Using SLOC as a co-design inquiry tool into nomadic pedagogy for a Design+Ecology project

Ginn Bonsu Assibey, Cape Peninsula University of Technology
Alettia Chisin, Bruce Snaddon, Cape Peninsula University of Technology

Abstract

Design educators have been trying for the past decades to frame real-world problems in the context of studio-based practices through the lens of economic design logic as the status quo. Such studio-based design pedagogy distances students from real-world problems, leading to poor problem definition resulting from poor understanding and not experiencing the problem firsthand. In order to counter such a conservative design problem-solving approach some design educators have adopted nomadic pedagogy, which promotes curious-emphatic design approach that embraces performative enactment to generate solutions based on a well-defined problem. Though nomadic pedagogy has promising possibilities for design education aimed at exposing students to real-world problems to equip them to empathise in developing contextually responsive solutions, its contours in terms of co-designing are not well defined, making inquiry into the approach difficult. The cardinal aim of this research is, therefore, to attempt to use SLOC (small, local open, and connected), a collaborative framework as a co-design inquiry tool into nomadic pedagogy using a case of a Design+Ecology project in Cape Town, South Africa. Methodologically, the study adopted narrative approaches because the researchers wanted to get data on how the participants co-experienced the nomadic pedagogy and its influence on them during the 'co-problematisation' and co-solution development. The study employed a case study and used document review to study the entire co-designing process. Informal interviews through conversations were also used to gather data from some of the participants, which included lecturers, stakeholders, and students, on their experiences through the lens of 'SLOC' (small, open, local, and connected). SLOC was also used as the research framework and analysis tool. The results showed that in the small context, the participants engaged in collaborative narratives and co-conceptualisation for better problem co-definitions focusing on a small unit of the problem. The nomadic pedagogy positioned participants to co-engage in local, open, and connected facets of SLOC, through leveraging inspirations from global design online platforms and the application of the biomimicry method, which allowed for unrestrained doing and becoming, influenced by the fluidity of learning generated by place and space, thereby producing a true relational ontology for the participants.

Keywords: Biomimicry, design+ecology, nomadic pedagogy, SLOC.

Introduction

Design educators have been trying for the past decades to frame real-world problems into the context of studio-based practices through the lens of economically driven industrial demands that represent the status quo. Such studio-based design pedagogy positions students to create solutions through a linear path driven by capitalism for economic growth. In such a situation, the space and place of students' interaction and intra-actions are constant and students have to go through the challenges of envisioning the real world through a narrow design approach. Thus, framed problems are engaged with by students as an academic activity that distances students from the problem and make them solution inclined with poor problem definition. Hence, the resulting creativity by students lack the agency and forward thinking based on their restrained and narrowed frame of reference for solutions, which do not solve societal problems but rather lead to economic or industrial growth with its attendant environmental challenges and social inequalities (Bonsu, Chisin & Cronje 2022).

Brassett and Marenko (2015) further argue that such conservative intrinsic and entrenched design problem-solving approaches should transit into a curious-emphatic design approach informed by problem identification. Such a shift therefore, needs agency to be initiated through a performative enactment approach where roles are given to students to enact them for an immersive understanding of a phenomenon. Performative enactment can be tied to the concept of nomadic pedagogy, which thrives on ontological enactment for learning (Snaddon & Chisin 2017). The essence of the nomadic pedagogy is to position students in an inventive, responsive, and fluid space and place to engage discursively and performatively as they problematise the unsustainability phenomenon to generate 'good' solutions. Framed in this way, sustainability is built on the concept of flourishing, meaning sustainability for societal well-being is the focus and not industrial well-being. The shift of the lens for defining problems and creating solutions that are not based on capitalism is driven by the fact that capitalism is tied to economic expansion that benefits the minority. This expansion drives consumerism that is causing the earth to overshoot its planetary boundaries, which has led to ecological breakdown, ocean acidification and biodiversity collapse just to mention a few (Lenton et al. 2020). This implies that designers engaged in industrially focused design practices boost the capitalist project, creating never-ending iterations of destruction based on consumers' insatiable desire for Earth's scarce resources. Currently, a lot of progress has been made to shift from the capitalist or market design logic to community design logic that promotes nomadic pedagogy. However, nomadic pedagogy poses inquiry challenges especially from a co-design perspective; hence how people experience nomadicity is less inquired into, thus, this paper attempted the use of SLOC (Small, local, open and connected), a collaborative framework as a co-design inquiry tool into the nomadic pedagogy, which was used for a Design+Ecology project that employed biomimicry as a means to develop design proposals for Swellendam, a community in Cape Town, South Africa. The paper's focus is not on the biomimicry aspect but on how the students co-engaged in co-designing their biomimicry solutions. Biomimicry refers to studying nature's designs and then imitating these designs and processes to solve human problems (Kennedy 2004).

