

## Practitioners Corner

# Restoring student agency in post-digital visualisation: An action research project, 2020-2024<sup>1</sup>

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### ABSTRACT

*Digitising interior design visuals often produces hyper-realistic renders generated through highly specialised programs to simulate utopian design solutions. These digital representations are lauded by their creators but criticised for their homogeneity, lack of context, and lack of visual narrative. This lack of distinctive visual identity is attributed to the prevalence of technological determinism, which views technological mastery as innately superior. Nonetheless, students can be exposed to alternative visualisation models through the post-digital paradigm to counter this determinist mindset. The post-digital approach provides a critical lens on technology's role in visualisation and reintroduces affective digital-making practices. It shifts the focus away from technological advancements and challenges technological deterministic optimism. Post-digital thinking enhances student agency, helping to foreground 'designerly' and individual identity and decentralising digital acumen. To explore this, we initiated an action research project investigating the benefits of the post-digital paradigm in the interior design studio. The aims were to develop student awareness of interior design visualisations' emotive potential and encourage creative agency, moving from visual production to expression. This article presents our reflections on five research cycles, offering alternative approaches to visualising the affective qualities of interior spaces and restoring agency and designerly identity in visuals and the visualisation process.*

**Keywords:** interior visualisation, technological determinism, post-digital, designerly and individual identity, student agency

### INTRODUCTION

This article reflects on a second-year Interior Design student project initially conceptualised in 2020 during a time of uncertainty and educational disruption — the COVID-19 pandemic. The project is presented in a communication technology module. This module aims to enhance

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<sup>1</sup> Date submitted: 2 January 2025  
Date reviewed: 25 July 2025  
Date accepted: 22 August 2025

students' knowledge and skills in using computer programs, curating design presentations, and producing construction drawings. The module is primarily facilitated in an in-house, specialised computer laboratory outfitted with the necessary hardware. This allows students to engage with up-to-date discipline-specific software. However, limited access to the university campus because of national lockdowns in response to the COVID-19 pandemic meant that this facility could not continue to deliver a technology-oriented curriculum.

The period of strict lockdowns coincided with a crucial moment in the module's curriculum when students were introduced to the three-dimensional (3D) discipline-specific software used to model, visualise, and document design intent. However, pandemic restrictions exacerbated the digital divide among students, particularly in terms of access to hardware, software, and the internet. This reality required swift action from academics to continue the academic programme, with academia striving for accessibility despite constrained and varying student access to software and hardware. In response, a new project was introduced to the curriculum. This new project offered a critical perspective on the use of technology in the interior design visualisation process by restoring affective practices in the digital-making process.

## LITERATURE REVIEW

Digitising interior design visuals usually produces hyper-realistic renders. These are created using highly specialised programs to mimic utopian design solutions. These digitally created representations are lauded by their creators. Nonetheless, they can be faulted for their homogeneity, lack of context, and absence of visual narrative. Imagery solely created through digital input, without any direct interaction and consideration with and for visuals during the production processes, is divorced from the maker's traces and their associated personal experience, beliefs, and values. A lack of unique visual identity can be ascribed to technological determinism's dominance, which positions technological mastery's progression and inevitability as inherently superior. The post-digital paradigm offers an alternative approach to visualisation models, providing students with exposure that challenges the deterministic view of technology mastery. Matthews (2019: 415) proposes that post-digital thinking offers a critical approach to pedagogy. The aim is to counteract 'technological determinism' and enhance student 'agency', which are prominent themes in post-digital literature (Matthews, 2019: 417).

### The 'post'-digital: a reaction to technological determinism

Within the context of the post-digital paradigm, Cramer (2014) provides a pragmatic description of the term 'post-digital', which offers an alternative to the obsessive fascination with all that is digital. Cramer (2014) explains that the prefix 'post' should be understood as referring to progressive mutations of the existing digital condition. Similarly, Matthews (2019: 413) defines the post-digital as "rejecting the binary dualism of the digital and non-digital". Cramer (2014) and Matthews (2019) suggest that post-digital thinking could offer an alternative to automatically defaulting to the latest technology without evaluating and questioning the view of technologies as progressive and innately superior.

This dualism is also discussed in Fawns' (2018) research on post-digital education, which explains that the digital is woven into almost all curricula and suggests it would be an oversimplified stance to differentiate between the digital and the non-digital. Fawns postulates that the post-digital perspective allows educators to critically view why and how technology is

used in their educational practices and design by acknowledging that technology is inevitably 'embedded in the wider culture' (Fawns, 2018: 142).

