day. Each day they are tasked with investigating the subject on an eight-inch by eight-inch canvas, unraveling the intricacies of form, texture, function, and spatial relationships as the subject is recreated. The simple repetition of observing and recreating the subject, while simultaneously exploring a variety of representational techniques, establishes both a critical eye for analysis and rigorous commitment to making. Each studio then participates in a further phase of the project leveraging the students' interests as the foundation of the subsequent three-dimensional investigation. It is through the Everyday Investigation that students develop embodied knowledge relevant to their projects with an emphasis on making. This synchronous process of making and thinking enables students to form connections between themselves and the world around them.

TWO-DIMENSIONAL INVESTIGATION: EXPLORATIONS IN REPRESENTATION

Drawing is a fundamental method of communication across design professions to represent abstract ideas in two dimensions. A key component of this exercise is to develop the students' ability to look beyond mere drawing quality but rather towards expression. Beyond typical drawing conventions, it is imperative that designers have the ability to experiment with representation as a means to convey

atmosphere, mood, and other ephemeral qualities. Exploration (seeing, observing and researching) of an object, topic, or process is creatively fostered as the students' connection between their mind and their observations must be actualized on the sheet of paper. As explained by David Ross Scheer, "Its inherent imprecision and immediacy allow thought to occur in real time as the hand seeks a shape that corresponds to an idea in the mind."⁵ Over time this connection becomes more natural and the students develop confidence and ability to freely express their ideas graphically.

This investigation prompts the role of the drawing as a communication mechanism to convey their acts of seeing, observing, and research. The intimate nature of encountering the object, topic, or process each day enables the students to frame and compose their tenacious relationship. The dissection and dismemberment of the subject challenges the students to negotiate between the details achieved when zooming in and the contextual references when zooming out. With each drawing, the ability to wield findings leads to incremental successes and discoveries. Removing the emphasis from each individual drawing and rather focusing on depth of the exploration, students quickly prove themselves as experts of the particular subject. In the studio setting, this equates to a variety of unique subjects; as one student is deep into the anatomy of their non-dominant hand, their neighbors are taking apart their alarm clock on one side and deciphering the most traveled path of their betta fish on the other side. Consequently, the students with curvilinear forms are deploying their french curves while those with more rectilinear forms are working to understand the precision necessary to convey the proper proportions. An important part of this development is the acknowledgement that our creative capabilities and skills are not finite.⁶ This attitude allows the students to pursue learning and growth and continue to captivate their self-identity in the studio environment.

In the Foundation Studio the task was to visualize on an eight-inch by eight-inch sheet of paper, not a particular approach or method. No straight edges or measurements required and there is no way to do the assignment incorrectly, other than not to do the drawing each day. The students are not given instruction on how, this is all part of their process. Typically though students begin with perspective drawings for the first couple of days trying to capture each angle and detail. When they feel that they have achieved this they often search for a way to manipulate the object. For example a student who drew their lip balm takes the cap off at some point. The student then draws the lip balm with the cap off and the cap as an individual form. The next few drawings are of the label and text that compose it. The student visualizes the detail when zooming in and using two days of drawings to add up to a larger scale (Figure 1).



Figure 1. Everyday Investigation of lip balm. Student: Alexis McLean

Another approach that students take is to draw the exact same perspective and view while exploring a variety of drawing techniques. For example, stippling which uses small dots to create tonal values or blind contour in which the student focuses solely on the object without looking at the paper where they are drawing. Through each of these methods, diverse qualities are conveyed as the students toy with the complex relationship between object and idea. In the book *Creative Confidence*, Tom and David
Kelley explain that "... confidence results in reduced anxiety in the face of ambiguity when you are bringing new ideas into the world."⁷ As the students become more familiar with formal qualities of their object, their confidence is revealed as they take representational risks conveying the object more abstractly.



Figure 2. Everyday Investigation of a morning ritual. Student: Ashley King

The Everyday Investigation forces students to strengthen their creative problem-solving skills associated with depicting the object, process, or topic. Actively working between critical thinking and critical making remain relevant to exploration in other mediums and design challenges alike. As is true with architecture and composition, drawing requires practice, patience, attention to detail, and discipline that are themselves valuable and transferable to the rest of the architectural profession.⁸ In learning to express their ideas through drawing, the students develop creative thinking skills and innovative methods of expression necessary to communicate design decisions in their own work.

THREE-DIMENSIONAL INVESTIGATION: TACTILE EXPLORATIONS IN MAKING

In Foundation Studio the Everyday Investigation spans sixty days and two different objects. The first of which they chose without knowing that they would continually study it for the remainder of the month and then the next object chosen, understanding the process they would embark on. Their final task would be to exercise the same inquisitive approach to a media or material study. Due to the material differences there was no boundary or site determined, as the sheet of paper defined in the prior study. The students have to delineate the scale while leading their own study with the chosen material, dictating the path of the investigation with an emphasis on experimental exploration. Josef Albers describes the need for this approach, "To experiment is at first more valuable than to produce, free play in the beginning develops courage. Therefore, we do not begin with a theoretical introduction; we start directly with the material."⁹ As the students become familiar with their material, their established courage allows them to translate thoughts, designs, and artistic expressions through the use of that medium. The material properties become an unignorable reality that the student will aim to understand and conquer.