Nomadic pedagogy

The shift to nomadic pedagogy intends to expose students to the ideology that the cardinal aim of designers is to improve people's existing situations and not to worsen it (Frascara 2017). Nomadic pedagogy positions design as an accountability profession that should engage projects important to society (Frascara 2017), which are less harmful to the environment from a sustainability perspective. Frascara (2017), therefore, supports the ideology that design education has to change to reach its full potential in promoting societal well-being through an interdisciplinary and socially responsible

activity. In this context, nomadic pedagogy positions students in an enabling environment where learning happens through experience, inquiry, and reflection in the space of collective and collaborative real-world experimentation in design (Sterling 2009). Thus, it positions students to engage in diffraction, which is based on a relational ontology, an ongoing process in which matter and meaning are co-constructed. Though nomadic pedagogy offers promising possibilities in design education for exposing students to real-world problems that help them empathise to develop socially responsive solutions, its contours are not well defined making inquiry into the pedagogy difficult. The cardinal aim of this research is, therefore, to attempt to use SLOC (small, local, open and connected) as a design inquiry tool for nomadic pedagogy to define its contours using the case of a Design+Ecology project in Cape Town. SLOC (Manzini 2010) was adopted because it resonates with local and unconventional approaches to innovations that are relevant and generated by society for society to advance sustainable living.

What form does nomadic design pedagogy take and how can it be probed? Nomadic pedagogy or education permits individuals to express themselves freely with the understanding that opposing views are valid from a constructive perspective (Drakers 2022). Furthermore, nomadic pedagogy allows students room for 'being' through the process of becoming (Sidebottom 2019); implying that becoming is not structured based on declarative pedagogical schemes but is based on the individual's interaction with the environment and the things within, which enriches experiences of knowing and the subsequent becoming (Drakers 2022). Nomadic pedagogy, therefore, creates an environment that enables participants in a learning space to make decisions in doing or when engaged in a practical activity driven by what they are continually becoming based on how they experience and interpret events around them from a personal or collective perspective. Fendler (2013) also attempts to clarify the definition of nomadic pedagogy by reframing it as a learning approach that exposes learners to new encounters due to unfamiliar spaces they subject themselves to in their quest for discovery.

Deleuze and Guattari (2004) posit that nomadic practices are ideas and demonstrations that counter entrenched positions and phenomena. Nomadic practices are based on an approach that does not subvert, but rather elicits and accepts that there are other ways of experiencing the world without undermining other structured ways or rejecting them as a means of learning (Drakers 2022). This implies that learning is a summative way of knowing and becoming, therefore every experience encountered plays a major role in the becoming of a learner. Nomadic pedagogy can therefore, be framed in this research as a an experiential learning approach that exposes students to out-of-class encounters that hold the potential to trigger deeper appreciations that enlighten learners worldviews and inform how they define problems and solve them.

The contours of nomadic pedagogy and the related issues

Nomadic pedagogy is open and therefore, demands delineation should one need to assess it. It deviates from structured approaches that filter a learner's experiences that denies a learner from a holistic encounter with the world and predetermines a learner's path and what a learner becomes. Nomadic pedagogy, therefore, does not have contours on how a learner encounters the world. How then, can nomadic pedagogy lead to a productive outcome in a design-inclined project through co-designing? Shi (2022) gives an exposition on the characteristics of nomadic pedagogy as an attempt to contour it through power relations, resistance to conventions, reflections on ethnicity and a quest for new modes of existence but in a context of individualistic experiences. Shi (2022) further adds that these facets are principles for nomadic approaches and are used within the context of mapping, cartography, ethnography, and place making, which are tagged as methods for nomadicity. These do

not point out how the facets occur nor the environments that trigger these prescribed nomadic methods. Where then, does the enquiry into such pedagogy start and end especially in the context of co-design? Boynton and Russell (1999) responded to the questions asked by elucidating that nomadicity is overwhelming and looks complex in practice, however, it can be made easier through the sharing of experiences and guidebooks.

