# Towards an Understanding of *the Programme* in Industrial Design: Developing a new pedagogical methodology through action research.

**VOLUME 1 of 2**

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## ABSTRACT

The aim of this PhD by practice research project is to reframe the concept of *the programme* for Industrial Designers, Industrial Design Educators, and Industrial Design students. *The programme* is a scheme for fulfilling the requirements of a design project, primarily used in Architecture in the USA. As a design educator and professional designer who has utilised *the programme* as a tool in the design process, and as a university lecturer teaching design I have experienced its potential as a pedagogical tool but also its limitations. The findings of this research project prove that a more flexible version of the programme is required, allowing it to change and be updated, hence the reframing of the programme evident in Chapter Three.

The source review highlights how *the programme* has been interpreted in diverse ways in architecture, including attempts to make it more malleable. However, it is widely regarded as a rigid structure. The process of Industrial Design requires flexibility; therefore, it is an ideal application for a flexible version of *the programme*. The project concludes by exploring how *the programme* can be developed and reframed as a pedagogical tool, represented diagrammatically, to expand and improve decision-making in the design process.

The ideology and use of *the programme* in this research project are examined by analysing of the design concepts of typology and morphology. The research focuses on the broad concepts and components of abstraction, de-composition, and transformation as part of the design of products and how decisions are shaped in Industrial Design through the lens of Constructive Design Research. These explorations are adapted into original pedagogical exercises via workshops for Industrial Design students to generate data towards a revision of *the programme*. The series of workshops are conducted through the methodology of Action Research, to facilitate new ways of working to support greater understanding of the design process, enabling more innovative design thinking.

Transcripts and visual documentation of participants' artefacts and reflections during and after the workshops are examined through thematic analysis and visual analysis to gather data. The information gathered and analysed aids in creating a new representational system of *the programme* that visually demonstrates its potential malleability as a contribution to knowledge. This flexible sequential diagram is developed to be utilised in improving the teaching of Industrial Design at undergraduate and postgraduate levels through example and project-based pedagogy in the studio, making it a contribution to knowledge. An additional contribution includes defining the terminology used in the practice and teaching of Industrial Design. Various terms used in Industrial Design have been adapted from other fields, although not explicitly defined for their use in Industrial Design. Exploring these terms enhances the discourse within the discipline.


Keywords: *Programme*, typology, morphology, action research, design pedagogy, Constructive Design Research.

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VOLUME 1

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# 1. INTRODUCTION

This Introduction defines the scope of this PhD by practice thesis by framing the following areas: 1.1. Design Process, Professional Practice and Pedagogy; 1.2. PhD by Practice and Constructive Design Research; 1.3. Workshops, Action Research, and Thematic Analysis; 1.4. Structure of the Thesis; and 1.4. Summary. It situates the thesis within the professional practice of Industrial Design [this term is used interchangeably with 'Product Design'] and how it translates into teaching using the concept of *the programme*. This concept is explored below and in the source review. A new methodology for teaching design has been developed by applying Constructive Design Research and Action Research.

The aim of this PhD by practice research project is to explore and propose the application of the concept of *the programme* as the basis for a new methodological approach to design pedagogy in higher education. *The programme*, a scheme for fulfilling the requirements of a design project, is widely used in architecture and architectural design practice, however, I use it in my professional Industrial Design practice and as a teaching tool as a university educator, as I was taught by architects early on in my undergraduate Industrial Design studies, and found it a useful design tool. *The programme,* as a pedagogical tool, makes the design decision-making process visible to students, helping them become aware of their process while designing. This PhD by practice research project focuses on its application in Industrial Design resulting in a revision, see Chapter Three (p.138), to unlock the potential and insert layers of flexibility to suit contemporary design practice and process. Using *the programme* as a pedagogical methodology requires students to explore the concepts of typology and morphology as they embark on learning-by-project. The research for this thesis took place in the United States of America, specifically at Parsons, The New School. I teach in the postgraduate MFA Industrial Design and the undergraduate BFA Product Design.

In addition, the discipline of Industrial Design has not defined many of its terms in the USA, even though they are used daily in professional and academic environments. Industrial designers have looked at other disciplines for definitions and continue to use these terms, assuming there is consensus on how they are used. For example, Bürdek (2015, pp.149-151) mentions the term 'typology' in terms of linguistics when explaining semiotics. However, it is a term used daily in professional and academic settings. Comparatively, this same term has been defined, debated, and used in architecture in different ways throughout history. This presents an opportune moment to question and interrogate how these terms are used in Industrial Design, in addition to encouraging the discourse in Industrial Design around these terms. This PhD, by practice, demonstrates that terms can be investigated and used in new ways, exploring interdisciplinary opportunities between different design disciplines; furthermore, the research around terminology can foment discourse between Industrial

Designers, academics, and students, leading to a richer understanding of the discipline and its connections with other areas of design.

This PhD by practice is structured with a basis on the Western tradition of design, *the programme* has come out of this tradition specifically the modern movement, its origins and different iterations will be discussed in the source review and will help explain *the programme*; the language of this tradition, is used to explain and develop the concept, however, other traditions are acknowledged and can take this research further after this PhD by practice is completed. Foucault, describing his typology of knowledge, argues that, through the analysis of rules, systems, and structures, knowledge is possible in different historical contexts:

> Whenever one can describe, between a number of statements, such a system of dispersion, whenever, between objects, types of statement, concepts, or thematic choices, one can define a regularity (an order, correlations, positions and functionings, transformations), we will say, for the sake of convenience, that we are dealing with a *discursive formation* (Foucault, 2010, p.38)

In addition, Foucault states that to develop knowledge, what is important is the context, the situation, the associations we can make:

> It is not the objects that remain constant, nor the domain that they form; it is not even their point of emergence or their mode of characterization; but the relation between the surfaces on which they appear, on which they can be delimited, on which they can be analysed and specified. (Foucault, 2010, p.47)

Therefore, this PhD by practice utilises the language of Western tradition to understand *the programme* and how through analysis of the context, the designer makes decisions. By analysing the context of the programme not only historically but through concepts that constitute it, typology and morphology, this thesis aims to understand it in depth to reframe it and offer future possible paths that can be explored after this PhD by practice. *The Chaparro Reframed Programme* will therefore utilise other terminologies and incorporate new voices and traditions that respond to today's context.

## 1.1. Design Process, Professional Practice, and Pedagogy

As an Industrial Designer with a professional practice, I have the skills and knowledge to produce systems, experiences, and products of Industrial Design for the industry; I also have the awareness and understanding of what it takes to work as an Industrial Designer. This is invaluable in my work as an educator as it allows me to communicate and transfer that know-how to students.

### 1.1.1. Design Process

The way in which designers work includes deciding to take on opportunities and solve problems based on experience; as Cross (2010, p.9) asserts, "What designers know about their own problem-solving processes remains largely tacit knowledge". This means that it is difficult to articulate what is the core of the issue to be explored in this project. He explains further that because it is challenging to externalise the knowledge of design, the teaching of design relies heavily on an apprenticeship system of learning (Cross, 2010, p.9). This system prompts the decisions to be applied to the design of an artefact, following the process of design. Lawson explains it as follows:

> Usually there must be a brief assembled, the designer must study and understand the requirements, produce one or more solutions, test them against some explicit or implicit criteria, and communicate the design to clients and constructors. The idea, however, that these activities occur in that order, or even that they are identifiable separate events seems very questionable (Lawson, 2005, p.48).

The process is often represented as a set of linear landmarks, but as Lawson states, the order is not linear — the linear phases are sometimes connected by squiggly lines that go back and forth from each phase. Lawson expands upon this idea, "It seems more likely that design is a process in which problem and solution emerge together. Often the problem may not even be fully understood without some acceptable solution to illustrate it" (Lawson, 2005 p.48). In other words, even though the process of design is represented as a linear construct when going through the process, the sequence of events is not linear; the designer will move from one phase to another in an iterative and complex way. Lawson has mapped out a representation of what the process of design as a non-linear sequence can be (See Figure 1):

> Our final attempt at a map of the design process shows this negotiation between problem and solution with each seen as a reflection of the other (Fig. 3.7). The activities of analysis, synthesis and evaluation are certainly involved in this negotiation, but the map does not indicate any starting and finishing points or the direction of flow from one activity to another (Lawson, 2005, p.48).

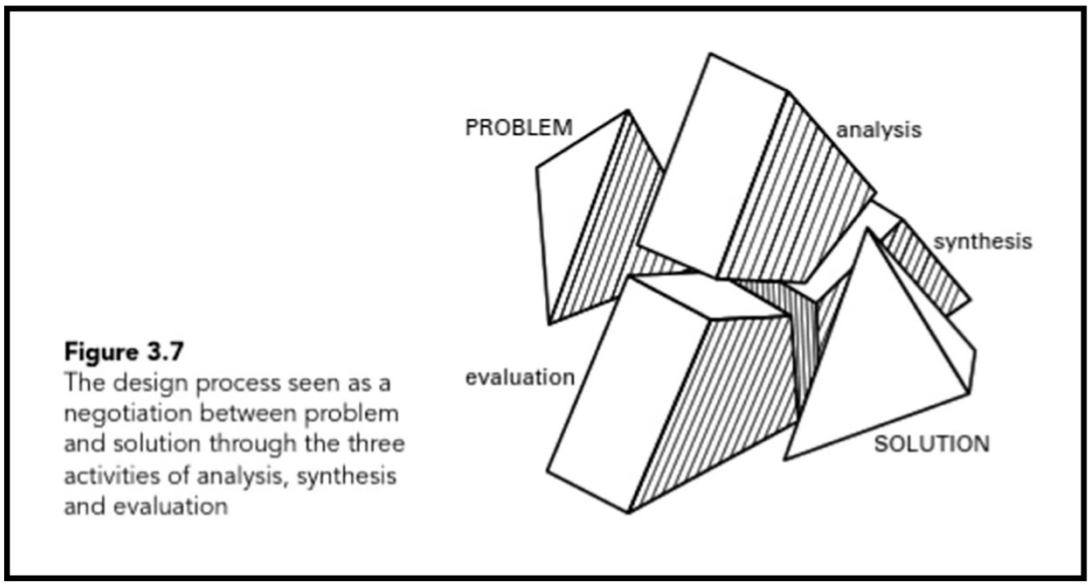



**Figure 3.7**
The design process seen as a negotiation between problem and solution through the three activities of analysis, synthesis and evaluation

Figure 1:
Lawson (2005) *How Designers Think: The Design Process Demystified*. NY: Architectural Press
The Design Process [diagram]

Lawson also identifies the need for designers to feel at ease as part of the non-linear process, "… good designers tend to be at ease with the lack of resolution of their ideas for most of the design process…." (Lawson, 2005, p.154). Similarly, Sanders and Stappers argue that the front end is 'Fuzzy', which means that at the beginning of the process, the idea is not clear or visible, allowing the designer to think of various possible paths. By keeping that front end 'fuzzy', the result will not interfere with the definition of the fundamental problem and opportunities. (Sanders, and Stappers, 2018 p.22).

Sanders and Stappers describe the need for a period of disorganised thinking, where design groups can explore various possible directions when confronted with a problem of design, which can lead to disciplines working together or in new ways. Sharing knowledge with the business world, as is the case with the design thinking movement in the United States, facilitates working together with other professionals and becomes more straightforward. Design Thinking in the USA is focused on human-centered design and its application to business (IDEOU ) (Huppatz, 2020). The designer can be part of the strategic decisions and not only the aesthetic decisions:

> Importantly, design thinking is primarily a North American phenomenon, and not the universally applicable, culturally neutral practice it is assumed to be by its prominent practitioners. As practiced, it is predicated on American forms of innovation, citizenship, and engagement. Perhaps, as it becomes more widely practiced, designers will adapt its methods to alternative cultural contexts. And, as it fades as a popular corporate buzzword, a wider public will continue to recognize design's potential in delivering strategic impacts that can improve the lives of everyone. (Huppatz, 2020, p.138).

The process of design thinking is defined as “a methodology that imbues the full spectrum of innovation activities with a human-centered design ethos” (Brown 2008, p.1) furthermore, “innovation is powered by a thorough understanding, through direct observation, of what people want and need in their lives and what they like or dislike about the way particular products are made, packaged, marketed, sold, and supported” (Brown 2008, p.1). Design thinking has been adapted to the business environment by narrowing down the design process to its basic components. Huppatz (2020) states that design thinking has achieved common ground with the business world in terms of shared methods and tools; he mentions Stanford University, D. School’s five-step design thinking process, which includes the following phases, “empathise, define, ideate, prototype, and test” (Huppatz, 2020, p.137). IDEO also works with the design thinking process, yet they focus on three phases: Inspiration, ideation, and implementation (IDEO, 2012).

Another process widely used in Industrial Design came about after the UK Design Council analysed various design processes: how they were applied to designing within the industry and considered business outcomes. The UK Design Council selected the Double Diamond and has popularised it since (UK Design Council, n.d.); Visocky O’Grady and Visocky O’Grady describe it as “… outlining four stages that all designers must navigate when undertaking a commission: Discover, Define, Develop and Deliver” (2017, p.107). As shown in Figure 2, the above processes can be compared to Lawson, who concludes that the problem and solution are the starting and ending points of the design process; they, in turn, frame the analysis, synthesis, and evaluation phases (Lawson, 2005, p.49).

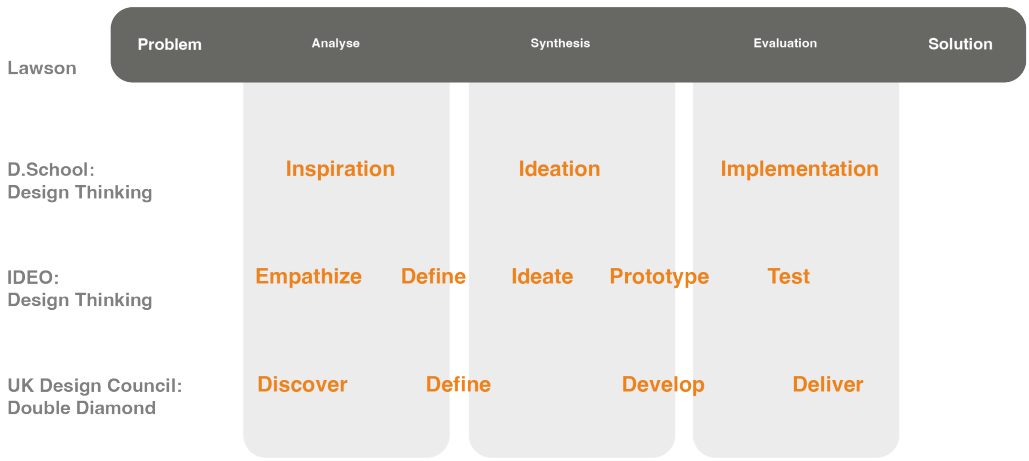



Figure 2:
Chaparro, Y. (2024) Design Process Phases Comparison [diagram]

Lawson's conclusions can be used as the general design process for the purposes of this PhD by practice. Other design processes have different names for the phases or have added extra phases, but they all fall under the same basic phases that Lawson identified. Figure 2 shows how the phases of the processes mentioned above all align with Lawson's main phases. Various conclusions and versions of the design process contain different steps within the above alignment.

An understanding of the purpose of design is necessary to organize the information. As mentioned earlier, there is a starting point in the different design disciplines called the Brief. "A brief is a summary of a project's purpose. It will inform and remind everyone (including you) of the point of the project" (Siegler, 2018, section 10). The Brief, according to Siegler, can be summarised as a list of questions as follows:

> What is the challenge? Why are you embarking in the project now? What are the objectives? What is the current situation? Who is the primary audience? What do you know about them? What is unique about your product of service? What three adjectives describe the ideal response? What is the schedule? What are the specific deliverables? What are the technical or legal requirements? What else should the creative know? What are your hopes and dreams? (Siegler, 2018, section10)

The Brief is used as the beginning of a design project in both academia and in professional practice.

### 1.1.2. Professional Practice

When confronted with a problem or opportunity in Industrial Design, the designer sets out to understand the context around the problem or opportunity. The designer finds ways to answer questions about the topic. Throughout the design process, the professional designer will decide on exercises and prompts to answer these questions, uncovering possible directions to follow. The designer is aware that each project will have different needs; as stated by Ken Miki, a Japanese Designer, "… design visualizes ideas and concepts that provide solutions to a variety of problems" (Miki, 2014, p.9). Each project will have a different context to map out and use as a basis for the proposal development. The connections made between the information will reveal relationships, associations, and contradictions as Miki continues, "Design has been described as the act of making a smooth connection between people, people and tangible things, or people and intangible things through communication by identifying a certain state of mind or set of circumstances" (Miki, 2014, p.9). The designer is making these connections to answer a variety of concerns, such as described by the Industrial Design Society of America (IDSA, n.d.):

> …the professional practice of designing products, devices, objects, and services used by millions of people around the world every day.

> Industrial designers typically focus on the physical appearance, functionality, and manufacturability of a product, though they are often involved in far more during a development cycle. All of this ultimately extends to the overall lasting value and experience a product or service provides for end-users (2024, web).

An Industrial Designer develops skills and works within a process that allows for the proposal of systems and products.

The Brief does not discuss the methods to reach a solution, nor the solution itself. It is seen as a starting point usually set by the client, for the designer to understand the direction to follow, and each Brief will be different depending on the project. It includes ‘‘goals and objectives for the design (research) team at the beginning of the project; often this has the status of a contract between client and team” (Sanders and Stappers, 2018, p.299). The Brief can also help determine a schedule and touch-base moments between the client and the designer. To give the project an overall direction that helps determine the code or DNA, a more in-depth understanding of the project is needed; this is usually the objective of the *programme.* In the practice of Industrial Design in the USA, *the programme* is not often used and can be understood as synonymous with the ‘design Brief’; however, this is not the case, just as Hamer on the Portico website writes about it in architecture:

> if you search google or Wikipedia you're bound to find yourself in a muddle between these two, wondering if programme and brief are just different words for the same thing. There is some suggestion that 'program' is an American term, where the rest of the world prefers 'brief'. But in my opinion, while the programme and the brief have some overlaps, they aren't just synonyms for the same thing. It gets even more confusing because a project brief will typically include a proposed programme. In larger, more complex projects, this is often provided in the form of a Schedule of Accommodation. But a good, thorough brief usually extends beyond the programme, providing a wider range of aspirations and requirements beyond the physical requirements of space and activity (Hamer, website).

As in the example of Brief and *the programme*, the terminology changes between discipline, industry, and country. The concepts do not change, only the way they are named. Therefore, design concepts apply to all design disciplines, just as designer Massimo Vignelli states, ‘‘The basic concept is that the discipline of design is one, and if you can design one thing, you can design everything. The methodology is the same no matter what [sic] is the subject” (Vignelli and Vignelli, 2004, p.4). He was inspired by Ernesto Nathan Rogers, an Italian Architect, as referred to by Paula Antonelli:

> ‘Dal cucchiaio alla città’ (From the spoon to the city) is a slogan coined by Italian architect and critic Ernesto Nathan Rogers to describe the Milanese architectural and design process, which at the time encompassed all

> scales—and still does, unfortunately to a lesser extent (Antonelli, 2011, footnotes).

Rogers states “Examine a spoon carefully and you can understand enough about the society that made it to visualise how they would design a city” (Rogers, 1946 editorial in Sudjic, 2009, p.35), Sudjic, added, “Rogers was talking about the way that Italian architects were able to switch effortlessly from cutlery to skyscrapers without missing a beat” (Sudjic, 2009, p.35). In other words, the importance of Roger’s comments lies in understanding that the same method of making decisions required to design a spoon can be made for other design processes. He also states that:

> The spoon could be understood as a fragment of genetic code - a code that can grow into any kind of man-made artefact. Traces of the same code can be found in anything that shares the same design roots – a chair, a car, a typeface, even an aircraft, never mind a skyscraper or a city (Sudjic, 2009, pp.35-37).

This means that the differences between Industrial Design and architecture centre on scale and interactions, not on the process itself. Vignelli (2004, p.4) adds,

> Subjects change, materials change, processes change but the creative and investigative mind proceeds relentlessly with its own discipline through all necessary steps toward the relative solution of the given problems.

When Vignelli says that processes change, he refers to methods, not processes, since we can talk about a general design process, which Cross (2010) identifies as different from an engineering process. The process can be considered ‘one’ while methods can vary as tools for various situations and needs. As Sudjic (2009, p.37) suggests, ‘‘The issue here is not so much of consistency in the sense of using the same elements, shapes and colours over and over again. What counts is the nature of the thinking, and the methods that are used.” This means that similar ways of using shapes and colours can be applied in a specific project, but the essence of a design family will be in how the decisions are approached.

Similarly, Schumacher has centred his definition of design practice through what he calls the double code of form versus function, “Design decisions are regulated by architecture’s double code of beauty and utility: *functional vs dysfunctional* (code of beauty) and *formally resolved vs formally unresolved* (code of utility).” (Schumacher, 2011, p.157) He further argues that the double-code helps group the different disciplines of design:

> All design disciplines operate on the basis of this lead-distinction of form vs function. The reference to spaces as a specific domain of objects that concern *architectural* design is theoretically secondary. It establishes merely the *differentia specifica* of architecture as a species of design, ie,

> the design of spaces as opposed to the design of other types of artefacts. [italics as shown in original quote] (p.208).

Schumacher adds a footnote to this sentence, "This is – to a certain degree – confirmed in practice as architects are called upon to design all sorts of products" (Schumacher, 2011, p.208). This assertion adds to the idea that all design is one. Although designers tend to specialize in one discipline, they use the same general process and can, therefore, work with or design other kinds of products and systems.

### 1.1.3. Pedagogy

Methods have also been an important part of the pedagogy of design. Cross states that these methods have been developed more recently as an advancement when comparing them to the pedagogy developed by the German school founded in 1919, Bauhaus (Cross, 2010, p.27). The Bauhaus included a preliminary course in which materials and basic form concepts were introduced:

> Practical and theoretical studies are carried on simultaneously in order to release the creative powers of the student, to help him grasp the physical nature of materials and the basic laws of design (Gropius, 1938, p.24).

Gropius (1938, pp.24-25) further explains how the Bauhaus would later introduce the students to crafts and instruction in form problems, which included observation, representation, and composition. Finally, more specific practical exercises would be introduced, including work in collaboration with industry partners. Similarly, in the U.S., Rowena Reed Kostellow "was present at the creation in 1934 of the country's first industrial design department, at Carnegie Technical Institute" (Hannah, 2002, p.20). Two years later, she went to Pratt as one of the founders of the Industrial Design department and taught there for fifty years. Reed Kostellow's method for teaching design relied on exercises to transmit the basic language of design through formal relationships. She taught by example, demonstration and practice, "Although she did not leave a detailed written record of her principles and methods, she did spend a lifetime talking about and demonstrating them, inside and outside the classroom, to students, colleagues, practicing professionals, and friends" (Hannah, 2002, p.17). This is reiterated by Davis: "Design faculty rarely deliver discrete lessons on the design process. Instead, process is embedded in the deep structure of the pedagogy through projects that demand particular kinds of thinking and action" (Davis, 2017, p.83). Reed Kostellow did, however, incorporate her methods into the curriculum at Pratt Institute:

> The principles of study that she helped formulate were embodied in a foundation curriculum that became the basic, universal first year of study

> for all Pratt Institute art and design students. Foundation studies, strongly influenced by the Pratt curriculum, were adopted in schools of art and design throughout the country. In many schools as at Pratt, they are still the bedrock upon which advanced, specialised studies in the arts are built (Hannah, 2002, p.16).