The exploration of the material and its form will start to spark insights and questions in the students. The students are encouraged to embody their interests through a media of their choice; not only the material qualities, but also the adjacencies, form, boundary conditions, and voids brought about by their defined study. For example, a student that studies concrete inherently must grapple with the form in which they pour the concrete into. Two students (Figure 3) conducted their Everyday Investigation exploring opportunities in concrete to create unique planters and saucers. They used a variety of

existing containers from found objects to create the framework of the pots. One of the first challenges they encountered was how to allow for drainage. This led to the introduction of straws in the form work to provide a small aperture that water could filter through and the consequent dish to collect the water. Later iterations tested aggregate types and ratio in addition to the introduction of pigment. They worked on how to achieve a smooth surface condition and through this process learned the control to dictate the necessary ingredients for any gradient of roughness. All of these discoveries were imperative to exploring spatial qualities, engaging in new thought processes and forming connections relevant to their architectural thinking skills.

"All art forms - such as sculpture, painting, music, cinema and architecture - are specific modes of thinking. They represent ways of sensory and embodied thought characteristic to the particular artistic medium. These modes of thinking are images of the hand and the body, and they exemplify essential existential knowledge."¹⁰

Speculation and tactile interaction remain the main objectives for the students as they experience firsthand the agility necessary to push the limits of a particular material or method. The collection of experiments, consisting of both successes and failures each of which are valuable to the embodied knowledge, form the study emblematic of constraints and opportunities in the built environment. The critical thinking and making, combined with the perseverance and curiosity to push the study are all important takeaways for the emerging designer.



Figure 3. Students: Everyday Investigation exploring concrete mixtures, a series of planters and saucers. Students: Lois Downing and Alyssa Lopez

EXPLORATIONS TOWARDS MORE INFORMED DESIGN DECISIONS

When carried out in a third-year studio, the Everyday Investigation focused on visual thinking. Rather than carrying out the assignment on a particular object or media, the students were tasked to research a process or topic. This transitioned the investigation from an ocular observation and dissection to a synthesis of acquired research, but maintained drawing as the medium toward making. Studying the subjects through the lens of research must consider a diverse collection of attributes including a variety of scales, time as an element of investigation, and the interrelations between aspects of the broader subject. In regard to the visual dissection of a subject Dan Roam explains that "measuring their attributes and numbers, determining their position and size, tracking countless changes to them over time, and detecting interactions between them, we came to know something about our world. In fact, we've started down the path of seeing why."¹¹ This path to understanding the why is the fundamental aim of the exercise. Through the comprehensive and unrelenting investigation into their topic or process, the production of the set of drawings provides the students with an ingrained, immersive perspective of their subject.

In the Everyday Investigation for the third-year studio, the students started by selecting a process or topic that would hold their interest for the entire semester (approximately ninety days), knowing that they would be responsible for researching it each and every day. The students included topics and processes such as coffee, marine mammals, ceramics, glass blowing, and baking. The investigation

into their topic was akin to a potter throwing a piece of clay onto a wheel every day; daily research visualized graphically on an eight-inch by eight-inch sheet of paper. In the studio setting this was a mechanism to simulate the chosen processes and topics. Many students' curiosity led them to pursue opportunities in which they engaged directly with their subject. This included visiting local museums in addition to reaching out to potential user groups to inform their designs. Through this process, the students became "experts" on these topics, shifting the typical relationship between professor and student.



Figure 4. Everyday Investigation of Coffee. Student: Ashley Wilga

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Figure 5. Everyday Investigation of Marine Mammals. Student: Jordin Keyser

The students then applied their garnered expertise on the subject they researched in their Everyday Investigation to inform a design project involving two interrelated programs. Part one consisted of a Live Work space where four people would take part in a six month residency around the specific topic or process that the student was researching. This included the intricacies of the process lending to the necessary tools, equipment, and space needed to engage in a focused residency. For this part of the project, the research was used to create the four unique personas, understanding their spatial needs in order to work. The second part of the project consisted of designing an exhibition space to display the work of the four residents. The research expressed in the drawings collected both quantitative and qualitative information to drive the design. For example, the student that studied pottery drew from her research the process and timeline associated with making. This included allocation of space in accordance with the materials and tools needed for the specific trade. The attention to detail in the final designs demonstrates the students' ability to apply their research, amassed through the Everyday Investigation, to a palpable application for their given design challenge.

