

# Architecture of Belonging

Activating residual spaces for Indigenous people

*terrain vague*  
 cidade produtiva  
 comunidades Indígenas  
 aprendizagem autodirigida  
 projeto de arquitetura  
*terrain vague*  
**productive city**  
**Indigenous communities**  
**self-directed learning**  
**architectural design**

Este estudo apresenta um estúdio de projeto de arquitetura que articula os conceitos de *terrain vague* e de cidade produtiva para refletir sobre a presença, visibilidade e pertencimento de povos indígenas nas cidades. Diante dos complexos desafios sociais e espaciais das cidades contemporâneas, é fundamental reconhecer as limitações físicas do espaço urbano. Os espaços residuais podem ser considerados como um recurso imprescindível para a atividade urbana. *Terrain vague* é um conceito que trata espaços urbanos desvalorizados e negligenciados emergentes do constante crescimento e transformação urbana. Geralmente esses espaços residuais situam-se nas intersecção da infraestrutura urbana, da natureza e do ambiente construído, assumindo uma aparência indesejada. Um estúdio de projeto é proposto e adota a Aprendizagem Autodirigida (AAD) como abordagem pedagógica. Neste contexto, a autonomia do aluno é fundamental para desenvolver suas próprias percepções sobre problemas globais. O estúdio propõe um terreno inicial em Florianópolis, sul do Brasil, com longa história colonial e presença indígena. Contudo, os grupos indígenas foram completamente deslocados da cidade e ainda enfrentam dificuldades para encontrar um local para ocupar. AAD demonstrou ser uma abordagem eficaz para apoiar os alunos no desenvolvimento de iniciativa e objetivos de aprendizagem. Os projetos revelam que *terrain vague* pode funcionar como plataforma para inserir habitação, espaços de encontro e outras formas de ocupação indígena por meio da sua língua, expressão artística ou práticas de aprendizagem. O estudo também apresenta desafios relacionados ao desenvolvimento de projetos a distância, o que inclui acesso limitado a comunidades indígenas e as sensibilidades culturais do Brasil.

This study introduces an architecture studio that connects the concepts of *terrain vague* and the productive city to reflect on Indigenous presence, visibility and belonging in cities. Due to complex social and spatial contemporary urban challenges, it is critical to acknowledge the physical limitations of space in our cities. Thus, residual spaces become an essential and valuable resource. *Terrain vague* refers to constrained, disregarded and neglected spaces that emerge from constant urban growth and transformation. These sites are usually a friction between urban infrastructure, nature and buildings assuming an impression of unwanted leftovers. Since residual spaces form political and ambiguous conditions, learner independence is critical to develop their own perceptions of world problems. A proposed studio focuses on this territory to employ a Self-Directed Learning (SDL) pedagogical approach, to support learners to move across uncertainty. The studio proposes an initial site in Florianópolis, an island south of Brazil with a long colonial history and Indigenous presence. Indigenous groups were however completely displaced from the city and still struggle to find place. SDL demonstrated an effective approach to support learners in developing initiative and learning goals. The projects reveal that *terrain vague* can be used as a platform to insert housing, gathering, and other forms of Indigenous visibility through their language, artistic expression or knowledge. The study also presents challenges related to designing from a different country, including the limited access to Indigenous communities and the cultural sensitives of Brazil.

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"Architecture is an active connection, a practice which activates a relation between material spaces and their inhabitation; and, it structures that relation, it structures what we call the relation between space and polity, as well as the construction of polities themselves." John Palmesino, Matters of Observation (Turpin, 2013).

Brazilian cities continue to struggle with uneven development, which is still a consequence of colonial exploratory urbanization. This issue impacts on spatial, cultural and political layers of cities and extends to Indigenous marginalization. Across many cities, it is possible to identify pressures on land, including housing speculation and implementation of infrastructure. Such mode of development creates fragmented city structures and form with neglected and disregarded spaces. Solà Morales' (1995) concept of *terrain vague* positions these neglected spaces as ambiguous but potential areas for development, where dominant principles of urbanization are relaxed, which allows alternative occupation and social articulations.

The study area is at the entrance of Florianópolis, an island in the southern Brazilian state of Santa Catarina, known for its natural landscape and decades of environmental protection

development (Bridges, 2024). However, this scenario generates pressure on land value which ultimately creates fragmented spaces and urban voids. The island's urban planning and development includes some controversial projects in the past, which violated federal, state or local environmental regulations (Lopes and Di Bernardi, 2022) increasing residual spaces and tension in different forms and places. The land fragmentation resulting from these complex systematic transformations poses major challenges, which are exacerbated by the city less restrictive masterplan proposals.

Figure 1 presents the study area and mapped residual spaces demonstrating the accumulative process of fragmented development. Figure 2 presents the access to the island and public transportation. Indigenous groups travelling from afar arrive at the bus terminal, then they walk or take buses to other parts of the island.

The site residual spaces often emerged from the process of implementation of vehicular access to the continent, colonial and pos-colonial development, and predominantly land speculation. In this context, Indigenous groups face numerous issues such as displacement, lack of visibility and

lack of space, creating significant barriers for belonging. This condition has exposed conflicts, violence and struggles that this population endures (Mosaner et al. 2023) and demonstrates the lack of participation in the construction of space.

