

STUDENT CENTERED DESIGN EDUCATION PRACTICE

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ABSTRACT

This paper draws on a body of research undertaken by the author to determine how effective a student-centred flipped classroom intervention can be when used as the framework to enhance and transform student learning and professional identity formation through reflective practice. This research examines student experience of a professional practice module on the BSc. Product Design at TU Dublin. The motivation for the development of the structure of the module was to improve student engagement and learning through creating a student-centred experience that enabled students to optimise their learning opportunity while meeting the educational outcomes. The module was designed to be student centred in terms of their own learning enabling strong feedback for co-creation of this experience. This paper also presents some insights into the way this format can be used to enable a type of discourse that can assist students/graduates in forming values around ethics and responsibility within the profession but also as citizens.

Keywords: Professional practice, flipped classroom, transformative learning, identity construction, reflection, critical thinking, student experience

1 INTRODUCTION

The subject of this research is the student experience on a Professional Practice module delivered in the 4th year of the BSc Product Design at Technological University Dublin. The module is delivered using a flipped classroom methodology [1] and the objective of the research is to determine the effectiveness of that methodology as a framework to enhance and transform students learning and professional identity formation through reflective practice. The students of this programme have had a transdisciplinary educational experience having studied across three Schools of the University, covering Engineering, Design and Business. Below is the research question that drove the investigation:

How can the flipped classroom best provide an appropriate framework to enhance and transform student learning and identity formation through reflective practice?

From an educational perspective we need to evaluate the tools that shape our designers and ensure that these tools are fit for purpose. We need to think outside the existing frames of reference that brought us to where we are. We need to transform thinking, and we need tools and methods that enable our graduates to transform their thinking. Designers can be both agents of, and catalysts for, transformative thinking.

The methodology of Case Study was chosen as it was appropriate to the conditions of the research question facilitating several methods of inquiry including student and researcher reflections alongside quantitative data gathering to capture relevant contextual experiences. Case study allows for an in-depth exploration of the specific cohort's experiences and outcomes. This can provide rich, detailed data that might not be captured through other methodologies [2].

The central phenomenon of the research revolved around the professional development of the students with a distinct emphasis on the formation of professional identity. Through this research investigation, the intention was to interrogate the use of both creative digital and analogue teaching content in a flipped class format, to enable reflection as a means of transforming students' professional self-awareness (identity) within this Professional Practice Module. However, a critical context for this work is to address an underlying educational question as to how do we know whether what we do, does what we claim it does. This research is the start of a longitudinal study to consider that context in terms of this particular educational intervention. The longitudinal study is aimed at providing richer data over a five year period and allows a follow up with graduates in terms of identity formation.

2 THE CLASSROOM CONTEXT

The professional practice module uses a café metaphor to shape both physical and online classrooms, aiming to foster dynamic discourse and debate. This model, inspired by 19th-century café culture, involves weekly 'menus' outlining session themes, with tea and coffee available to create an authentic atmosphere. The café format encourages active learning, whereby pre-class readings or videos prepare students ahead for the weekly discussions. These discussions, driven by questions from the 'menu', promote negotiation and critical thinking, based on constructivist learning theories and also address and challenge the existing frames of reference around a number of topics (Figure 1)

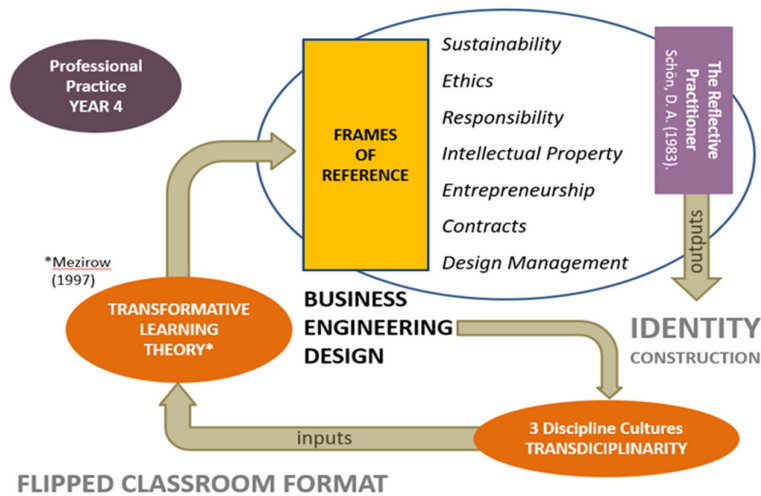


Figure 1. General Structure of the Professional Practice Module

The flipped classroom approach places a strong emphasis on pre-class preparation, ensuring that students can engage with content at their own pace. The lecturer facilitates and enables the table discussions, engaging in the discussions as a provocateur and where relevant sharing real-world insights. At the end of each session the students write weekly reflective pieces, documenting their learning journey. This practice draws on the theories of Dewey [3] and Schön [4], encouraging reflection in both education and professional practice. Feedback is gathered regularly, giving students ownership of the module and allowing for continuous improvement.