CONCLUSION

The Everyday Investigation combines leveraging the pursuit of passion to provide students with a strong sense of self-efficacy with the force of learning through making into an exercise that translates curiosity into haptic knowledge for design students. The students' ability to evolve their methods of graphic representation over the course of the exercise validates that students engaged their subject to explore their curiosities and were eager to express their thoughts. As the first-year students investigated visual expression through three-dimensional mediums, they explored spatial qualities and expressed their making through a material means of expression. In the third-year studio, the Everyday Investigation focuses on a topic or process and through the students' drawings, visual expression becomes a means of research on their subject. This research imbues the students with expertise on their subject, and this unique method of acquiring their understanding enables the research to be aptly applied to design. The Everyday Investigation transfers the role of expert from teacher to student,

inviting individuality to inform each student's design process. Embracing the pursuit of curiosity, the Everyday Investigation fosters a confluence between thinking and making - a heuristic approach to design education that encourages students to exhibit their self-identity and unique design sensibility with confidence.

NOTES

¹ Albert Bandura, Self-efficacy in Changing Societies (United Kingdom, Cambridge University Press, 1995), 11.

² Albert Bandura, Self-efficacy in Changing Societies, 11.

³ John Dunningham, "Thingking," in *The Art of Critical Making*, ed. Rosanne Somerson and Mara L. Hermano (New York: John Wiley & Sons, 2013), 94-97.

⁴ Dunningham, Art of Critical Making, 9.

⁵ Davis Ross Scheer, *The Death of Drawing: Architecture in the Age of Simulation* (New York: Routledge, 2014), 6.

⁶ Tom Kelley and David Kelley, *Creative Confidence: Unleashing the Creative Potential within Us All* (New York: Crown Business, 2013), 30.

⁷ Tom Kelley and David Kelley, *Creative Confidence*, 49.

⁸ Davis Ross Scheer, The Death of Drawing, 8.

⁹ Josef Albers, "Concerning Fundamental Design," in *Bauhaus 1919-1928*, ed. Herbert Bayer, Walter Gropius, and Ise Gropius (New York: Museum of Modern Art, 1938), 116.

¹⁰ Juhani Pallasmaa, *The Thinking Hand: Existential and Embodied Wisdom in Architecture* (United Kingdom: John Wiley & Sons Ltd, 2009), 19

¹¹ Dan Roam, *The Back of the Napkin: Solving Problems and Selling Ideas with Pictures* (New York: Penguin Group, 2009), 85.

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VIRTUAL REALITY SPATIAL PRESENCE INDEX

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INTRODUCTION

Historically, interior designers have modified the tools (both analog and digital) they have used to assist in conceptualizing and creating images of the spaces that they design. This has been an attempt to create a realism of an image that only is in the interior designer's mind. Developing a standard to evaluate these tools is forthcoming in the literature. This paper posits an evaluation of virtual reality (VR) tools that attempt to create that realism. An added benefit of VR tools introduced early in the training of interior designers, is that it assists in increasing interior design students' "engagement and outcome",⁴ "improving two-dimensional and three-dimensional space perception",⁵ developing spatial skills, ⁶ and increasing in student technology acceptance.⁷ The spatial presence capabilities of each VR display format was not revealed in the studies. The lack of discussion about spatial presence capabilities of each display format led this researcher to question the validity of each study's findings.

Theoretical Framework-Model of Spatial Presence

The Model of Spatial Presence (MSP) involves the user consciously experiencing the sensation of presence based on a cognitive feeling and an unconscious process.⁸ The variables include attention, self-location, and actions. Spatial presence is based on an unconscious process, even though users consciously experience the sensation of presence. Wirth, et al., defines the differences between involvement and spatial presence. See Figure 1.⁹

Involvement (higher levels)			Spatial Presence			
-	Action	-	Experience, state of consciousness			
•	Intended	•	Rather automatic			
-	Higher forms of information processing	-	Lower forms of information processing			
	(thinking about, interpreting, elaborating,		(perceptions)			
	appraising, assigning relevance)					
•	Being concentrated on the mediated world	•	Being embodied by the mediated world			
•	Real world is not focused, but		Real world is not focused and mentally			
	nevertheless mentally present/salient		not present/salient"			

Figure 1. Differences between involvement and spatial presence.

The Measurements, Effects, Conditions-Spatial Presence Questionnaire (MEC-SPQ)¹⁰ was based on the MSP.¹¹ The MEC-SPQ measured process factors, states and actions, and personality factors.¹² The

three sub-variables were: Spatial Situation Model (SSM); Spatial Presence: Self Location (SPSL); and Spatial Presence: Possible Action (SPPA). See Figure 2 for author developed graphic.



Figure 2. Sub-variables in the MEQ-SPQ graphic with examples by the author.