Florianópolis presents a particular and revealing case for such study. Historical patterns of Indigenous communities' removal and erasure have intensified discrimination, marginalization and prejudice, influencing how these individuals use the city spaces today. Each summer, Indigenous communities travel by bus or car to the island to sell artisanal products such as baskets, decoration, pottery, beauty accessories, toys, sculptures. Three Indigenous communities (*Guarani, Kaingang and Xokleng*) occupy an abandoned bus terminal, which was a provisional arrangement and became a permanent solution (Mosaner et al. 2023), despite the local government's push back. The Indigenous leaders are lobbying to secure the rights to the land and transform the facilities according to their needs. Another initiative from the local government was to create an Indigenous shop near the public market (*Largo da Alfândega*), but the differences and conflicts between the Indigenous groups using the space led to its closure. In addition,

non-responsive planning further restricts the access to public and private space, accommodation, and cultural facilities.

To identify solutions for these issues, the architecture design studio '*Terrain Vague: Reframing Residual Spaces*' was proposed to a final year master group (described in the next sections as '*studio Terrain Vague*'). Self-Directed Learning (SDL) was selected to support learners' journey. The aim of this article is to present the challenges and benefits of working with this pedagogical approach in this specific studio setting.

## RESEARCH METHOD

This study employs exploratory study research, suggested by Swedberg (2018), which is appropriate for conditions where the aim is to generate insights through situated practice rather than producing definitive conclusions. The research focuses on how SDL was adapted, enacted and experienced within a master-level architectural design studio at Deakin University, Australia. The studio serves as the case through which the challenges of SDL are examined and how learners interpret this approach in a complex studio setting. The analysis draws on multiple forms of materials generated through the studio including learners' work, tasks, observations, outside studio exchanges and learner-tutor interactions. These inputs provide evidence of how SDL shaped learners' engagement with the brief, their development of methods of inquiry and their responses to the conceptual framework of *terrain vague* and productive city.

An analytical approach follows interpretive thematic analysis, focusing on three criteria aligned with the research aim: 1. how learners enacted SDL, 2. how theoretical frameworks were operationalized, and 3. how projects responded to Indigenous socio-spatial conditions. The research is limited by the geographical distance from Indigenous communities, reliance on mediated

and asynchronous exchanges and the time constraints of academic trimesters. For that reason, we relied on secondary sources to present concepts about Indigenous life experiences. Despite these limitations, the research captures the pedagogical dynamics of the studio '*Terrain Vague*' and demonstrates how SDL operated as learning structure that shaped learners engagement.

## PROBLEMATIC: TERRAIN VAGUE AND PRODUCTIVE CITY

According to Solà-Morales (1995), *terrain vague* embodies the interfaces where activity and intention are suspended. These spaces are distinguished by lack of clarity on ownership, abandonment, lack of program and meaning; these conditions generate a sense of expectation. Solà-Morales uses French to define the ambiguity of the word *vague*, as interconnected ideas, wave (movement), vacant (unoccupied), and imprecise (indeterminate). This semantic interpretation insinuates that *terrain vague* has an open condition and uncertainty that can be manipulated. This concept is particularly relevant when decolonialization practices are in place, because it exposes how urbanization generates empty spaces through exclusion.

Colonial and post-colonial processes displaced vulnerable communities and as happened in Florianópolis, erased Indigenous people from the city. *Terrain vague* becomes a symbol of spatial exclusion and marginality. Such ambiguous and neglected spaces can be found in any size and are shaped by conflicting interests, temporal discontinuity, and unresolved urbanization, as suggests Ursprung (2016). The concept of *terrain vague* represents a record of these conflicting conditions, exposing the contractions of contemporary cities' development. To detach *terrain vague* from such in-between status is only possible through innovative methods that reorganize, reconnect

and reframe the void by linking it to the city.

To reconnect void and city, productive city design was implemented as a studio method because it encourages cities and citizens to transform underused spaces (land or buildings) into hybrid functional programs (Francke, 2016). The application of productive city design focuses on connecting economical, industrial and architectural layers to generate innovative forms of social and cultural production within cities (Francke, 2016). From this perspective, an understanding of *terrain vague* shifts from a framing as urban waste to that of a catalyst of new programs and opportunities for occupation.

Since the 1990's, with traditional industrial activity in decline and city expansions, industrial sites became opportunities for economic growth and integration of social and cultural programs in the urban areas (Francke, 2016). High-tech industrial processes, service-based economy, and clean production also enabled many manufacturing processes to be reintroduced to the city; a concept described by Sassen (2009) as "*intermediate economy*". In this sense, the productive city challenges segregation of functions, typical of modernist planning, advocating for hybrid and multifunctional spaces that support various forms and scales of production.

Reintroducing productive activities in cities has recently expanded to integrate circular economy, smart cities and citizen participation in the making of space (Suwala et al., 2025). The productive city's logic is relevant to post-colonial places where questions of who produces space, and for whom, are more evident. We see this as an opportunity to enable production of Indigenous knowledge and active engagement on making space. In this sense, integrating Indigenous knowledge and participation enables a new vision for cities. For example, recognizing Indigenous people as knowledge holders and including them in environmental and spatial decisions is advocated