Her methods were recorded in that way, albeit in a sense of tradition, where her students taught her principles to others. This can exemplify how often exercises are learned, tweaked and taught to others as a general practice in design.

The methods and practices of teaching mentioned above have a direct link to experiential learning which Kolb developed based on the contributions by Lewin, Dewey, and Piaget; he defines experiential learning through a diagram presented as the Experiential Learning Cycle (2015, p.51), shown in Figure 3 as, "a dynamic view of learning based on a learning cycle driven by the resolution of the dual dialectics of action/reflection and experience/abstraction" (Kolb, 2015, p.51). In addition, he defines learning as "the process whereby knowledge is created through the transformation of experience" (Kolb, 2015, p.51). The diagram explains the cycle, moving through Concrete Experience, Reflective Observation, Abstract Conceptualization, and Active Experimentation.



Figure 3:
Kolb, D.A. (2015) Experiential Learning Cycle [diagram]

Wrigley and Mosely, referring to how Kolb's learning cycle is applied to design thinking, argue that "…tangible and practical design thinking experiences based in theory are central to learning design thinking" (2023, p.48). Furthermore, they add, "New knowledge creation is derived from challenging the boundaries of disciplines" (Wrigley and Moely, 2023, p.48).

This challenging of boundaries leads to overlaps with other disciplines and possible collaborations between disciplines.

Today, design schools in the U.S.A. have embraced the need for collaboration and inter-disciplinary work; Pratt Institute's Chair of Industrial Design has said:

> Pratt Institute's School of Design consists of a few separate departments; these include Industrial Design, Interior Design, Communications Design, and Fashion Design. One of our main goals is aimed at blurring and expanding traditional departmental boundaries. Collaborative and interdisciplinary projects attempt to make the divisions between disciplines penetrable and fluid (Boym, 2020, p.6).

In the same way, the School of Constructed Environments (SCE) at Parsons School of Design, within The New School, U.S.A., has included interdisciplinary ambitions in their mission:

> Encompassing a unique array of design disciplines, Parsons School of Constructed Environments (SCE) guides you in creating socially and environmentally sustainable and technologically innovative buildings, interiors, lighting, and products. The SCE community helps you develop the skills, values, and vision that foster creative thinking and a more integrated, equitable, and aesthetically beautiful world (Parsons, 2022).

The New School/Parsons is the only university in the USA that has Architecture, Industrial/Product Design, Interior Design, and Lighting in the same school (SCE). The mission clarifies that the school considers this mixture of disciplines an advantage for students learning design, with opportunities for collaboration at different scales. These two institutions have identified collaboration and work amongst different disciplines to enhance the students' learning experience. As mentioned earlier, design is confronted with more complex problems, and designers are looking into new ways of dealing with problems such as Boym states, "There will be critical and unforeseen conditions, perils, and challenges. To succeed and make a difference in our endangered future, young designers will need to know how to connect, to enable, to sustain, to empower, to humanize" (Boym, 2020, p.6).

The need for more complexity when understanding and confronting a design problem or opportunity means that a flexible *programme,* as proposed in this PhD by practice, can allow unexpected information and relationships within data to be more visible. Students will be helped with a diagrammatic version of *the programme* to understand decision-making while following the design process.

While Industrial Design in the USA (like other design disciplines) is taught through example, by practicing and embracing tacit knowledge, teaching and learning are aided pedagogically

by making students aware of how the decision-making happens. The aim of this PhD by practice is to culminate with an example of how the use of *the programme* in the form of diagrams can aid in the understanding of how designers arrive at decisions while making. This will lead to the interrogation and unpicking of the use of *the programme* in its reframed version of an Industrial Design pedagogical method. In this way, it aims to contribute to the field of design and pedagogy for educators and professional designers.

## 1.2. PhD by Practice and Constructive Design Research

This research project is described as a PhD by practice; as in many research PhDs in design fields, the inquiry happens between practice and the reflection around it. In this case, the practical methods and skills from an Industrial Design practice are used to explore concepts and terms used to produce systems and products of Industrial Design.

There is much debate around the overarching term to be used in a research project by practice; Candy refers to it as Practice-related Research (2006, p.1), encompassing practice-led research and practice-based research. Candy (2006, p.1) makes the distinction between practice-based research and practice-led research as follows:

> 1. If a creative artefact is the basis of the contribution to knowledge, the research is practice-based.
>
> 2. If the research leads primarily to new understandings about practice, it is practice-led.

Muratovsky also uses Candy's terms; however, he uses Applied Research as the larger term, "… a type of research that enables practitioners to reflect on and evaluate their own work" (2016, p.190). There are different terms used in specific areas, such as Practice as Research (PaR), which is primarily used in studio fine art-based research,

> PaR involves a research project in which practice is a key method of inquiry and where, in respect of the arts, a practice (creative writing, dance, musical score/performance, theatre/performance, visual exhibition, film or other cultural practice) is submitted as substantial evidence of a research inquiry (Nelson, 2013, p.8-9).

Similarly, Koskinen et al. state that terms such as practice-based are mostly used in other fields where art is a significant component of the research. As a research project centred around the discipline of Industrial Design, the focus turned to Frayling's (1993, p.5) categorisation of research in art and design:

- Research into art and design
- Research through art and design

- Research for art and design

According to Frayling, research into art and design is interested in historical and theoretical information that goes into designing; Research for art and design is about application; and research through art and design includes materials research, developmental work, or action research work. (Frayling, 1993, p.5). Vaughan argues that research through design requires a practitioner with expertise in a discipline,

> The capacity to perform (make, write, teach etc.) in a professional field of practice is essential to undertaking practitioner-research; more specifically, being a designer and possessing design expertise is the foundation to becoming a practitioner-researcher (Vaughan, 2017, pp.10-11).

As mentioned above, Research through Design is an approach to creating knowledge from practice. Friedman has argued that the problem with this approach is that practice in itself does not construct theory (Friedman, 2008, p.154). Godin and Zahedi in agreement conclude that "the RtD implies creating an artefact that cannot be wholly described and that enables the designer/researcher to dialog with the situation and learn from it" (2014, p.11). The term is critiqued because it has a research framework that focuses only on the practice aspect and does not include guidelines to reflect on it and create theory (Koskinen, et al., 2011, p.5). Koskinen et al. suggest the term Constructive Design Research. They describe it as "… design research in which construction — be it product, system, space, or media — takes centre place and becomes the key means in constructing knowledge" (Koskinen et al., 2011, p.5).

Redström (2017, p.9), one of Koskinen's co-authors, also lists the different terms: Research through design, research by design, practice-based, practice-led, and constructive design research. When confronted with choosing the appropriate term, he argues:

> There are differences between these notions, but for the present purpose, what is more important is how they share an orientation toward designing and making as central to how the research process unfolds, and thus to what constitutes the core ways of finding out new things (Redström, 2017, p.9).

Therefore, for the purpose of this PhD by practice, the term Constructive Design Research is used as the umbrella term due to its clear connection to the Industrial Design use of the design process through making and constructing. During the analysis phase I apply the making and constructing to create prompts to include design students in a series of workshops guided by Action Research.

## 1.3. Workshops, Action Research, and Thematic Analysis

This PhD by practice, engages design students as participants, involving them through the action research methodology, which, according to Muratovksy, “is the most popular type of applied research” (2016). This term will be explored further in the Methodologies and Methods section (p.49). The participants are involved in a series of workshops. The workshops enable design students to reflect on their decisions through questionnaires, oral interviews, and prompts to sketch sequences, creating 2D drawings and 3D artefacts.

Through action research, the workshops are evaluated, and their delivery is altered due to feedback and analysis, improving the experience and data collection with each subsequent iteration. The data is tabulated and analysed as patterns or clusters of information emerge through thematic analysis, leading to critical reflection. The thematic analysis method will be further described in the Methods and Methodology section (p.49) of this PhD by practice.

## 1.4. Structure of the Thesis

The core of this project is divided into practical explorations to explore concepts embodied in *the programme*, guided by the Constructive Design Research methodology. Firstly, the outcomes of the practical explorations are artefacts or products of design. Secondly, the reflection upon the outcomes of the practical explorations, including the development of the experiments and the pieces themselves, are used in an educational setting to create prompts for pedagogical workshops that include questionnaires (oral and written) and practical exercises for students to complete; engaging the participating students in practice is an essential part of the project. All the information and outcomes from the workshops are documented and organised in spreadsheets. Thirdly, I analyse all the documented information through preliminary results, which reveal initial insights. I use these insights to evaluate the workshops and make changes for a new workshop version. Making changes to the process after critical reflection takes me to Action Research. See Methods and Methodology, (p.49). Finally, the outcomes of the workshops are organised in tables and analysed using thematic analysis —to find qualitative information, visual analysis, diagramming, and further critical reflection.

The structural organisation of this written thesis is divided into two volumes. Volume 1 begins with this Introduction, which sets the foundation for the subsequent sections. It includes the aims of the PhD by practice, identifying the context, the process of design, professional design practice, and the teaching environment. Volume 2 will be composed of the appendices, including all supplemental information for the different sections of Volume 1.

**2. Source review**: Through a source review, the topic is framed historically to show how the concept of *the programme* has been described and applied in different contexts, providing

an understanding of the concept and its use in architecture, proposing its relevance for Industrial Design and identifying how it can be used as a methodology to teach design.

**3. Methodology:** The methodology and methods section defines the approaches used during this PhD by practice, including two primary methodologies: Constructive Design Research and Action Research. In addition to these methodologies, I will use various methods at different stages of the PhD by practice. The various methods will be used to exemplify how the designer applies them throughout the design process. The methods include abstraction, de-composition, morphological transformations, intersection exercises, comparative juxtaposition exercises, workshop development, questionnaires, semi-structured interviews, and documentation methods.

**4. Chapter One, Research through Design: exploring *the Programme* through professional practice**, this chapter includes various explorations using the design process and methods that help explain how a designer works through understanding the design of typologies. The exploratory exercises presented here aim to communicate the process and understanding to others as an example. I chose a conventional artefact, the bowl, to use as the subject of exploratory exercises. Questions about the typology were asked, including the features of the object, the limits of the typology, and finally, how to move beyond the limits. The exercises include Abstract Analysis, Intersection exercises, comparative Juxtaposition exercises, Morphological Variations, and sequences.

**5. Chapter Two. Analysis and critical reflections from workshops: Action Research** focuses on explaining the results from the workshops given to students and analysing them through thematic analysis and visual analysis, leading to critical reflections.

**6. Chapter Three. *The programme* as a new pedagogical methodology** presents the proposal for a new pedagogical methodology based on the concept of *the programme*, through diagrams and case study artefacts developed as examples.

**7. Conclusions** presents the findings from the research project.

Volume 2 includes the Appendices where supportive materials complement the Volume 1 chapters.

## 1.5. Summary

This PhD by practice aims to explore *the programme* and the concepts conforming to it: typology and morphology. Using the methodology of Constructive Design Research, explorations based on Industrial Design practice, in the form of exercises, will lead to understanding the limits of the topics, and in this way, will prepare prompts for workshop development. The workshops include participants. I will be using the Action Research methodology for the workshops, and the data compiled from their outcomes will be tabulated and analysed through Thematic Analysis. I advocate using *the programme* as a new pedagogical methodology in Industrial Design.

The following, Figure 4, is a diagram illustrating *the programme* and how it overlaps with the process of design. Through this PhD by practice, I will show how this diagram is developed.

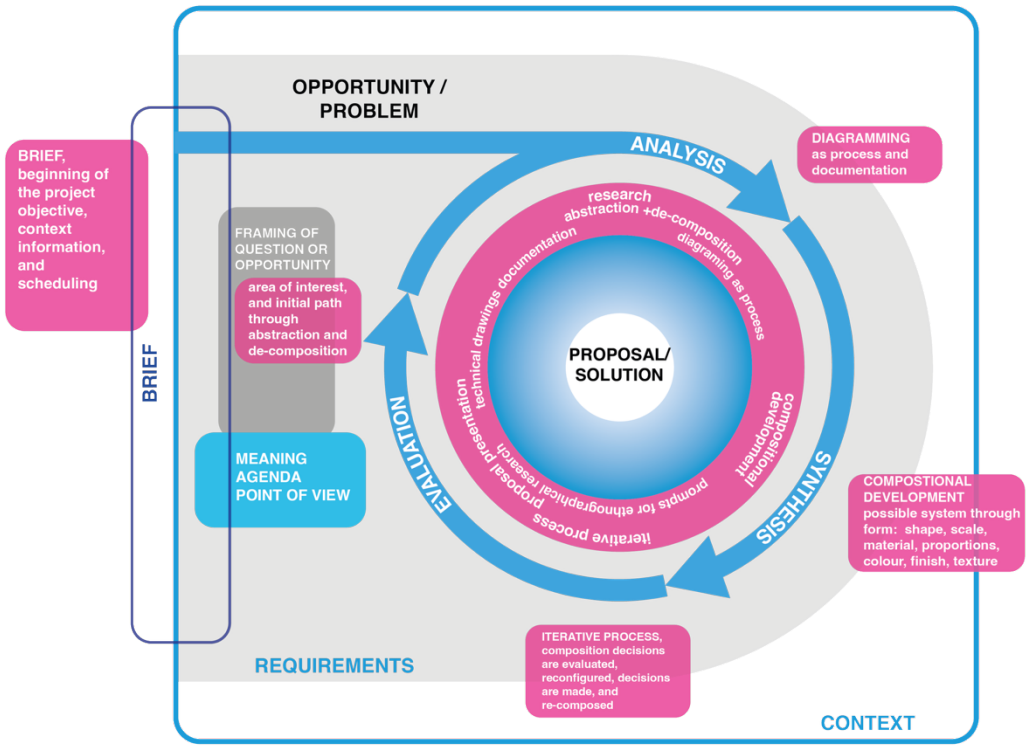



Figure 4:
Chaparro, Y. (2025) The Programme General Diagram [diagram]

## 2. SOURCE REVIEW

This source review explores the concept of *the programme*, critical reactions to it, and its potential use in and relationship to the Industrial Design process and its related pedagogical application. It will also outline how this concept can be better understood through the consideration of related concepts, typology and morphology.

### 2.1. Concept of *the Programme* and its use in Architecture

In order to understand the concept of *the programme*, and how it has been variously defined, the key references that will be considered are: Rowe (1982/1983), Summerson (1957), Alexander (1964), Tschumi (2015), Schumacher (2011), Koolhaas (1994, 2006), Redström (2017), and Eisenman (1963, 2006) in order to determine the context, and also present oppositional voices in relation to its description and function. Secondary voices will be discussed as they add to the main discourse and offer alternative or corroborating views. As mentioned in the Introduction (p.14), this source review did not identify more recent debates regarding *the programme*, therefore it focuses in the period of 1957 to 2020.

According to Colin Rowe (1982/1983, p.9), the first definition of the term *programme* as used in architecture is from the Oxford Dictionary in 1837: "A definite plan or scheme of any intended proceedings: an outline or abstract of something to be done." This definition not only implies a set of sequential steps but also an objective framed from the beginning of the process of design. John Summerson (1957, p.264), in a transcription of a lecture given in 1957 about the state of modern architecture, framed *the programme* within the formal compositional practice of architecture. He stated that the *programme* is:

> a description of the spatial dimensions, spatial relationships and other physical conditions required for the convenient performance of specific functions. It is probably impossible to write out a satisfactory programme without a certain number of architectural relationships being suggested…

*The programme,* therefore, according to Summerson, is based on a strategy that organises elements in terms of their formal relationships. He introduces the concept of unity as the objective of a *programme* for design. It can be considered a blueprint for formal or morphological manipulations, leading to the source of unity. He further explains this by using the differences between architecture and engineering, to explain what the *programme* is, in the context of design. Furthermore, he explains how the source of unity in the design of an architect, is the *programme* itself, as opposed to the focus on the component by the engineer (Summerson, 1957, pp.257-266). This means that the architect or designer's practice focuses on the formal relationships between the parts to complete a coherent composition of the whole, instead of focusing on the parts only. He then suggests that the

unit resulting from a *programme* "[can] be described as a biological or organic unity, because it is the unity of a process" (Summerson, 1957, p.264). This implies that a *programme* can be flexible and grow in step with the process of design as it evolves; however, Summerson uses the concept of a pattern when referring to how *the programme* is applied, seeming to convey that *the programme* is based on pre-organised sequences which would constrain the openness of a biological unity within specific parameters:

> It is difficult to imagine any programme in which there is not some rhythmically repetitive pattern— whether it is a manufacturing process, the curriculum of a school, the domestic routine of a house, or simply the sense of repeated movement in a circulation system (Summerson, 1957, p.264).

Similarly, Christopher Alexander (1977, p.x) uses concept patterns to describe related elements of a language of construction. Alexander (1977, p.x) states that:

> Each pattern describes a problem which occurs over and over again in our environment, and then describes the core of the solution to that problem, in such a way that you can use this solution a million times over, without ever doing it the same way twice.

Furthermore, Alexander refers to the pattern as a type of problem in which its structure itself determines the process that needs to be followed to solve that same problem. He indicates that by understanding the problem, the correct method of design can be developed. It is further reiterated as follows, "… there is a deep and important underlying structural correspondence between the pattern of a problem and the process of designing a physical form which answers that problem" (Alexander, 1964, p.132).

Rowe (1982/1983, pp. 9-10) on the other hand, considers this repetitive pattern or type in opposition to *the programme*, in that he has identified it as a paradigm method of design instead. He argues (1982/1983, p.10) that the paradigm method of design comes about because of specifying entities as the typical or typological idea as starting point, therefore keeping ideas stagnant and limiting the possibility of innovation. Alexander sees *the programme* and the pattern as part of the same design method, whereas Rowe sees them as two distinct and opposite approaches. Rowe (1982/1983, p.10) states that both methods of design that he has identified "…disallow the possibilities of genuine novelty and, in the end, both of them envisage the solution, the synthetic statement, as no more than an extrapolation of the existing".

As a solution to this lack of innovation, Rowe (1982/1983) suggests that a designer should approach the problem as a detective, i.e., by using abstraction to understand what information is necessary and which parts of the existing typology to focus on to reach a

solution. He further concludes that "… a reliance on either program or paradigm is impoverishing; that if we are to talk typology, then a more expanded conception of type becomes necessary" (Rowe, 1982/1983, p.10). This is an interesting position because the *programme* can be directly tied to typology itself, according to Tschumi (2015). Tschumi also opens the concept of the *programme* to more broad decision-making: ''An architectural program [sic] is a list of required utilities; it indicates their relations but suggests neither their combination nor their proportion" (Tschumi, 1998, p.113). This can be expanded to the approach of Tschumi (2015), who seems to consider the programme as a means to liberate his work from all formal styles and existing preconditions. Tschumi identifies the *programme* as a representation of Modernism when it is linked to form as a result of functionality; in the same way, Summerson states, ''The programme as the source of unity is, so far as I can see, the one principle involved in modern architecture" (Summerson, 1957, p.263). Similarly, Schumacher considers the use of the *programme* as the basis for Modernism, which he explains as the use of a single code or function over all else. However, Tschumi argues that we cannot only talk about the visual arts when referring to single-coding or double-coding:

> Theories of reading, when applied to architecture, are largely fruitless in that they reduce it to an art of communication or to a visual art (the so-called single-coding of modernism or the double-coding of postmodernism), dismissing the 'intertextuality" that makes architecture a highly complex human activity (Tschumi, 1998, p.117).

For Tschumi, *the programme* could be liberated from that single code of form following function. He argues that "…by taking the discursive form away from form but taking it into the idea of program, was sort of an important mode of avoiding being confronted with what later became the battle between modernism and post-modernism" (Tschumi, 2015, video 19'08"). This means that he believed that *the programme* could be used as a conduit to look at form and its different layers of discourse, separating it from its original modernist connotation.

While Rowe (as mentioned earlier), tries to separate paradigm (type) from *programme*, Tschumi brings them together in his own definition of *the programme*, "…program, that is, what happens in architecture inside a building, the correlation between a function and a form…" (Tschumi, 2015, video 18'52"). By including both function and form within the definition of *the programme*, he coincides with Summerson in that the formal composition based on functional requirements is the result of *the programme*. It indicates that *the programme* determines those formal decisions; furthermore, when referring to the function, typological categorisations are also invoked. Tschumi goes more in-depth into describing different kinds of spatial *programmes*, ''those that are indifferent to the spatial sequence, those that reinforce it, and those that work obliquely or against it" (Tschumi, 1998, p.159).

This leads to different ways of understanding how form can be applied to different spatial requirements of *the programme*. In contrast to Tschumi, Eisenman considers *the programme* to be separate from form, the form comes out of *the programme* but is not bound to it:

> There are no arbitrary decisions no formal element is good or bad in itself: it is only so when considered as a part of a nexus of relationships. A system or ordering process can be found for any complex function: the argument that a building must have this or that form because of a specific function cannot be sustained, since although all systems originate from given programmatic conditions, there is normally more than one system capable of satisfying them (Eisenman,1963, pp.89-90).

In a more current definition of the *programme,* Redström (2017) defines *the programme* in design similarly to Eisenman, in that *the programme* is not a fixed series of instructions but rather a set of possibilities, describing it through the following observations (Redström, 2017, p.88):

- A program is characterized by both intent and unfolding, an intertwining of projection and process.
- A program depends on a certain worldview, a basic set of beliefs and assumptions, to be effective.
- A program's development is not indefinitely continuous but must come to an end when its worldview is fundamentally questioned.

Redström furthermore situates *the programme* between two tensions that he identifies as the particular and the general (2017, p.88). This means that *the programme* can be considered to be in constant flux, producing questions that can move from one to another tension or contradiction.

Another more current definition of *the programme* comes from Schumacher. He introduces the concept of style as a principal objective of a *programme*: ‘‘An orienting decision-making programme is required to steer the design process between indecision and random wilfulness. Within architecture these necessary programmes are called ***styles***.” (Schumacher, 2011, p.240, emphasis in original) This means that *the programme* can be understood as an underlying structure that will give the outcome of the design process an identifiable style. He continues to explain what the concept of style can do:

> Styles provide the guidelines and criteria that help us to identify the beautiful and the useful. Each style does this in its own particular way. The useful functions differently in each style, and the beautiful looks different in each style. Each style answers the questions *what is useful*? and *what is beautiful*? in its own way, with divergent results (Schumacher, 2011, p.257, emphasis in original).

The use of style can be accomplished by using a specific language, including variables and constants. Mau states, ‘‘A platform works when certain dimensions are held as constants while others are allowed to change and evolve” (Mau, 2020, p.386). The way Mau uses the word platform leads to the possibility of it being a synonym for the concept of *the programme*. Mau (2020) is giving us the possibility of a flexible and adaptive *programme* depending on the project. When including variables, *the programme* will therefore be a flexible diagram that changes as the underlying system is developed while moving through the design process. Furthermore, the variables and constants will determine what has to be changed or revised once testing has been applied and evaluated: thus the decision making can not only develop the object of design but also determine new questions or possibilities for further iterations, ‘‘Nature decides if a particular life form is a success. In other words, context is the decision maker” (Mau, 2020, p.383). This idea of context determining decisions in nature can be used as information that populates *the programme* of design too. Mau explores it further:

> This provides an ideal metaphor for human design. “Designing the DNA” is a radically different project from “Designing the product”. Designing the DNA means designing the rules for constant innovation in a succession of output iterations. “Freedom within a framework” is a game-rule exercise wherein the platform designer determines the constants and the variables. By designing the platform with a specific set of variables, the dynamic range of outputs is designed into it (Mau, 2020, p.383).