Model of spatial presence (MSP) used in other peer-reviewed studies

Three other studies ¹³ utilized all or a portion of the MEC_SPQ¹⁴ developed from the Model of Spatial Presence.¹⁵The MEC_SPQ was used in order to measure spatial presence of an artificial environment. The studies varied on whether an HMD (head mounted display) was incorporated and the variety environments explored, from video games to a train ride or to an audio book. All three studies determined the MEC_SPQ to be a valid assessment. For interior design education environments, no studies were found to utilize the MEC_SPQ or other spatial presence measures. A book by Hartmann et al. ¹⁶ reviewed controversies in measuring spatial presence, and the authors agreed that more research and theoretical frameworks are needed in the comprehending the analysis of spatial presence.

KEY FINDINGS IN A VIRTUAL REALITY COMPARISON

Key findings of one study¹⁷ revealed a statistically significant difference between the VR display format of Station C and the other two display formats of Stations A and B. Station C, Homido V2 with iPhone viewing 360° panorama jpeg, revealed an statistically significant difference for two of the three dependent variables, Spatial Presence: Self Location (SPSL) and Spatial Presence: Possible Actions (SPPA). Station C, therefore, revealed the weakest spatial presence capabilities of the three VR display formats. See Figure 3, for author developed graphic. The results, however, did not reveal a statistically significant difference between participants when analyzed for the difference in interior studio course level. Incorporating triangulation, the resulting qualitative interviews supported the analysis and revealed an increase in positive verbal comments as the spatial presence capabilities of the VR display format increased.



Figure 5. Spatial presence capabilities results by the author.

POSITED VIRTUAL REALITY SPATIAL PRESENCE INDEX (VRSPI)

It is important to supplement the research body of knowledge with an ongoing comparison of VR display formats, as this emerging technology of VR evolves. Understanding the impact of VR is in line with the literature¹⁸ As research that utilizes VR and human participants to provide results, such as behavior, heart rate, blood pressure, and perceived anxiety, ¹⁹ a Virtual Reality Spatial Presence Index (VRSPI) could be applied to the spatial presence capabilities of the VR display format. A VRSPI would identify the strength of a particular VR display format on a scale. Future peer-reviewed research studies could utilize a VRSPI in two ways:

1. When determining which type of VR display format to use in a study, the VR display formats would be analyzed for spatial presence capabilities and assigned then a VRSPI. VRSPI's considered, would be reported in the study.

2. When a VR display format is incorporated into a peer-reviewed study, the VRSPI would be reported to increase the validity of the study results.

This study's implications discussion emphasizes the importance of this impact factor. Last, this implication and recommendation discussion posits a proposed Virtual Reality Spatial Presence Index (VRSPI) to be incorporated into future peer-reviewed research that makes use of VR and humans as study participants. This recommendation would be for collecting data in future research in the fields of aviation, design, construction, animation, and medicine, along with measuring human physiological effects, such as heart rate, blood pressure, body temperature, and respiration rate. The resulting VR spatial presence capabilities could have an unknown effect on dependent variables such as these. To begin, VR display formats would first be evaluated for their spatial presence capabilities. Based on that evaluation, a VRSPI would be assigned, and the VR display format would be ranked on a VRSPI 5-point scale, spanning from *very strong* to *very weak*. See Figure 4, for author developed graphic.



Figure 4. Virtual reality spatial presence index (VRSPI) by the author.

However, important to note is that the researcher recommends that prior to implementation of all future studies, the Likert scale of the MEC-SPQ should be reserved to allow a higher mean score to equal stronger spatial presence capabilities, and a lower mean score to equal weaker spatial presence capabilities. Therefore, the MEC-SPQ ²⁰ would be administered with 7 equals *strongly agree* and 1 equals *strongly disagree*. The range of possible scores is from 168 (highest) to 24 (lowest) possible points. Recommendation for a pilot study could incorporate the use of the first and second future research examples, and then institute application of the VRSPI.

In the case of the Guevara 2019 research study²¹ for example, if one refers to Figure 4, the means scores of spatial presence were Station A (M = 60.55), Station B (M = 45.18), and Station C (M = 92.67). Since the recommendation for future research, in this study, suggests a reversal of the Likert scale, the reversed mean scores would result in:

- 1. Station B (*M* = 119.82), therefore a VRSPI of 4 or *slightly strong*;
- 2. Station A (M = 107.45), therefore a VRSPI of 3 or *neither strong nor weak;*
- 3. Station C (M = 75.33), therefore a VRSPI of 2 or *slightly weak*.

Hence, this VRSPI would indicate the strongest spatial presence capabilities in Station B (*slightly strong*), followed by Station A (*neither strong nor weak*), and then weakest in Station C (*slightly weak*). See Figure 5, for author developed graphic.



Figure 6. Virtual reality spatial presence index (VRSPI) applied to this study by the author.