Provocation is a key method within this café model, used to stimulate critical thinking and challenge assumptions. This approach is underpinned by the work of Hjorth [5] and Mills [6], who argue that provocation encourages personal and collective transformation through critical engagement with knowledge. One significant vehicle for provocation is the Design Manifesto, a capstone project where students articulate their identity as designers. This project challenges students to define their professional values and beliefs, integrating theoretical and practical knowledge.

As both a design educator and practitioner, the construction of knowledge in design is central to my own practice. The rationale for this research stems from the dual drivers of professional practice and pedagogy. Changes in teaching practice are made in response to various influences, such as best practices, quality assurance demands, and student feedback, with the goal of improving the learning experience. However, the effectiveness of these changes must be evaluated. This research aims to investigate the development, implementation, and testing of the flipped classroom model, exploring its impact on student professional learning and identity development.

3 THE STRUCTURE OF THE MODULE

The flipped classroom model is based on robust theoretical foundations [7], [8], [9], structured around three pillars: Preparation, Construction, and Consolidation (Figure 2). The *Preparation* pillar involves curating digital learning resources that motivate students to engage in discussions and debates. The *Construction* pillar is facilitated through the café format, where students socially construct their learning in discussions. Finally, the *Consolidation* pillar involves structured reflection, helping students navigate their learning journey. This flipped classroom framework incorporates educational innovations like the café format and the design manifesto artefact, both supporting identity construction through active

reflection. The lecturer's role is critical in this model. Acting as both a preparer and facilitator, the lecturer engages fully in the process, co-creating the learning journey with each student. This participatory approach is key to the success of the framework.

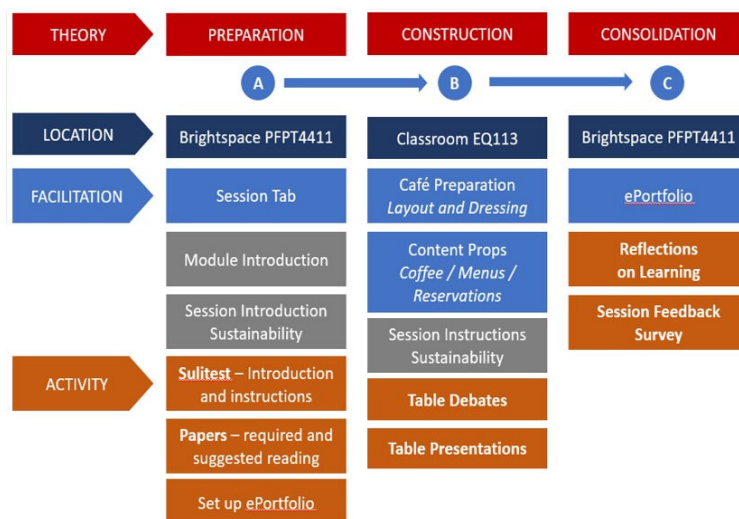


Figure 2. Module Theory – Pillars

The element of co-creation which supports the student-centred ethos, revolves around enabling the students to provide feedback through the weekly reflective submissions. This is made explicit in the delivery of the module. The students are encouraged to make recommendations on content and their experience of the structure and sessions in addition to their reflective learning experience. Where appropriate these suggestions can be explored and tested as the module proceeds. In addition, the nature of the café sessions allows students to contextualise and discuss the content in relation to their own project work and/or professional aspirations.

