SOCIAL PARTICIPATORY TEACHING AND LEARNING – LESSONS FROM A PARTNERSHIP OF INDUSTRIAL DESIGNERS AND LOCAL ARTISANS

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ABSTRACT
Regional industrial design education aims to reinvent itself and adapt to local realities, such as the demands of industry and society, while providing object-oriented solutions. Artisan craftsmanship is one particular social demand. The present study therefore aims to better understand the role of industrial design in the production of artisan crafts. The User-Centred Design Workshop (UCD) for third-year industrial design students at the Universidad del Bío-Bío in Concepción, Chile established a collaborative alliance between the "*Fundación Trabajo para un Hermano*" (TPH) Concepción[1] ("Foundation Working in Fraternity, Concepción"), the Universidad del Bío-Bío and artisans affiliated with the group "*Comercio Justo Manos*" ("Fair Trade Hands"). Together participants worked to identify opportunities and potential setbacks related to the micro-production of artisan crafts, from creation to exhibition of jewellery, wooden handicrafts, woven goods, felted products and handmade soap. Solutions proposed by student designers primarily supported artisan production. Participant perceptions were evaluated both during and upon completion of the workshop and covered a range of aspects such as project skills and collaborative work, among others. The collaborative project was well received among students and particularly artisans. Despite differences of opinion, both groups agreed on a number of aspects and positively evaluated the overall methodological focus and results of the project.

Keywords: Design education, participative approach, social integration, regional artisan craftsmanship, collaborative work.

1   INTRODUCTION
Industrial design is a project-based discipline concerned with meeting the demands of both industry and society, working from an objectual dimension to improve quality of life. Adapting and contextualizing the role of design education from the initial stages of the learning process is key for building future designers who are capable of navigating their particular socio-technical environments. Designers are then able to better understand and adapt First-world paradigms to local contexts, such as that of Chile. Known for its developing economy, this South American country has been striving to reduce poverty rates and improve the quality of life of its citizens. Education serves as an important opportunity and exchange value for creating significant social and economic impact.

The relationship between higher education and the labour market, particularly in the field of design, is weak and unclear for the Biobío Region of Chile. Consequently, it is important to develop educational strategies that allow students to effectively enter into and navigate the labour market with attention to the particularities of their immediate environment. On the one hand, industrial design is an activity focused on generating mass-produced goods. On the other hand, the intrinsic value of artisan craftsmanship is not mass production. When faced with craftwork, design is clearly a result and tool of mass industry whose focus is on *production*. On the contrary, craftsmanship is object-based [1].

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[1] http://tphconcepcion.com

In terms of its economic significance, with the "shift of the Knowledge Economy towards the Transformation Economy we see new competencies and craftsmanship emerge for both designers and other stakeholders in a design project. As the complexity and intention of design projects change, so do the actions and reflections of the people involved in the process" [2].

At the Universidad del Bío-Bío, the Industrial Design Program has incorporated project development into the design curriculum, thereby promoting capacity building [3] among students where certain skills and information necessary for carrying out tasks [4] help to generate new knowledge for completing assignments [5][6]. Students gain hands-on experience with multi-level design interventions that emphasize the role of social interaction in the profession [7]. The present study explores the collaborative work of students from the 2014 User-Centred Design Workshop (UCD) and 14 local entrepreneurs/artisans affiliated with the group *Comercio Justo Manos* ("Fair Trade Hands") from the Biobío Region. As part of this project, participants identified opportunities and potential setbacks of product manufacturing and presentation. Together with artisans, designers then developed and elaborated proposals for functional products. Studying and analyzing the production of artisan crafts gave students insight into the particular social system and cultures and subcultures of craftwork. The combination of teaching/learning processes and practical, real-life application of design education was analyzed by reviewing educational strategies that emphasize meaningful learning in industrial design. In addition, an exploratory study was carried out during and upon completion of the workshop, which evaluated the perception of both groups of participants in the following areas: project skills, collaborative work, identity and fair trade, among others. Various aspects of the prototype developed by student designers were also evaluated. Overall, participants gave a positive evaluation of the collaborative experience, especially artisans, who responded extremely well to the project's methodological focus.

2 METHODOLOGICAL CONTEXT

Within the field of design, teaching has traditionally followed project-based design education [8] whereby personal reflection [9] provides students with experiential learning opportunities. Project work has been widely employed as a means for students to incorporate, apply and expand on theoretical knowledge acquired in a classroom setting [10]. User-centred design privileges the role of the user as the centre, beginning and end of the design process [11]. In the context of web applications, users have been called on as key actors in evaluating, providing suggestions on, and even designing aspects of these applications [12]. When applied to product design, a variety of methods are available for recording, systematizing and incorporating user opinions [13]. The User-centred Design Workshop (UCD) focuses on designing products that are based on the needs and desires of real users in real-life contexts [14], starting from the beginning stages of the design process. This involves a shift from "designing for" to "designing with" the user.