Fawns' (2022) more recent pedagogical research unpacks the dichotomy of technology and pedagogy. Fawns states that prioritising technology over pedagogy, or vice versa, creates an opposition which isolates technology from pedagogy. Viewing technology as the ultimate driver of change makes educators susceptible to 'technological determinism' (Fawns, 2022: 711). In contrast, placing technology 'last' also voids the acknowledgement that technology is deeply 'entangled in educational activity' (Fawns, 2022: 712). Fawns argues that both stances decontextualise technology, making educators vulnerable to determinism. Instead, Fawns proposes adopting post-digital views, which acknowledge that digital activity is integrated with society and context. Fawns' proposition of an 'entangled pedagogy' foregrounds technology and its methods whilst embracing the "purposes, contexts and values of teachers, students and other stakeholders" (Fawns, 2022: 714).

To understand the relevance of the post-digital perspective in visual generation, we refer to Cramer's (2014) discussion of memes. Memes serve as an example of visuals not produced from a post-digital perspective. Cramer (2014) reflects on memes as the epitome of popular visual culture, as their emergence and development are entirely dependent on the internet and its inherent 'anonymous' characterisation. Cramer suggests that memes can further be characterised by fundamentally disregarding intellectual property, their ability to be virally disseminated, and infinite repurposing with minor modification. By extension, we ascribe the anonymity of generated visuals to technological determinism, which neglects 'slower [thoughtful] creation, editing and distribution processes' (Cramer, 2014: 14). The inclination toward automated and fast-paced modes of being augmented by digital technologies removes the opportunity for reflection and critique (Berry & Dieter, 2014).

We posit that a post-digital perspective offers a technology-related viewpoint that shifts the focus away from technological advancements and challenges the potentially erroneous technological deterministic optimism that ascribes anonymity. In alignment with the views of Cramer, Matthews and Fawns, we emphasise that a post-digital approach does not reject technology and its advancement. Instead, a post-digital perspective necessitates a clear definition of technology's purpose and use whilst acknowledging its situated position.

### **Post-digital visual revolution for The Built Environment disciplines**

Metropolis, a global online and print magazine, has featured essays from within the built environment for the past four decades. These essays have focused on current and future architecture and interior design discourses. In 2017, Metropolis featured an article by Jacob (2017), who reflected on the introduction of post-digital drawing in architecture. Jacob highlighted the shift from photorealistic renderings to more artistic and expressive visualisation forms. Jacob (2017) observes that the introduction of computers fundamentally changed design processes, and drawing was considered archaic. Design processes soon relied on the increasing computational powers of computers to produce renderings. Jacob notes that due to this change, images were purely produced for two purposes: presenting building information for construction purposes and the 'money shot' (Jacob, 2017). Jacob argues that this fundamental shift implies that exploration through drawing has diminished. However, Jacob suggests that the anachronism of drawing returned because of an appreciation for its

alternative possibilities. From personal experience, Jacob found possibilities in other two-dimensional graphic programs. These enabled the use of layered collage processes as alternative digital toolsets, unlike the hyper-realistic three-dimensional programs. The intention was not to return to drawing, but rather to reimagine architecture. As educators, we share Jacob's view that repositioning design thinking in the post-digital introduces new approaches to design visualisations. These are more than mere images; they are 'richer, stronger, and more provocative' (Jacob, 2017).

A week after Jacob's article was featured in *Metropolis*, Medina published an interview on *Metropolis* titled 'Inside The Digital Platform Championing Post-Digital Drawing' (Medina, 2017a). Medina (2017a), reflecting on Jacob's description of the post-digital way of drawing, states that it 'incorporates narrative cues, art historical allusions, and software-enabled collage techniques'. This style was popularised by blogs such as KoozArch. Medina engaged with Zambelletti, the founder of KoozArch, a 'research studio and open-access platform for critical thinking around design' (KoozArch, n.d.). Reflected in Zambelletti's online essays are topics that include reclaiming the 'role of storyteller for architects, artists, curators and designers' (Zambelletti, 2023). Zambelletti explains that these new images are not merely about the end product; they communicate concepts and atmospheres designers and architects want to create, and the narrative context and the identity of the project and the creator underpin this. Zambelletti's reflection concurs with Cramer's postulations that the post-digital has manifested because of the desire for agency.

A month later, ArchDaily reposted the Medina and Zambelletti interview under the title 'The Website Behind the 'Post-Digital' Drawing Revolution' (Medina, 2018b). Like *Metropolis*, the ArchDaily website boasts various resources for architects and designers. Thus, it creates an online platform to promote knowledge-sharing, inspiration, and professional development. The interview between Medina and Zambelletti and the articles published by the popular online platforms are prominent in guiding the understanding of the potential discourse on adopting the post-digital approaches in the architectural and, by extension, interior design disciplines. However, this change in visualisation production should not be blindly embraced. Even though this new visual mode can potentially restore agency, identity, and narrative, Zambelletti (in Medina, 2017a) expresses concern that merely copying the existing styles of a post-digital visual language may lead to standardisation and even anonymity. Although the graphic characteristics of this style may be considered and appreciated internationally, the standardisation risk increases if it excludes cultural particularities. Standardising the approach to post-digital visuals would engender homogenised drawings typical of hyper-realistic software-generated images stripped from the 'poetics of atmosphere' (Zambelletti in Medina, 2017a).