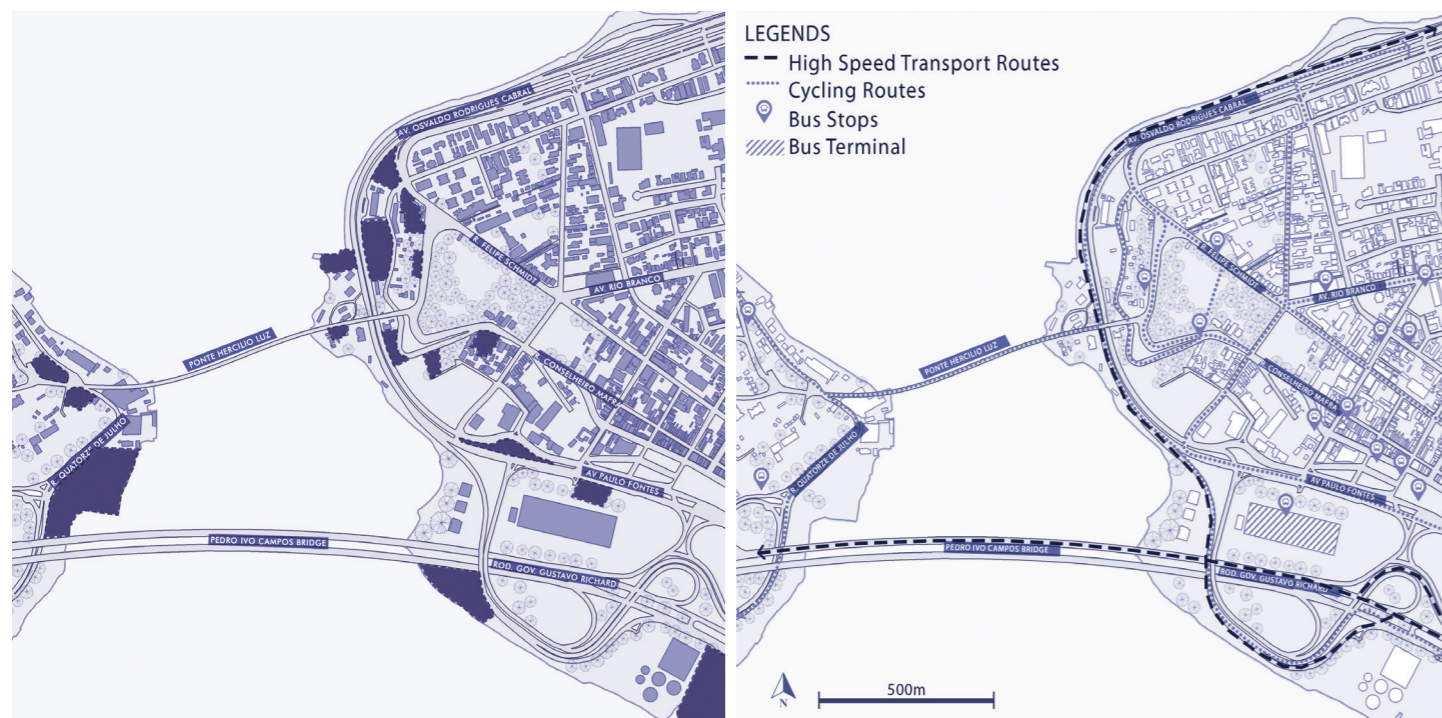


Fig.1 and 2 - Residual spaces of Florianópolis mapped by learner Aayushi Shah. - Mobility mapped by learner Aayushi Shah.

by Alam and Scott (2025). In addition, Billauer and Nel (2024) demonstrate the numerous problems emerging from the lack of recognition of Indigenous people's knowledge and practice in the design of spaces.

### ADAPTING SDL TO THE STUDIO 'TERRAIN VAGUE'

SDL positions learners as active learning agents, developing strategic abilities to make effective decisions, building narratives, and securing agency to create innovative and contextual solutions. The studio 'Terrain Vague' is supported by Liow's (2021) heterarchical architecture model of SDL and Gibbon's (2003) understanding of learner's autonomy. These two approaches suggest incremental responsibility levels, reflective research, and exploration through iterations; concepts that are closely related to architectural studios.

Learners are also encouraged to formulate questions, define learning goals, select their own methods or areas to study, collaborate with colleagues, and be critical about decisions and their implications. These are actions embedded in the

studio 'Terrain Vague'. SDL pedagogy comes with challenges, particularly learner independent thinking can be constrained if over-structured guidance is implemented (Gibbons, 2003). In addition, Brookfield (1983) states that without opportunities for dialogue, SDL learners direct themselves within boundaries of what they already know. However this seems less of an issue within the context of a master level architecture studio, because these learners are expected to document inquiry, reflection and exploration. To support learners, the studio implements a structure to address two complex issues: the productive city and *terrain vague* (Fig.3).

In an SDL setting, tutors interact with learners as facilitators, providing access to learning materials and inputs that enable learners to operate at the boundary of the learning zone, which Vygotsky (1978) calls "zone of proximal development". The zone of proximal development reflects the limits of learners' knowledge and defines what they can develop independently and what demands tutor intervention in the form of orientation. SDL learners engage with unknown ideas by actively identifying steps towards an answer, which demands curiosity,

and skills such as exploration and self-awareness. From its inception it was considered critical in SDL to allow learning to take place at the learners' pace and predilection (Piskurich, 1993). Structures have since evolved that incorporate hybrid interfaces and various forms of facilitation.

While traditional design studio models enable advanced design outputs, the employed methods may not always allow learners to develop agency, or methods may not offer flexibility to accommodate diverse learning preferences. SDL sets a more open structure for design thinking, enabling learners to make decisions about learning pathways and to work with confidence particularly within ambiguous and culturally sensitive spaces.

### A FRAMEWORK FOR 'TERRAIN VAGUE'

Unlike traditional SDL models in which learners are completely independent, the studio 'Terrain Vague' provided a structured brief designed to enable learners' exploration of themes and engage in group discussions (see Table1). In addition, the tutor defined

timeslots for collective inputs and workshops. In trimester 2, week 3, the theme was context drawings, where learners interpreted this theme according to their design development and the tutorial session focused on individual priorities. A flexible structure such as this is essential as it allows the tutor to remain responsive to learner's needs.