4 DATA COLLECTION METHODS

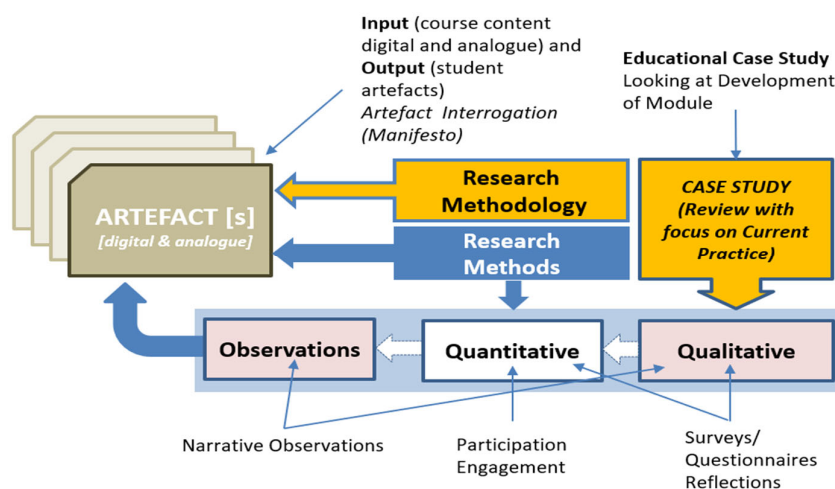


Figure 3. Research Methods

Case study allows for both quantitative and qualitative analyses of collected data. Case studies are primarily designed to bring out the details from the viewpoint of the participants by using multiple sources of data [10]. In terms of data collection for the proposed research there are a number of methods proposed (Figure 3) in order to capture breadth and depth of content. These include, (a) qualitative, (b) quantitative and (c) observational data. This provides a form of triangulation on the data collection

process. The qualitative data provides insights from the participant or student perspective. Quantitative data provides statistical evidence and responses around some of the independent measurables, while the observational data provides insights from the researcher's perspective. Collating these sources provides appropriate breadth and depth to construct strong foundations for the case study.

As this is an educational case study there were a number of sources of data collected and evaluated over the duration of the research activity, which included surveys/questionnaires at various stages of the module, reflections on the students' own learning, as well as observations. In total there were 154 questions asked in the surveys which were conducted at the start, during and after the delivery of the module. These were structured to follow the students' perceptions of engagement, satisfaction, learning and identity construction over the 12 weeks of the module. This paper is too short to describe in detail the entire methodology, however this is an ongoing project which will aim to publish a more comprehensive body of material in the future.

5 FINDINGS FROM THE RESEARCH

The research findings highlight that a carefully considered flipped classroom framework can foster student engagement, transformative learning, and identity construction. Strong theoretical foundations, such as Mezirow's transformative learning theory, support the café format, allowing students to negotiate and reframe their positionality. Schön's reflective theory further embeds this learning, helping students consolidate their personal and professional identities.

The flipped classroom methodology aligns with existing literature that supports its value as an established pedagogical tool. This approach enables the integration of theoretical foundations, which inform both the framework and implementation of the intervention. The case study highlights the effectiveness of the flipped classroom from both student and lecturer perspectives. The café metaphor created an "out of classroom" experience that enhances engagement and participation. Students respond positively to the café format, which promotes a welcoming and informal atmosphere conducive to discussions. The metaphor also facilitates a rich interface between teaching, learning, and knowledge construction, forming a "narrative of engagement."

A key aspect of the flipped classroom is its emphasis on reflective practice. The collaborative, student-centred environment enables active pre-class preparation, in-class engagement, and structured reflection. This approach deepens students' understanding, fostering personal growth, and helping them develop a stronger sense of identity and responsibility, making it an effective model for contemporary education.

The café format necessitates engaged facilitation and continuous content review. High levels of engagement contribute to the module's success and satisfaction ratings. Innovative artefacts, like the manifesto, provide transformative experiences for students. The flipped classroom significantly enhances students' readiness for professional careers, facilitating the shift from student to professional identity at a crucial stage in their development.

5.1 Student Experience

The research highlights significant improvements in student learning outcomes. All surveyed students agreed that in-class discussions in the flipped classroom improved their understanding of pre-class materials. Most students reported gains in conceptual knowledge and recognised the value of reflective practices in reinforcing their learning. However, students also identified a need for continued support in reflective practices and self-regulation. Additionally, there was a call for more rigorous lecturer involvement to ensure all students benefit equally from group discussions. Self-awareness and understanding others' perspectives were also key factors in enhancing classroom interactions. High levels of satisfaction were recorded with this particular flipped classroom format, aligning with similar studies [11], [12]. The high satisfaction was not completely unexpected, as this flipped classroom intervention has evolved over ten years, with continuous monitoring and adjustments. Students reported satisfaction across various aspects, including communication, organisation, assessment, academic support, and learning resources. The lecturers' ability to engage students and deliver content effectively contributed significantly to the high satisfaction ratings.

The module saw excellent attendance, engagement, and participation, even during stressful periods. The flipped classroom model, alongside preparation, interaction, and the café format, contributed to these high engagement levels. Weekly reflections on the VLE further encouraged active participation, serving

as both a learning tool and preparation for the final exam. These elements created a consistent, positive reinforcement loop that supported ongoing student engagement.