The developments of the post-digital approach to visual generation, described by Medina, Jacob and Zambelletti, highlighted a need to explore its potential in the interior design studio. Following the pilot project in 2020, we launched an action research project in 2021 to investigate the benefits of introducing students to the post-digital paradigm. The primary aim was to develop students' awareness of the emotive potential of interior design visualisations. The secondary aim of the project was to encourage individual creative agency to shift from visual production to visual expression. The discussion to follow covers five research cycles and presents our reflections regarding various data sources. The article adds to the interior design

profession's knowledge. This is achieved by investigating alternative approaches to visualising the affective qualities of interior spaces and restoring agency and designerly identity in visuals and the visualisation process.

## RESEARCH METHODOLOGY AND DESIGN

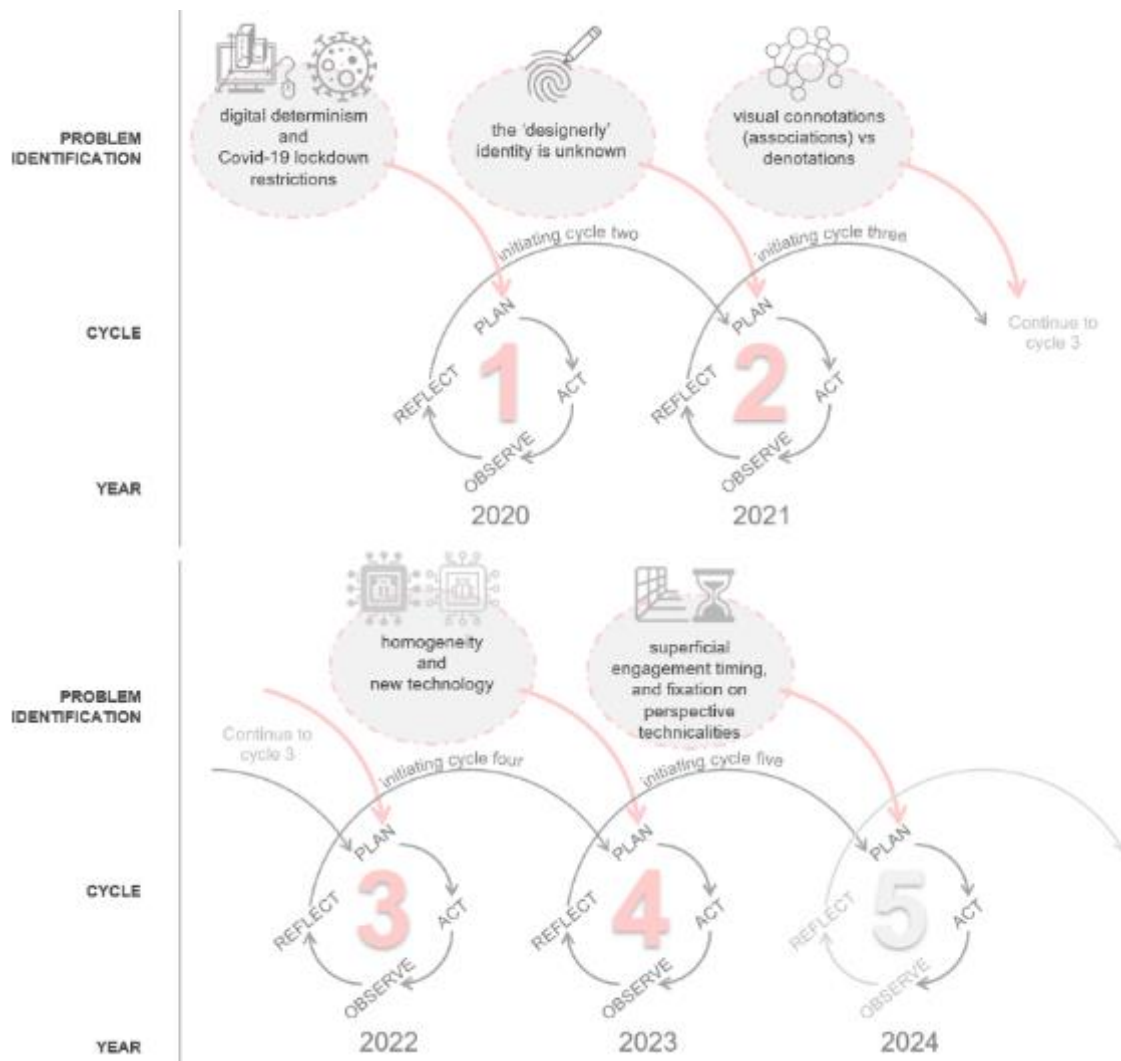
Action research is associated with the broader field of practice-based research. It views knowledge as a living process generated from practitioners' living and learning experiences. Hence, it involves reflecting on practice, deciding whether the practice can be improved, and determining future action(s) to align practices with values. This can be summarised in the action-reflection cycle of planning, acting, observing, and reflecting. This is based on the early work of Lewin who developed a theory of action research as a spiral of steps (McNiff, 2013). Although the model is presented as a neat sequence of steps, McNiff (2013) states that the process is not necessarily sequential or rational. One might start a project with a specific aim but end up addressing an initially unexpected set of concerns. Somekh (2006) broadly describes action research as a series of ongoing, holistic, and flexible cycles. It is ultimately a process aimed at generating knowledge in action for action. The scholarly contribution of this practice requires active documentation of reflection on and public dissemination of the process. This is so that the 'validity of the knowledge claim itself may be tested and critiqued' (McNiff, 2013: 87).