If humans perceive an identical space differently, how can the resulting effects be considered valid? Multiple VR display formats are used in industry with very little data to support comparisons. ²³ It is important for researchers to report the impact that the identified VR may have on the results of a study. In planning for peer-reviewed research, principal investigators might consider multiple differing virtual reality display formats for collecting data in their study. This VRSPI could be used to evaluate the multiple VR display formats prior to data collection, which may assist researchers in deciding which VR to use in the study. Then the index score could be evaluated for each VR display format prior to the study proceeding and prior to data collection. The multiple VR display formats considered, each with their VRSPI, would then be reported in the study methodology, to increase the validity of the study. In addition, when multiple peer-reviewed studies are compared, if a VRSPI is reported, a stronger score could increase and contribute to the validity of a peer reviewed research study that utilizes VR to measure human physiological effects. This would serve as a gauge when comparing multiple studies that report effects

DISCUSSION SUMMARY

Evaluation of VR display formats is important in peer-reviewed research because VR display formats can vary in their abilities. VR is an emerging technology tool and is continually changing as new enhancements are developed in the industry. This research study explored the VR spatial presence capabilities and represents a basis with which present and future VR display formats could be evaluated when incorporated into peer-reviewed research. The use of interior design students as the sample population in this research provided valuable insight because, as speculated, the interior design students were quite discerning about their technology choices for solving their design problems. Though the interior design process has remained consistent, interior design educators have used various tools in the instruction of that process. The goal of the instructor remains creating successful interior designers through two-dimensional sketching, three-dimensional sketching, lessons on scale, proportion and space planning, and refining depth perception. The introduction of VR has been as an additional tool for the development of the interior design students' skills, though the interior design process has remained the same. In addition, eye/hand creation of graphics stimulates the creator's brain differently than computer created graphics, similar to the addition of VR to assist in the creator's analyzation of space perception. Most importantly, an Interior Design Educators Council (IDEC) conference included a panel discussion of trends in interior design education. Of the six interior design programs, "all of the programs wanted to introduce Virtual Reality".¹⁹ This research study did illuminate a statistically significant difference between the VR display formats as perceived by this study's participants, therefore indicating that varying perceptions of the VR display formats are valid. Other peer-reviewed studies, with interior design students, incorporated VR but lacked a discussion about spatial presence capabilities of the VR display format, and validity of the study findings could be questioned. The VRSPI posited in this study would support and increase the validity of peer-reviewed research studies that utilize VR to measure human physiological effects. The result would gauge the comparison of VR studies. This research is an important contribution to the body of knowledge about both interior design education and peer-reviewed research incorporating VR.

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KRESGE COLLEGE RENEWAL: CONNECTING PEOPLE, OBJECTS, + PLACE THROUGH ENVIRONMENTAL GRAPHICS

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INTRODUCTION



Figure 1. Proposed wayfinding and graphics for Kresge College embedded in the ground paving, UCSC

Kresge College at the University of California, Santa Cruz (UCSC), originally designed in 1971 by Turnbull Associates and Charles W Moore Associates (MLTW), is well known both for its "stage set" like architecture and its innovative use of environmental graphics. As stated by lead architect Charles Moore: "the importance of architecture lies in a building's capacity to determine the way in which its occupants see the world."¹ The redwood forest, the architecture, and students' daily lives are all figures orchestrated in a discourse created by architectural and graphic elements, unfolding along what was referred to by the architects as the "village street." This included celebrating and highlighting the banal objects within the community: for example, the storm drain, payphone, mailroom, and laundry. A current renewal and expansion of the College is being led by Studio Gang Architects (SGA) and poses the question: what contemporary conceptualizations of place can bring logic to the new environmental graphics? This paper explores the historical context of the college's planning and its evolution through the planned renewal of Kresge College. The project presents a unique opportunity to reconsider the role of signage, wayfinding, and experience design to produce an environment in which residents and visitors are not only oriented, but also active participants in shaping their relationship to this unique site. This renewal broadens the sense of place to include the dynamic socio-ecological conditions operating at Kresge College, University of California, Santa Cruz, and the San Lorenzo Watershed—connecting people, objects and place.

While the original supergraphics used primarily paint to highlight purely human activities, the new supergraphics are embedded within the architectural materials, incorporate visitors' mobile devices, and expand to connect people to the multiple species native to this complex site. By connecting people, objects, and the surrounding environment, these contemporary graphics highlight a complex conceptualization of a socio-ecological place.

Ubiquitous Objects

The contemporary built landscape is littered with objects that are often ignored, misunderstood, and forgotten—despite their essential role in that urban environment's function. The ubiquity of manholes, fire hydrants, storm drains, and utility hatches, for example, has resulted in an often overlooked system of infrastructures. Urban environments are designed so that, should their infrastructure perform effectively, it does so with little evidence; and the artifacts of its existence become so ubiquitous as to disappear into the landscape. As landscape architect Gary Strang notes: "Infrastructure systems, by virtue of their scale, ubiquity, and inability to be hidden, are an essential visual component of urban settlements. Yet the responsibility for designing this machinery within the landscape is diffused, falling piecemeal to many disciplines—engineering, architecture, landscape architecture, agriculture, planning and biology."² As such, the expression of these objects and their connection to people is often equally diffuse.