3 METHODOLOGY

The UCD project employed a collaborative perspective, uniting the *Fundación Trabajo para un Hermano* (TPH) Concepción [15], the Universidad del Bío-Bío [16] and artisans affiliated with the group *Comercio Justo Manos* from the Biobío Region [17]. A series of meetings between representatives of the participating institutions and groups marked the beginning of this project, providing a space to share concerns and goals for the proposed collaboration. The role of design, the project methodology and concrete needs and concerns of artisans were addressed from an academic standpoint. Additionally, the project focus integrated the following UCD workshop objectives: a) To apply the user-centred design methodology to product design; b) To learn about and apply workshop methods to designing products; c) To actively incorporate users into project development; and d) To promote social integration through design.

3.1 Design Methodology:

The methodological sequence of the project involved the preliminary analysis, development, proposal and approval of a product through a series of phases implemented over time. The phases are illustrated in the figure below:
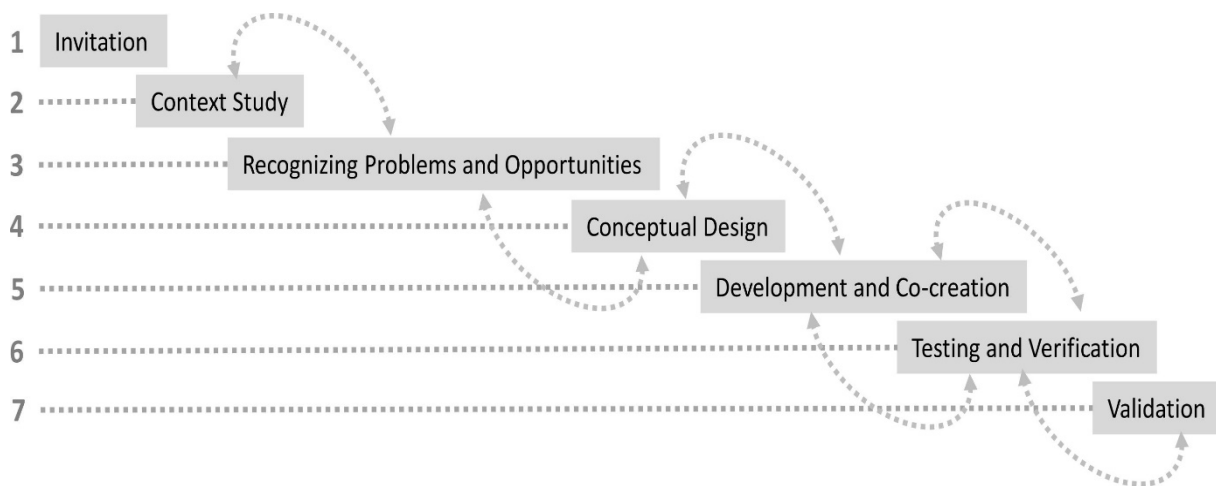
Figure 1. Project Methodological Sequence

3.1.1 Invitation

A meeting was scheduled at the location of TPH offices where artisans were officially invited to participate in the project. During the meeting, project aims were presented and the role of industrial design and objectives of the participatory intervention were explained. This provided a space for sharing the concerns and preconceived notions held by many artisans with respect to institutional collaborations. All participants agreed on project outcomes and final results: a technical folder and functional prototype. A list of interested artisans was also collected.

3.1.2 Context Study

After finalizing the list of participating artisans, design teams were formed with 3 or 4 students for each artisan. An initial plenary meeting was held where participants could socialize in an informal setting. For the first time, student-designers and artisans met, exchanged contact information, briefly discussed the work plan and coordinated schedules. Additionally, students used this time to begin their study of the user (artisan) and his/her work by responding to the following questions: What does s/he do? How does s/he do it? Where does s/he do it?

3.1.3 Recognizing Problems and Opportunities

Fieldwork and participant meetings allowed student-designers to recognize and address problems faced by artisans. This was accomplished using a participatory process where artisans classified and organized design problems through card-sorting. This tool allows users to assign value to problems based on their priority/urgency and the financial and material resources available for developing solutions. In addition, students observed work processes by taking notes and sketches of the unique characteristics and aspects of artisan production, including the tools and spaces used for work.

3.1.4 Conceptual Design

A detailed study of the actions, tools and context underlying problems faced by artisans came together in determining project objectives. The study allowed students to define product attributes and draft a proposal – a theoretical outline of the desired product identity or typology, as well as attributes or characteristics which would solve the problem identified by artisans. A formal examination carried out by students led to the conceptual design of products that represented general qualities and functional and ergonomic principles.

3.1.5 Development and Co-creation

Scale models were created of the selected proposals and were accompanied by scale models of products and elements that interacted with the product. Through storytelling users were able to simulate and demonstrate how they would use the product, thereby allowing student-designers to note overlooked aspects and successful outcomes. Basic materials such as cardboard, clay, etc. were

utilized so that the user could modify and adapt proposals, thus engaging users on a creative and decisive level.

3.1.6 Testing and Verification
During this stage, student-designers developed an initial prototype outlining key design details and parts and pieces chosen for their materiality and availability in the region where artisan products are manufactured. Key aspects of usability related to product action and manipulation were tested, and users verified whether functional goals were achieved.