We present this action research project as two researchers with differing but interlinked roles. The primary researcher initiated the studio project in 2020 and facilitated the first two cycles independently. She undertook the remaining three cycles with teaching assistants. During the first cycle, the second researcher acted mainly as an external 'critical friend' (McNiff, 2013) and provided a critical sounding board for the development of the project. During the subsequent four cycles, the research relationship developed into what McIntosh (2010: 48), citing the work of Johns (2004), refers to as a 'collaborative dialogue'. In this dialogue, the reflective conversation is '...inclusive of others' vision and opening it up to scrutiny, through which wider possibilities of understanding can unfold' (McIntosh, 2010: 48). One researcher observed the project closely during facilitation, while the other positioned herself in a slightly removed, but equally interpretive role. We viewed this as a positive relationship that aided in establishing research reflexivity. Somekh (2006) views 'the self' in action research as a 'research instrument' with unique insights into meaning-making. Researchers' lived experiences, and their interpretation of such experiences, are at the heart of the inquiry process. Methodologically, it can be difficult to determine the knowledge gained beyond the project's direct actions and personal empowerment. By positioning ourselves in slightly different roles, we aim to bring varying insights into the reflective process beyond improving our practices.

### Research design, data collection, and analysis

This article presents an action research project with five cycles completed between 2020 and 2024, as illustrated in Figure 1. The first cycle was initiated to address issues of technological determinism in the interior design studio. A reflective article for an institutional publication on innovation in teaching and learning (Deminey & van der Wath, 2021) revealed new issues related to the student's designerly identity. The subsequent four cycles focused on addressing this concern.

Figure 1:  
Action Research Diagram



Multiple data sources were used to monitor the actions taken. These included reflective diaries and logs, field notes to document significant events in the studio, a representative focus group conducted after the second cycle, and post-project image analyses of the student submissions. Focus group findings were generated through thematic analysis. Reflection on and analysis of each cycle's qualitative data led to the identification of a 'problem' to be addressed through specific actions in the subsequent cycle.

The project was conducted as part of a credit-bearing module for an undergraduate interior design programme. Only work submitted for assessment was used for analysis, and anonymity was ensured by removing all personal information from the submissions used as evidence for this publication. Facial features were obscured in submissions with recognisable images of the students. Those participating in the focus group were informed of the purpose of the project

and their right to withdraw from the research at any stage. Anonymity and confidentiality were ensured throughout the analysis and documentation process.

## ACTION RESEARCH CYCLES AND FINDINGS

Five cycles of the research project were completed. The article presents findings from the first four cycles completed between 2020 and 2023. It also outlines the 'plan' and 'act' phases of the fifth cycle, completed in 2024.

### Action Research Cycle #1: 'The Post-digital Collage'

#### *Plan and Act*

The project commenced in 2020 in response to the restrictions on teaching and learning activities due to the COVID-19 pandemic. Teaching and learning activities were moved online at a critical time for skills development in the second-year curriculum. Typically, students are introduced to 3D-modelling software in the middle of the second year, in the communication technology module taught in the studio. This is to ensure that they develop visualisation and digital communication skills. Before 2020, students developed these skills in the departmental computer laboratory. Based on an informal survey we conducted, more than three-quarters of the 2020 class did not have access to the necessary equipment to support 3D modelling software at home. Moreover, less than half of these students had access to equipment to support the image-editing software available in the department. Given the prohibition of campus access, we had to implement an alternative approach. This was deemed necessary to develop the group's visualisation skills and thus prevent a major skills deficit in subsequent study years. Simultaneously, we observed that students viewed software mastery as a critical learning outcome. As discussed earlier, this can be attributed to technological determinism.