The DNA of the product can be defined as a set of rules; however, these rules can be embedded with variables. This can lead to variability and flexibility in *the programme* as the context and type of elements are different. To know how the variables and constants interact with each other, *the programme* must be framed or determined. Alexander explained this starting point as, ‘‘Finding the right design program for a given problem is the first phase of the design process. It is, if we like, the analytical phase of the process” (Alexander, 1964, p.84). The design Brief can be considered a tool for creating the first step for a *programme*. The term *programme* is mostly used in Architecture and perceived as covering more complexity than the ‘design Brief’.

> The design brief, “… is commonly seen as the launching of a design project. Whether it is a project in product design, industrial design, graphic design, architecture or any other design discipline, the brief will establish the requirements of the creative service to be undertaken by the designer or design team” (Askland and Jones, 2012, p.1).

In a similar vein, Lawrence and Schafer argue that, “… definition of program as ‘brief’ fails to capture the range of implications the term has acquired in architecture parlance and practice” (Lawrence and Schafer, 2006, p.4). In the architectural discourse, the concepts of

Brief and *programme* are differentiated. Although *the programme* will give the project its essence, Mau uses the title of 'the Brief 'instead. It can be contended that when he describes a more complete Brief, he is referring to the concept of *the programme* instead. He has recently argued that the Brief should be expanded as follows:

> For several decades, the classic approach to the design brief has been to make it increasingly tight and as small as possible, to compress it to a single word if that can be done. The effect has been to cut the problem out of its context, to abstract the problem, and to externalize the implications of the design solution… We need to expand the brief to understand and quantify the context and complexities of the design problem and the long-term ecosystem implications of any solution we propose (Kwinter, and Mau, 2021, p.158).

Mau is proposing a more complex and complete 'Brief'; however, his intention is not only to frame the problem or get the process started, but rather incorporate information such as the context and other complexities. Although, Mau does not mention the concept of *the programme*, it can be deduced from his comments that he is talking about a concept such as *the programme*. Mau continues developing this idea of an expanded Brief with a description of what he calls real design: "the metadesign of a platform for continuous design development. This is design for constant design" (Mau, 2020, pp.372-373). Here Mau is referring to an underlying organisational structure. Companies such as Alessi incorporate the concept of the meta-project in their development of collections, "… the first thing we do is give a name to the meta-project, usually one word that becomes the basic concept" (Polinoro, 2008). Furthermore, Alessi categorises their design collections as *programmes* (Alessi, 1998). Similarly, Herman Miller uses *the programme* as the underlying plan for the creation of collections; as the director George Nelson wrote on the furniture catalogue in 1948, ''The furniture shown here is the result of a program as well as a philosophy" (Nelson, 1948, p.5) and ''A final word on the Herman Miller program: its goal is a *permanent* collection designed to meet the requirements for modern living."

As Mau (2020, p.375) argues for more complexity in the requirements of a Brief: ''Designing for constant design expands the brief to imagine the solution as an evolving ecosystem that includes its own economic, cultural, and ecological implications." He is giving it more responsibility, ''It is vital to extend the design process beyond the singular creative act, beyond the classical design process, to include the implementation and aging of the project" (Mau, 2020, p.377). As mentioned earlier, he is overlapping the concept of the Brief with what he calls 'platform'; they both seem to overlap with the concept of *the programme*: ''The platform can be seen as the equivalent of a computer's operating system—the underlying basis for ongoing design initiatives. The ultimate platform for continuous design improvement is DNA" (Mau, 2020, p.383). Without using the concept, Mau has made the link

between *the programme* and the DNA of the project, ‘‘DNA is a brilliant design platform. Precisely because it enables continuous improvement through successive iterations.” There is an overlap with Summerson in the organic component of a *programme*, and with Alexander too. According to Leitner (2015, p.59), Alexander believed that looking at nature would answer and understand the secrets of a process. Furthermore, Mau is giving the platform more weight during the design process than the Brief. An iteration involves not only the synthesis stage of the design process, but also the evaluation phase; there is no iteration without testing. According to the IDEO Design Thinking Handbook for Educators, the process for iteration is directed as:

> Incorporate valuable feedback into your concept. Make changes where people saw barriers. Emphasise what was well received. Then, create a new prototype that you can share. Go through feedback cycles repeatedly and continue to improve your concept (IDEO, 2012).

Therefore, *the programme* must be much more than the starting point of a design project, or a project schedule; it is also a plan where the end proposal is envisioned. It includes the lens that the designer is working through, it answers the questions of the vision for the project, and therefore it is connected directly to the context of the project.

## 2.2. Flexibility in *the programme*

As seen earlier, various approaches have been taken towards the concept of *the programme* since the modern movement. This connection with modernism has given it a rigid connotation which, according to Vidler, meant that *the programme* was avoided in the postmodern time,

> The issue here is, once again, one of "program," a word all-but jettisoned in days of postmodernism and deemed irrelevant to architectural "meaning" since the discrediting of the seemingly narrow functionalism of the modern movement (Vidler, 2003, p.59).

This rigid connotation is the prevalent view of *the programme*. Vidler continues to argue that *the programme* today should be viewed differently from how it was seen earlier:

> In revisiting this one of the oldest in the history of professional architecture, there is no intent program in the limited functionalist or political approaches of early modernism, nor the revived typological and diagrammatic forms of late modernism. Rather, a contemporary sense of program would imply the radical interrogation of the ethical and environmental conditions of specific sites, which are considered as programs in themselves (Vidler, 2003, p.59).

Even though *the programme* has a rigid connotation, it is used regularly as a part of the process of architecture, “Programming the requirements of a proposed building is the architect’s first task, often the most important” (Peña and Parshall, 2012, p.2) and “You begin with a program. It is the first thing you are given to start a project in school and the thing you wait on from a client in practice. Program gives license to action: to realise and to organize” (McMorrough, 2006, p.103). *The programme* is a part of the application of the design process in architecture, yet the concept of *the programme* has not been considered an advancer of the architectural discourse since Modernism.

Vidler proposes a new approach to *the programme*, “… flexible and adaptive, inventive and mobile in its response to environmental conditions and technological possibilities” (Vidler, 2003, p.60). He bases this new approach to *the programme* on examples of architectural ideas furthered by others, such as Archigram and Rem Koolhaas. In S,M,L,XL, Koolhaas, referring to the American office ‘Typical Plan’, states, “Its interiors accommodate compositions of program and activity that change constantly and independently of each other without affecting what is called, with accidental profundity, the envelope” (Koolhaas, 1998, pp.33-37). Koolhaas is separating *the programme* from the activity; he has also stated that *the programme* is a way of adding an agenda or the architect’s interests, “The key is being “selective” while also looking for strategies that would allow us to pursue (programmatically) our own interests.” (Koolhaas, 2006, p.7). The search for flexibility by Wood and Andraos is described as “expanding that definition to include the informal and the unwritten as well as alternate sources of “requirements”…” (2006, p.112). These ideas by Koolhaas, Wood, and Andraos speak of new ways of developing ideas yet still keep the *programme* top-down, therefore keeping it rigid. In other words, ideas towards incorporating flexibility into *the programme* in architecture have been proposed without yet offering to open *the programme* to others’ ideas to broaden the understanding of the context at a stakeholder level. Therefore, the general connotation of a rigid construct continues to be prevalent. Gorman explains this as follows:

> Currently the practice of developing program within architecture and interior design is a rigid construct, with the designer determining the needs of the users. The reason for this is that the program continues to have a top-down application; it is created for, not as or with, all community stakeholders or those affected by the decisions made in the program (Gorman, 2025).

*The programme* is thought of devising a plan foreign to the final user during the design process in architecture. By opening the practice of architecture through collaborative exercises with different stakeholders, incorporating other points of view can make the process more flexible. Architectural academic *programmes* have tried and suggested various methods to explore and teach architecture students ways of accessing this

collaboration through their studies. One example is the radically inclusive studio. They list the contextual requirements needed to understand a project in an inclusive way. They call it the 'Inclusive Mesh', it is described as:

> the Systemic, Structural, Support, Social Justice, Symbolic, and Spatial inclusive contexts are interlaced and exist in entangled relationships with the other—non-hierarchical and co-dependent. The Support, Social Justice, and Symbolic inclusive contexts are close-knit, and stitched together by the Systemic, Structural, and Spatial contexts (Gorman et al., 2023, p.236).

There are also various attempts to include collaboration during the architectural studio pedagogy to bring the community into the classroom through the 'live project.'

> live projects are found to be a part of a wider movement for change in architectural education, that sees a shift from a fundamentally masculinist model, that favours the abstract and theoretical, the isolated studio, individual and competitive working and self-referential values, to a more balanced approach, that also celebrates activity, difference, inclusivity and individual meaning and value (Sara, 2004, p. 236).

Moreover, Sara mentions that architectural education has started shifting towards a more collaborative and flexible way of practising education, starting with the studio.

> In reviewing the literature on architectural education, it becomes apparent that we are experiencing the tentative beginnings of a paradigm shift, from the current individualistic, competitive ideal, to a more pluralistic, nurturing model (Sara, 2004, p.77).

As Sara's research has identified the benefits of engaging with the community and interdisciplinary collaboration, this PhD by practice proposes that *the programme* in Industrial Design is applied in a more flexible manner due to its scale, human proximity, and interactive nature. From the beginning of the design process, the iterative process and evaluation involve users and their immediate feedback. This is done through ethnographic research, cultural probes, and testing. *The programme* must actively require more information so that the designer can ask the right questions. The context must be revisited constantly, like the community-based design approaches mentioned above.

Figure 5 shows the timeline of *the programme* discussed in this source review. As seen in the diagram, *the programme* has been debated and defined consistently since the modern movement; it is a concept that is used daily in architecture and, as per the source review, still carries with it a negative connotation of not being flexible, although there are several of proposals or ideas on how to make it more flexible.

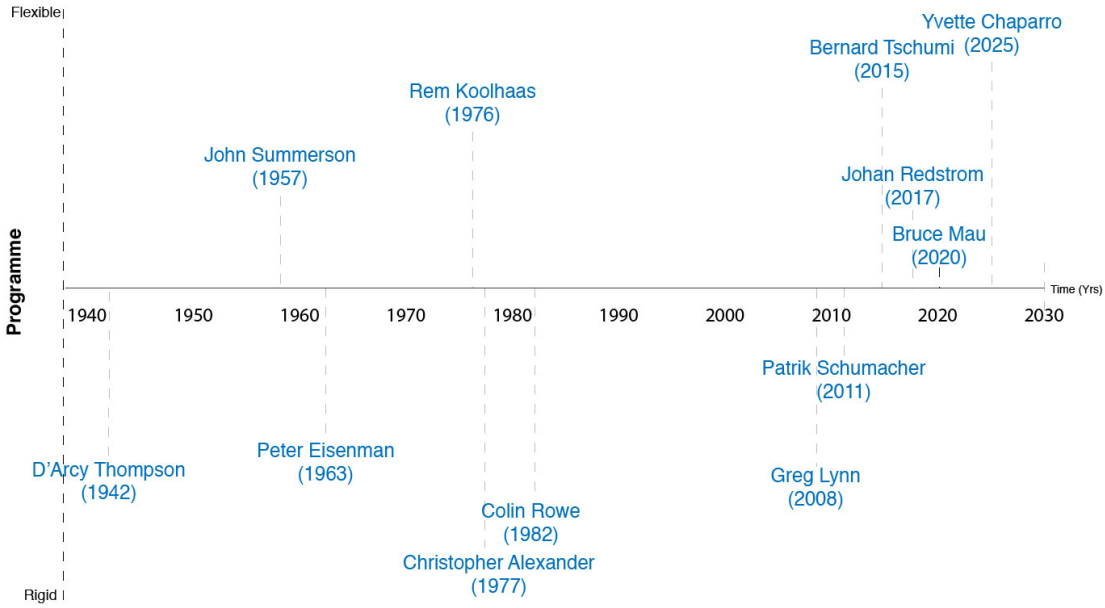



Figure 5:
Chaparro, Y. (2024) Time Frame of *Programme* Discourse [diagram]

As mentioned earlier, *the programme* has been constantly debated in architecture, producing various thematic connections; in Figure 6, the connections show differences and similarities, simplifying the richness of the discourse visually.

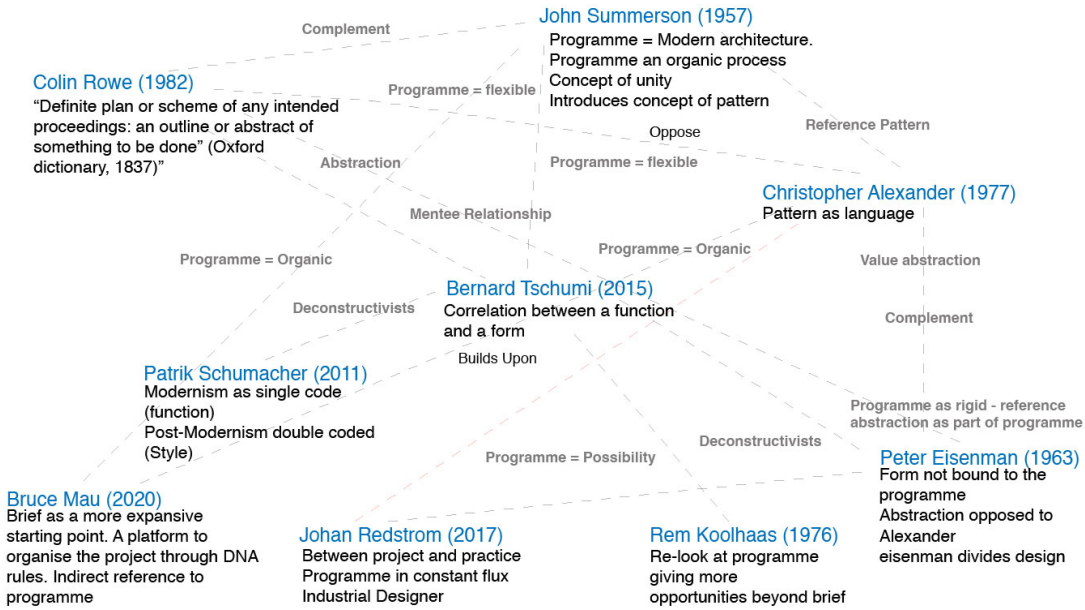



Figure 6:
Chaparro, Y. (2024) Conceptual Map of the *Programme* [diagram]

## 2.3. Morphology and Typology as related to *the programme*

In the case of Industrial Design, the objective of a *programme* is the formal composition of an object. The designer makes formal decisions based on the *programme's* requirements. It relies on patterns or type constructs and determines the basic structures for morphological decisions. This section will explain the relationships between the concepts of morphology and typology.

As seen before*,* as defined by Tschumi (2015, video 18'52"), *the programme* is divided into its main components of form and function. Form is studied through the concept of morphology, which studies form in nature without considering the function, including growth patterns, structures, and kinetic compositions. According to Gans (2003, p.viii), ''It was Goethe who coined the term and discipline of morphology, the study of form, which, although he began by examining the transformations of plants, he understood as a general science." Furthermore, D'Arcy Thompson referred to form as "a ''diagram of forces''" (Thompson, 1942, p.16), which completes the link between morphology and the abstraction of the structure itself. If one can read the form through the forces that compose it, one can go to the fundamental essence of the specific structure, which determines the formal language of the object. Thompson also stated that a feature of our understanding of morphology comes from the comparison of different morphologies:

> In a very large part of morphology, our essential task lies in the comparison of related forms rather than in the precise definition of each; and the *deformation* of a complicated figure may be a phenomenon easy of comprehension, though the figure itself have [sic] to be left unanalysed and undefined. This process of comparison of recognising in one form a definite permutation or *deformation* of another, apart altogether from a precise and adequate understanding of the original "type" or standard of comparison… (Thompson, 1942, p.1032, emphasis in original quote).

Thompson expands this idea when referring to Dürer as a way of explaining the differences as small changes that create new versions of the same type: "… the manner in which the human figure, features, and facial expressions are all transformed and modified by slight variation in the relative magnitudes of the parts is admirably and copiously illustrated" (Thompson, 1942, p.1053). Dürer used the cartesian grid as a way of producing enough change to create a new version, yet not enough to create a different type. As illustrated in Figure 7, the basic relationships between lines and curves were preserved, yet proportions changed.

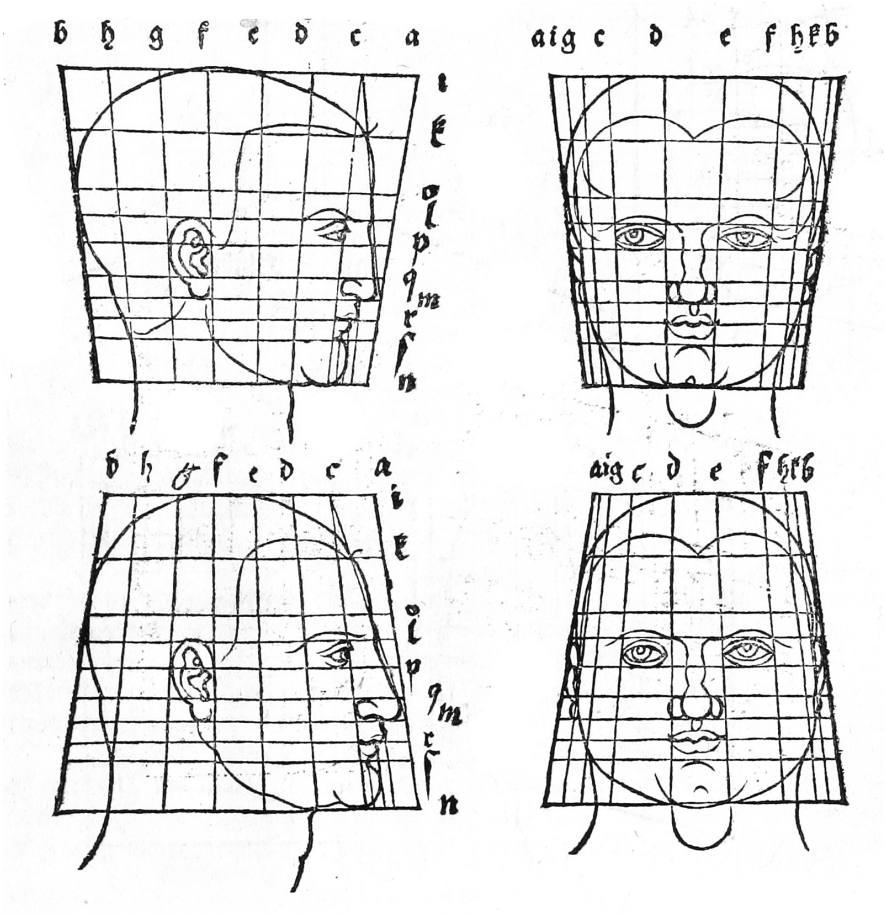


Figure 7:
Dürer, A. (1598) Face Transformations [drawing]
Available at: https://commons.wikimedia.org/wiki/File:Durer_face_transforms.jpg
[Accessed: 4 January 2025]

Morphological manipulation within certain rules can produce versions within a type. If the changes are not within a framework, then they will most likely produce different typologies. Typologies are how objects can be categorised and their meaning organized. Objects with specific features will be understood as part of specific typology categorisations. Lynn defines typologies as,“ the study of formal configurations as they relate to use and cultural habit” (Lynn, 2008, p.2). This can be explained as how a specific object can be pre-determined in function of its use. That same use determines where it fits in the category of products and how a specific society understands the relationships of that particular object within the larger system of objects. This gives meaning to the object as related to the user of the object giving it a particular function. As an example, Lynn developed a set of flatware for Alessi. The different rules for typologies were entered into a computer programme and depending on the features each typology required, the pieces would ‘grow’ to fulfil the needs of each typology, some of the outcomes are shown in Figure 8. Cutlery is a great example due to the variety of pieces that are used to eat: the item on the left is a carving fork; the head of the utensil

needs to hold meat with two sharp tines; the second item is a carving knife with a prominent sharp edge; the third item is an ice-tea spoon: the spoon is long enough for a pitcher [jug in the UK] and the perforation in the middle of the spoon allows for stirring and mixing the tea; the fourth item is a table spoon; the fourth item is a table knife; the fifth item is a cheese knork; and the last item is a serving spoon.



Figure 8:
Lynn, G. (2008) Greg Lynn Form. NY: Rizzoli [photo]
Cutlery for Alessi

An object must fulfil certain requirements to be categorized in a specific typology. However, how these requirements are applied formally makes each object different from the others, even if they are categorised in the same typology. Eisenman explained this formal-function interrelationship as follows:

> no one function can do more than suggest a specific form, (i.e. cannot determine it) in other words there is no one form for any function, specific form can be considered to be of a relative nature (relative, that is, to a particular interpretation of a programme) and therefore of a lesser degree of importance in the hierarchy than generic form (1963,2006, p.35).

The concept of function can start introducing concepts of manipulation and use in a specific way, for a specific purpose, and gesture. Interaction will ensue between the user and the typology, therefore the practical function of an object (what it is for) will determine how it is categorised in the practice of Industrial Design, even though there are other ways in which artefacts can be organised or categorised. Adams and Adams, working in the fields of anthropology and archaeology, agree that the ‘‘overriding considerations in any discussion of typology must be those of purpose and practicality” (1991, p.4). As they argue that ‘‘often

the discussion focuses between emic or etic types or between formal and functional classification" (Adams and Adams, 1991, p.4) they identify different categorisations for artefacts. These are some of their examples:

> According to our usage, a classification is any contrasting set of categories into which a specific body of material may be subdivided, or partitioned. A typology is a particular kind of classification; …The practical importance of this distinction will appear when we discuss the differences between artefact classifications, which are nearly always typologies and "culture" classifications which are not (Adams and Adams, 1991, p.214).

Methods for typology categorisations also vary; Adams and Adams name them as: Phenetic (example: Comparison from different sites), Stylistic (example: Ethnic and cultural identification), Chronological/Spatial (example: basis for defining 'cultures'), Functional (example: to reconstruct activities of makers and users), Emic (example: to understand mind set of maker and users), and 'Cultural '(example: differentiate prehistoric 'culture 'units) (Adams and Adams, 1991). For Industrial Design, the most relevant categorisation in the list is Functional. As described above, the practice of Industrial Design focuses on the interaction with the artefact that suggests what group it belongs to and how it compares to other pieces. Adams and Adams introduce the concept of differentiation when discussing types as follows: ''when we have recognised a sufficient number of intuitive types, however, we are sure to begin perceiving also what the specific features of similarity and dissimilarity between them— the invariants and the variables" (Adams and Adams,1991, p.54). In other words, artefacts are identified as different types because of subtle differences that are perceived when comparing them; furthermore, these comparisons between the types happen intuitively at first.

Differences imply transformation and limits: the same artefact or form transforms and becomes something else. Eisenman (1999) talks of the generic starting form and subsequent repetition with transformation, as in the case of House II's process. House II is a project by Peter Eisenman built in 1970, composed by columns and walls (Eisenman, 1999). Through a series of analytic drawings showing an iterative process, the designer develops the final composition (Eisenman, 1999). Eisenman uses the cube as the starting point and produces a sequence of iterations through subtraction and transformation, creating different versions. Keeping the cube as a boundary, in which all formal decisions must happen, can be understood as an organizational factor. In other words, the requirements, in this case, must happen inside the cube. However, as decisions are made, the composition inside the cube changes, and the cube contains different compositions, as shown in Figure 9.



