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ASSESSED DEBATES AS A METHOD OF DEVELOPING PROFESSIONAL SKILLS IN PRODUCT DESIGNERS

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ABSTRACT
Professional competencies, such as communication, negotiation, and critical thinking, are essential for success in the workplace. However, product design students often do not receive sufficient professional skills training and development during their university studies, resulting in difficulties in getting subsequent employment. For product designers, strong interpersonal communication skills are particularly important to their role amongst multi-disciplinary teams in industry, where designers are often required to liaise with management, engineering, marketing, and sales teams, and well as consult and negotiate with clients. Traditionally, product design education has centred around a studio-based model, where students spend significant time indirectly gaining professional skills through contact with educators and other industry professionals. While modern product design programmes typically include some studio-based classes, larger cohort sizes and the inclusion of more technical content means delivery and assessment methods have been adjusted to suit, with more lecture-based knowledge transfer and less student contact time. Other disciplines with significant technical content, such as the sciences and engineering, have incorporated debating as an assessment strategy. Debating has been shown to improve the professional competencies of students in technical disciplines and therefore may also be effective in product design education.

Keywords: Debates, product design education, professional competencies, skill development

1 INTRODUCTION
Professional competencies are essential for success in the workplace, and typically comprise of interpersonal skills such as effective communication, negotiation, critical thinking, and reflective practice. Across disciplines, employers prioritise adaptability, team-working, and the ability to communicate with stakeholders as key skills needed from potential employees [1, 2]. In many instances graduate employers will undertake additional or more bespoke technical training during on-boarding of new hires, and therefore professional competencies are rated as more important than creativity or technical capabilities when it comes to employability [3, 4]. Despite the importance of developing professional competencies for employment, product designers often complete their tertiary education with insufficient levels of professional skills for success in the workplace [5–7]. Students with poorer professional skills may experience greater challenges in gaining employment after graduation, particularly in terms of getting the job they desire, as graduate roles become more competitive [8].
While all jobs require general professional skills, product designers fulfil a particularly varied role which often involves liaising with stakeholders from different backgrounds and is sometimes described as an ‘integrator’ role within an organisation [6, 9]. In a professional context, product designers may be required to interact with a variety of internal and external clients on a daily basis. Design graduates are sometimes employed in non-design businesses, where their colleagues may have little to no knowledge of design practice [5]. Even those employed in design consultancies or engineering firms must be able to communicate clearly with team members of diverse professional backgrounds, such as management, sales, marketing, and manufacturing.

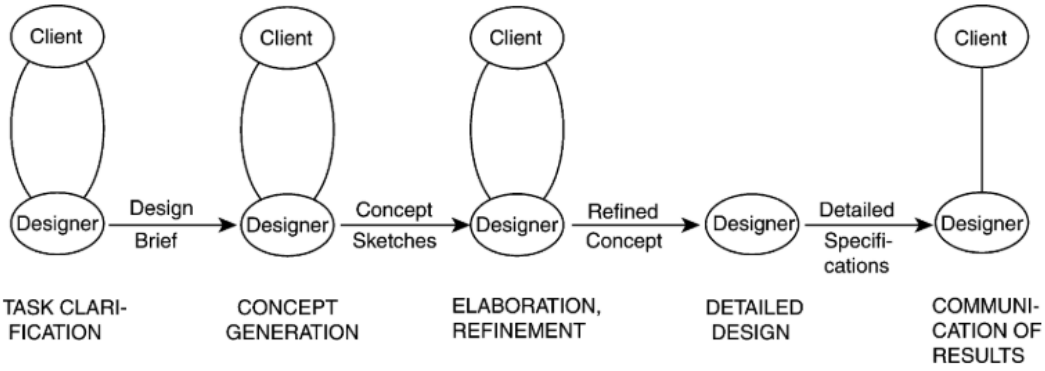

Figure 1. Flowchart depicting the client-designer relationship at different stages of the design process in professional settings, from Lewis et al. [2]