The ensuing project aimed to develop digital spatial visualisation skills without prescribing what software or equipment should be used. The project brief considered that some students' access was limited to smartphones. In addition, the project sought to challenge the group's technological determinist outlook by introducing them to post-digital thinking. Students were asked to manifest their designerly identities in a self-generated spatial illustration. The project was facilitated online by the primary researcher, with weekly online feedback sessions. Students produced a digital collage using software and equipment of their choosing.

#### *Observe*

Data for this cycle comprises field notes produced by the primary researcher to document online discussions, student feedback, and engagement. We also created reflective memos after the submission to track the potential impact of this project. In addition, students' digital collages were analysed. This was to identify similarities across the submissions and included outliers pointing to specific successes and shortcomings in the project. This cycle was opened to professional scrutiny in an institutional publication on innovation in teaching and learning (Deminey & van der Wath, 2021).

#### *Reflect*

Students had to express their designerly identities visually in this project. In early online feedback sessions, students indicated that they did not know how to start the project. This hesitation likely suggested that students had not engaged with this level of self-reflection

before. As such, they had not considered how their personal identities intersect with their potential professional identities or even what a designerly identity might entail. As a result, many students struggled to identify visual metaphors that could be incorporated into the digital collage. The analysis of the submissions indicated that students who did not define their identities clearly also battled to create a unified spatial illustration and, instead, collated disparate images (see Figure 2). Students who engaged in self-reflection more successfully tended to create more unified illustrations. Nonetheless, they often incorporated literal imagery which lacked connotative meanings when related to a designerly identity. In successful submissions, students created distinctive representations of the 'self' in spatial settings with unique atmospheric qualities. We identified a lack of self-reflection as a shortcoming in the project. This needs to be addressed in future cycles.

*Figure 2:*

*2020 project sample with a characteristically ununified spatial composition*



(Student, 2020)

The project successfully challenged the technological determinist outlook we observed before its commencement. Students engaged with post-digital thinking and produced visualisations using a range of self-identified software and applications (primarily open-source resources). Students used equipment ranging from computers to tablets and smartphones. This was evident in their submissions' visual quality, which reflects the post-digital paradigm (see Figure 3). Several students continued to work in this manner in future studio projects undertaken later in 2020. This is even after access to campus and the computer laboratory had been reinstated. In previous years, students relied almost exclusively on communicating design intent through photorealistic visual representations derived from a 3D model produced in discipline-specific software. We now observe more varied visual representations of design solutions. In addition, we encountered fewer frustrated students who could not convey intent due to 3D-modelling software skills deficits. We view this as evidence that students have started to internalise the notion that effective communication trumps software mastery.

Figure 3:

Compilation of the 2020 cohort's collages (Deminey & Van der Wath, 2021)



### Action Research Cycle #2: 'Who am I as a designer?'

#### *Plan and Act*

The second cycle of the project was facilitated both online and on campus. A new project brief was developed to address the challenges students faced with self-reflection in the previous cycle. The project introduced a self-discovery questionnaire that students could use to interrogate their designerly identity. Questions focused on 'the designer', 'personal preference', as well as 'introspection, design process and design thinking'. The collage development process was more guided in this cycle, starting with the completion of the questionnaire. Students were then asked to reflect on their responses and generate a 'word cloud' to capture the main facets of their designerly identities. The aim was to move the self-discovery process from an internal reflective dialogue to an external textual expression. The word cloud guided the search for visual materials to be incorporated into the collage. The word cloud also facilitated studio conversations by establishing a set of informants that both parties could discuss. Software was not prescribed; students could utilise the facilities available on campus. Students also prepared a short rationale to accompany their final collage.

#### *Observe*

Data for this cycle encompass field notes from the primary researcher, reflective memos from both researchers and a visual analysis of the submissions. Students' feedback on the project was obtained from a representative focus group with eight out of the total of 35 students. This focus group was facilitated by both researchers in a semi-structured format. Conversations were recorded, transcribed and analysed to identify themes.