Figure 9:
Eisenman (n.d.) *House II, Analytic Diagrams* [diagram]
Available at: https://drive.google.com/file/d/1L0Io2q-p1IT7Eee1xJcE7lQtRLRt3Ktd/view
[Accessed: 4 January 2025]

As shown in the sequence, starting with the typical cube, the transformation of each step, shows how the cube is divided in different ways, creating iterations. Each cube iteration is a possibility for an object of architecture that has been created with the composition of elements, planar and linear elements. The cube itself determines the limits of the space. Garcia (2014, p.140) has defined a limit as what "distinguishes one thing from another thing". This means that the limit between two objects can also define how objects are understood, compared, and assigned to a typology.

Tschumi takes the concept of limits further and refers to them as they pertain to design disciplines and how far ideas or case studies can still be a product of the specific discipline (Tschumi, 1998). Similarly, Raby (2021) argues that to understand a topic, one must also go to the discipline's limits. This means that the features or parts of the whole will not be isolated until analysed; however, the de-composition need not be only visual or physical but also conceptual. Concepts lead to abstraction: "The abstract conveys the essential meaning, cutting through the conscious to the unconscious, from the experience of the substance in the sensory field directly to the nervous system from the event to perception" (Dondis, 1973, p.81). Or as per Sanders and Stappers, abstraction is "the process of making more general statements out of particular ones" (2018, p.299), which relates directly to the making of categorisations. In other words, abstraction is the process through which

something at a conceptual level is understood instead of at a literal or figurative level. Abstraction plays an important part in understanding and categorising typologies: “We give the things a common name on the basis of common features which we consider important, ignoring other, divergent features which we do not consider important” (Adams and Adams, 1991, p.44). As mentioned earlier, this means that the whole is seen first and then the specific features, allowing for groups of things that are not identical but close enough to be categorised in the same group. The authors are making clear that to categorise a typology, the abstract concepts of an object must be present in the same object categories.

Eisenman understands the use of *the programme* when designing since he describes his use of the concept yet positions it on the opposite side of abstraction (2020, video). It seems his analysis of *the programme* depends on who uses it; his opposition is primarily directed towards Alexander. He explains that Alexander’s use of *the programme* is closer to form finding, while we find abstraction on the other side of the spectrum. He has often referred to abstraction through a story involving his mentor, Colin Rowe: “I was asked by Rowe to stand in front of a Palladian façade and rather than describe it as I saw it, I was to tell him what I could not see” (Eisenman and Iturbe, 2020, p.4). He has also explained how that was what made him a proponent of abstraction, how that way of seeing concepts would lead to great architecture, “…what makes, to me, great architecture is architects who know how to see space, time, surface, etc., and are trained to see like that…” (Eisenman, 2013, video 32’42”). However, he claims to be opposed to Alexander in this pursuit of abstraction. Yet Alexander also uses abstraction, and his *programme* includes abstraction to understand the whole picture around a context and problem (Alexander, 1964, p.77). Schumacher also looks at abstraction as a way of moving the process of design along, allowing for ideas to happen quickly:

> This abstractness, together with the option of switching codes, gives the design process and design reasoning their agility. This agility (in contrast to older dogmas) is given by the ease of moving along options and opportunities within each code – from the consideration of one function to another, or from one formal concern to another – as well as between codes: from formal arguments/decisions to functional concerns and vice versa (Schumacher, 2011, p.239).

Schumacher states that abstract form is composed of codes, and each code gives the viewer information that contributes to the understanding of the artefact. He includes values such as beauty as part of the abstract and therefore beauty can be considered as codified too:

> Beauty is also abstract, open and thus indeterminate. Utility is equally general, and leaves much to be further specified. Each historical era – as well as each architect’s oeuvre, and potentially even each individual design project—reinterprets these codes and thus structures and

> constrains the abstract openness of the codes according to its specific (historical) requirements of societal adaptation (Schumacher, 2011, p.239).

In other words, he is arguing that having abstract codes as the basis for *the programme* and the design process, can allow for innovation. This is in opposition to Tschumi who uses *the programme* to avoid style in his own work.

A way of understanding morphology is through time and how matter transforms. As an example, one can study natural structures and growth patterns. In the same way a plant grows, an object can grow conceptually, as in D'Arcy Thompson's quotation "a 'diagram of forces'" (Thompson, 1942, p.16). By analysing and de-composing a physical form, an object can be read in terms of how it has been affected by forces. Similarly to how a manufacturing process transforms materiality into products, this idea of physical transformation can be expanded to the meaning behind the form of an object too. The force diagram of a convexity exercise shown in Figure 10, can help visualise the concepts describing a form.

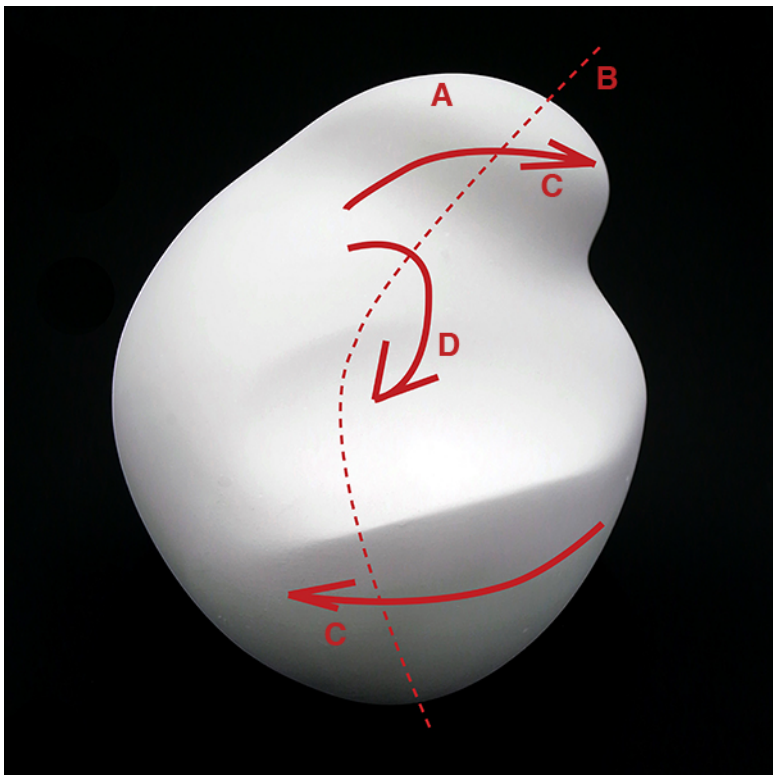



Figure 10:
Chaparro (2009, 2024) Diagram of Forces on Convexity Exercise in Plaster [photo/diagram]

The convexity exercise here indicates the applied forces through arrows and linear notations. There has been an upward pull creating a protrusion (A), a bend to the side shown through the bend of the vertical axis (B), a torsion on the horizontal axis (C), and the front has been pressed causing a front concavity. Designers understand how a form has been affected by forces in this way, but most importantly they learn to apply forces and produce forms (Chaparro, 2009). Through small transformations that indicate the use of forces, designers iterate and work on the development of an object. This process is taught as the basis of professional design. Every change is considered as a response to an insight, creating options for possible directions or making improvements to the object.

## 2.4 Summary

To summarise the key issues in this source review, it is clear that from the origins of the concept of *the programme* - a modernist architectural construct based on the functional aspects of design - various practitioners of architecture can be identified. Their approaches have been described in order to understand the term '*the programme'* and how its definition has changed historically. This research project focuses mostly on architecture practitioners interested in *the programme*: Rowe (1982/1983), Summerson (1957), Alexander (1964), Tschumi (2015), Schumacher (2011), and Eisenman (1963, 2006), and others who can show its transformation from a rigid connotation to more flexible approaches. Since the concept is not widely used amongst Industrial Design practitioners, this is an opportunity for exploring an interdisciplinary use of concepts. The concepts of Typology and Morphology are important areas of study as main components of *the programme* and of the practice of design. By observing overlaps and contradictions between the different practitioners, one can explore the possibility of using *the programme* as a flexible diagram to inform the pedagogy of Industrial Design in higher education. Figure 5 shows the timeline of *the programme* discussed in this source review. As seen in the diagram, *the programme* has been debated and defined consistently since the modern movement; it is a concept that is used daily in architecture and, as per the source review, still carries with it a negative connotation of not being flexible, although there are several of proposals or ideas on how to make it more flexible.

As mentioned earlier, *the programme* has been constantly debated in architecture, producing various thematic connections; in Figure 11, these connections show both differences and similarities, visually simplifying the richness of the discourse. The Chaparro programme developed in this PhD by practice includes various themes, since it is applied to Industrial Design, it must be flexible.

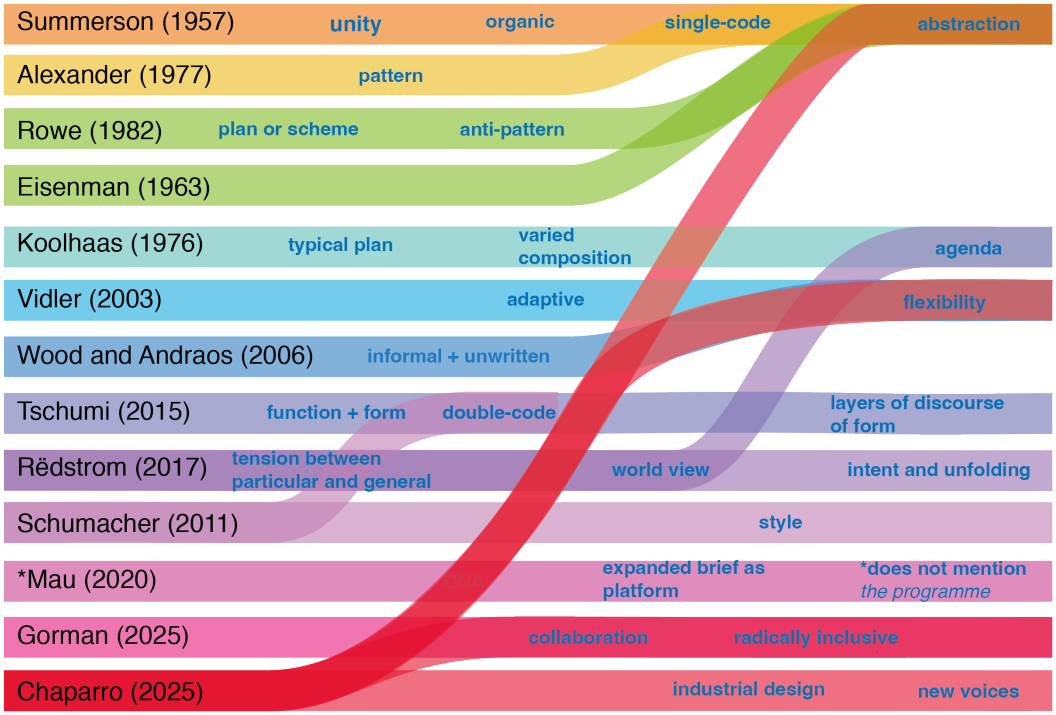



Figure 11:
Chaparro, Y. (2025) Programme Thematics [diagram]

## 3. RESEARCH METHODOLOGIES AND METHODS

This section describes the methodologies and methods used to develop the pedagogical methodology based on the reframing of *the programme*. Muratovsky (2016, p.34) differentiates between methods and methodologies as follows, “a simple way of looking at this is to think of the methods as ‘tools’ and methodology as a ‘toolkit’.” Therefore, the methods are the research techniques applied when going through a research project to activate the overarching methodology. In this PhD by practice, two overarching methodologies are working together:  Constructive Design Research and Action Research. Since the two methodologies overlap and contribute to each other it is considered a mixed-methodology project. Muratovsky (2016, p.40) references (Schutz et al., 2009, p. 244). They argue that multimethod research, mixed methods, or mixed methodology, “is based on the idea that using more than one method during the data collection or analysis phases of a study can be more useful than using a single method.”

The diagram in Figure 12 provides a visual overview of this PhD by practice, including the two methodologies in addition to a third box that identifies critical reflection — this is not a methodology but is an important action that happens as part of both methodologies, and it is therefore critical to include it.

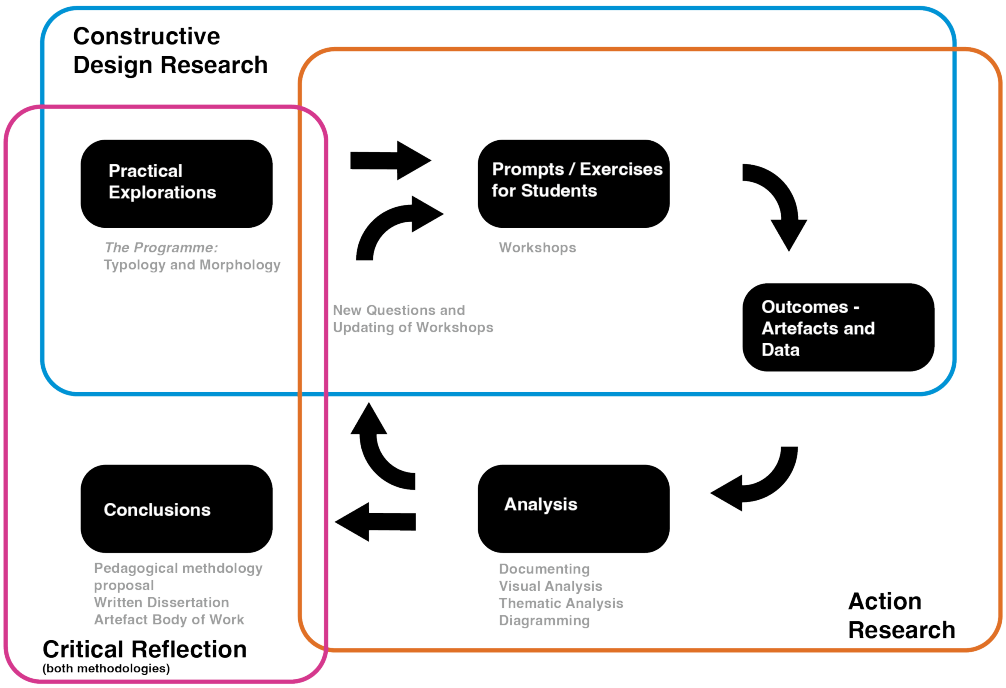



Figure 12:
Chaparro, Y. (2024). PhD by Practice Project Methodology [diagram]

The two methodologies and the methods are analysed below. Other design methods, such as sketching and documentation (audio-visual and written), will also be mentioned as the project phases are described.

## 3.1. Mixed-Methodology: Constructive Design Research and Action Research

The Constructive Design Research methodology, as argued in the Introduction (p.14), is an umbrella term that includes the PhD by practice and all terms that place practice at the centre of the research. It is defined as “Constructive design research is a form of research in which design itself becomes an act of producing knowledge” (Gall and Koskinen, 2022, p.33); furthermore the “Constructive design researchers work in studios, design labs and workshops and construct things” (Wensveen, 2018, p.15). This means the skills and methods designers employ are needed to develop their research. Koskinen et al. state that Constructive Design Research “mostly builds on work carried out in industrial design and interaction design research” (2011, p.8). They state the differences between Industrial Design and interaction design as, “Industrial design has roots producing material goods, and interaction design is based on computer science, film, and web design” (Koskinen et al., 2011, p.8). Furthermore, “Industrial Design is product-oriented, three-dimensional, and relies heavily on sketches, mock-ups, models, and physical prototypes” (Koskinen et al., 2011, p.8), naming a few of the skills and methods that designers possess that are used to develop a research project. Redström argues in favour of Constructive Design research as opposed to Research through Design in that the methods of the disciplines of design should not be the only methods to consider; rather, theory building methods should also be implemented in a research project. He argues that to be part of the academic context that values theory, design research must include knowledge building (2017, p.10). He uses anecdotal evidence to clarify how a design PhD by practice differs from the design practice in this sense of constructing research and how reflection and use of methodological approaches make the difference (Redström, 2017, pp.11-13). Critical Reflection must, therefore, be a component and practice throughout the whole research project, especially starting with the analysis of data gathered and applied to the new pedagogical methodology proposal.

Different methods will be employed depending on the research project phase and the requirements for exploration, data production, workshops, analysis, reflection, and documentation. This is part of the planning of Constructive Design Research: as Wensveen states, ‘‘The design things, or prototypes can have different roles in constructive design research and the generation of knowledge” (Wensveen, 2018, p.15). Therefore, different methods throughout the process will allow for different types of data gathering.

The second overarching methodology used in this PhD by practice is Action Research; it embraces the essential iterative process of Industrial Design and its collaborative possibilities and aids in understanding and improving a process. Action Research is increasingly used in collaborative and community-based projects in the design research community (Koskinen, et al., 2011, p.83). They further state that “in industrial design, cultural probes, Make Tools, and action research have spread fast” (Koskinen et al., 2011, p.23). In this PhD by practice, both methodologies overlap in various ways, helping develop *The Chaparro Reframed programme*.

Action Research, according to McNiff (2017, p.13), includes different views of what it is but identifies the following statements on which the Action Research community can agree on:

> Action: taking action to improve practices, which is rooted in improving understanding; and…
>
> Research: finding things out and coming to new understandings, that is, creating new knowledge. In action research the knowledge is about how and why you should act in the world and to evaluate the effects of your actions.

McNiff (2017, p.19) argues that one should use action research “when you want to evaluate whether your work is contributing to your own or other people’s learning”. In this research, the practice applied to specific concepts becomes a starting point for student exercises. The use of the process of design leads to the creation of prompts for students to practice. The students experience how the process is applied in different situations. Therefore, this project contributes to the student’s and the researcher’s learning in terms of pedagogical application of design practice. McNiff (2017, p.21) concludes that “action research places the individual ‘I’ at the centre of an enquiry.” In addition, “Action research can be useful when investigating how to improve learning and take social action.” This means that by researching the practice of design, starting from the researcher’s practice, applying it to workshops with students, and constant critical reflection, the process can contribute to a new pedagogical methodology proposed by the researcher.

Thompson similarly argues, “The central aim is change and the emphasis is on problem-solving in whatever way seems most appropriate” (Thomas, 2017, p.154). He adds, “the assumption is built in firmly at the beginning that as the research proceeds you will go back to revisit your aims, assumptions, beliefs and practices, think about all of these critically and then revise them” (Thomas, 2017 p.154). Including students and how they approach the exercises leads to refining the personal experiments and student exercises as needed. This PhD by practice benefits from these iterative versions of the practical experiments and workshops, to understand the design decision process through *the programme* and its

potential use as a teaching tool. Furthermore, when exploring in the same way as working in the studio, ‘‘Action Research provides a theoretical basis for the research methodology of much academic work in this area, which is stepping outside the laboratories into practice, and benefits from its participatory and holistic viewpoints” (Sanders and Stappers, 2018, p.29).

This PhD by practice commences with practical explorations grounded in the discipline of Industrial Design, supported by Constructive Design Research; the explorations produce prompts for a series of workshops given to student participants. Five workshops are given to MFA students from Industrial Design and Interior Design at Parsons, encouraging a collaborative process where the reflection and iterative process can be opened to more voices. The collaborative aspect of Action Research enables the design process to be improved through each practical exploration and workshop event. By including reflective moments between the different steps of the project, it is assured that the actions taken subsequently are altered and improved as the process continues. This means that critical reflection is present throughout the project as a way of moving the research process along to accomplish the aim of this PhD by practice, which is to consider the concept of *the programme* as a way of explaining the process of Industrial Design to students. See Volume 2 - Appendix 1 (p.196).

The practical explorations and workshops are revised and improved based on feedback and reflection upon the experience with the students. Therefore, the action research methodology requires that the student’s practice, reflection, and subsequent practical application allow for iteration. To critically reflect upon and understand the students’ experience, the researcher documents their process.

Conclusions are drawn from each workshop in the reflective journalling documentation. The reflective Journalling practice encourages students and practitioners to keep written notes on thoughts about activities, practices, concepts, interactions, and more. The practice aims to foster self-awareness and learning. (Thorpe 2004) (Minott 2008). The information in the journal includes a description of the process, outcomes, and insights from both students and the researcher. Data are gathered through questionnaires, semi-structured interviews, and photographic documentation of the outcomes developed by workshop participants. These are the basis for thematic analysis, Volume 2 – Appendix 2 (p.200).

## 3.2. Methods

For the purpose of this PhD by practice, the application of the methods and skills of Industrial Design (applied design methods), are used during the different phases of the

research project, Figure 13 indicates what the different methods are, and when they are used during the PhD by practice.




Figure 13:
Chaparro, Y. (2024) Methods Used in this PhD by Practice [diagram]

The methods listed above are used to explore the terms of typology and morphology as main elements of the concept of *the programme* based on how I work as a professional Industrial Designer, using methods as needed to understand the context and essence of an opportunity of design, to push the limits of what it means, and to develop a compelling proposal. These methods move me through the process of design; they include abstraction and de-composition, morphological transformations, intersection exercises, comparative juxtaposition exercises, reflective journalling, sketching, diagramming, photographic documentation, 3D digital and physical model making.

In this PhD by practice, these methods will subsequently be used to develop prompts for students participating in workshops, including diagramming, questionnaire development, semi-structured interviews, audio-visual documentation, and photographic documentation. The documentation of the outcomes from the practical explorations and workshops with student participants will aid in the analysis. Other methods will then be introduced, such as visual analysis (from sketch and photographic documentation) and qualitative data results through thematic analysis. These methods are summarised below and described further in Chapter One, Research through Design: exploring *the Programme* through professional practice (p.58). The different methods are explained below.

**Abstraction and de-composition:** the intention of these explorations is to show how the most basic components of a specific typology are isolated through abstraction and breaking apart of a composition (p.59). The use of de-composition in this research should be understood as the breaking apart of a composition or whole into smaller components or parts. This is a tool used to understand typology and morphology, concepts of *the programme*.

**Morphological Transformations**: the aim of this method is to identify typological limits through transforming elements using morphology, and the outcomes of these transformations are communicated by organising artefacts into sequences and diagrammatic grids (p.65).

**Intersection Exercises**: this method is used to further inquire into typological limits through the intersecting or merging of solid information into a 3D space. When working with products of Industrial Design, a simple object such as a bowl embodies the history of the object, the culture it represents, the iterations it has gone through such as dimensions, formal decisions, proportions, ornamentation, etc. By diagramming this layering of different iterations or versions of a bowl in the case of the exercises (p.63), the differences and contrasts found, become visible.

**Comparative Juxtaposition Exercises**: the concept of juxtaposition, which according to Dondis (1973, p.124) "… expresses the interaction of visual stimuli, placing, as it does, at least two cues side by side, activating comparison of relationships."

**Workshop Development**: to deliver workshops to students, prompts must be delivered. The design of the prompts includes diagrams and instructions on steps to follow. The workshops will be described further in Section 5, Chapter 2 (p.73).

**Questionnaire:** a series of questions is devised to compile answers from participants about terms and how they understand their decision-making process in specific situations. The questionnaires are delivered in printed form for the participants to write directly on the paper.

**Semi-structured interviews:** questions are asked orally including terms and eliciting explanation by the participants in workshops about how they approach the tasks they are prompted on.