The café format provided a relaxed and appealing environment that enhanced peer interaction, critical dialogue, and transformative learning. The metaphor reimaged the classroom as a social space for active discussion, supporting a dynamic learning experience where students could question assumptions and engage deeply with the material. This format was highly valued, with students reporting a greater sense of openness and engagement in the discussions, fostering positive discourse on weekly topics.

Student feedback through weekly reflections facilitated co-creation, with students contributing to course adjustments that improved the learning experience. This feedback process, alongside structured discussions and curated materials, empowered students and enhanced their sense of ownership over their learning. Students recognised their autonomy in preparing for the class and taking responsibility for their learning, a key factor in developing their professional identity.

Students highly valued the interactive elements of the module, particularly the design manifesto assignment and the café format. These activities encouraged personal expression and facilitated the development of individual voices in a socially constructed context. The high attendance rates, despite a demanding workload, suggest that these interactive processes were crucial in maintaining student motivation and engagement throughout the course.

The study found that over time, students developed a more positive perception of the flipped classroom and their professional identity. The variety of subjects, ongoing preparation, and facilitated discussions in the café format helped students challenge existing assumptions around many topics and refine their personal and professional identities. The supportive environment allowed students to engage with multiple perspectives, shaping their future roles as designers.

Reflective practices played a crucial role in deepening students' learning. Post-class reflections provided new perspectives, helping students resolve issues and understand their learning process. The research suggests that introducing reflective practice earlier in the programme could improve its effectiveness in later stages, especially in terms of professional identity development.

The design manifesto assignment was seen as an important tool in shaping professional identity. Most students appreciated the opportunity to reflect on design principles and beliefs, fostering personal growth and a deeper understanding of their role as designers. Presentations from peers further enriched their learning experience, creating a sense of community and authenticity within the design education context. Students increasingly valued lecturer engagement, particularly the use of anecdotes and professional insights to connect theoretical content with practical experiences. The lecturer's role in facilitating discussions and maintaining focus amid informal dynamics was essential in optimising student learning and guiding the development of professional identities.

While the flipped classroom has proven beneficial, its implementation requires significant commitment in time and effort in setting it up initially. Developing the appropriate structure and resources demands substantial investment from the lecturer. Once these are in place the flipped classroom becomes relatively easy to run, and the formal teaching switches over to facilitation. The weekly setting up of the café takes some time, however, the enhanced student engagement justifies this effort.

6 CASE STUDY CONTRIBUTION TO KNOWLEDGE & PRACTICE

This case study, focused on a specific module using a flipped classroom methodology, contributes valuable insights to educational practice. It highlights that a thoughtfully constructed educational intervention is essential for success but must also be accompanied by a carefully designed environment and artefacts that promote student transformation. The flipped classroom methodology provides an effective framework for such innovations, with the design manifesto emerging as a key tool for self-realisation and transformation.

The research offers two key insights: First, while the flipped classroom is associated with increased engagement, student satisfaction, and performance [13], its success is not guaranteed. Its implementation must be carefully crafted and evaluated to maximise its potential [14]. Second, the lecturer's role as a facilitator and mentor is critical. Drawing on professional experience and anecdotes, the lecturer guides discussions, enriching conversations and maintaining student focus. This mentorship encourages continuous reflection on learning and personal development.

In summary, the flipped classroom café format, with its carefully considered design and quality implementation, enhances and transforms student learning and identity formation through reflective practice, with the lecturer's role being central to its success. This study explores and evaluates the flipped

classroom methodology's impact on identity construction in teaching and learning. It provides insights into its implementation, benefits, and challenges for researchers, educators, and institutions. By shifting from assumptions to evidence-based findings, the research offers valuable data that enhances understanding of diverse educational practices and supports ongoing innovations in teaching.

7 CONCLUSIONS

While this research on this flipped classroom format for the professional practice module was only undertaken in 2024, the shift to the flipped classroom was made 10 years earlier and the format has evolved over that period. The motivation for switching from a standard lecture format to the flipped classroom resulted from a desire to improve engagement and student satisfaction.

This paper provides a summary of the overall research study which provides a comprehensive interrogation of how the flipped classroom can enhance student learning and identity formation through reflective practice. The findings show high student satisfaction, demonstrated by strong attendance, engagement, and participation throughout the semester. The professional practice module is critical in transitioning students from student to professional identities. Positioned at the end of their academic journey, it allows students to bridge the gap between academic learning and professional practice. The flipped classroom and café format effectively supported students during this critical transition, preparing them for the professional world.

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