3.1.7 Validation
After the last stage of feedback, student-designers constructed a final functional prototype. The prototype was then presented to the artisan together with a brief survey soliciting feedback. Artisans tested the product for one and half weeks and then completed the survey. This encouraged users to document whether products complied with their stated function and usability, among other aspects.

3.2 Exploratory Study
An exploratory study [18] was carried out using surveys administered to participants during and upon completion of the workshop. Surveys documented both student and artisan perceptions of the following aspects: project skills, collaborative work, identity, fair trade, knowledge and tools. Surveys also included a final evaluation of the product submitted by student-designers. The study provided insight into the various perspectives of artisans and students and identified any major differences between both groups in their evaluation of the project.

4 RESULTS
Fourteen functional prototypes of proposals were constructed, which directly responded to the immediate needs and problems faced by artisans. In addition, the project resulted in the following outcomes: 1 product proposal for an artisan craft; 4 product displays and holders; and 9 proposals for improving product manufacturing, ranging from tools, tool organizers, work materials and workplaces. Project skills, collaborative work and evaluation of the prototype, in addition to pre- and post-workshop expectations of students and artisans, were evaluated using surveys. The results are as follows:

4.1 Skills
Both students and artisans developed a number of skills throughout the workshop, including oral speaking, artistic expression in modelling and/or sketching and prototyping and production using a variety of materials. When considering "team leadership," artisans and students showed a significant difference in ability: 86% of artisans felt that they possessed leadership skills compared to 54% of students. Oral speaking and written communication skills were also more developed among artisans (71% possessed these skills compared to only 30% of students). Finally, product modelling was more developed among students (68%) than artisans (14%).

4.2 Collaborative Work
When asked about the purpose of collaborative work, 95% of students from the UCD Workshop considered collaboration as a way to share ideas, responsibilities and accomplishments. Eighty percent of collaborative work was carried out between artisans and students of the UCD Workshop in face-to-face meetings. The remaining 20% of collaborative work was performed long-distance using different media such as email, group messaging, blogs and Facebook. Regarding the positive aspects of collaborating with students, 80% of artisans commented that the project was successful, noting the opportunities it provided for visualizing problems and solutions as well as sharing ideas. Advantages according to students include: the ability for both students and artisans to work in a collaborative setting, followed by the opportunity to understand different workplaces and contexts where artisan crafts are made, as well as different applications of design in craftwork. Moreover, students valued the freedom in choosing work hours and building a strong commitment to their work. They appreciated receiving feedback from artisans, learned how to develop solutions for emerging problems and confronted new situations with enthusiasm. Nonetheless, one principle disadvantage of collaborative

work according to students and artisans was the challenge of coordinating meetings, considering the different responsibilities and obligations of each group outside of the project.

4.3 Evaluation of the Prototype

With regards to the overall evaluation of prototypes developed in the UCD Workshop, in 90% of cases artisans gave a positive assessment. Artisans stated that prototypes provided solutions to some of the problems expressed during the workshop, were easy to use, adapted to conditions of their environment as well as time requirements and work processes and generally improved their work. Each artisan was presented with a prototype; 64% of cases sought to improve production processes while 36% were directed at exhibiting artisanal products. Ninety-two percent of artisans were pleased with the prototype's form; 84% of artisans felt that the prototype was easy-to-use; 92% agreed that it fulfilled aims and objectives of the proposal; 92% described the prototype as 'reliable'; and finally, 85% of artisans considered the prototype to be durable and long-lasting even with constant use.

4.4 Perception and Expectations of the UCD Workshop, Before and After

An analysis of survey results showed that participant expectations at the beginning of the workshop were particularly high among students, who also gave a positive review of the overall project. Opinions following the end of the workshop were more disparate: students negatively evaluated some aspects of the workshop methodology, despite giving the overall UCD workshop a positive review. Artisans positively evaluated the workshop from the beginning through the end with few exceptions. In particular, the inability to coordinate working hours with students was one aspect that hindered the collaborative process.

5 CONCLUSIONS

Incorporating design into other disciplines, such as craftwork, makes it possible to identify new market niches and develop solutions which not only stimulate product growth, but also optimize production processes. Moreover, it enables the design and development of specific tools that identify and improve artisan work processes, thus allowing for further application and development of the discipline.

The institutional collaborative alliance (Top-Bottom) complemented by a participatory focus provided a foundation for engaging with, sharing and integrating the experiences of both students and artisans (Bottom-Up) in developing appropriate solutions which considered the socio-technical resources available for product manufacturing.

Positive reception of the project methodology by artisans may be understood in light of similarities between the "creative processes" of both disciplines (craftwork and industrial design), which follow from ideation to production. As a result, participants shared a common language and purpose that helped support and facilitate collaboration.

It will be essential to consider the right balance between supporting production and retaining the essence of craftsmanship, which emphasizes originality and values the product and/or the production process. The participatory process outlined here is a framework for presenting artisans with design methodologies that, if necessary, may be applied to future product development. Further research should consider the development of a methodology for "designing" artisan crafts.

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