**Documentation methods:** these include diagrams, grids and sequences, layering, reflective journalling, tabulation of transcripts from semi-structured interviews and written questionnaires, and photography. These methods aid in making the outcomes of the practical explorations and workshops available for analysis and critical reflection. Each phase requires different use of the documentation methods.

### 3.3. Data Compilation for Analysis

Information from the experiments, workshops, and documentation of outcomes, is used to understand the process of the PhD by practice project and methodologies used. The written, video-recorded, and audio-recorded documentation of the workshops are transcribed by the research assistant and collated into tables of data, to facilitate reading the information and its subsequent analysis as shown in Chapter Two (p.73).

### 3.4. Visual Analysis

The artefacts created during the workshops are coded by visual analysis. This method is used through de-composition and diagramming of artefacts, as a way of coding the physical features of the form. The term visual analysis has been used by Akner-Koler as “a visual language and structure that recognizes and gives priority to 3-dimensional visual perception” (2007, p.101). She bases her visual grammar on the teachings of Reed Kostellow, who “taught her students to "think with their eyes" and to translate an inner vision into concrete experiences” (Akner-Koler, 2007, p.101). Furthermore, the framework she uses for visual analysis includes: Elements and their properties, Movements and forces, Relationships, and Organization (Akner-Koler, 2007, p.102).

In addition to relationship-based visual analysis, formal compositions can also be read as how the pieces can be interacted with adding socio-cultural information to artefacts: ‘‘An image may have a range of material qualities — the term ‘‘affordance” is often used to refer to these — but it is only when someone uses the image in some way that any of those qualities become activated” (Rose, 2016, p.276). Affordances, “… result from the coupling of any feature of the immediate environment (object, space, text) with a receptive subject or subjects” (Erlhoff and Marshall, 2008, p.20). Rose states that, “Any object is always actualised in a specific moment of use, which produces both the object and the sort of person looking at it” (Rose, 2016, p. 276). Depending on the potential of the form, a description of the features will be described and compared with other artefacts. By overlaying diagrammatic elements on the images, features of the artefacts produced can be identified. “Diagrams are simplified drawings that illustrate the structure of something—schematics that capture in visual form the essential relationships among elements or ideas” (Davis, 2017, p.183). By notating the features of an artefact and finding similarities with

other artefacts of the same type, typologies are identified; on the other hand, finding differences between the artefacts leads to understanding the limits of typologies. The notations described above will be used to further analyse the information through thematic analysis.

### 3.5. Thematic Analysis

To organise and analyse data from the workshops, Thematic Analysis (TA) has been used. Baun & Clark describe this method as:

> TA is a method for systematically identifying, organising, and offering insight into, patterns of meaning (themes) across a dataset. Through focusing on meaning across a dataset, TA allows the researcher to see and make sense of collective or shared meanings and experiences (Braun & Clark, 2012, p.57).

The information from the questionnaires and verbal interviews is organised in transcriptions and tabulated into tables and charts. The inductive approach (Braun & Clark, 2012, p.58) of thematic analysis is used to organise the information collated from the transcriptions of the audio-visual recordings, oral semi-structured interviews, and from the written questionnaires. Clusters of information are identified. Creswell and Creswell (2023, pp.207-209) list the following steps as the Analytic Process:

> Step 1. Organising and Preparing the Data for Analysis
>
> Step 2. Reading Through All the Data
>
> Step 3. Coding the Data
>
> Step 4. Identifying Themes
>
> Step 5. Developing a Story Line Interpretation
>
> Step 6. Further Analysing the Data Using an Analytic Framework
>
> Step 7. Representing and Interpreting the Data

According to Braun and Clark (2006, pp.87-93), the steps of thematic analysis are:

> Phase 1. Familiarising yourself with your data
>
> Phase 2. Generating initial codes.
>
> Phase 3. Searching for themes.
>
> Phase 4. Reviewing themes.
>
> Phase 5. Defining and naming themes
>
> Phase 6. Producing the report

Codes are identified after reviewing the data repeatedly to familiarise oneself with it, and clusters emerge creating initial codes. Once the researcher starts searching for themes, candidate themes and sub-themes emerge. The themes are tested and reviewed in an iterative process. The researcher has not initiated the analysis with existing themes but rather has identified the themes after the iterative re-reading of the data. According to Braun & Clark, (2012, p.58), this represents an inductive approach of thematic analysis:

> An inductive approach to data coding and analysis is a 'bottom up' approach, and is driven by what is in the data. What this means is that the codes and themes derive from the content of the data themselves – so that what is 'mapped 'by the researcher during analysis closely matches the content of the data (Braun & Clark, 2012, p. 58).

This means that the researcher will be open to concepts emerging from the data even if they were not expected at the outset of the workshops, as opposed to the deductive approach described by Braun & Clark (2022, p.10) "where the analysis is shaped by existing theoretical constructs, which provide the 'lens' through which to read and code the data and develop themes."

In this thesis, thematic analysis can be applied to the following:

- Workshop Artefacts- from visual analysis information in form of notational descriptions of formal observations
- Workshop data from semi-structured interview transcription of video recording
- Workshop questionnaire data from students' answers

See Volume 2 - Appendix 2 (p.200) for raw data.

## 3.6. Summary

Mixed methodology, including Constructive Design Research and Action Research, is the overarching framework that organises this PhD by practice. Through the different phases of the project - Practical explorations, Workshops, Documentation, Data compilation, Analysis, and Proposal of a new pedagogical methodology based on *the programme* and its reframing - different methods are implemented as needed, whereas the visual and thematic methods will be applied to the analysis of the data compiled from workshops and explorations. The application of the relevant methods will be clarified in each chapter as collectively they contribute to the reframing of *the programme* in Chapter Three (p.138) which demonstrates a new pedagogy.

## 4. CHAPTER ONE. CONSTRUCTIVE DESIGN RESEARCH: EXPLORING *THE PROGRAMME* THROUGH PROFESSIONAL PRACTICE.

This chapter describes and reflects upon a set of exploratory exercises used to analyse the components of *the programme*: typology and morphology, concepts introduced in the source review (p.40). The use of the exploratory exercises described here exemplifies my professional practice in Industrial Design, specifically how I approach the analysis and synthesis phases of the process of Industrial Design, utilising exploration to aid in gathering and organising information. *The programme* sets the strategy needed to gather contextual information through questions and the creation of prompts, leading to exercises and decision-making. To begin using the programme the brief helps the designer understand the general objectives, and in developing the framing of the question or opportunity, see Figure 14.

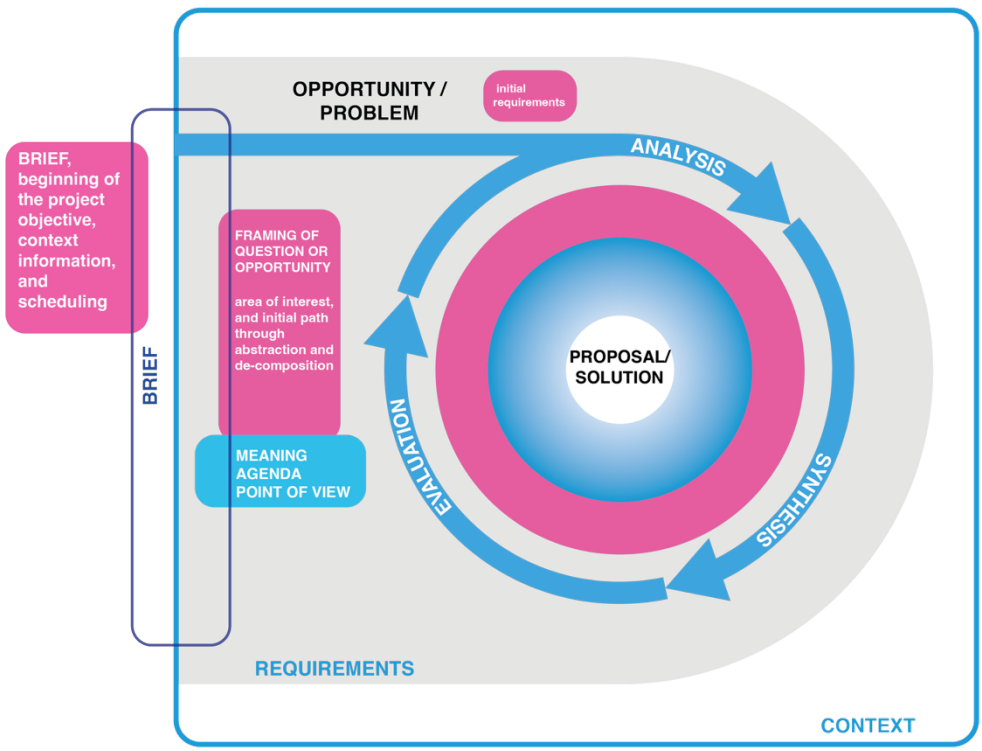



Figure 14:
Chaparro, Y. (2025) Brief and Initial Framing of *Programme* [diagram]

The typical bowl typology, as shown in Figure 15, helps exemplify how my analysis of a typology begins *the programme* by gathering information. A bowl is a product of Industrial Design that is easily recognisable and can illustrate how a designer approaches it as a physical object.

## 4.1. Typology of a bowl

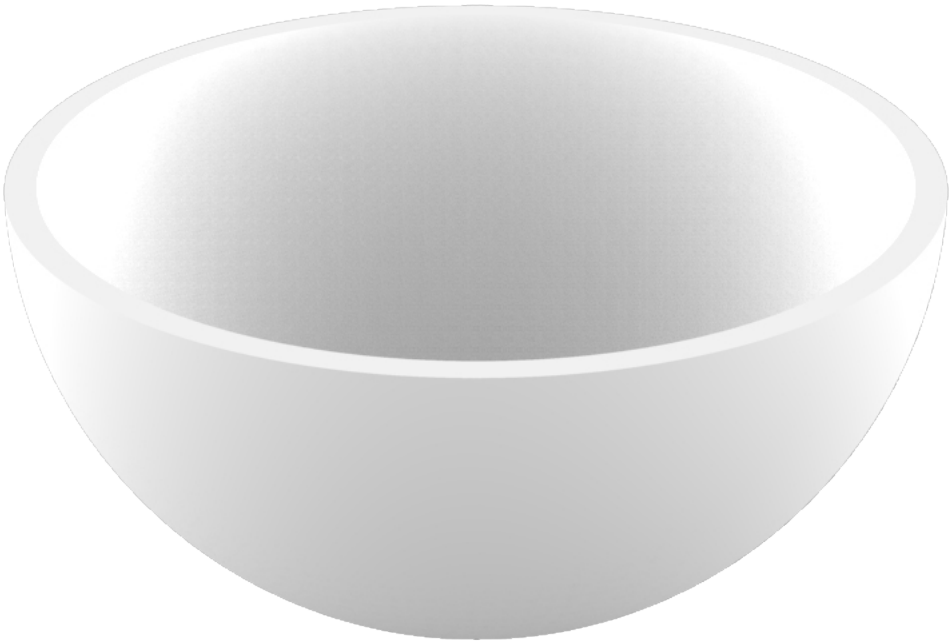


Figure 15:
Chaparro, Y. (2022) Typical Bowl [3D rendering]

Abstraction can be used to understand the basic concepts within a composition. In the case of a bowl artefact, for example, its features can aid in identifying it as a bowl, including its formal characteristics, possible uses, and its relationship to the context. The most basic relationship we have towards a bowl is our body, specifically our hands. Kenya Hara has wondered about the origin of a vessel:

> When our ancestors began to walk erect, for the first time both of their hands were free. Putting these free hands together would make a vessel. I wonder if our ancestors drank water from the vessel of their lightly folded palms (2008, p.412).

A bowl is the most basic of vessels. Julie Lasky expands on the origin of the bowl in terms of usability as follows:

> Bowls haven't changed in any important way since the Song dynasty. In fact, they haven't changed much since the Neolithic era, between 4,000 and 10,000 years ago, when people first began making receptacles by hollowing out wood and stone or molding and baking clay. Before the bowl, cupped hands and folded leaves brought water to the lips. The new containers offered a place to hold the materials of community and ritual: food for sharing, incense for burning, water for irrigation, wine for sacrament, alms for the poor (Lasky, 2013).

Understanding that an artefact can embody a simple concept, in this case, the use of a construct that delimits to contain something, the abstraction of a fruit bowl in relation to our body is shown in Figure 16.



Figure 16:
Chaparro, Y. (2022) Hands as Fruit Bowl [photo]

A more in-depth visual de-composition — see the definition of de-composition in the Volume 2 - Appendix 4, Glossary (p.352) — of the typical bowl is shown in Figure 17. This exercise shows how, by using abstraction, a designer can identify the basic features of an object. Through formal observation of the object, its relationship to its context, and personal experience, the designer analyses the features that construct the bowl. See the sequence below.

The features are identified as:

1. The bowl is a container; this means it has an inside and an outside.
2. There is a boundary that keeps elements contained.
3. The boundary has a delimiting rim.
4. The bowl needs stability in relation to a surface.
5. The boundary has a surface: depending on the elements meant to be contained, the surface can be porous or solid.
6. There is a clear direction of the bowl, top and bottom.
7. The bowl must be gripped and held.
8. External elements can access the inside.

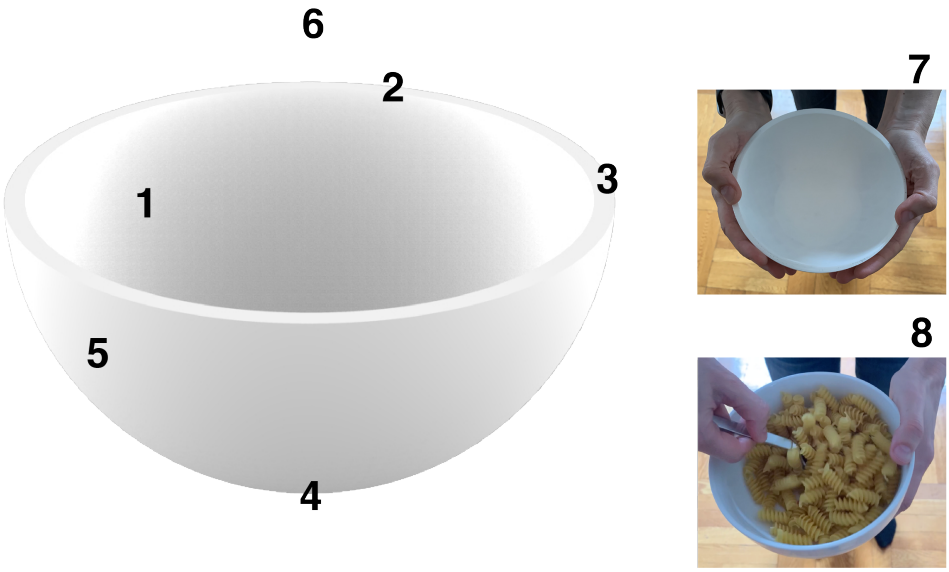



Figure 17:
Chaparro, Y. (2022) Preliminary Analysis of a Bowl [photos, 3D rendering, diagram]

These features are translated through 2D abstract geometric forms, representing the concepts identified. As shown in Figure 18, the geometric 2D elements are a representation of the concepts identified by de-composition, as follows:

1. A circular closed form represents a container.
2. The perimeter of the circle represents a boundary, that separates the inside from the outside.
3. This edge shows the perimeter as boundary.
4. A horizontal line indicating the stability of the composition and the representation of a surface.
5. The outer boundary is a surface.
6. The composition has a clear top and bottom.
7. Curves on sides represent forces applied to the sides when lifting or holding.
8. The triangle superimposed on the circle has a clear tension, giving it direction from top to bottom; this represents access through the opening on the top.

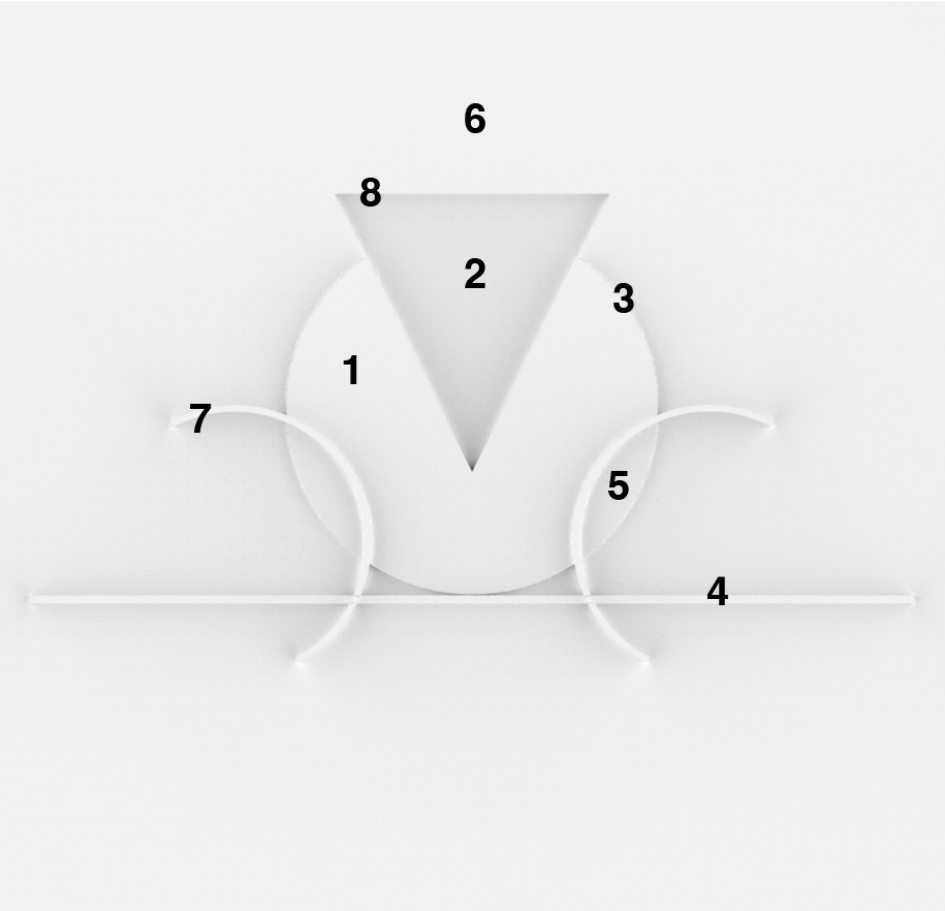



Figure 18:
Chaparro, Y. (2024) Example of 2D Abstract Composition of a Bowl [diagram]

This exercise enables the designer to see the main requirements for a typology; therefore, the familiar formal compositions can be questioned, and new options of composition can be proposed, producing either a version of the typology or a new typology altogether. For this research project, the exercise offers insights into the way a typology can be understood.

## 4.2. Limits of a bowl typology

When designing for a typology, identifying the basic features will narrow down the limits. If a cereal bowl becomes too wide it will be difficult to hold, or it will hold too much food. If a cereal bowl is too tall, it could be difficult to eat from. A specific wall curvature, rim, foot, material, or ornamental pattern will determine the feel, the way in which the user approaches and uses it, the manufacturing process, and more. Therefore, there are differences between the same typology depending on the context and *the programme* it is answering to. I purchased thirty-one cereal bowls from the market in 2019, which were all different from each other. To compare and identify differences, three methods were used to produce

artefacts and visuals making the differences clear. The methods used were Intersection Exercises, Comparative Juxtaposition Exercises, and Morphological Transformations.

### 4.2.1. Intersection Exercises

Starting with the group of bowls that I collected in 2019 and had digitized by research assistants, I uploaded the 3D digital models into the 3D drafting software, Rhino, where I could manipulate the digital volumes. The bowls were intersected with each other forming one shape, they share the space and present themselves as a group of pieces. This intersection of solids indicates to the viewer how a same typology can vary. As mentioned earlier, each one of the cereal bowls is the product of a series of formal decisions and therefore they are not the same bowls, yet they are all understood and named cereal bowls in the New York City (NYC) market. Figure 19 is a front view of the thirty-one bowls intersected. The intersection was rendered in a solid finish, showing features from different bowls as they share the 3D space. The viewer can identify most of the different original pieces of larger sizes since they are visible, while the smaller bowls are lost from this view.



Figure 19:
Chaparro, Y. (2022) Intersection of Cereal Bowls, Solid, Front View [3D Digital rendering]

Figure 20 shows the same intersection of bowls as before, but with an x-ray rendering tool making the 3D sharing of physical space visible for all pieces included. The images make the differences and similarities between the 31 bowls evident, and we can start to understand what the limits are between the group of the same typology.



Figure 20:
Chaparro, Y. (2022) Intersection of Cereal Bowls, Top and Front Views, X-Ray [3D digital renderings]

### 4.2.2. Comparative Juxtaposition Exercises

The same 3D digital bowls from the previous exercises are manipulated and cut in half, then juxtaposed creating a comparison array.  The viewer is exposed to the differences between versions of the same typology, including shape, size, proportion, ornamentation, etc. This comparative method helps identify the variations and range of how far a typology can be pushed.

As shown in Figure 21, the excerpt of the array of bowls cut in half and paired with each other shows how a typology falls within a set of features that are repeated in different ways. All these pieces are different; however, users understand them and can use them as a cereal bowl. The bowls have morphological differences.

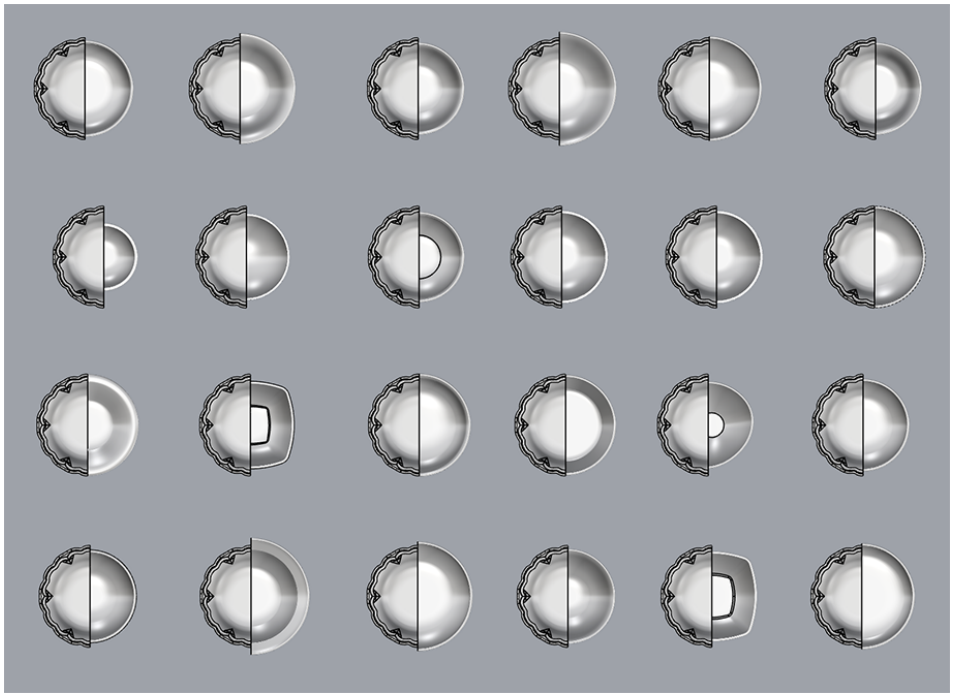


Figure 21:
Chaparro, Y. (2023) Juxtaposition of Cereal Bowls, Excerpt [array of 3D digital models in Rhino]

The two halves of the bowls can also be held and that interaction with the hands shows differences and limits of a typology too; the morphology of a typological variation will indicate differences in manipulation, as shown in Figure 22.