The flexibility embedded in the studio 'Terrain Vague' enabled the tutor to integrate learner-led initiatives and learning requests. For example, learners asked to integrate AI in their design process (a skill outside their zone of proximal development boundary) and a workshop on AI workflows was introduced. AI is transforming architecture design but is still disconnected from curriculum (Sedrez and Pitts, 2025), thus this integration links to challenges learners will face in the next years. This represents another benefit of SDL, as learners can integrate technological or methodological innovations and assume control over some aspects of their learning.

In implementing SDL, learners' agency and tutors' facilitation need to be synchronized to support meaningful engagement, especially

considering tutors' limited contact hours. Overall, the studio operates like Liow's (2021) heterarchical studio, which has two SDL phases of "behavioural indicators". The first is ownership of learning, in which learners identify steps, methods, and content they need to learn. The second engages self-management and monitoring, in which learners formulate their own questions, explore methods and self-evaluate progress. The heterarchical studio also highlights the importance of explicit tasks defined in the design brief to support learner autonomy (Liow, 2021), as demonstrated in Table1.

One of the tasks embedded in the brief was to identify and integrate a design method to support learner decision making throughout the trimester, in this sense, the tutor did not provide a predetermined design workflow. Thus, research on design methods in combination with collaborative sharing sessions supported the learner's progress. In addition, studio sessions supported group discussions to facilitate both individual and group decision-making. These negotiation sessions happened in key moments throughout the trimesters, aligning with Gibbons' (2003) emphasis on learner autonomy and the logic of

learner's responsible engagement with their learning.

While milestones are required to comply with the university curriculum expectations, learners retained agency on what to present at each design review, as well as how they would present. This structure emphasizes a gradual increase in responsibility levels, reflective inquiry, and experimentation. In practice learners went through cycles of research, reflection, discussion and review, resonating Taylor's (1987) Learning Process Sequence (LPS), which is a foundation for SDL (Fig.4).

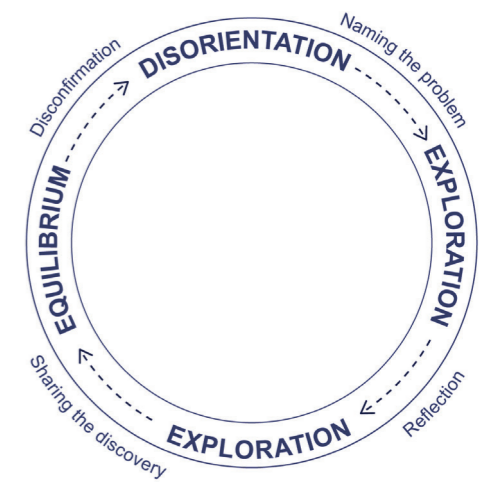


Fig.4 - Taylor's Learning Process Sequence (adapted from Taylor, 1987).

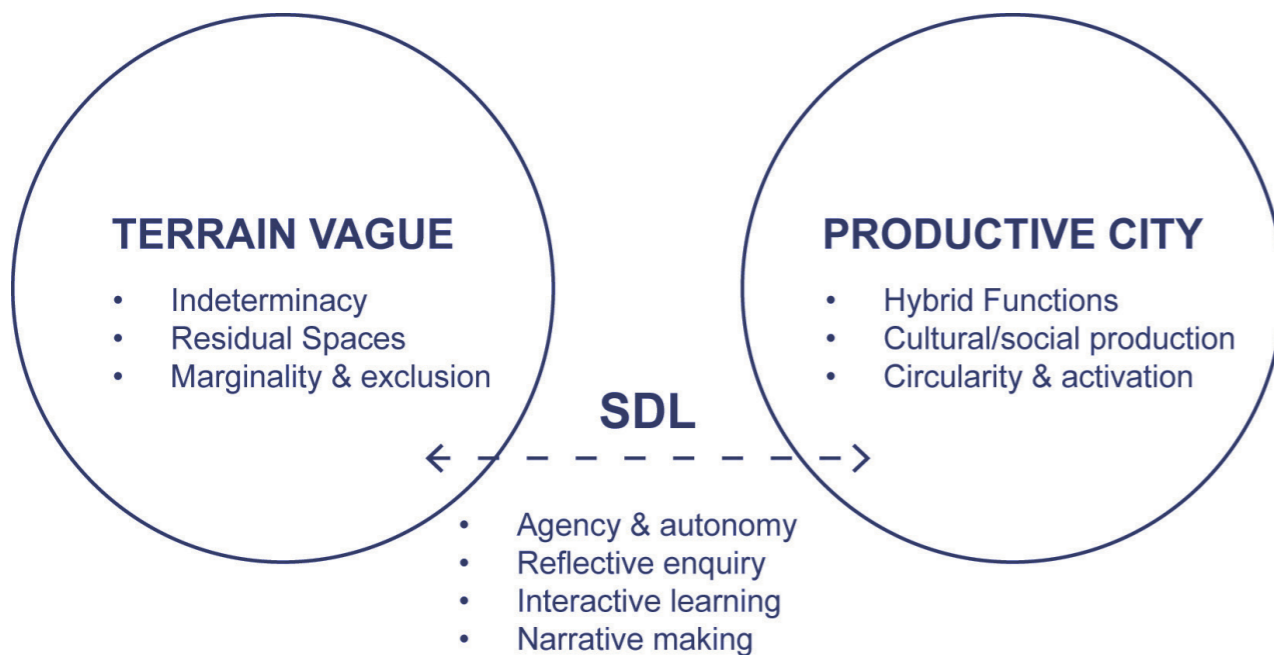


Fig.3 - SDL as link for exploration of the problematic Terrain Vague and the Productive City (Authors, 2025).