Employers perceive that the main purpose of designers is to deliver products that meet client-specified needs [3] and therefore the client-designer relationship is critical in professional settings. This relationship is illustrated in Figure 1, where the designer is expected to engage with the client at almost every stage of the design process and be able to both receive feedback and deliver outputs throughout the design process. Key skills identified by employers include negotiation with clients (e.g., during task definition or when selecting design directions) and interpersonal skills (i.e., the ability to develop a rapport and work constructively with clients and colleagues) [2]. Despite the importance of such skills in industry, product design graduates often lack sufficient professional competencies, in part due to employer's low confidence levels in students' communication and negotiation skills [5, 6]. The demand for graduates with transferable professional skills is high, and the importance of collaborating in cross-disciplinary teams is likely to increase in the future as real-world design problems become more complex [10].

2 PEDAGOGICAL APPROACHES TO PRODUCT DESIGN EDUCATION

Product design is both a creative and technical discipline, meaning a mixture of educational approaches are used by higher education institutions to teach a variety of design skills. Traditionally, design education has been centred around a 'master-apprentice' model, where students gain first-hand experience of the skills needed in design through studio-based classes [11]. In studio classes, instructors model appropriate professional behaviours and cultural practices which students can observe and adopt. Students are thereby inherently developing professional skills throughout their educational experience [12, 13].

However, product design education is beginning to incorporate more technical content and skills; some universities now house their product design schools under engineering faculties and offer majors such as 'Industrial Product Design' [12, 14, 15]. Product design can comprise of specialisations including industrial design, digital (UX/UI) design, game development, and chemical formulation; these subjects require a significant amount of technical knowledge similar to engineering and science degrees, as well as the development of creative design practice [15]. As such, contemporary product design education often encompasses a combination of approaches, with technical content conveyed through lectures and workshops, while design studios and group project work provide active, experiential learning methods. Due to the added technical content, these degree programmes have a broader focus and wider appeal, leading to higher student numbers. Therefore, there is limited time and staff availability for studio-based classes, meaning students receive less contact time and pick up fewer professional skills during these classes. Product design now faces the so-called 'competence dilemma' which has been well documented in engineering disciplines [5, 6, 16, 17].

3 DEVELOPING PROFESSIONAL SKILLS THROUGH DEBATE

The contemporary approach to product design education as a combination of engineering and design teaching methods means students are exposed to a wide range of assessment methods including portfolios, posters, written reports and exams, and verbal presentations. Verbal presentations, critiques, and 'flipped' lectures are typically considered valuable for developing professional skills, as students

gain experience with public speaking and communicating effectively [19–21]. However, these strategies are typically only 'one way' activities where opportunities for back-and-forth discussion are limited, and therefore do not always address professional competencies such as negotiation, adaptability, and critical thinking [22].

Debate is an educational tool involving contradictory discussion by students on a particular topic. Students are required to formulate and present persuasive arguments and defend their stance on the spot in response to rebuttals and questions. Debates have been strongly linked to professional skills such as negotiation, discussion, and interpersonal communication [23], all of which have been identified as key elements of a designer's professional identity and skill set [3]. Debating has been shown to increase understanding of the subject at hand, improve student confidence, and enhance reflective practices [17, 24]. Other benefits of using debate as an assessment strategy include the development of teamworking and cooperative approaches [25] and improved critical thinking and effective communication under time pressure [26, 27]. Students perceive debating to be a valuable and effective assessment method, with the majority finding that enjoyment of the challenge outweighed any experiences of nerves or anxiety [28–30]. Additionally, students tend to conduct a greater depth of research and obtain a better understanding of complex topics within their discipline [31]. Debating has been implemented in fields such as medicine and nursing [32–36], language [37], culture [38], education [23, 39], political science [40], geography [27], and business studies [41, 42]; development of students' professional skills has proven successful in these areas. More recently, debating has also been incorporated into undergraduate and postgraduate courses in civil, chemical, and mechanical engineering [24, 29, 30, 43]. As yet, there has been limited exposure to debating in product design education.