Figure 22:
Chaparro, Y. (2024) Interaction with juxtaposed halves of bowls, selected 3D PLA printed artefacts [photos]

### 4.2.3. Morphological Transformations

When analysing form, the concept to be used is morphology. It involves shape, scale, proportion, material, colour, and texture. Altering the form of an artefact changes the way it is perceived and its relationship with the user.

An Industrial Designer learns how to manipulate physical matter and create different forms, creating morphological variations. From a specific artefact such as a bowl, the construction itself can be altered creating different options and feel. When changing the scale and/or

proportions, different relationships with the body and other elements can be attained. In Figure 23, sequences demonstrating variations are shown, starting with a typical cereal bowl; varying the material construction and scale can produce sub typologies. The pieces are still bowls, yet they are different kinds of bowls, such as soup bowls, pinch bowls, fruit bowls, catch it all bowls, bread bowls, and more.

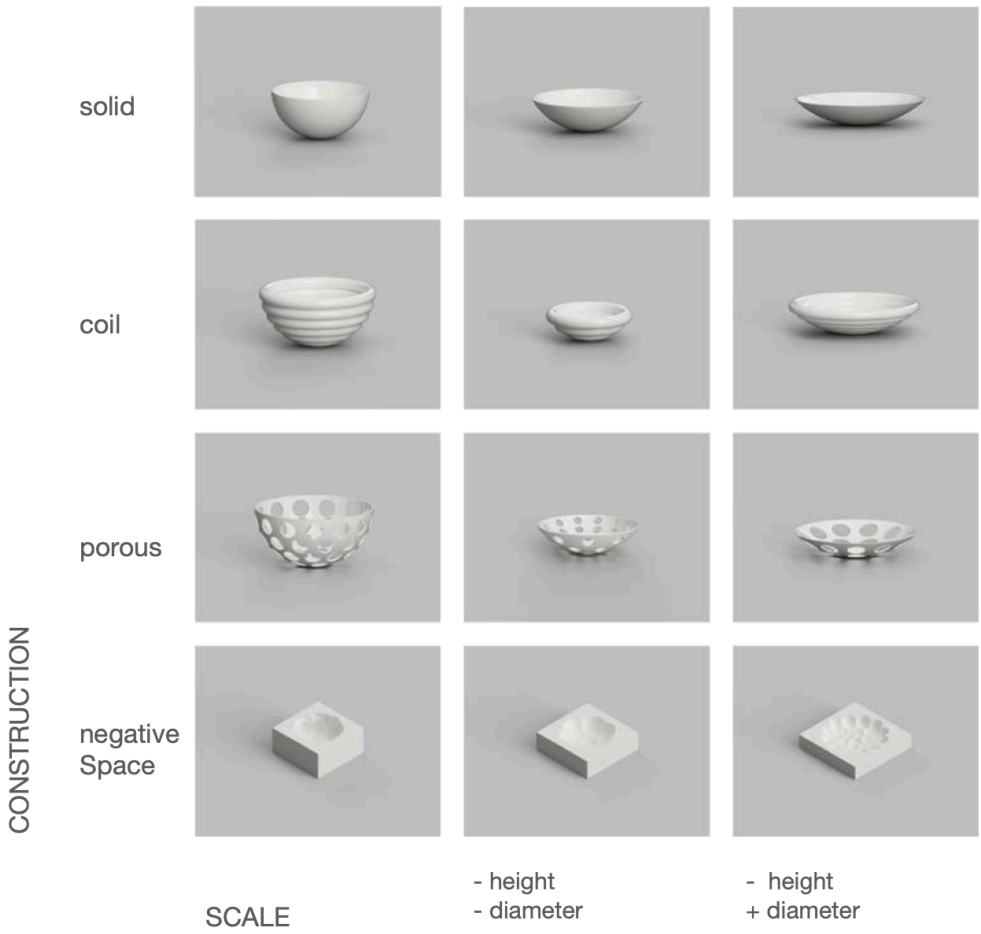



Figure 23:
Chaparro, Y. (2022) Morphological Transformations by Construction and by Scale of Bowls [3D digital renderings, diagram]

### 4.3. Beyond the limits: From a Bowl to a Pitcher

The morphological alterations can be pushed further from the existing typology to a different typology. It helps answer the question of how far one can push the limits of a typology before it becomes a different typology. As shown in Figure 24, I start with a typical bowl and

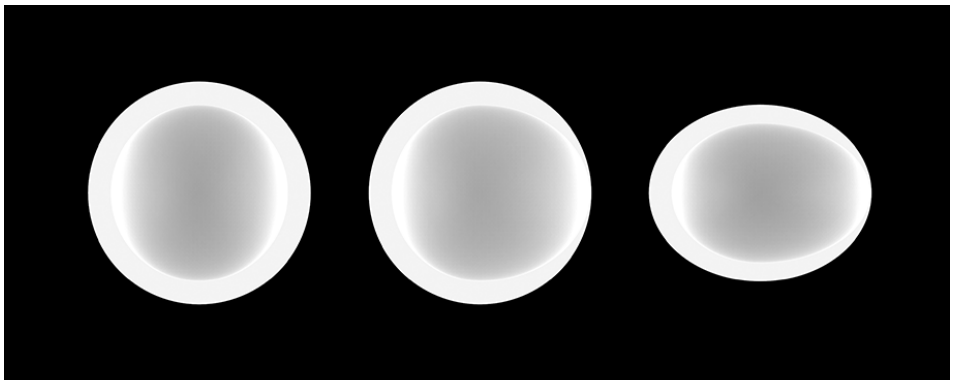


Figure 24:
Chaparro, Y. (2022) Morphological Variations, Transformation from a Bowl to a Pitcher [3D digital renderings]

apply morphological transformations, which lead to a new typology through formal variations containing features that identify a different typology. In the shown sequence, the last piece includes the features of a pitcher [jug in the UK]. Pinching is applied on the rim of the initial bowl artefact; the artefact now has a direction, as shown in the middle artefact. Pinching is applied to the whole shape of the middle piece, changing the proportions and dimensions, which now allow for a single-hand grip. The user will have clear affordances, see Volume 2 – Appendix, Glossary (p.352), cues on how the artefact can be held and manipulated to fulfil the requirements of the pitcher; these include a one-hand-held object that can pour liquid, as shown in Figure 25.

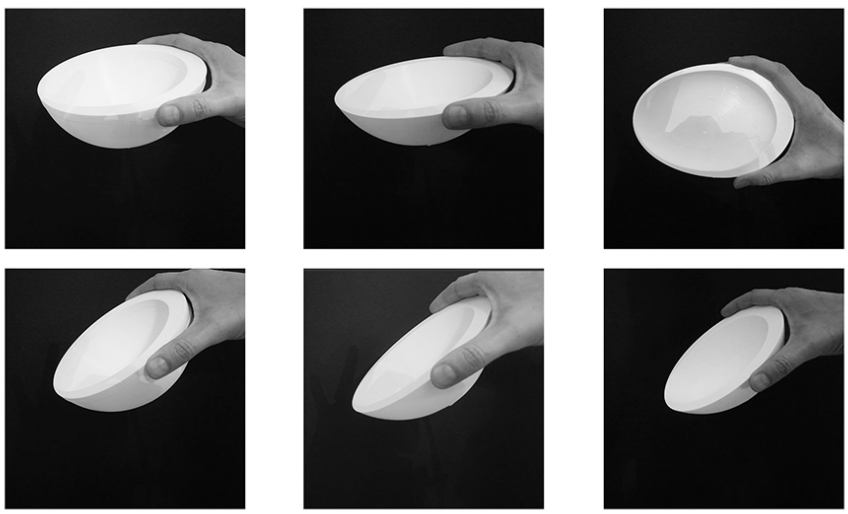


Figure 25:
Chaparro, Y. (2022) Morphological Variations, Gesture When the Pitcher Pieces Are in Use [photos of 3D PLA prints, user interactions]

Figure 26 further describes the application of the morphological tools: in this case, pinching is applied in the second step of the sequence to define the spout, and in the last step to allow the one-handed grip.

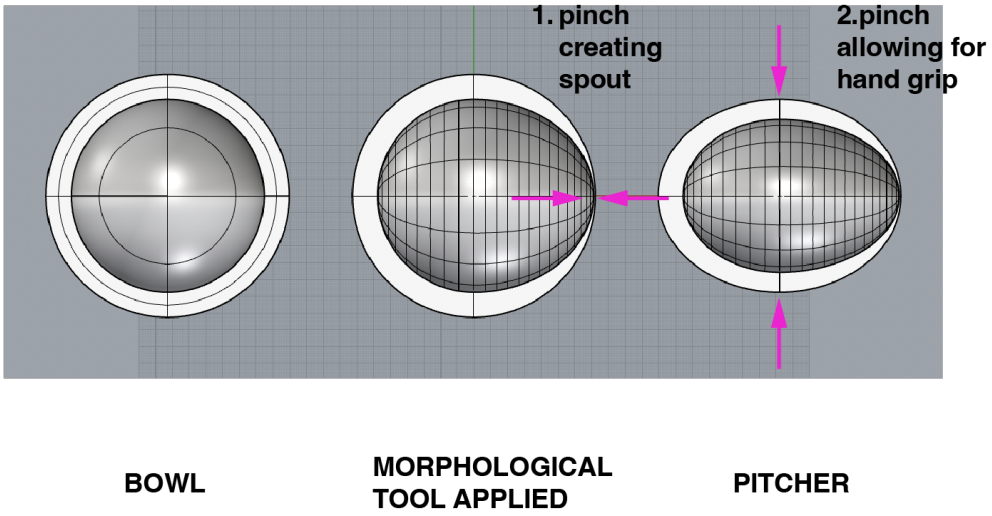



Figure 26:
Chaparro, Y. (2023) Sequence of Bowl to Pitcher by Pinching [3D digital models in Rhino]

To show changes between the morphological variations, the grid in Figure 27 was created, showing iterative steps from a typical bowl towards a traditional pitcher on one axis through

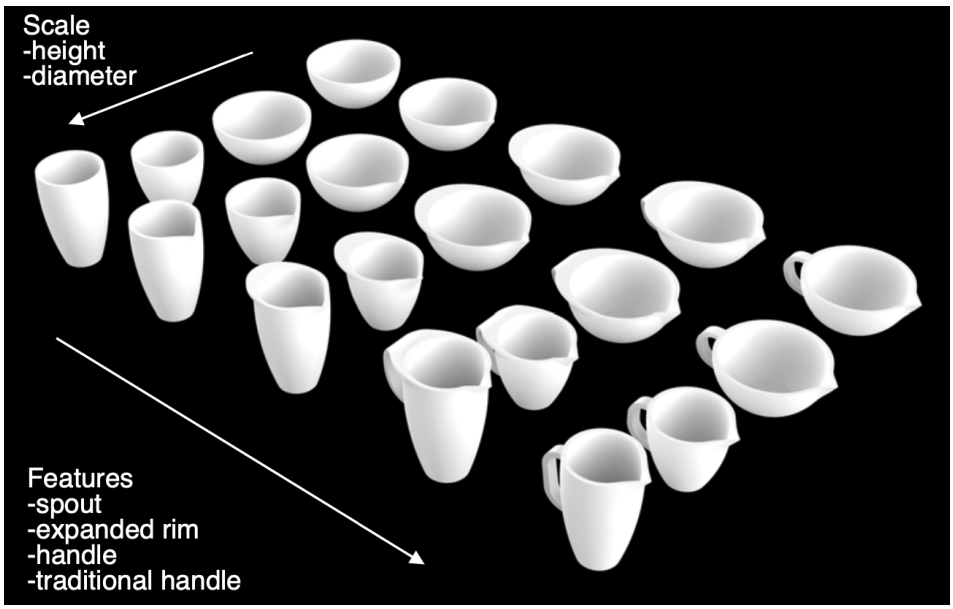



Figure 27:
Chaparro, Y. (2022) Grid of Transformations from Bowl to Pitcher [3D digital renderings, diagram]

the addition of features such as spout and handle; and on the other axis, through scale variations in diameter and height.

The transformational grid can help determine how far a composition can be altered before it becomes a new typology or composition. In the above grid, the in-betweens or transformation steps are considered iterations which means that any of them can be developed fully as a finished object of Industrial Design.

Figure 28 shows four sequences between a bowl and a pitcher by the application of specific morphological tools. The middle pieces explain the morphological tool and how it is applied, and in the final pieces of each sequence, the product is completed. By showing the tool used in the middle step, the sequences are structured.

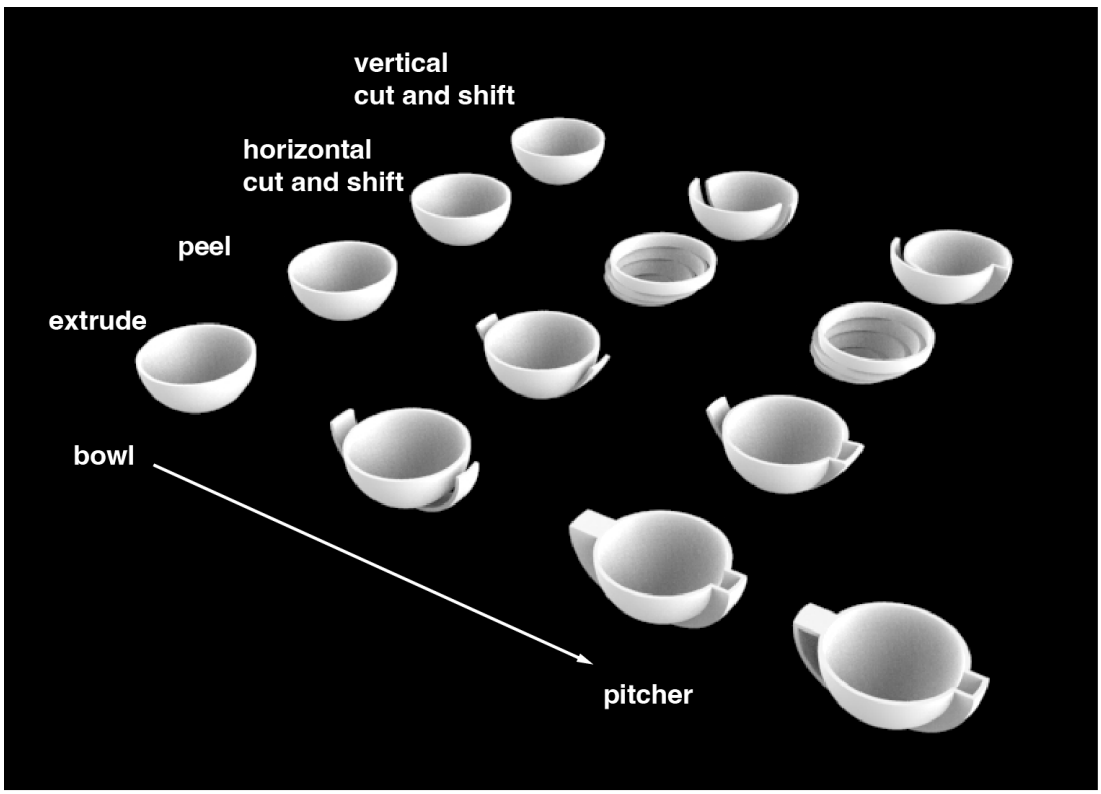



Figure 28:
Chaparro, Y. (2023) Grid of Structured Transformation from Bowl to Pitcher [3D digital renderings, diagram]

The formal changes between the artefacts can be evaluated by users. Figure 29 shows the interaction with the pieces from Figure 27. The difference in scale and the addition of features indicate a different way of holding and manipulating each piece.

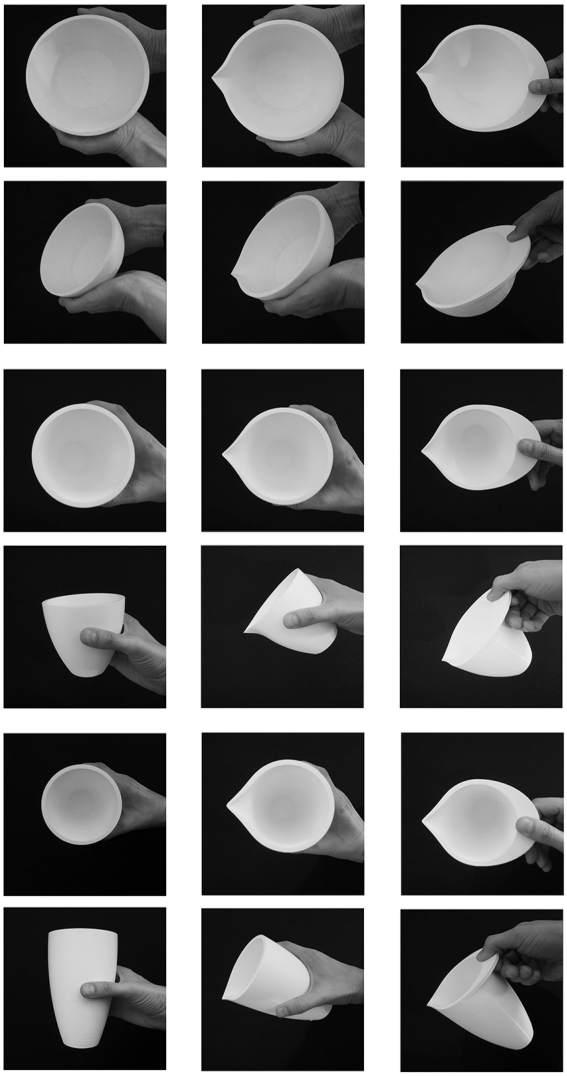


Figure 29:
Chaparro, Y. (2022) Manipulation of Grid Variations from Figure 22 [3D PLA prints photos, user interactions]

The same is observed in Figure 30, showing the interactions with the artefacts resulting from the sequences shown in Figure 28 (p.69).

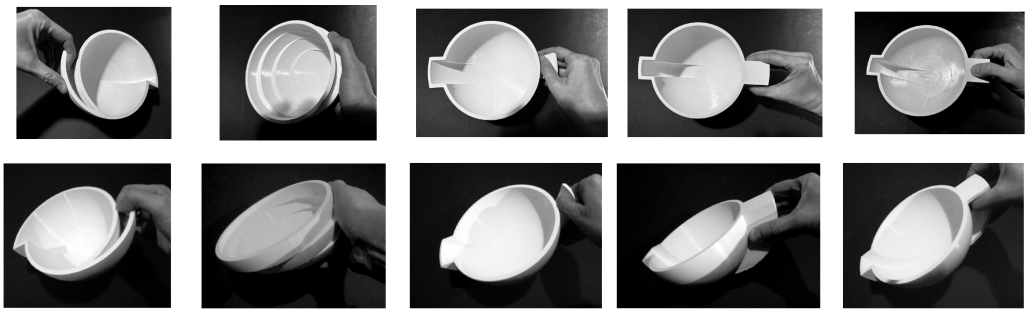


Figure 30:
Chaparro, Y. (2023) Manipulation of Grid Variations from Figure 23 [3D PLA prints, user interactions]

## 4.4. Summary of practice as exploration

The practice of Industrial Design is taught through project work. This chapter exemplifies how a professional designer asks questions and answers them by exploring possible paths in the analysis and synthesis phases. The designer creates prompts and exercises to produce artefacts, diagrams, visuals, and ideas that can lead to a proposal through the design process.

This chapter focuses on the methods and exercises used to understand typology and morphology in the context of *the programme*, by using an everyday object as example: the bowl. The main questions that these exercises helped me explore are: What are the main features of a typology? How does morphology determine the features of a typology? How far can I take a typology to its limit before it becomes a sub-typology or a new typology? The methods used in in this phase of the PhD by practice include Abstraction Analysis, Intersection Exercises, Juxtaposition Studies, and Morphological Transformations. In addition, Design methods and skills are used to complete the above method implementation, including sketching, diagramming, 3D digital models, and 3D PLA printed models.

The examples shown in this chapter help communicate how a designer works and how having physical artefacts and visual outputs can help the designer learn about a project and develop possible starting points. *The programme* demonstrates these activities visually through a diagram. *The programme* is therefore a useful construct to reflect on our processes as designers but also as a way of teaching design. In terms of teaching design students in university level, it will be discussed in Chapter 5, Reframing *the Programme* as a New Pedagogical Methodology.

As a designer and educator, I have found that abstraction exercises facilitate understanding of an artefact by de-composing it into smaller parts, understanding the relationships between

the parts, and understanding how the parts can communicate with others. Abstraction exercises identify basic features and components that can initiate a *programme*. This process will be discussed in Section 6: Chapter Three, Reframing *the Programme* as a New Pedagogical Methodology (p.138).

The exploratory work illustrated in this chapter can be added to the diagram of *the programme* as shown in Figure 31. *The programme* continues to develop as the designer moves through the design process, including the analysis, synthesis, and evaluation phases. As shown in this chapter, the designer furthers research, exercises in abstraction and de-composition, develops compositional options, leading to an iterative process, and creates prompts for explorations and more advanced research such as ethnographical research with users.

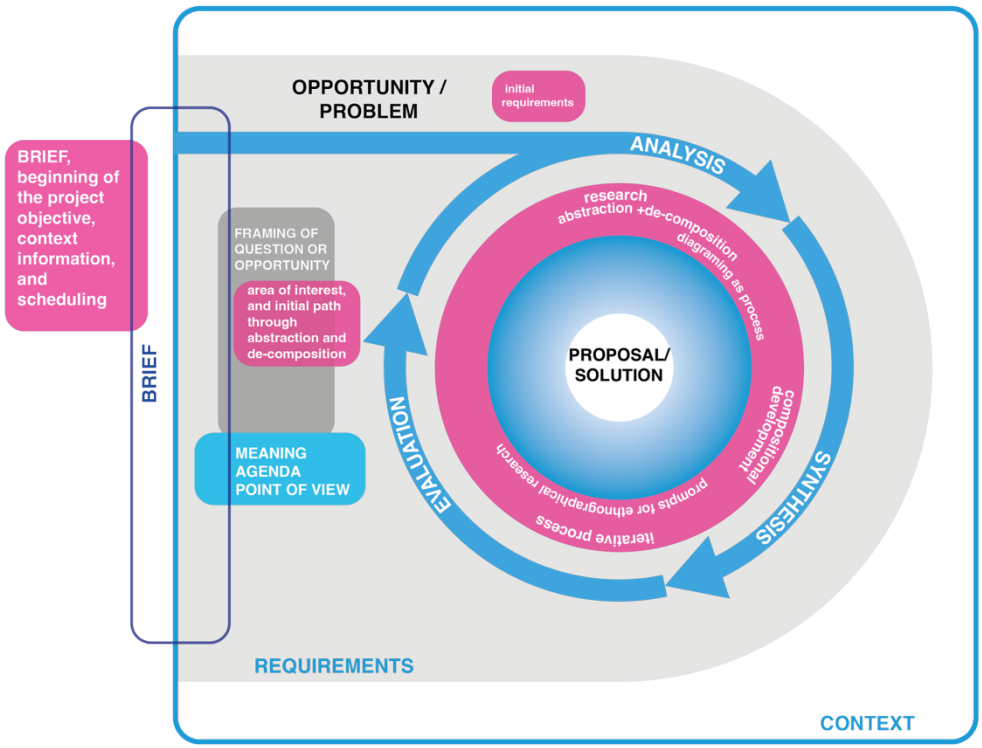



Figure 31:
Chaparro, Y. (2025) *The Programme* Through Abstraction, De-composition, Diagramming, and the Iterative Process [diagram]

## 5. CHAPTER TWO. ACTION RESEARCH WORKSHOPS: EXPLORING *THE PROGRAMME* IN INDUSTRIAL DESIGN

Building on the previous chapter, all explorations that develop from a professional practice experience translate into my work as an Industrial Design educator. This requires me to understand how designers work and develop that knowledge and skills in students through project-based teaching.