Week	Trimester 1	Trimester 2
1	Site Investigation and Research	Recapitulating Trimester 1 and discussing new insights
2	Definition of design method, research strategies and problem formulation workshop	Testing massing physical models
3	Precedents study, brief development	Context drawings
4	Task 1 Submission (Research A3 booklet)	Preliminary plans, section and model
5	Site analysis: Indigenous aspects	Interfaces between proposal and the city
6	Site analysis: Environmental aspects	Environmental resolution
7	Site analysis: Urban aspects	Isometric and model
8	Task 2 Presentation (Research StoryMap)	Sections and elevations
9	Masterplan and preliminary concepts	Design detail
10	Masterplan and preliminary concepts	Preparation for submission
11	Masterplan and preliminary concepts	Task 1 Submission (Design Panels A1)
12	Task 3 Submission (Reflective Folio A3, Design Panels A1, Design Brief)	Task 2 Submission (Research booklet A3)
13		Task 1 Presentation to external jury

Table1 - Structure for the studio 'Terrain Vague'; extracted from the design brief developed by Maycon Sedrez in 2024.

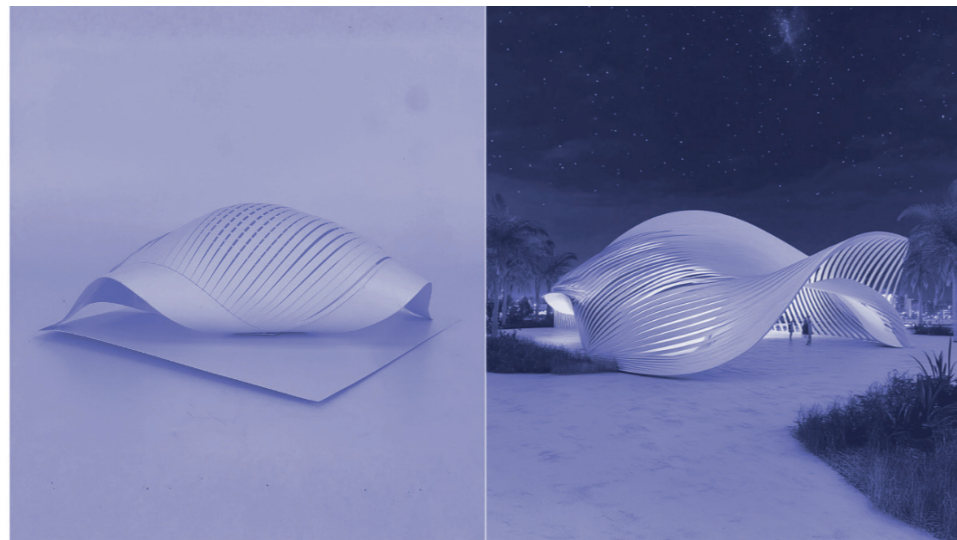
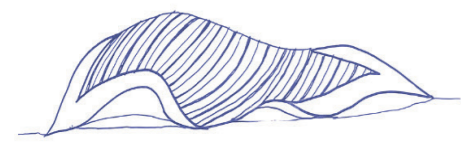


Fig.5 - Example of AI-Aided Design workflow using sketches and models, workflow created by learner Kline Umhao.

This form of facilitation supports learners in the development of metacognitive awareness, a critical component of architectural design and SDL (Avsec and Jagiello-Kowalczyk, 2021). Equally important was the tutor sensibility to learners' creative ideas and suggestions. This requires establishing a safe and professional environment to allow learners' thoughts to be expressed without inhibition. SDL is particularly relevant to architectural education because design involves ambiguous contexts, incomplete information, and competing values. Learners must face these complex conditions by adopting critical perspectives rather than relying on prescriptive solutions.

## OUTPUTS OF 'TERRAIN VAGUE'

Because of the physical distance from the actual site and its socio-spatial complexities, the studio 'Terrain Vague' needed to provide a learning environment capable of fostering ethical sensitivity, critical inquiry and adaptability. By providing supportive interfaces between learner and tutor (tutorials), where ideas are refined and reflective milestones are reviewed, the tutor aimed at enabling learners to combine steps within and outside their zone of proximal development. Moments of uncertainty, such as 'I don't know', 'what should I do', or 'how do I resolve this', become insightful learning moments, especially when

learners employed creative and exploration methods to obtain answers.

### Examples of learners' agency and autonomy

Learners engaged in several peer group activities that shaped the direction of their work, including suggesting the workshop on artificial intelligence (AI) aided design workflows (Fig.5); building a site model to test design variations; and selecting design methods that aligned with their focus. In the final presentation all learners decided it was appropriate to make a group introduction to explain the design comprehensively. Learners also supported the organization of two exhibitions outside the university space: one showcasing AI-aided design outputs at the Gallery Bates Smart in Melbourne, and another exhibition presenting final design outcomes at the Brazilian Embassy in Canberra.

### Examples of tutor's facilitation

While learners develop independence, the tutor has a key role in providing inputs to enhance learner understanding of the site, culture and context. Four Indigenous themes were suggested in the design brief: 1. artistic production using natural fibers, seeds, clay and wood; 2. cultural representation through dance, food, music, body art, and folklore; 3. language traditions and storytelling; and 4. agricultural and environmental knowledge.

The tutor (Maycon Sedrez) is Brazilian and native to the site region, this facilitated language translation, provision of resources and cultural understanding. He connected learners to a Brazilian cohort supervised by Anna Pimenta (University of Santa Catarina, UFSC) and an Australian cohort supervised by Paul Trotter (Queensland University of Technology) both studying the same area. This collaboration was consolidated through a shared online space (MSTeams) to enable exchange of materials. Additional strategies included building collective narratives through StoryMaps (an online application that combines maps, images, and text in a web format) documenting different aspects of the site. Here, learners engaged in co-designed research and learned about a new tool for communication and narrative development.