This paper argues that to assess nomadic pedagogy, the concept of nomadicity can be tagged as an exploratory phase in a design-led project or research and thus there is still a need to introduce a guiding concept to experience phenomena. However, how the learner experiences the given phenomena is hinged on or subject to the explorative-self of the learner. In this paper, we suggest that a possible way to conduct inquiry into nomadic pedagogy is through using SLOC in the context of co-design. It seeks to understand what happens when a group of students is dropped into an immersive experience outside of their linear-learning path.

SLOC as a co-design inquiry tool into nomadic pedagogy

How can SLOC be used as a co-design inquiry tool for a better understanding of nomadic pedagogy? SLOC is positioned as the framework for this research because Manzini (2010) frames it as an emerging scenario that promotes [doing] outside mainstream models that advances distributed production from a socio-technical perspective. Socio-technical system refers to the use of technology by society for providing solutions in manageable small units by different people at different places, which play different supporting roles in society. Since the produced solutions are at different places within the community, they create a network structure, which shows distributed solutions termed as distributed productions. SLOC, which means Small, Local, Open and connected promotes sustainable solutions from local stands and facilitates democratic participation in manageable small units or quantities (Manzini 2010). The Local and Small are tagged as attributes of the emerging scenarios, which are made functional through being open and connected to have global significance. The open and connected dimensions of SLOC, therefore, drive creative participation of people or actors in social innovations, which in other words serve as co-design capitals.

Co-design is a design method for co-probing shared problems for better understanding to co-generate viable solutions through the active involvement of designers and diverse range of participants with lived experiences (Blomkamp 2018; Whicher & Crick 2019). Co-design is known as collaborative design and has its roots in Scandinavian participatory design (Burkett 2012, p. 6; Torjman 2012, p. 19). Co-design is therefore recognised as a potent means to develop an inclusive solution to challenges within [many disciplines] especially in service design for both public and private organisations and also in product design (Sanders 2014; Farr 2013; Kimbell 2015). Co-design is mostly done from three major design perspectives, which are professional, market and community perspectives (Sangiorgi et al. 2022). When co-design adopts professional logic, it might not factor lived experiences or contributions in the final design output (Willis 2018; Sangiorgi et al. 2022). On the other hand, if co-design follows market logic, efficiency and profitability drive the design outcome (Farr 2019; Kimbell & Bailey 2017; Sangiorgi et al. 2022), but may lack insight from minorities with their attached local needs. However, co-design that factors community logic meets local needs but weakens professional input due to its liberal approach (Akama & Yee 2019; Escobar 2018; Sangiorgi et al. 2022). Nomadic pedagogy, in the context of SLOC and co-design attempts to overcome the inherent challenge of community-based co-design by moving professionals or students into the local space for local experience but still problematising and providing solutions with a professional mindset.

Based on the expositions towards aligning SLOC with co-design as a tool of inquiry for nomadic pedagogy, SLOC creates the means for the co-design stages to manifest as rendered in Figure 1. Thus, creating a space with attributes for nomadic pedagogy for students' out-of-class experiences for (re)definition of their worldviews and problems for valid solutions.
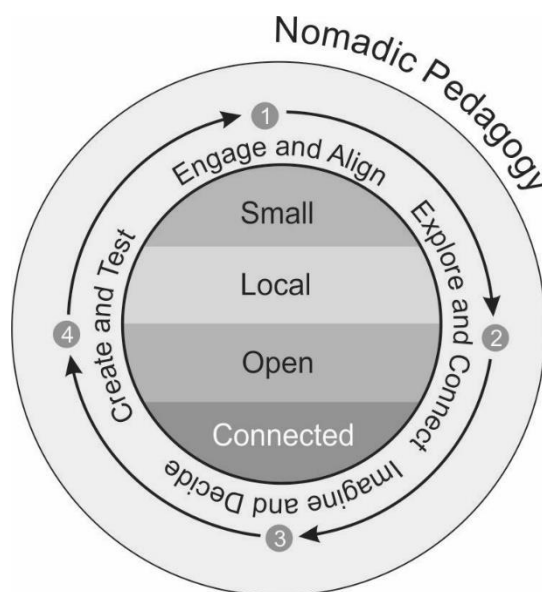

Figure 1: SLOC as co-design inquiry tool into nomadic pedagogy (developed by authors)