The practical explorations shown in Chapter One are the basis for prompt development aimed at workshops geared toward students. The intent of the workshops is, firstly, to remind students of concepts and terms they have previously learned in their studies. The concepts are typology and morphology, which are *the programme's* main elements. Secondly, the students will be engaged in making sequences of typologies of Industrial Design. Thirdly, they should reflect on their decisions while making their sequences. This prompting is intended to make the students aware of how they already use *the programme* and how they are equipped to initiate it. The workshops included written questionnaires, verbal interviews, and prompts to create artefact sequences with sketch materials.

After each workshop was delivered to students at the MFA design level at Parsons, data was collected through audio-visual, written, and sketched documentation. Afterwards, the data from the five workshops were analysed through visual analysis and thematic analysis (p.73), leading to critical reflections and facilitating the development of a new pedagogy through the reframing of *the programme* in Chapter Three (p.138).

As argued in the Introduction (p.14), Industrial Design is taught through projects and Briefs; designers generally learn through designing and making. These workshops represent the way students learn during their time at school. They are exposed to terminology used in the discipline, as they are given prompts to apply the skills, tools, and process of design, and they learn through making.

The workshops required ethical approval from LJMU to work with students, see Appendix 2 (p.200) for the documents; furthermore, due to the recruitment of students at Parsons School of Design / The New School in New York, ethics approval also had to be secured at Parsons. Student participants were recruited, and the workshops were facilitated by research assistants to avoid any undue pressure on MFA Industrial Design students from the researcher. All five workshops started with participants completing ethics and consent forms. They were then given a combination of tasks and activities, including a written questionnaire involving questions about basic design concepts, the identification of bowls in sequences or grids, a presentation of 3D sequence examples by the researcher or research

assistant facilitating the workshop session, prompts for students to make sequences of their own and an oral interview including a recounting of the decisions taken by the participant during the workshop.

The research assistant facilitating the workshop's process and outcomes would meet with me after each workshop. We created a preliminary summary, including modifications for the subsequent workshop, exemplifying the action research methodology. These iterations in the prompts or tasks for the workshops, based on such insights, constitute one of the methodologies used in this research project: Action Research, further described in the Research Methodologies and Methods Chapter (p.49). As shown in Figure 32, the workshop tasks were modified based on initial observations and a summary of the process and outcomes of each workshop. The workshops' tasks are listed, showing where they continue or change in the next workshop. Workshops are described in chronological order, starting with Workshop One. Thematic analysis of the data from each workshop produced conclusions that helped construct *the programme* proposal in Chapter Three (p.138).

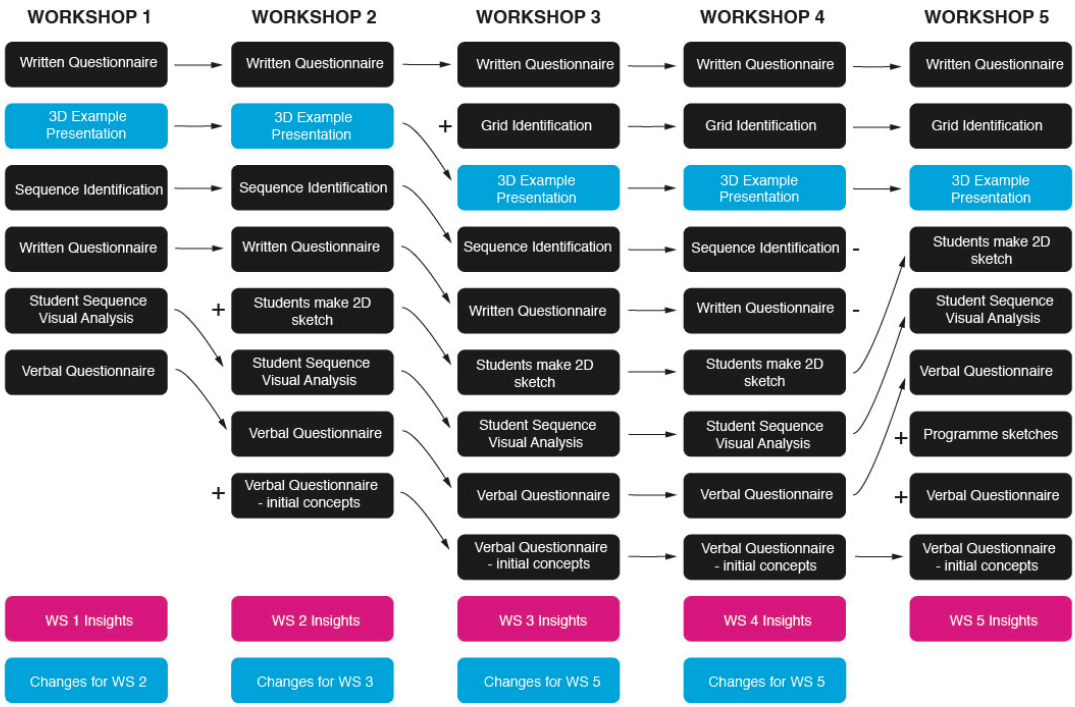



Figure 32:
Chaparro, Y. (2023) Workshop Iterations [diagram]

## 5.1. Workshop One

[9 December 2021]

The participants in this workshop were seven MFA Industrial Design students at Parsons / The New School. Each participant completed a questionnaire defining basic design concepts (Typology, Morphology, Object, Practical Function, Aesthetic Function, and Usability). This questionnaire is designed to remind students of terms they have encountered in their studies at Parsons; it also assesses their understanding of these terms and whether they can articulate them effectively. See Volume 2 – Appendix, Workshop One (p.202) for the complete data.

I use data transcribed by the research assistant to find insights through clusters of information. This process of thematic analysis employs an inductive approach (Braun and Clarke, 2022). Themes and codes are identified from the data. The categorisation of codes is aided by using colour to identify responses associated with each code. The codes were determined by the kind of answers from the students, as listed in Figure 33.

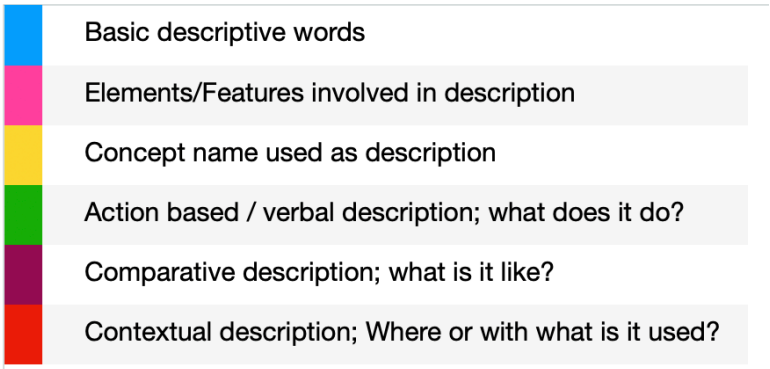



Figure 33:
Chaparro, Y. (2023) Colour Coding Key for Thematic Analysis of Themes [diagram]

### Term Definitions

***Typology*** Four out of seven participants understood that typology refers to categorisation; on the other hand, the use of words ‘type’ and ‘archetype’ indicates that three participants could not explain the definition of typology outside of the word itself. Overall, the use of the words ‘product’ and ‘artefact’ indicated to the researcher that the participants understood the basic concept and how it is used in the design discipline since typology gives a name to objects of Industrial Design.

***Morphology*** Part of the definition was correctly given by the participants, using the word ‘form’. Four out of the seven participants, however, added a characteristic to the term that is not accurate: transformation. Since the concept of morphology only refers to the study of form itself, it does not include function. The exercises in class, where participants were asked to transform forms through morphological tools, might have confused them about the concept’s scope. Going forward, I will make the distinction between morphology and transformation to avoid misunderstanding by the students.

***Object*** All students correctly equated the object with a physical artefact.

***Practical function*** By using action words, the participants demonstrated a basic understanding of an object’s practical function and how users activate it; for example, a participant mentioned the interaction between a user and the designed object.

***Aesthetic function*** Only two participants mentioned beauty, but four out of seven mentioned understanding an artefact through the senses. Communication is more complex and includes both aesthetic and practical functions; however, the participants seemed to attribute the capacity for communication solely to the aesthetic function.

***Usability*** The participants showed a basic understanding of the concept by using words such as ‘work’, ‘use', ‘function’, and ‘interaction’.

### Sequences and Bowl Identification

Participants were asked to view and manipulate the 3D physical sequences created by the researcher. As explained in Professional Practice as Experiments, Chapter 4, the sequences are artefacts showing transformations from a bowl to a pitcher, illustrated in Figure 34. The participants were then shown images of the four sequences and asked to identify and label each element as ‘Bowl’, ‘Pitcher’, ‘Both’, or ‘None’.
[I recognize now that the opposite of ‘both’ is ‘neither’ not ‘none’, but this is how the question was asked of the participants. All workshops in this chapter have the same grammatical mistakes.]

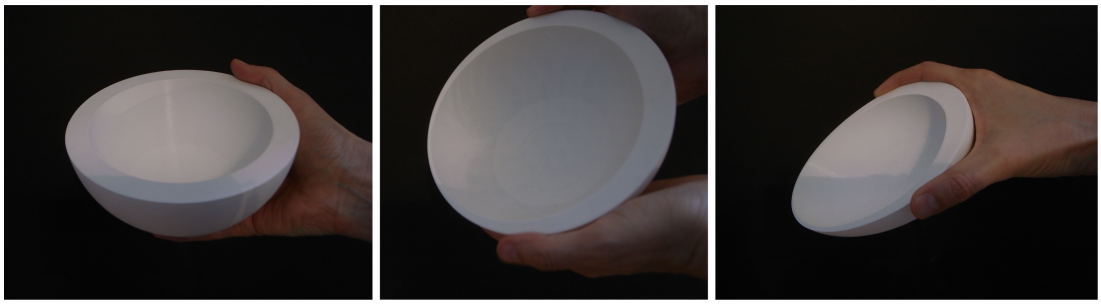


Figure 34:
Chaparro, Y. (2022) 3D Artefacts of ‘Bowl to Pitcher Sequence 4’ [3D PLA prints, user interaction]

***Sequence 1*** is shown in Figure 35. The participants identified the half sphere as a bowl and were open to the idea of a bowl when the smaller diameter in B is opened up by adding the spout, with the majority describing it as ‘both’.

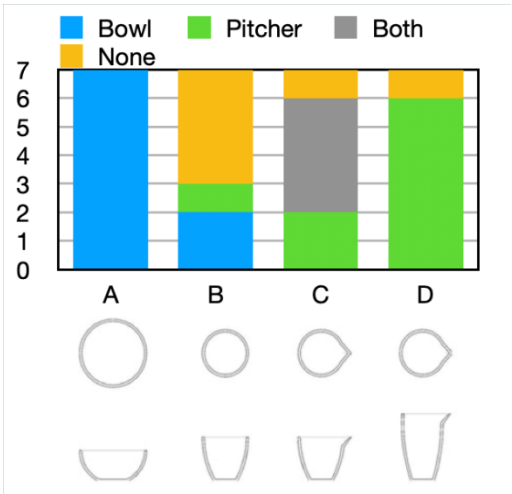



Figure 35:
Chaparro, Y. (2023) Sequence 1. W1. [table, diagram]

***Sequence 2*** is shown in Figure 36. All participants identified the first piece as a bowl; a few continued to identify the piece as a bowl even when it had a spout. Most participants still identify it as a ‘Bowl’ or ‘Both’ on the third step. The last piece includes all possible labels.

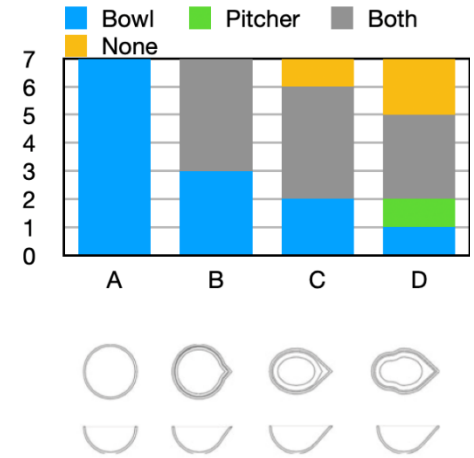



Figure 36:
Chaparro, Y. (2023) Sequence 2. W1. [table, diagram]

***Sequence 3*** is shown in Figure 37. The participants identified the first piece as a bowl (except for one participant who identified the previous sequences as starting with a bowl, meaning it might have been a mistake in sequences 3 and 4). Most students identify the second step piece as a 'bowl' or 'both', and finally, the last one is equal parts 'pitcher', 'both', and 'none'.

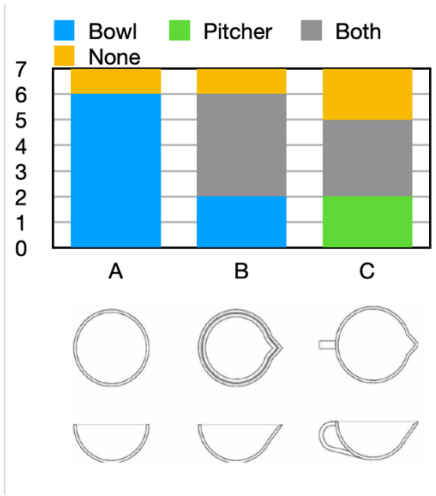



Figure 37:
Chaparro, Y. (2023) Sequence 3. W1 [table, diagram]

***Sequence 4*** is shown in Figure 38. One participant identified all steps as neither a bowl nor a pitcher. All other participants considered the three pieces 'bowls', none as 'pitcher'.

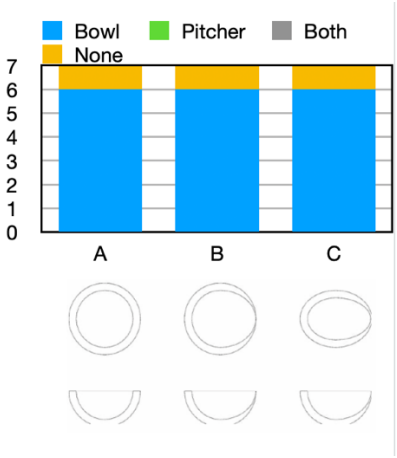



Figure 38:
Chaparro, Y. (2023) Sequence 4. W1 [table, diagram]

From these results, if the artefact remains low and wide, it will be understood as a bowl, even if it has added features such as a handle and a spout. On the other hand, if it increases in height and diminishes in diameter, then it will be understood as a pitcher more easily. By showing my experiments, the question of a pitcher being expanded can also provide participants with more flexibility in understanding an artefact as a pitcher, in the presented sequences.

### Bowl and Pitcher Typologies

The participants were asked to answer further questions about their understanding of bowls and pitchers. The complete individual answers with coding are in Volume 2, Appendix - Workshop One (p.202).

***What are the characteristics or features of a bowl?*** As in the previous questions, the participants react to the examples of sequences shown. They successfully mention all the key parts of a basic bowl, including expected features such as height and shape. Features are also explained through the functional requirements.

***What are the characteristics or features of a pitcher?*** The participants were also shown pitcher possibilities through the 3D sequences. They could name the basic features and the familiar idea of a pitcher was described, for example: ‘It’s tall’. The participants also based the features on the need ‘to pour’.

***How does one transform a bowl into a pitcher?*** The participants could articulate how the sequences added features and changed proportions (although the students did not use this

specific term). They identified the requirement for gripping to manipulate and pour (mainly including a handle) as the primary practical function of the pitcher. The answers included language expressed during the presentation of the 3D-printed pieces, leading me and my research assistant to conclude that the understanding of what makes a bowl and a pitcher has expanded from a narrower idea.

### Visual Analysis of Typologies

The participants were asked to choose from three 3D sketching materials (clay, wire, and paper). They were given the prompt to create a sequence transforming a candle holder typology into a lamp typology, in addition to a hybrid between the two typologies, as shown in Figure 39.



Figure 39:
(2021) Participant 1. Transformation from Candle Holder to Lamp [photo credit: Levy, M.]

I created diagrams directly on the photos taken during the workshops, showing the sequences made by the participants, going from a candle holder to a lamp. I used notations to identify features applied to the artefacts, as shown in Figure 40. This was in addition to the oral interviews, during which the participants explained their process. See Volume 2 – Appendix, Workshop One (p.196).

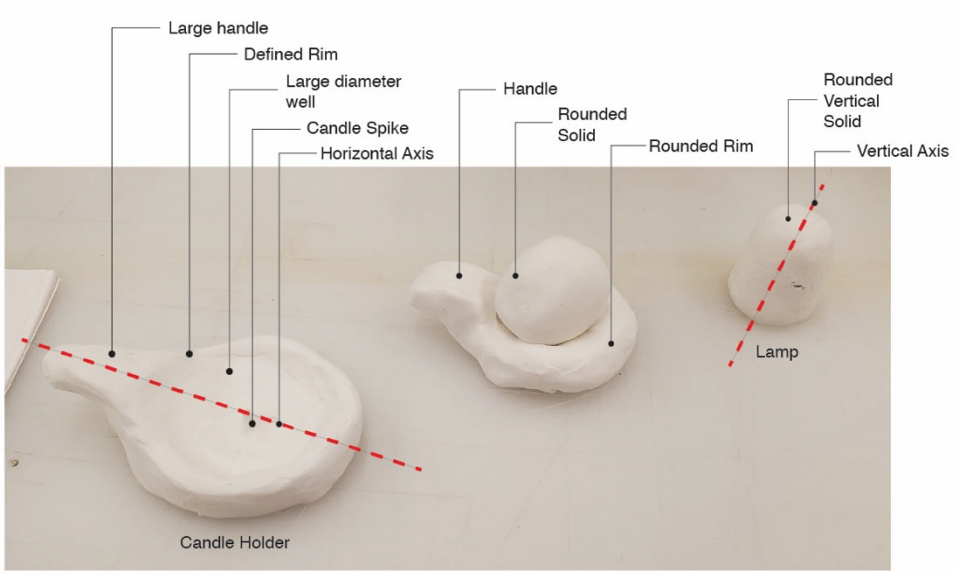



Figure 40:
Chaparro, Y. (2023) Visual Analysis - Feature Recognition - W1.P1. [notation diagram on photo]

- Only one participant chose wire, while most chose clay, which suggests that the participants have more experience with clay or that it is easier to manipulate. It is noted that the sequences in clay communicated the sequence artefacts in more detail, albeit still as a general and quick sketch.

- The participants identified the requirements for the candle holder and lamp typologies, explaining that these determined how they considered and compared each piece.

- The main features of the candle holder included a combination of a flat surface or cup for the candle to sit in, a wall or spike to hold the candle in place, a well to collect melted wax, and a handle or physical distance to keep the heat away from the hand. It is deduced that the use of a candle and its physical properties determined the piece's proportions, size, overall shape, and inclusion of features such as a handle, base, or rim.

- The Lamp artefact included the awareness of light being manipulated by the designer through the form of the material. Due to the flexibility of artificial light devices, the forms were more varied, allowing for more attention to be given to aesthetic features.

- The middle artefact either exemplified a merging of the formal characteristics of the candle holder and the lamp, produced innovative opportunities for producing a new typology, or produced a combination of typologies. An example of the latter can be

seen in Figure 41, where the participant describes the hybrid as a lamp typology (spherical element) on top of a charging base (for the lamp).

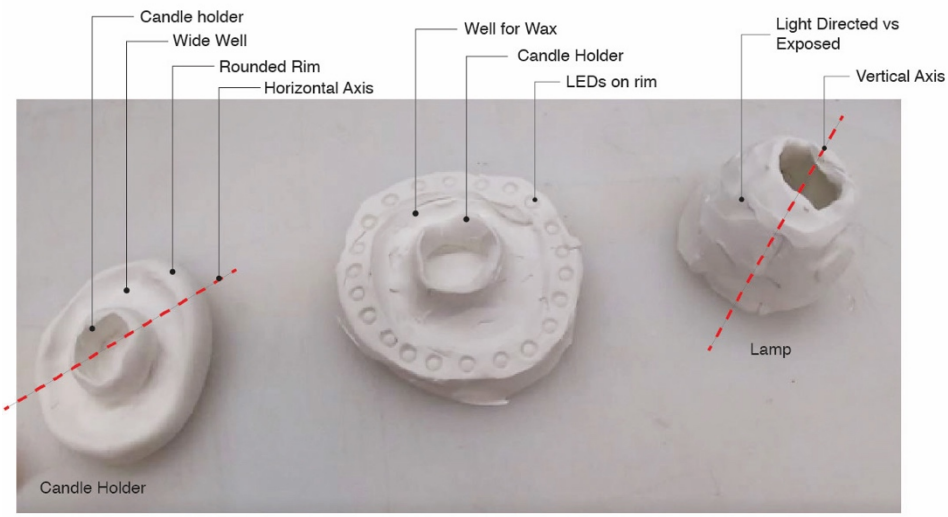



Figure 41:
Chaparro, Y. (2023) Visual Analysis - Feature Recognition - W1.P2 [notation diagram on photo]

The participants' decisions about the initial artefact would determine what the hybrid looked like. For instance, Figure 35 followed the initial proportions of the candle holder piece, featuring a wide flat rim but incorporating lamp typology elements, such as artificial light (LEDs) around the rim. This is an example of combining the two typologies into one. It can still hold a candle and it is a lamp at the same time.

Depending on what kind of candle the participant envisioned first, the proportions of the candle holder changed. When envisioning a wider candle, the candle holder typology features a flatter area and a horizontal axis. Conversely, when envisioning a tapered long candle, the candle holder tends to be narrower and taller. The participant in Figure 42 added a more pronounced base to counter the instability of a narrow, tall piece.

Once again, the sequence shown in Figure 42 is a good example of the priorities the participants gave to each artefact of the sequence. The lamp's body is bent and twisted, as it does not need to hold the candle upright but rather to direct the artificial light source at an angle. In this case, it is directed to the side; the artefact, however, continues to have a vertical axis. The middle piece shows the bending of the form and incorporates a functional handle in the candle holder, transforming it into a structural piece with a more aesthetic purpose. It represents the middle step between the candle holder and the lamp pieces.