Brazilian climate and landscape offer many challenges for architectural studios. Concepts from Indigenous use of materials and connection to land were explored through precedents and examples brought by the tutor. For example, a lecture on Indigenous house and its impact on Brazilian colonial architecture covered the relevance of understanding Indigenous approach to climate.

To draw on experience in Indigenous housing asynchronous conversations with Brazilian architects were facilitated. 'Terrain Vague' learners submitted



Fig.6 - Kaingang leader Sadraque Lopes, extracted from video-interview with Anna Pimenta (2024c).

questions to Dr Naira Zanardo Zanin, professor at the Southern Border University and researcher at the Center for Urban Dynamics and Cultural Heritage (NAUI) and at the National Institute of Science and Technology Brazil Plural (IBP). She also shared her experience on designing with *Guaranis* in a conversation with our UFSC partner, Anna Pimenta (2024a). Students also submitted questions to Dr Ricardo Socas Wiese, professor at UFSC, who was the coordinator of the architectural design for the UFSC Indigenous Student Housing (Pimenta, 2024b). These conversations were done in Portuguese language by Anna Pimenta, uploaded to YouTube and then translated by the tutor in

Australia. Finally, an interview was conducted with a local Indigenous leader that provided critical insights into the community challenges, needs and aspirations (Fig.6). These interactions offered key perspectives and emphasized the tutor role as facilitator.

While SDL implementation enables learner independence, some learners prefer initially directive forms of instruction. For example, one learner asked for more specific design tasks, demonstrating a misunderstanding of the brief's openness. The tutor responded by suggesting reviewing the studio schedule together, highlighting how weekly prompts could be interpreted and adapted

to their own preferences. Again, when challenges seem to be too big for a learner, operating within their zone of proximal development is recommended, because they re-apply existing knowledge to a different problem.

The learner subsequently decided to produce a physical model, a routine task for architects but aligned closer to their learning style.

### Examples of responses to site and context

An urban block was used as starting point for the design. Learners were encouraged to explore and define a final site based on their collective research (Fig.7).



Fig.7 - Group research to support discussion, compiled by learner Prashya Gosman.

They needed to consider main structures such as the *Da Luz Park*, preserve views to the *Hercílio Luz* bridge and the *Santana do Estreito* fortress, and find opportunities to connect with the city and the bay. Engagement with the Indigenous communities and cultural practices focused on developing architectural programs to accommodate forms of production for the *Guaranis*, *Xoklengs* and *Kaingangs*. Issues such as seasonal and permanent accommodation, movement patterns, protection of children and young people, and areas for cultural production and exchange emerged throughout the design process.

Cameron and Eiman (2025) recommend adopting Indigenous sensory knowledge in architecture education such as memory, language and identity. While experiencing certain senses was not possible, learners found opportunities to incorporate Indigenous knowledge through available sources or reports. Examples are Prashya Gosman who created drawings while listening to Guarani music, Kline Umhao who studied Indigenous languages through online videos, and Jui Janokar who investigated the cultural links between the edible seeds produced by the *Araucaria angustifolia* trees (*pinhão* in Portuguese) and the *Xokleng* group.

### Examples of reflective enquiry

Across the studio the design work addressed Indigenous cultural production, housing demands, culinary and language knowledge, botanical knowledge and education. All learners approached the selected sites by creating hybrid architectural programs, such as accommodation, communal spaces, agricultural production, and cultural visibility. These programs are documented and explored through engagement with the socio-spatial context of the city.

Learner Aayushi Shah created a marketplace to integrate production, commercialization and seasonal accommodation (Fig.8). The design was a multifunctional hub where Indigenous artisans could make, sell, and inhabit



Fig.8 - Indigenous market: indoor production, designed by learner Aayushi Shah.



Fig.9 - Housing and shelter, designed by learner Sagar Chotaliya.

simultaneously. The proposal features economic autonomy and cultural exchange, connecting with context aiming at positioning Indigenous productivity as a visible urban element. The design proposes a bridge connecting the ocean and historical sites currently separated by roads; this makes a link with touristic activities giving a new meaning to the site. Lightweight structure and the use of screens allows permeability, reinforcing the Indigenous connection to nature and use of local materials.

Learner Sagar Chotaliya explored seasonal and permanent housing, proposing a flexible architecture system to accommodate the community movement throughout the year, supporting long-term social presence. The design combined a hybrid program of working, living and communal facilities, targeting immediate needs for accommodation and broader cultural issues of belonging (Fig.9). A timber frame structure creates a module that can be adapted according to users' needs. This project is a good example