Figure 2. The ubiquitous artifacts of infrastructure within contemporary built environments.

While some well-known examples of modern architecture such as the Centre Pompidou feature their infrastructural elements—with its ductwork high-lit as a primary expression of the architecture—much contemporary works or architecture and landscape architecture bury these elements creating a chasm between users and resources. This ubiquity spans scales from regional scale infrastructure down to the scale of architectural hardware. When one turns on a faucet, for example, its connection to watershed is only illuminated when a user researches the source. When one flushes the toilet, where the wastewater goes is generally a mystery. And similarly, at the scale of site, connection to earlier inhabitants (human, plant, or animal) is generally available only to those that make the effort to research these elements.

Cloaking resources' provenance is not limited to ecological functions – but is also pervasive with social infrastructure – such as cell phone towers and surveillance systems. In fact, hiding this infrastructure has even been written into certain zoning guidelines³. But the idea of hiding our

infrastructure is contrary to creating a sense of place and to articulating our relationship to the environment.



Figure 3. Cellphone tower fashioned as spruce tree.

To the credit of the original architectural vision of Kresge, efforts were made to systematically elevate everyday processes—ecological and social. And to this end, the original design used simple methods—both architectural and graphic—to make infrastructure a part of everyday life. Because the site is dramatically sloped, the natural flow of water is reified by the orientation of a main "street"—a pedestrian walkway that connects all of the buildings—and culminates (at the bottom of the site) with the "Piazzetta." This fountain pays tribute not only to the flow of water, but also directs visitors to follow this flow in reverse, as they ascend the site. Alongside this flow, a color coded system acts as a gradient, paying additional tribute to the slope of the site (just as the banks of a river form a gradient from rock upstream to sediment downstream). In the words of the architects:

"An important student concern was that the architecture not pre-empt, even by the names of rooms, the natural development of institutions in thus new place. Yet it seemed to all of us that the signals had to be given of one's location along the long street. Color therefore was use in the lining of the porches, from red at the bottom through red-orange, orange and yellow-orange to yellow at the top, where it suddenly becomes visible in the lining of the rotunda." (Charles Moore, A+U)⁴

The impulse here, was to systematically make connections between objects and people, and to be able to see these objects not as isolated moments, but as part of a system that tethers people and architecture to the environment. While sometimes these systems have an environmental function (such as the runnels that direct water *and* people) —others help create a sense of social function, such as a telephone booth and "mayor's stand" —a small platform designed as a speaker stand encouraging political dialogue and discussion. In recognizing these elements collectively as architectural features, the architects begin to create meaningful connections between ecological processes and people. These ideas are further developed through "monuments" to everyday practices. As the architects describe: "And a string of trivial monuments is introduced, from entrance gate past fountain like drains to post office to laundromat, past telephone booths and a combination student rostrum and trash removal... many of them are brightly painted, and they help set a note of insouciance" (Charles Moore, A+U).

Campus as Place

In highlighting these ubiquitous, yet essential, components of the landscape, the campus built environment becomes more than classrooms, dorms, walkways, and the surrounding natural environment. It begins to include the ways in which external forces operate within the landscape: for example, rainfall within the ravine setting transforms to storm-water drainage or telecommunications connect campus occupants with their exterior networks. Thus, objects within the built environment became a means of connecting people with their environment.



Figure 4. Original 'monuments' of the banal objects of the built environment.

Charles Moore describes the methodology behind his conceptual approach as follows: "We... put existing pieces in a new light, so that you notice them. The semipop musicians, like Dave Brubeck, do something very similar: they take ordinary themes and mess with them just enough, so that you still recognize the themes but you notice them for the first time, because...they're being kicked around in a way you didn't expect" (Charles Moore, Interview with John Wesley Cook and Heinrich Klotz, from, *You Have to Pay for the Public Life*, p 191)⁵

In this way, social function is treated with the same plasticity as architectural form—but grounded in the ways that inhabitants socialized. With the Kresge renewal and expansion, the key question was in what ways can contemporary platforms for socializing as well as engaging the environment help refresh a sense of place? What objects illustrate the vital infrastructures that support this place? And how can this be accomplished in a way that recognizes the past efforts, while evolving the approach?

Connecting people + place through objects

The monumentalization of ordinary infrastructural elements of Moore's original design begins to address Strang's aforementioned demand for intentionality in designing these objects into the landscape: "The potential these infrastructure systems have for performing the additional function of shaping architectural and urban form is largely unrealized. They have an inherent spatial and functional order that can serve as the raw material of architectural design or establish a local identity that has tangible relationship to the region."⁶ However, Strang's concept was under-realized by original design due to the neglect of the surrounding natural environment and recognizing the context of the broader watershed as a critical component of the site's infrastructure. MLTW's design highlighted objects of the campus landscape only within the interior village street; the design response to the natural redwood setting that surrounded the campus was to paint the backsides of buildings brown, neglecting that relationship like the backside of a stage set.