#### *Reflect*

Compared to the first cycle, submissions reflected the creator's identity more clearly. The rationales added a second layer of interpretation to the submissions. This assisted students

who struggled to express themselves through visual means alone. We attribute the improved results of the project to the addition of the self-discovery questionnaire. Students used their answers to the questionnaire for in-studio discussions. Where this process did not occur spontaneously, the lecturer could use the questionnaire questions as discussion topics during tutorials. In turn, the responses could be interrogated to initiate deeper student reflection. Although the process of self-reflection improved in this cycle, visual encoding to represent the 'self' was still unsuccessful in the submissions. Successful submissions, such as the one in Figure 4, reflect the use of layered symbolism, embedding meaning at several levels of the image. Here, the space, objects, patterns, and textures convey meaning to the maker (revealed in the student's personal reflection) and, by extension, to the reader. This was not the case with weaker projects. In these, students used more literal visual material and relied heavily on the rationale to convey intent.

*Figure 4:*

*Post-digital project example (Student, 2021)*



The focus group yielded specific insights into the value of the project for students. Three main themes were identified from the data: (1) 'Exploring the creator's identity'; (2) 'Developing alternative methods of communicating design proposals'; and (3) 'Extending the learning beyond the classroom'. Table 1 includes representative quotations obtained from the data that exemplify the themes and subthemes.

The focus group data made it clear that the project was successful in its aim to develop self-reflection skills. Students valued the opportunity to engage in introspection. They indicated that the project was not only enjoyable but also significant in helping them to express their own identities in design projects. One student specifically requested that more projects of this nature be included in the second-year curriculum. This is because they

...allow students to express themselves and to learn and grow. (Student 2, 2022)

The project also successfully exposed students to alternative methods of communicating design proposals and challenged the over-reliance on 3D modelling software as a default communication media. Hearteningly, students did not view this project in isolation. For instance, they identified links between understanding oneself as a 'client' through the completion of the questionnaire and the need to understand future clients on a deeper level. They also identified the new skillset as a potential way of differentiating oneself in the world

of work. One student commented that a broader skillset is valuable in becoming competitive...especially in the industry. (Student 7, 2022).

Table 1:  
Selected quotes from the focus group (Authors, 2025)

THEME 1	THEME 2	THEME 3
EXPLORING THE CREATOR'S IDENTITY	DEVELOPING ALTERNATIVE METHODS OF COMMUNICATING DESIGN PROPOSALS	EXTENDING THE LEARNING BEYOND THE CLASSROOM
<p>1.1 Developing self-reflective skills and encouraging introspection</p> <p>'It was quite memorable in the sense that it kind-of forced you to have a sense of introspection and like analyse what type of designer you actually want to become. [...] that was quite nice and quite fruitful.'</p> <p>[Student 7, 2022]</p> <p>'Forced me to know myself better, I never knew things about myself before I did this.' [Student 6, 2022]</p>	<p>2.1 Speeds up the process and allows changes with limited risk</p> <p>'...after we did the post-digital, it's easier in the conceptual phase of the design to layer different elements of the project over one another, like the floor plan and the furniture, while you are designing. It makes the process a little easier.'</p> <p>[Student 7, 2022]</p> <p>'especially when doing space planning [it is helpful]. You know you can layer things, like with tracing paper. You kind-of get a feel of where you are going</p>	<p>'So you kind of like realise that you're not limited to like connecting yourself to a project. [...] Opened that avenue where you know you should be [...] comfortable enough to put yourself in the [future] project and experience the project yourself before you share it with everyone else.'</p> <p>[Student 7, 2022]</p> <p>'I think to some extent it helped us to realise how clients went th[r]ough this. We were our own client and we could understand you have to look at their lifestyle and what they want before you can start designing [...] it made me closer to future clients already by just</p>

			<p>without touching the [3D] software. So when you go onto the [3D] software, then you already have a good idea of what you want to achieve at the end and how to do so.' [Student 7, 2022]</p>	<p>understanding that I should see and listen to their way of thinking and their way of living before I can start... [Student 1, 2022]</p>
	<p>'I think for me it probably narrowed down what I wanted to achieve as a designer. [...] this project kind of gave me a [...] reminder of what I am trying to achieve in the long run instead of being like everyone else and trying to do what everyone else is doing.' [Student 2, 2022]</p>		<p>'...post-digital design showed me that it's so much easier and quicker [to make changes]. We don't have to pause, add a table, do the render, wait for the render. [...] it speeds up...you can brainstorm without having that in between waiting before testing your ideas.' [Student 1, 2022]</p>	<p>'[The way you communicate] becomes like your brand idea.... So as much as it is important to sort of have like a brand where people can spot, oh, this is her design, you know, it's also nice to kind of let the client know that.' [Student 2, 2022]</p>

THEME 1 (Continued)		THEME 2 (Continued)		THEME 3
EXPLORING THE CREATOR'S IDENTITY		DEVELOPING ALTERNATIVE METHODS OF COMMUNICATING DESIGN PROPOSALS		EXTENDING THE LEARNING BEYOND THE CLASSROOM
1.2 Developing confidence and encouraging self-expression in design	'I think often of the project in that it boosted my confidence in my abilities and definitely inspired how I design now.' [Student 4, 2022]	2.2 Willingness to explore alternative methods of communication	'It kind-of opened an avenue for exploring how else I can render my drawings. So I tried water colouring at the beginning of the [third] year and want to try physical collage...' [Student 8, 2022]	
	'...it's so hard to design when you don't really know what you want, you don't really know you're about and once you have that figured out, you're more confident and more comfortable in doing certain things.'" [Student 2, 2022]		'...trying to become a great designer it is nice when you have many tools in your pocket. Because you never know what limitations you may have. It gives you an advantage knowing how to achieve a similar goal but using different routes to get to that goal.'	