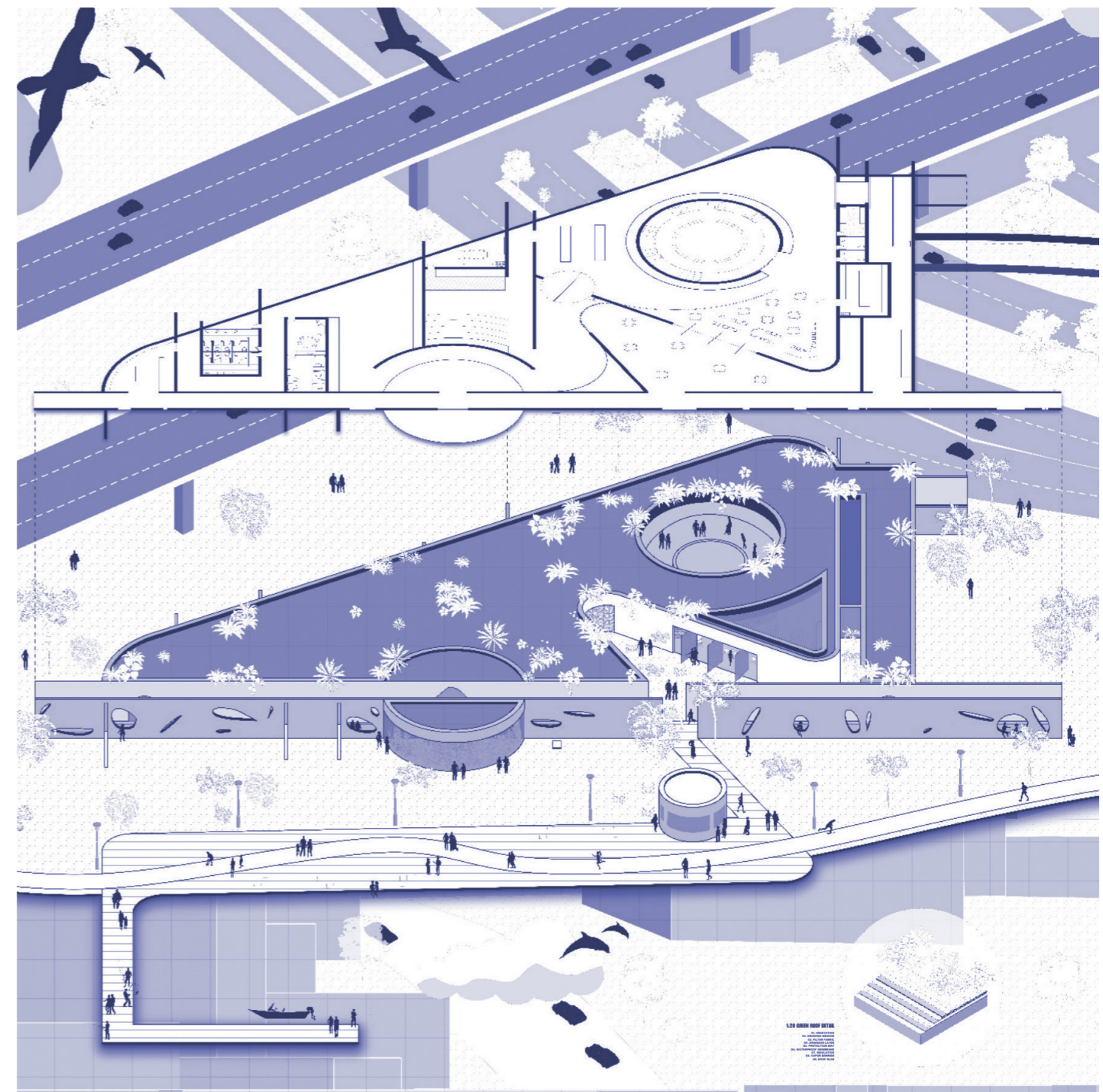


Fig.10 - Marine Ecological Center, designed by learner Prashya Gosman.

of independent inquiry, where a critical discussion around how Indigenous people would feel living in a tall building was supported by interviews with local experts. How to make interfaces with nature in a vertical solution were discussed and proposals developed. A selected solution was to allow gardening to occur throughout the whole project, with spaces for artisanal production integrated at every level of the building.

Learner Prashya Gosman proposed reconnecting the

Indigenous community with ocean-based agricultural practices. The design proposal combines exhibition and restaurant spaces creating a complex dedicated to food production in the surrounding bay. Indigenous people are integrated in farming activities and production of food. The design provides spaces for seafood culinary experiences, fishing knowledge, algae production, and cultural storytelling. The aim was to reactivate coastal traditions and highlight the relational connection between Indigenous identity and

marine ecosystems (Fig.10). In this design proposal the main material is concrete due to an influence of modernist projects that embrace connection with nature, however the proposal was generated through reflecting on site forces and Indigenous music inspired drawings used in the building form.

Learner Kline Umhao addressed a critical issue related to preservation of Indigenous languages by proposing a museum dedicated to the oral transmission of languages. The design proposal creates

immersive spaces for listening and speaking, storytelling, and intergenerational exchange (Fig.11). This production of knowledge offers new forms of archival practices and enables visitors to learn how Indigenous languages shape Brazilian culture, language, and culinary. The learner investigated Indigenous houses and how natural materials are used to create "ocas" (Indigenous house). A meticulous physical model employed bamboo to manipulate organic forms. The whole design was redefined by this physical model which was used to generate digital drawings and visualizations.

### Lessons learned

The design proposal outcomes of this studio present a pathway to reimagine residual spaces as productive Indigenous grounds. In the final review, learners presented the designs to a Brazilian architect and a Brazilian landscape architect practicing in Australia. This was an important aspect of linking the studio to the site since the jury feedback spoke about designing in context and lived experiences reinforcing the learning journey. The design proposals were also exhibited outside of the university context, further strengthening learning, exposing learners to broader audiences and professional contexts. Learners independently developed two publications: a booklet summarizing all designs, and a zine to be distributed in Canberra's exhibition, demonstrating how SDL encourages learners to take ownership of their learning. This documentation and dissemination connected learners with professional spaces as they prepare for workplace. In this way the studio extended beyond academic boundaries and enabled learner initiative, responsibility and engagement.