The research method

The study adopted qualitative approaches because the researchers wanted to get data on how the participants co-experienced the immersion (nomadic pedagogy) and its influence on them during the 'co-problematisation' and co-solution development. The study employed a case study and used document review to study the entire co-designing process used for the Design+Ecology project, which employed biomimicry as an approach to designing waste solutions for a community. Ethical and privacy concerns were addressed by getting consent from the participants in the case study. Informal interviews through conversations were also used to gather data on their experiences from some of the participants, which included lecturers, stakeholders, and students. SLOC was also used as the research framework and analysis tool. The obtained data, which covered the entire nomadic process was presented from co-design perspective and assessed through the lens of SLOC. The data gathered were from five groups of participants, which covered their immersion, exploration, connection, and ideation. The five groups were assigned to immerse themselves in how these companies namely Community Action Partnership, Swellendam Hospital, Southern Oil, VRT Pitt Primary School and Grace+Merci Restaurant produce and manage their solid waste in the Swellendam municipality.

The nomadic pedagogy positioned participants to co-engage in local, open, and connected facets of SLOC, through using the co-design stages, which positioned students to gain inspiration from global space through online design platforms for the application of the biomimicry method. The approach allowed for unrestrained doing and becoming and was influenced by the fluidity of learning generated by place and space, thereby producing a true relational ontology for the participants. This form of learning space in the lens of SLOC provided levity to enable students to generate self-actualisation regarding the agency for co-designing solutions for solid waste reduction through empathetic experiences that were made tangible through reflections and refractions.

Findings and discussions

The results of the nomadic pedagogy immersion through the lens of SLOC reveal how students from one University of Technology in Cape Town engaged in an existing real-world design challenge that used biomimicry as a lens to design alternative ways to manage organic waste in Swellendam in the Western Cape. The immersion exposed students to an in-depth learning encounter with new environments and challenges that held the potential to change their design perspectives. The challenge focused on the need to reduce and manage waste through the journey in co-creation of biomimicry-inspired proposals. The focus of the research is not in the biomimicry-inspired proposals but to make an inquiry into how the students co-designed their proposals using SLOC as the lens. The students were put into five groups consisting of two individuals each to design their proposals based on the waste management challenges that they were given, which were linked to the solid waste produced by the institution, which was Community Action Partnership, Swellendam Hospital, Southern Oil, VRT Pitt Primary School and Grace+Merci Restaurant in the Swellendam municipality. The subsequent sub-topics throw more light on the immersive encounters of the students based on the research findings, which gives insight into how the students engaged in the creation of biomimicry design proposals.

Students' immersive encounters in the context of nomadicity through the lens of SLOC

The students participating in the Design+Ecology project were transported to a small town and accommodated on a guest farm. This was done to facilitate a deep immersive encounter with nature, to learn from nature through biomimetic methods and to break away from studio-based learning. The exposure positioned them to experience a relational ontology that broadened their frame of reference and connected them to the environment to problematise the waste challenges within the Swellendam municipality. During the first phase of the immersion, ecology experts gave the students an orientation presentation. This was required since the students came in with a particular design mindset and needed to expand their frame of reference with new knowledge on design and ecology (and waste production/management problems), since that was the problematic area the students had to design proposals for. Lecturers provided students with a Biomimicry design guidebook titled *We are Earth*, which guided them to experience anew the interconnectedness between humans and nature, and how design can employ biomimicry to develop solutions by studying natural champions and learning from them.