			[Student 7, 2022]	
	<p>'So I went from matric straight into interior design, I didn't know myself at all. I was rushing myself. I need to go to varsity and I need to study this... So when we got this collage, I was like finally I can try and unblock myself, you know, and express myself. So that was amazing.' [Student 6, 2022]</p>		<p>'...felt more in tune and I got more intuitive with the software [...] I remember I didn't just use that one thing. [...] There's a lot of stuff [...] I never considered using and you end up using the software [for different purposes].'</p> <p>[Student 4, 2022]</p>	

### Action research cycles #3 and #4: An unfortunate return to technological determinism

Although the second and third cycles were not identical in planning and the actions taken, they resulted in similar outcomes. These results led to the development of the fourth cycle. Hence, we discuss them together.

#### *Plan and Act*

The third and fourth cycles were facilitated on campus by the primary researcher and a new teaching assistant. In these cycles, students completed the self-discovery questionnaire before being introduced to the post-digital paradigm and the project's aim. The previous cycle yielded some good results. However, submissions at the lower end of the assessment spectrum relied heavily on the rationale to convey meaning and intent. The project incorporated focused teaching and learning activities to address students' difficulties in encoding visual material. These helped to explore visual denotation and connotation. In the third cycle, facilitators explicitly discussed examples of successfully encoded visual materials. This was done to introduce students to the value of implementing semiotic connotations and denotations in visual expressions. The third cycle also introduced a peer review of draft submissions. Students received feedback from their classmates on their draft expressions during a studio critique.

In the fourth cycle, examples of successfully encoded visual materials were removed from the project brief. The reasons for this are discussed under 'Reflect'. Due to institutional time constraints, students had to complete self-discovery questionnaires without facilitator support during the mid-year break. Finally, students used specified software to develop their collages in both cycles. This shift was necessitated by a change in the software utilised in the departmental computer laboratory. Thus, students needed a low-risk opportunity to familiarise themselves with the software before using it for high-stake design and construction submissions.

### *Observe*

Data for these cycles include field notes from the primary researcher, reflective memos from both researchers and a visual analysis of the submissions. The new teaching assistant provided fresh input into the project during facilitation. Nevertheless, she was not directly involved in scholarly reflection on the project.

### *Reflect*

The cycles incorporated four significant changes: (1) dedicated activities to develop semiotic coding of material in the submissions were introduced; (2) peer feedback was provided on the draft submission (only in the third cycle); (3) specific software was used to create the collage and; (4) a new teaching assistant joined the project.

The renewed focus on skills development, specifically regarding the use of software, resulted in improved technical proficiency and software mastery in the submissions of these two cycles. Interestingly, the new teaching assistant emphasised technical proficiency. This was evident in the assistant's feedback delivered during the group critique session and the reflective conversation after the project was assessed. Although technical skills development was an outcome in the previous cycles, it had been viewed as an adjunct to personal reflection and foregrounding the maker's agency in visual expressions. The renewed focus on skills development can be regarded as a return to technological determinism. For example, in the fourth cycle, we observed that students became fixated on the technicalities of representing an imagined space through perspectives created in image manipulation software. This was apparent when comparing visuals in similar assessment bands of the two cycles (Figure 5).

Figure 5:

*Compilation of the 2023 cohort's collages (Authors, 2025)*



Although the project illustrated technical proficiency and software mastery in these iterations, the submissions were more homogenous in their expression of identity. Image denotation improved, especially in submissions at the lower end of the assessment spectrum. However, the upper end reflected less diversity in expression. Our visual analysis revealed a homogeneity in expression, evidenced by the overuse of global symbols (see Figure 6). These submissions seemed less personal and provocative, with an over-reliance on universal visual metaphors. In the third cycle, we postulated that the introduction of peer reviews might have influenced the process in unintended ways. By exposing work under development to peer scrutiny, we may have unintentionally created an environment of conformation, with students downplaying unique features of their work for the sake of visual similarity. This resulted in the anonymisation of the creator.