SDL offers several benefits for architectural studios, including stimulating learners to reframe problems and to engage in "abductive thinking" (Avsec and Jagiello-Kowalczyk, 2021). Naturally, learners used previous knowledge to produce visual material to

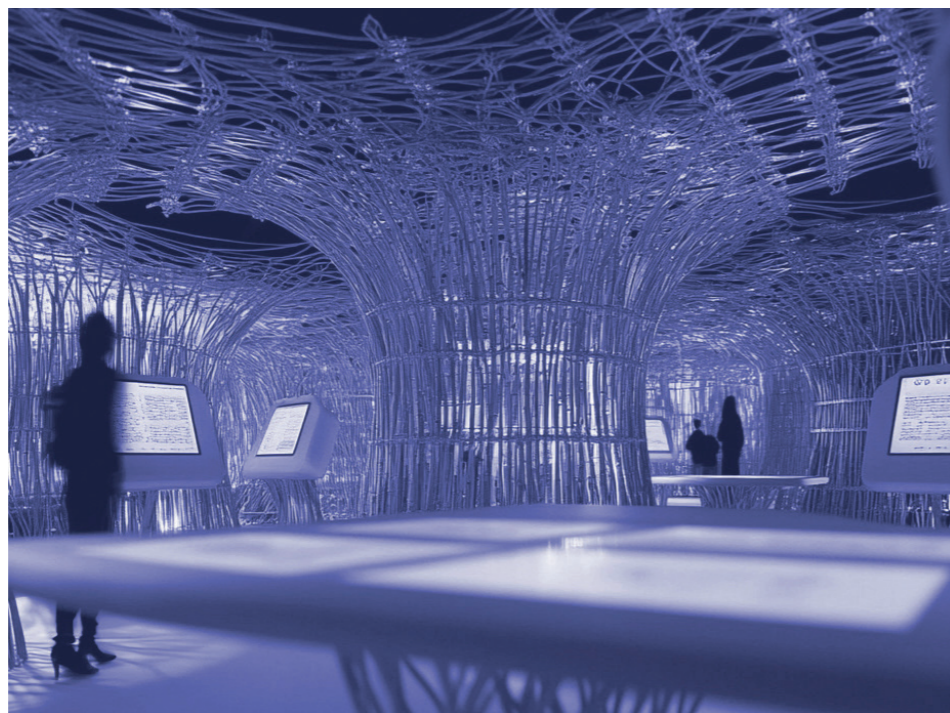


Fig.11 - Language preservation center: indoor exhibition space, designed by learner Kline Umhao.

explain their stories. Building narratives is a type of activity that encourages individual learning because it involves research and communication. Within this project dialogue and narratives are approaches that link back to Indigenous traditions of storytelling. However, it is critical that future studios incorporate a strong agenda to allow more Indigenous participation, with identifiable outputs for the community, such as exhibitions, discussions with decision makers and involvement of architects. This iteration of the studio couldn't exhibit works in Brazil or connect with *Xokleng* and *Guarani* people to participate in the co-design.

The studio 'Terrain Vague' adopts a broader understanding of the productive city to include production of knowledge, social and cultural practices, and collective interfaces. Such alignment between the productive city and *terrain vague* offers a pathway to reframe residual spaces as active enablers of social justice. A complementarity between the unused spaces and the possibility of becoming productive had a positive impact on learners' development of design ideas. The openness of *terrain vague* concept allowed learners to explore alternative forms of occupation

and socio-cultural interfaces. The neglected potential of these sites was converted into more than just places because of the productive city's integrative logic, concepts of belonging and spatial repair emerged in the learners' work.

Conducting the studio from a distance introduced methodological challenges, including limited access to the communities. Experiencing Indigenous sensory knowledge was done by mediated exchanges such as videos, photographs and reports. We acknowledge that this does not replace an immersive on-site experience and offers insights only enabled by technology. Participation of locals through interviews and videos enhanced the learning experience. The interviews are available on YouTube and can be reused in future iterations of this studio. The studio is presented as a solution to advance United Nations' Sustainable Development Goals in the international platform for architectural design Local Learning Studio (LLS, 2026)

The studio's contribution lies in demonstrating how SDL as a teaching framework can support learners in acquiring critical skills that are useful in real-world situations. Navigating uncertainty, negotiating design parameters and engaging with culturally sensitive

contexts are some of the challenges presented in the 'Terrain Vague' brief. This requires tutors to act as facilitators that attentively listen to learners' voices. The studio outcomes reveal how *terrain vague* operates as platform for Indigenous agency and provides opportunities for reintegration into cities. In doing so, the studio positions residual spaces as architecture principle for cultural visibility and spatial justice.

### CONCLUSION

This study demonstrates an approach to adapting SDL in an architectural design studio. It indicates how tutors must facilitate learning and allow learners to take over learning directions by selecting methods and goals. In a master level, learners need to perform in the boundaries of their zone of proximal development and combine existing knowledge with exploration. In this case, the tutor's role as facilitator proved to be critical in an SDL format. Using an open format created opportunities for learners to make decisions on what they want or need to learn. In addition, it helped to maintain a balance between learner autonomy and tutor guidance and ensured that learners remained engaged.

By positioning learners as participants in learning decisions, SDL supported them on navigating ambiguity, negotiating meaning, and engaging with the socio-spatial challenges of Indigenous communities. The experience of studio 'Terrain Vague' shows that when learners are given structured autonomy and are encouraged to shape their learning pathways, they can develop new skills. It supports learners to recognize these skills and transfer them to real-world design practice where uncertainty and negotiation can be central to decision-making.

Future iterations of this studio must establish deeper links with Indigenous communities, which is a major challenge for tutors. However, it is important to ground the design processes in lived experiences and exchange. Strengthening these connections would enrich

learners' cultural sensitivity and understanding of context.

More broadly, the studio demonstrates how an integration of *terrain vague* and the productive city under an SDL framework creates a design challenge that is comprehensive and connected to the world's complex realities.

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