Figure 2: Orientations on Design+Ecology project

During the immersion week, the students were put into five groups and assigned with tasks, namely to engage with the five institutions to 'problematise' their solid waste challenges as the core task. From a nomadic pedagogy perspective, they were directed to visit the institutions they were assigned to in person and to co-engage with the stakeholders by observing and interviewing them regarding the solid waste generated and how the solid waste was managed. The observations and interviews were also done holistically but after the immersion, the identified challenges were broken down into units to make the 'problematisation' simple in the context of solid waste challenges as captured in Figure 3.
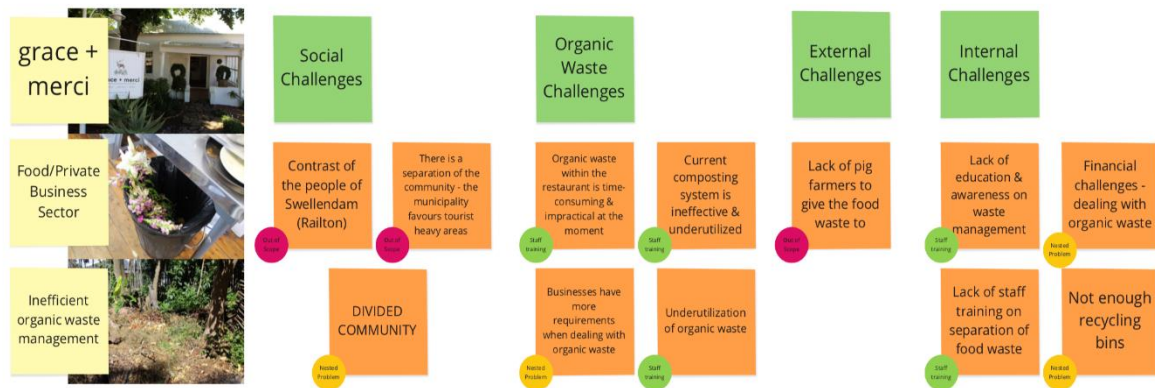
Figure 3: Broken down challenges for easy 'problematisation'

Making inquiry into the immersion stage (engage and align) of the nomadic pedagogy through the lens of SLOC

The immersion encounter shows that nomadic pedagogy, though "open", as Boynton and Russell (1999) put it, can be steered through the sharing of experiences and guidebooks or field books. From the perspective of SLOC, it can be deduced that the initial facilitation by the lecturers or instructors in the pursuit of nomadic pedagogy, was to give the participating students an out-of-class exposure to the environment of the project, representing the *Local* dimension of SLOC for personal encounters and opening up insights to shape, or re-shape worldviews. Regarding the *Open* dimension of SLOC, students had to trust each other and be open to new ways of encountering and experiencing their surroundings. Students worked in pairs and blindfolded each other in turn. This exposure to the natural environment, with their sense of sight cancelled, enabled their other senses, such as touch, smell, taste, and hearing, to take centre stage. One partner would choose a natural object and offer it to the blindfolded to identify and describe. The need for trust and openness to immerse oneself in the phenomenon was crucial in the process.

The other *Open* dimension manifested in the reception of the students to the guidelines provided to them on how to proceed with the project from a design and ecological perspective, using biomimicry as the method. The openness in students' attitudes was central in forging connections with natural phenomena, underpinning their levels of engagement during different encounters and the meanings they associated them. Openness was also central in the 'co-problematisation' because the participants shared their individual experiences, which led to cross-pollination of experiences and a deeper understanding of what was experienced by individual participants. The co-sharing of experiences helped peers in the group deepen their collaborations and indicated that the *Open* facet of SLOC leads to the *connected* facet. The outcome of the 'co-problematisation' was an identification of the different components of the various waste management challenges (as shown in Figures 2-3). This

corresponded with the perception of challenges from an immersive, nomadic viewpoint, in smaller units for an engaged encounter and contextualised solutions manifesting the concept of *Small* in SLOC. This forms an iterative cycle in SLOC.

Exploration, connecting and ideation in the context of nomadic pedagogy

After the co-immersion and 'co-problematisation', the next stage of the project was the co-exploration, co-connecting. and co-ideation to develop conceptual proposals for solid waste management challenges for the Swellendam Municipality. The co-exploration was done through the use of an online, open-access tool named AskNATURE. Each group consisting of two students co-explored by discussing what to search for before entering it into the online tool for suggestions on how to approach the identified challenge from a biomimetic perspective. Each group harvested several solutions from nature on how to co-design their conceptual proposal based on output results generated by AskNature. The groups also co-explored their surroundings for ideas on how to solve their solid waste challenges using nature's principles as a guide. The groups thus connected to nature by selecting four natural champions and studied how they solved their challenges. After this, the fully ideated concepts were co-developed. All the co-exploration, co-connecting, and co-ideation were done on site and not in a class. The final stage was the co-ideation of the conceptual proposal for the waste management challenges. These were some of the comments shared by the participants regarding their immersive experience, learning from nature and nomadic pedagogy:

> The materials used in the strategy are all locally sourced, i.e., their organic waste. There will be a constant stream of organic waste being produced by the restaurant, hence, constant materials to compost. Composting uses low energy processes and leverages cyclic processes.

> What I have learnt is that we forget about nature and there is a lot we do that we do not think about their consequences but now I know.