4 IMPLEMENTING DEBATES IN PRODUCT DESIGN EDUCATION

Beginning in 2021, debating has been incorporated into a Masters' level 'Design Ethics' course as part of the postgraduate product design programme at the University of Canterbury in New Zealand. An excerpt from the course outline described the course:

"…develop an understanding of the concepts of ethics in design in a practical sense… it will introduce students to the many aspects of ethical and moral debate within the contemporary product design industry… through the nature of the course and its assessment it will develop student's research competencies, communication and debating skills, all core skillsets in the contemporary designer's tool kit."

The assessment activities scaffold multiple debate sessions on an (educator provided) topic, followed by the debate of a self-selected topic and the creation of a journal-style paper discussing the final topic of debate. The inclusion of debates has served as both an assessment methodology and scaffolding upon which to build learning, and a trial to determine the impact of regular debating on the development of design students' professional skills. The methodology introduced has remained largely consistent year on year, comprising three group debates and one individual debate over the duration of the course. The debates were structured to require:

- An opening statement (approx. 3-5 mins per team)
- A period of debate between the two teams (approx. 15-20 mins total)
- A closing statement to conclude (approx. 3-5 mins per team)

This debate structure was based on typical formats described in literature [29, 43]. Students were informed about the debate format and requirements prior to the assessment through lecture presentations, in line with recommendations from Bradshaw et al. [44]. Teams were given in-class time to bond and form group working strategies, and lectures on the debate topics were provided as a starting point for their arguments. Teams were informed of their debate topic and stance one week prior to the debate; preparation time in the literature varied from as little as 10 minutes before the debate up to multiple weeks [29, 30, 43, 44]. However, the intention in the course was to allow students to conduct in-depth research and gain a deeper understanding of complex ethical issues [29, 30, 43, 44], and one week was considered sufficient.

Anonymous course evaluations demonstrated that students found the debating experience valuable, with one student stating: "The interaction of the assignments was a fun way to learn knowledge and literature. To then form a perspective to present back. This was engaging and made learning easier to do on topics. The debate format was also something that has not been covered before in this course and was a refreshing change of pace that felt more appropriate for a postgraduate course, over a standard

presentation." The course team required students to debate for and against a number of core topics, including:

- Product Design is an Ethical Discipline
- Design for Good Can be Profitable
- Successful Design Relies on Successful Manipulation

The choice of (somewhat) controversial topics relating to design ethics was described as "engaging, interesting and topical" and supports the findings in literature that debating ethical issues has been shown to be popular amongst students. Across disciplines, controversial topics were highlighted for their ability to create an interesting debate with different perspectives as well as to deepen students' understanding of complex issues [27, 30, 43, 45]. Debates which discuss ethical issues allow students to reflect on the current state of their discipline; in a design context this may help students develop more reflective and critical thinking as part of their design practice. Within this course, educators observed a developing capacity for debate as a practice, as well as student exhibiting greater self-reflection throughout the semester. This reflection helped to cement learning and indicated an improved ability for students to critically analyse their own performance within the course, without the need for formative or summative feedback as seen through traditional assessment practices. In literature we see that the opportunity to reflect and improve on past performances is linked to improved professional competence, particularly lifelong learning [17, 26]. This suggests that a series of multiple debates within a course is likely to have a greater impact on students' professional skill development. Another important factor is the assessment criteria chosen – the literature suggests that students' performance should not depend on 'winning' the debate and should instead be based on fair criteria such as research quality, presentation clarity, strength of arguments, and effective responses to rebuttals [30, 32].

5 CONCLUSIONS

Educators need to provide more support for the development of product design students' professional identities and skill sets in preparation for entering the workforce. Debate has been an effective assessment method for improving the professional skills of students in other technical disciplines. Additionally, early trials of debating in a postgraduate product design course at the [ANONYMOUS] show promise, with high student engagement and positive feedback regarding the debates in the course. Further research is needed to more definitively understand whether debating is an effective assessment method for developing the professional skills of product design students. Gaining an understanding of students' and educators' experiences of debate in the product design context, as well as analysis of student performance across the duration of the course, may provide insight into the efficacy of debating in product design education. Further research is likely to include a thematic analysis based qualitative study to gather student perspectives for greater confidence in results.

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