Figure 5. Historical photo of Kresge College's 'village street' concept and supergraphic highlights of trival 'monuments.' Photo by Morley Bae, UCSC Archive

In the intervening years since construction, many of the graphic elements that highlighted social and environmental infrastructure have faded or were not replaced due to maintenance. Ad hoc additions of buildings that were placed 'behind' buildings and village street defy the 'front' and 'back' nature of the original design, interfering with the original logic. The current renewal affords the opportunity to address these new contradictions and improve the relationships between people, objects, and place by broadening the conceptualization of place to include the regional context as part of the site's vital infrastructure. It also provides the challenge of deepening connections between people and place, embedding them not just in a layer (such as paint) that will fade, but interconnected to the architecture. This led to two strategies that defined the logic of new graphics: 1. Embedding signage into the materiality of the designed buildings and landscapes of the campus; and 2. Creating more fluid online components that could adjust and allow for connections and definitions of place to evolve over time.

DEEPENING CONNECTIONS OF PEOPLE, OBJECTS, + PLACE

Programmatic needs of the renewal and expansion of Kresge College, led by Studio Gang Architects, include increasing dormitory and classroom capacity and improving outdoor campus spaces. In order to accommodate those needs, the proposal transforms the original village street into a circuit that transitions from public and private campus programs. Thus, there is no building backside anymore, and the village street relationship to the natural environment that surrounds it must be redefined. As the architecture becomes more intertwined with environmental features, signage presents opportunities to create linkages between people and the complex ecology of the site (which includes both built and natural features).



Figure 6. Historical plan of Kresge College's 'village street' and the new closed loop plan, plans by Studio Gang Architects.

Campus Context

This renewal provides the opportunity to broaden the sense of place to include the dynamic socioecological conditions operating at Kresge College, University of California, Santa Cruz, and the San Lorenzo Watershed and recognize this regional ecosystem as a component of the campus' vital infrastructure. The University of California, Santa Cruz (UCSC), which houses Kresge College is a unique California landscape, with an abundance of flower and fauna to deem it worthy of its own natural history textbook. The intro to this textbook begins as follows: "UC Santa Cruz often feels more like a nature reserve than a campus – majestic groves of redwoods tower overhead, flower-filled meadows roll gently toward Monterey Bay, and the mountain lions stalk dry ravines in search of deer."



Figure 7. UCSC Site Selection Study, 1959⁸

The individual colleges within UCSC, such as Kresge, are nestled in distinct niches within the various marine terraces that stretch between the Ben Lomond Peak of the Santa Cruz Mountains and the Pacific Ocean. The diversity of landscape types within the 2,000 acres of UCSC campus (including forests, wetlands, and chaparral) provides habitat for several thousands of species of plants and animals (some endangered), as well as (of course) the human inhabitants of the college. Specifically,

Kresge College is located between two steep ravines, with a thick overhead canopy of redwood and forest floor of redwood duff, banana slugs (the school's mascot), and ferns. The creeks are important tributaries to the San Lorenzo regional watershed and the redwoods provide habitat for a wide variety of birds, invertebrates, and mammals that are often sighted by students within the college.



Figure 8. Aerial photo of existing Kresge College⁹

Expanding Definitions of Place

The topography, watershed, and other conditions of the regional context are all critical to defining Kresge College as a place. Studio Gang Architects' renewal, which includes remodeling existing structures and designing new residential, academic, and town hall buildings, evolves the MLTW's prior relationship of building to street. The dichotomous relationship of 'natural' and 'built' are challenged, as the new building forms bend to adapt to the forest conditions (dodging redwoods and steep topography). The 'street' condition is also evolved: in some cases, that street condition is conceptualized as a trail, in others the street shifts into the interior of buildings. The College is now conceptualized a multi-species habitat that includes a diverse variety of non-human inhabitants beyond the student occupants. In the renewal strategy, connections to the surrounding redwoods are more deliberately made (rather than painting buildings brown) and outlooks are carved in the village street to make the ravine environment visible. In response, the graphics expand to surfaces beyond interior facades, utilizing the landscape and overhead surfaces. These graphics also extend to highlight non-human components of the environment.



Figure 9. Previous (internal) and proposed (external) orientation of Kresge College to surrounding environment.