Figure 6:

Compilation of 2022 cohort's collages (Authors, 2025)



Although the peer-review process was removed from the fourth cycle, very few submissions developed complex, layered narratives such as the ones we observed in the second cycle. In this cycle, the timing of the project likely influenced the outcome negatively. As observed in the first cycle, self-reflection requires support and guidance from the facilitators to avoid superficial engagement with the self. The questionnaire forms the basis of the reflective investigation. Hence, the paucity of rich data results in a lack of complexity in students' visual expressions.

It became clear that despite the ground we had gained in the previous iterations, we had to return to the project's first principles developed in the second cycle. First, technical proficiency must be encouraged but should not be the project's focus. Second, the questionnaire can be viewed as a personal research instrument. Students need support during the completion phase and must be introduced to dedicated tools for basic data analysis. These help them to develop search terms for visual material and a layered personal narrative in the collage.

### Action research cycle #5: A return to first principles

#### *Plan and act*

During the fifth cycle, the project was presented earlier in the academic year to allow for additional studio contact time. The word cloud, used from the second to the fourth cycles to extract common phrases from the questionnaire answers, was discarded as an analysis tool. Instead, the facilitator introduced OpenAI's ChatGPT as a data analysis tool. Students were introduced to the basic principles of thematic analysis and used ChatGPT to code their responses to the self-discovery questions. Prompts were carefully developed in the studio with support from the primary researcher and a new teaching assistant (an MA student who had completed the project in the second cycle). The prompts and responses formed part of the submission. This was to ensure that students employ good recordkeeping – a fundamental research and ethics skill.

The peer-review process was reintroduced in a more controlled and facilitated setting during the final development stage of the digital collages. Students presented their draft collages digitally to the class. The visual material was supplemented by an 'elevator pitch'. This process

occurred later than in the third cycle and was followed by another draft submission to ensure that the earlier observed conformity could be addressed in the studio after the peer review.

### *Observe and reflect*

Data for the various cycles comprised field notes from the primary researcher, reflective memos from both researchers and a visual analysis of the submissions. The prompts and responses used for coding were also analysed. We planned to circulate a questionnaire to investigate the impact of introducing a more defined data analysis method into the process and students' experiences of using AI in the creative process. Reflection on this cycle is ongoing; however, our early observations indicate that the changes have resulted in more varied visual expressions with significantly more layered narratives (see Figure 7).

*Figure 7:*

*Compilation of 2024 cohort's collages (Authors, 2025)*



## **DISCUSSION AND CONCLUSION**

Contemporary education should explore the integration of post-digital thinking. This offers more transformative visual creation modes that go beyond mere production. This approach challenges technological determinism and redefines the creator's role. The approach highlights the importance of self-reflection throughout the design process. Facilitators empower students to articulate their identities by actively teaching and facilitating self-reflection. In this way, students move from conformity to embracing individuality.

## Self-reflection for Agency

A post-digital approach advances individuals' creative agency, moving them from visual production to visual expression. Post-digital thinking challenges technological determinism by questioning the role of the creator in the visualisation process. This project thus highlights the critical need for the soft skill development of self-reflection throughout the design process. This ensures that the maker is not removed from their creation or the related process. Reflection on the various project cycles suggests that this must be a taught and facilitated skill. We observed that students were empowered to better articulate their identities through self-reflection, showcasing individuality instead of conforming to anonymity. Through self-reflection, in various iterations of the design process, students can engage critically with their creations and thus restore their agency.

## The Collage: A Tool in the Design Process

The collage, as a tool in the design process, offers an opportunity for visual experimentation, yielding quick results. It provides scope to test ideas without the time constraints of the computational rendering and modelling processes. Rendering and modelling require specialist software, digital acumen, and advanced hardware and software computational abilities. This reveals their time intensity and exposes any technological system constraints and lack of discipline-specific software acumen. This inhibits the iterative nature of the design process in terms of testing ideas and making changes without being labour and time-intensive. Nevertheless, the digital collage process still requires digital acumen. A post-digital approach should, therefore, not be misconstrued as a technical omission tolerating a lack of technological skills.

## Student Reflection

We found that students often view themselves as external to the design process. However, post-digital thinking positively challenges self-discovery and provides a platform for individuals to express their identity and be active role-players in the design process. We observed that students perceive this experience as adding value to their existing skillsets, setting them apart as design individuals. Students independently continued to develop the skill of digital collage and applied it in their core design module without explicit instruction to do so. Students also indicated that they realised the value of post-digital collage as a design-and-communication tool for engaging with future clients.

The post-digital approach provides a critical lens on technology's role in visualisation and reintroduces affective digital-making practices. Therefore, a post-digital perspective can be used to foreground designerly and individual identity. This would help to restore agency and avoid the focus on digital acumen, leading to the anonymity of visualisations.

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