The comments show that the students encountered a deep appreciation of nature due to the nomadic pedagogy that was used, which gave them a thorough understanding and better ontological relations to their environment, which influenced the nature of the proposals that they designed.

Making inquiry into the co-exploration, co-connecting and co-ideation through the lens of SLOC

The co-exploration was done from the *Open* perspective in the SLOC context. The participants had the liberty to explore from nature in different ways through the use of the AskNature, which was also supported by their encounters with their immediate surroundings that enlightened them regarding different ways to approach the solid waste challenges. They also shared ideas and cross-pollinated them to produce collective concepts as a result of their different experiences and understanding of systems thinking and how nature connects things beautifully without chaos. The *Connected* dimension also manifested in the exposure of the students to different environments to connect them to nature and to each other, which helped them to direct their co-ideation through the biomimicry lens for contextualised solutions. In the ideation process, the way they approached the challenges was through breaking down into smaller units (reflecting the concept of Small). The challenge and then searched for possible natural solutions. The entire exploration of co-ideation processes, therefore, shows that nomadic pedagogy used in design projects embraces the full spectrum of SLOC. This means

encountering the world in a different, immersive way and students may direct their doing and becoming through personal and collaborative encounters with the different phenomena.

Towards conceptualising nomadic pedagogy for the Design+Ecology project in the context of co-design through the lens of SLOC

The nomadic pedagogy, which was used on the Design+Ecology project, affirmed that exposing students to the real problem environments out-of-class creates an enabling space that makes learning happen through experience, inquiry, reflections (Sterling 2009) and doing. The students' engagement in exploring the problem and designing solutions using biomimicry gave the students the freedom to interact with their environment and their colleagues, which defined their process of becoming (Drakers 2022). The process of becoming through the nomadic pedagogy when viewed through co-design and SLOC lens, happened through immersion, exploration and connecting, and ideation in the context of this research. Figure 4 gives a conceptualised summary of the interplay among co-design, SLOC and nomadic pedagogy for a holistic appreciation of the inquiry into the pedagogy.

Figure 4: Conceptualised nomadic pedagogy for the Design+Ecology project in the context of co-design through the lens of SLOC (developed by authors)

Conclusion

Nomadic pedagogy in the context of design in this paper is framed as an experiential learning approach. This approach exposes students to out-of-class, immersive encounters that hold the potential to trigger deeper appreciations and enlightened worldviews, which in turn inform how they 'problematise' design challenges and propose contextual solutions. Nomadic pedagogy therefore can take different forms, and thus it does not have a definite shape, or a prescriptive methodology, but is rather context dependent. Though it has been established that nomadic pedagogy is an open and a liberal way of allowing students to direct their own experiences to define their world-views, the Design+Ecology project engaged in a liberated-but-guided approach to bring value to the participants' experiences. Thus, the main aim of this research was to conduct an enquiry into how the entire nomadic, immersive pedagogical experience unfolded from a biomimetic, co-design perspective through the lens of SLOC.

The findings show that the project happened through the processes of co-immersion, co-exploration, co-connecting, and co-ideation. These processes leveraged the concept of small, thus the problems were broken down into benign constituents, to better understand the challenges. The immersive experience influenced how students explored their environment and their encounter with their surroundings, as well as how they problematised their identified waste management challenges. In the context of *Local,* the students' out-of-class encounters were within a locality or the given institution, which exposed them to the local solid waste generated by the five groups identified, and the associated challenges. It helped them to design their solutions based on local materials and was highly context dependent. In all the processes, the concept of *Open and Connected*, permeated the collaborations among the students in their co-sharing of ideas and connecting their experiences to generate conceptual proposals for waste management in Swellendam. The participants welcomed each other's ideas and reshaped them and also allowed deeper encounters through sharing of experiences for meaning making. This form of learning space in the lens of SLOC provides levity to enable students to generate self-actualisation regarding the agency for co-designing solutions through empathetic experiences that are made tangible through reflections and refractions. Nomadic pedagogy in the context of design, therefore, positions students in an enabling environment, where learning happens through experience, inquiry, and reflection through collective and collaborative real-world experimentations. Though, the research used co-design and SLOC to investigate how the nomadic pedagogy was carried out for a better understanding of how it happens in a design context, we recommend that future research should investigate how course outlines or programmes on nomadic pedagogy are designed or structured as well as the attached aims for easy assessment.

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