Employing Objects to Broaden Connections

Objects are no longer limited to the infrastructural function of the site to the benefit of human inhabitants (storm drains, payphones, and laundry, for example). Instead, regional and non-human components that define the college as a place are identified as 'monuments' worthy of graphic highlight. This includes situating stormwater infrastructure within the regional context of the watershed by including elevation markers in sitemaps and embedded throughout the landscape. These elevation markers create a dual layer of wayfinding: First, enabling inhabitants to connect their direct locations within the college to a labeled site map; and secondly, situating inhabitants' elevation relative to the regional marine terrace terrain.



Figure 10. Ground markers orient individuals within the College and regional terrain.

Other monuments highlighted within the proposed graphics include the plant and animal species themselves, recognizing multi-species habitats as another component of the site's infrastructure and definition of place. These new monuments are translated into icons that become inscribed in the range of material surfaces proposed for the renewed built environment. These icons are burnished into wood, sand-blasted into concrete, or etched into glass to create a subtle texture change that forms the lettering of building names, site entries, and other critical site signage.



Figure 11. A sample of icons that monumentalize the site's natural history.

When applied to glass surfaces, the icons serve the additional function by complying with the Audubon Society's guidelines for 'bird-safe glass,' protecting wildlife from collisions with glass surfaces. At a distance, the etched glass creates a subtle texture that does not interfere with the experience of viewing the forest and ravine from building interiors. However, at a closer view, the individual forms of different plants and animals become identifiable, providing the experience of viewing a native species juxtaposed against its natural habitat – a habitat that is shared by the human viewer.



Figure 12. Glass frit icons also serve as 'bird-safe glass.'

Digital Tools as Environmental Graphics

A final and important addition to the proposed environmental graphics includes the integration of digital tools, such as smartphone applications and social media integration. Proposed augmented reality will allow users to access various social and ecological components of the College, from being able to see more about the multi-species that are native to this environment as well as to access historical information about the original MLTW buildings. By actively creating linkages between past and present, built and natural, this wayfinding system aims to highlight the way we actively participate in shaping our environment. It also enables more ease in evolving monuments and narratives of the College in response to changing social and ecological conditions of the site.

Finally, to reinforce the public nature of the original campus design, the proposed wayfinding and environmental graphics incorporate participatory content being produced from campus workshops alongside narratives that tell the story of ecology of the College. This content will evolve through user interaction and contributed content, becoming a more diverse and nuanced narrative of the experience of place. For examples, site inhabitants might contribute unique interactions with wildlife ("the squirrel that jumped in my path") to the prosaic ("sunset view through new dorms"). Thus the site is complex socio-ecological habitat, where nature and culture aren't separated, and the graphics juxtapose human and ecological stories. It also honors the original participatory and democratic processes that developed Kresge College, incorporating community conceptualizations of the College and its monuments.



Figure 12. Smartphone applications allow crowd-sourced contributions to definitions of place.

CONCLUSION

Kresge College at UC Santa Cruz illustrates the opportunity of environmental design to 'root' individuals in their place, which includes an understanding of the operations of their built environment. The functional components of a landscape are often difficult to see, particular constructed landscapes that mask their inner workings. In those conditions, the only evidence of this infrastructure are the banal objects that are easily overlooked by inhabitants. Turnbull Associates and Charles W Moore Associates' (MTLW) original design for the College took the novel approach of highlighting those banal objects of the built environment as monuments – celebrating the functional aspects of a working college campus. But these monuments were limited to the objects that supported human habitation of the site and ignored the broader context surrounding it; the design literally turned its 'back' to the natural environment that surrounds Kresge College.

The proposed renewal of the site offers the opportunity to define place as a more complex interaction of natural and built landscapes and processes, integrating the functional components of an environment that support multi-species living. Monuments extend beyond the infrastructure that supports human habitation and includes support for watershed health and marine terrace habitats. These monumentalized objects make clearer the performance of a complex socio-ecological site and deepen the connections between people and their environments.

NOTES

¹ Kevin Keim, You Have to Pay for the Public Life: Selected Essays of Charles Moore "Toward Making Places" p 95.

² Gary Strang. "Infrastructure as Landscape," (1996). *Places* 10(3): p. 9.

³ Joseph Stromberg, "The bizarre history of cellphone towers disguised as trees," Vox; Apr 19, 2015

https://www.vox.com/2015/4/19/8445213/cell-phone-towers-trees.

⁴ Moore quotes A+U, 1978, p 276.

⁵ Interview with Charles Moore

⁶ Gary Strang. "Infrastructure as Landscape," (1996). *Places* 10(3): p. 14.

⁷ Tonya M. Haff, Martha T. Brown, and W. Breck Tyler (eds). *The Natural History of the UC Santa Cruz Campus.* 2008: University of California, Santa Cruz Press; p. 1.

⁸ Image from "UC Santa Cruz Growth and Stewardship Plan." (2003). Retrieved from

https://www.ucop.edu/design-services/_files/design-matters/sc_vision.pdf on 22 May 2020.

⁹ Image from UCSC Admissions Twitter. (2016). Retrieved from @uscs_admissions on 22 May 2020.

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