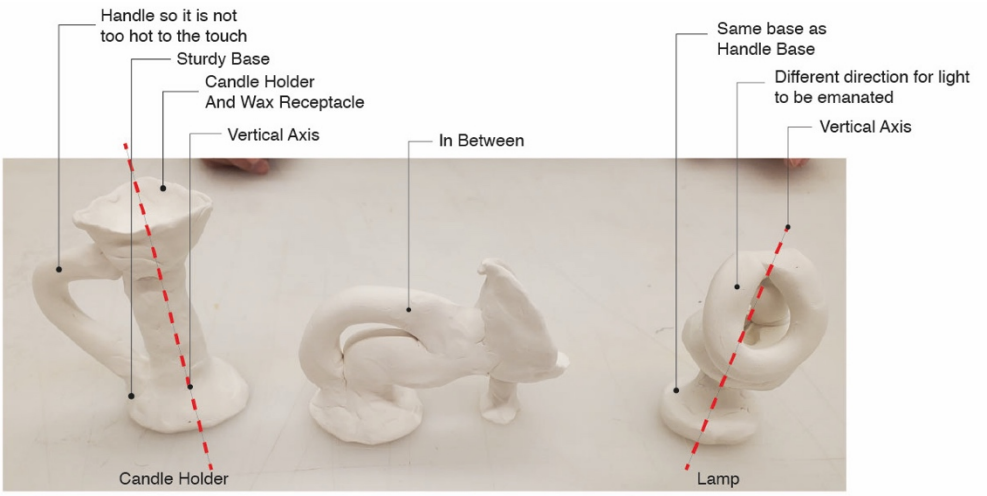



Figure 42:
Chaparro, Y. (2023) Visual Analysis - Feature Recognition - W1.P3 [notation diagram on photo]

The sequence in Figure 43 was constructed with linear structures and bends, and it has a very fluid feel. The candle holder is made for a very slim candle — there are questions about the stability of that piece. The lamp continues the fluidity and exaggerates it. The aesthetic inspiration is a “tangled cable”, as per the participant’s comments. The functional features of this sequence seem to be secondary.

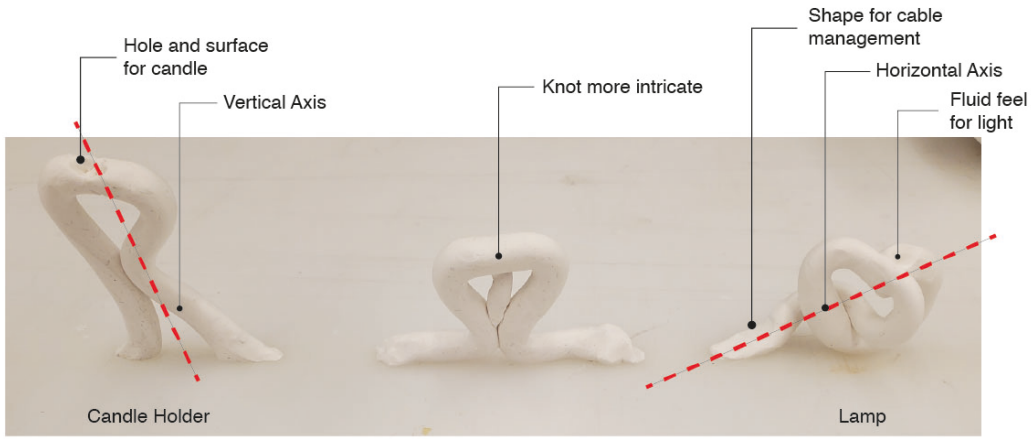



Figure 43:
Chaparro, Y. (2023) Visual Analysis - Feature Recognition - W1. P5 [notation diagram on photo]

The sequence shown in Figure 44 is the only sequence sketch made using wire. The forms were elementary, including a flat circle as a candle holder with a delicate element to hold the candle in place, yet lacking a bottom area element to hold a candle in place. The lamp piece has the same base as the candle holder and features a mirrored shape on top, where the light bulb would sit. The hybrid is a middle-height piece with a candle holder base on the top. Due to the material choice, it was difficult for the participant to provide any detail about the artefacts, and it was also challenging to discern the intent clearly during the visual analysis.

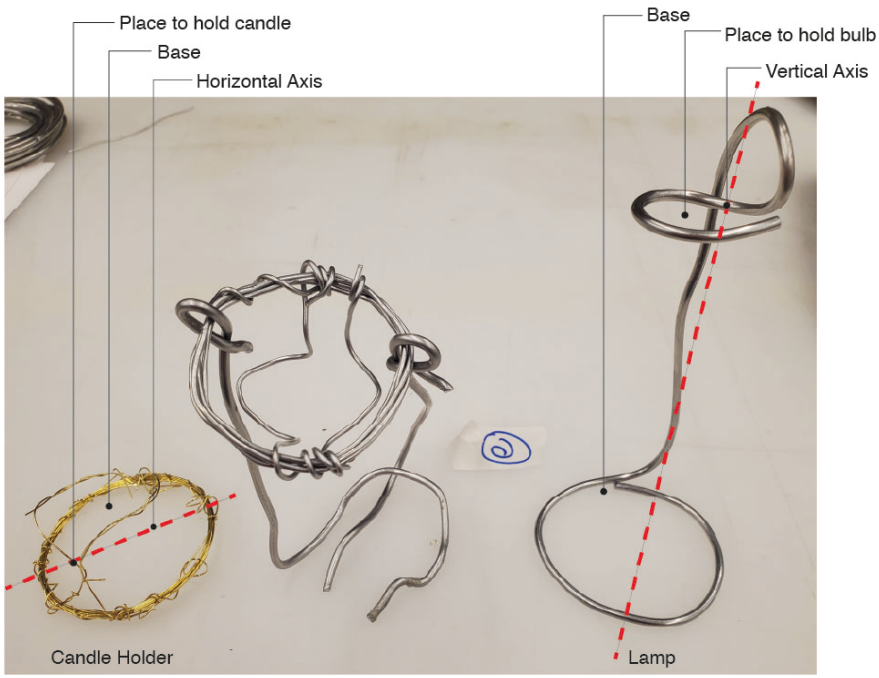



Figure 44:
Chaparro, Y. (2023) Visual Analysis - Feature Recognition - W1.P6 [notation diagram on photo]

## Prompt Process

The participants were asked a series of oral questions about their process of creating the sequences. The answers were video recorded and transcribed by the research assistant. The transcribed data was added to the workshop table and analysed thematically by the researcher. See all answers in Volume 2 – Appendix, Workshop One (p.196).

The following summarises participants' responses to the oral interviews.

***What characteristics and features were the most important for you when making the single candle holder?*** In this situation, an external object, a candle, determined the requirements regarding shape. Six out of seven participants mentioned the candle's shape and size and added elements such as a spike to hold it in place. They also understood the requirements of the object in use, such as the need to collect melted wax. Finally, the need to interact with the piece, hold it and place it on a surface required the form to incorporate a handle to grip it and a base for stability. All these observations of "what is needed" determined the basic features of the typology.

***How did you decide on the steps to change to get to the lamp?*** The new element involved in the lamp typology was a bulb or light source. The students' decisions regarding the lamp features primarily focused on directing the light source. There was also

consideration regarding the technology, such as where a bulb would be introduced — not all students considered what the needs for technology were when designing a lamp.

***Does the lamp remind you of the original candle holder?*** Four of the participants described the similarity of the first and last typologies, using comments such as “only the roundness”, “I feel like the form of this one (last) derived from the first one”, and “the language is pretty similar”. Two of the participants thought that they were different; however, one of them thought that the base was similar. Three participants explained the differences between the typologies based on the need to control the light (enclosing, projecting, and directing it). From these answers, it was deduced that most students recognised formal relationships between the typologies of the sequence but made conscious decisions to transform the object depending on the features each typology required. Going from a typology that necessitated holding a candle to one that required directing the light of a light source element indicated the need to consider technology elements, such as a socket for a bulb and an electric source.

***Reflections about personal decision-making process when making the definitions.*** Two participants refer to the examples (such as a sequence from a bowl to a pitcher) to explain how they went through their decision-making process. Some participants answered this question referring to the concept definitions. Two participants mentioned that they were unable to articulate their decision-making process clearly.

**Were you considering the practical and aesthetic functions when making these models?** [question added by RA]
Three participants started or favoured the practical function, two of which focused on the aesthetic function afterwards. Two of the participants started with the aesthetic function. These comments by the participants helped me find insights through visual analysis.

### Summary of Workshop One

- By including the general concepts in the initial questionnaire, participants are reminded of that language, which aids their understanding of the questions about typologies. This is illustrated through 3D pieces that demonstrate a transformational sequence between a bowl and a pitcher.

- By asking the participants to transform simple typologies that they were familiar with beforehand, figuring out the features was not complicated for them. It also allowed them to exercise freedom of design.

- By framing the prompt around the transformation between two typologies, the participants are starting to develop *the programme* for the two typologies at play.

- The main concepts of *the programme,* typology and morphology, are reinforced to the participants.

**Action Research Modifications to be applied to Workshop Two**

- The artefacts to be transformed using morphological tools needed extra explanation, specifically the middle step. The students will be shown a more structured sequence with a precise tool applied as a middle step [giving them a structured application of forces as opposed to the intuitive application of forces].
- A prompt for a 2D sketch to be added to the workshop as a first step in making the transformation sequence.
- The participants will identify features needed for each typology; a new typology will be chosen for the next workshop. In workshop one, the students were asked to go from a candle holder to a lamp. Having a more complicated piece (the lamp, which included technology elements) made the two pieces too complicated as a pairing. For Workshop Two, simpler pieces will be chosen.
- Questions about concepts asked in the written questionnaire will be asked again orally at the end of the workshop.
- The next workshop will simplify semi-structured interview questions; the first workshop became too long, and students wanted to leave.

## 5.2. Workshop Two

[6 April 2022]

The participants in this workshop were four MFA Industrial Design students at Parsons. The number of students in this workshop was less than ideal on its own, but as part of the complete series of workshops, it helped confirm that the results were consistent. Therefore, after conversations with the supervisory team, it was decided to include this workshop.
As in Workshop One, participants completed a questionnaire about the definitions of fundamental design concepts: typology, morphology, object, practical and aesthetic functions, and usability. See Volume 2 – Appendix, Workshop Two (p.221) for detailed answers. The main findings are as follows:

### Term Definitions

***Typology*** Three of the four participants used words such as 'category', 'types', and 'classification' to indicate their understanding of the concept. One participant defined it as 'language', which can be misleading, whereas another added the concept of 'functions', indicating a deeper understanding of the concept of typology.

***Morphology*** Three of the four participants were clear on the concept of morphology; the last participant attributed the term the characteristic of transformation. However, the answer given by the last participant includes 'typology'. This participant could not define typology clearly, yet the way they used the term in this answer about morphology leads me to infer that the participant understands what typology is, albeit they might struggle to articulate it.

***Object*** All participants appear to be clear on this concept, except for the last participant who used the term 'non-living entity', which requires further explanation.

***Practical Function*** All participants understand what the practical function is, using descriptions such as: 'function based on action/activity', 'Most direct use of an object / action', and 'A function that could be work/workable, not the unfunctional [sic] prototype which is just an object with an appearance.' These definitions all describe active engagement, which is how people interact with an object, showing that they understand the definition of practical function.

***Aesthetic Function*** All participants seem to show an accurate understanding of this concept by using descriptors such as: 'The function that is mostly received through observation', '…a certain object/design has an aesthetic value…', 'Function based on form and emotion…', and 'Indirect desired outcome that may reflect a form of expression / emotion / outward appeal.'

***Usability*** I believe that the participants understand the concept. They used descriptions such as, ‘How the object/design/product can be used, and the depth of the range’, ‘How well an object interacts with its intended user’, and ‘fulfilling specific needs’.

## Sequences and Bowl Identification

Participants were asked to look at a new series of 3D sequences created by the researcher for Workshop Two. As explained in Chapter One (p.58), the sequences for this workshop followed a structured use of morphological tools. Sequence 1, for example, included Extrusion and Carving as the tools for transformation. The participants were asked to identify and label each sequence element as: BOWL, PITCHER, BOTH, or NONE.

***Sequence 1*** is shown in Figure 45. All four participants identified the first piece as a ‘bowl’. Once the extrusions were added, one of the participants thought the piece was ‘none’. Once the handle and the spout were defined visually, half of the students identified the piece as a ‘pitcher’, and the other half identified it as ‘both’.

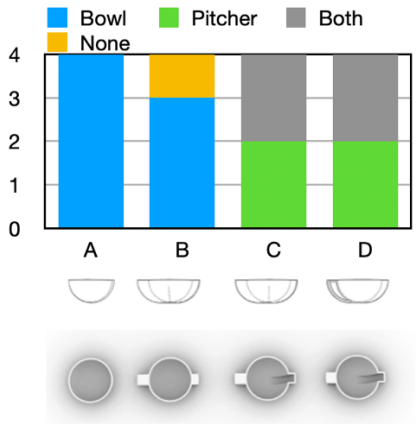



Figure 45:
Chaparro, Y. (2023) Sequence 1. W2 [table, diagram]

***Sequence 2*** is shown in Figure 46. All four participants identified the first piece as a ‘bowl’. The application of the morphological tools, cut and shift, was labelled as ‘none’. Finally, by defining the spout and handle, the piece became, for one participant, a ‘pitcher’, for two of them ‘both’, and for one participant ‘none’.

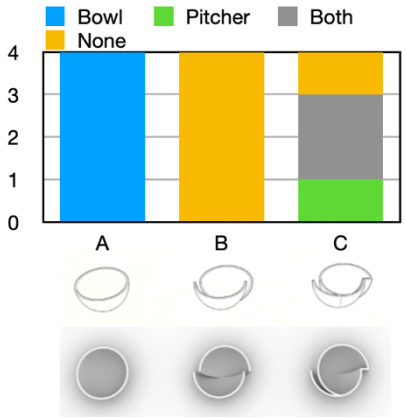



Figure 46:
Chaparro, Y. (2023) Sequence 2. W2 [table, diagram]

***Sequence 3*** is shown in Figure 47. Three of the four participants labelled the first piece a ‘bowl’ (this might have been a mistake since all participants identified the same piece in all other sequences as a ‘bowl’). All four participants identified the middle step as ‘none’. Two participants identified the last piece as a ‘bowl’, one as a ‘pitcher’, and one as ‘none’.

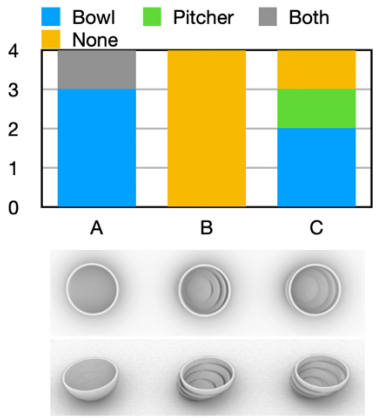



Figure 47:
Chaparro, Y. (2023) Sequence 3. W2 [table, diagram]

***Sequence 4*** is shown in Figure 48. All four participants identified the first piece as a ‘bowl’, the second piece as ‘none’, and finally, three of the four participants identified the final piece as a ‘pitcher’, and one participant identified it as ‘both’.

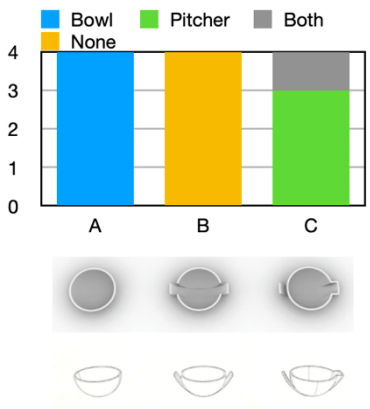



Figure 48:
Chaparro, Y. (2023) Sequence 4. W2 [table, diagram]

The researcher concluded that as the middle piece of the sequence shows the example of what morphological tools were used, the participants could not identify it quickly. The middle piece was labelled as ‘none’ in three sequences out of the four. In the sequences where features such as a handle and a spout are clearly shown, the participants were more likely to label them as a ‘pitcher’ or as ‘both’. By showing the sequences to the participants early in the workshop, a few were open to labelling an artefact as a ‘pitcher’.

### Bowl and Pitcher Typologies

The participants were asked to answer more questions about their understanding of bowls and pitchers. The complete individual answers with coding are in **Appendix - Workshop Two**.

***What are the characteristics or features of a bowl?*** All participants mentioned the iconic shape. For example, one of the participants described it as “hemispheres”. Others focused on the function. Some of the words used were: “holding other objects”, “stable, to contain the food”, “function of holding something”.

***What are the characteristics or features of a pitcher?*** The participants described the physical characteristics by using words such as “need handles, need spouts”, and “container for liquids usually with a handle and mouth”. In terms of function the participants used words such as ‘pouring’ and ‘moving liquid’.

***How does one transform a bowl to a pitcher?*** The participants demonstrated a clear understanding of each of the two typologies and, therefore, were able to identify the features

or requirements of each. They were also able to explain the changes and differences through these features.

The above questions helped the participants process what they had seen in the sequences from bowl to pitcher.

The participants were asked to develop a sequence of three items, starting with a Plate typology and ending with a Mug typology, showing what the hybrid or middle piece would look like. Firstly, they were asked to make a 2D sketch (drawing) showing the sequence. In the previous workshop, participants were not asked to include a 2D sketch; by adding the 2D sketch first, they could plan. The research assistant noticed that in the previous workshop, the participants struggled to decide what the 3D artefact sequence would look like. The research assistant noted that it had been easier for the participants to make the 3D sequences with sketch materials after they had made the 2D drawings. Additionally, 2D drawings facilitated the analysis phase by making some of the sequence images more explicit.

### Visual analysis of typologies

Using the photographs taken during the workshops of the sequences in both 2D and 3D form, going from a plate to a mug, and aided by the oral interviews in which participants explained their process, I created diagrams directly on the photos. See Volume 2 – Appendix, Workshop Two (p.221).

The participants identified the main features of a plate: flat container, stability on a surface, and small rim to delimit the inside surface of the plate. They also identified the main features of a mug: container for liquid, open top, rim to define opening on top, stability on a surface, handle, or surface to grip. The middle piece is a step between the plate and the mug, indicating a linear process.

The participant's work, as shown in Figure 49, was constructed in wire; however, the photograph of the sequence was difficult to understand during the analysis. The 2D sketch requested in this workshop was helpful in the analysis, as it made the participant's intent clear since the wire did not communicate well in the photo. The notations were applied to the 2D sketch instead of to the sequence photo for the visual analysis.

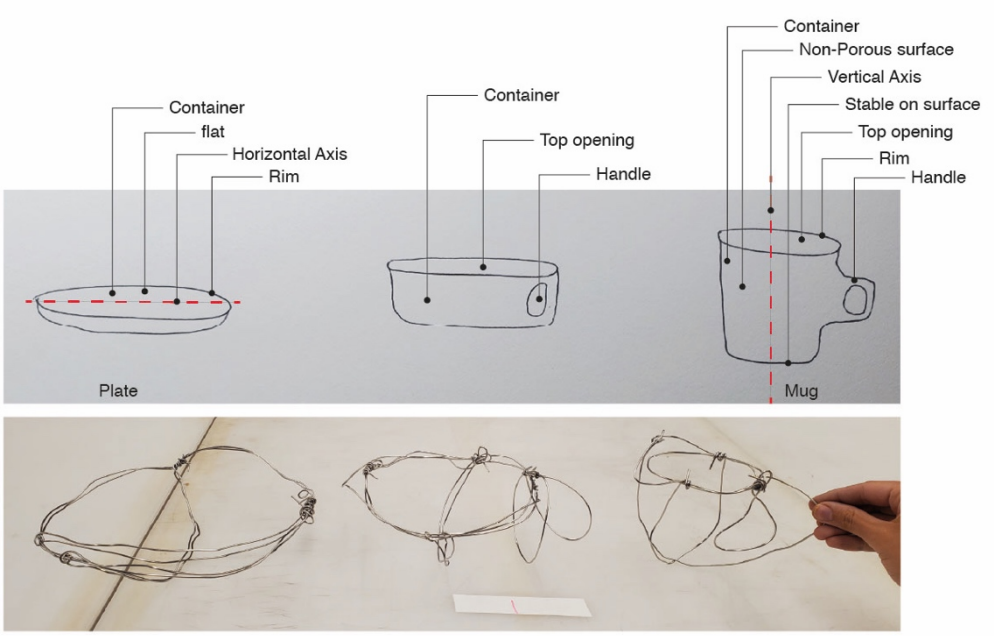



Figure 49:
Chaparro, Y. (2023) Visual Analysis - Feature Recognition - W2. P10 [notation diagram on photo]

The sequence shown in Figure 50 illustrates the plate being extruded along the y-axis, featuring an opening in the surface for a handle, which is refined and tightened by decreasing the diameter and making the handle more prominent.

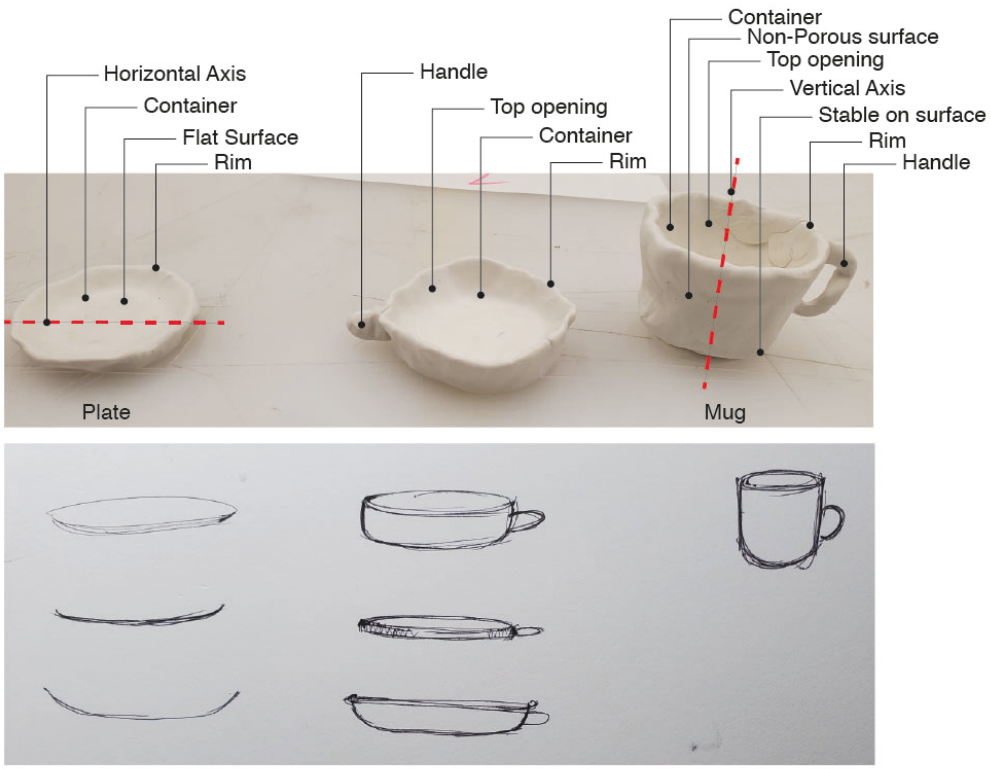



Figure 50:
Chaparro, Y. (2023) Visual Analysis - Feature Recognition - W2. P11 [notation diagram on photo, participant drawing photo]

The sequence in Figure 51 exemplifies a structured sequence; the morphological tool used was folding. The participant chose paper, which is a surface-based material. The plate has basic folds create an angled surface slight enough to determine an inside and outside, but that can still be read as a flat container. The middle piece adds folds to make the angled surfaces more pronounced, creating a taller wall and suggesting a bowl typology. Finally, the mug typology is formed in the third piece by increasing the folds and closing the surface into a hollow prism. Therefore, one identical module folded at different angles created the three pieces of the sequence. This example demonstrated that the participant was considering the features of the tray and vase while devising a system that could produce the three pieces in the same manner — by folding the same module more or less.

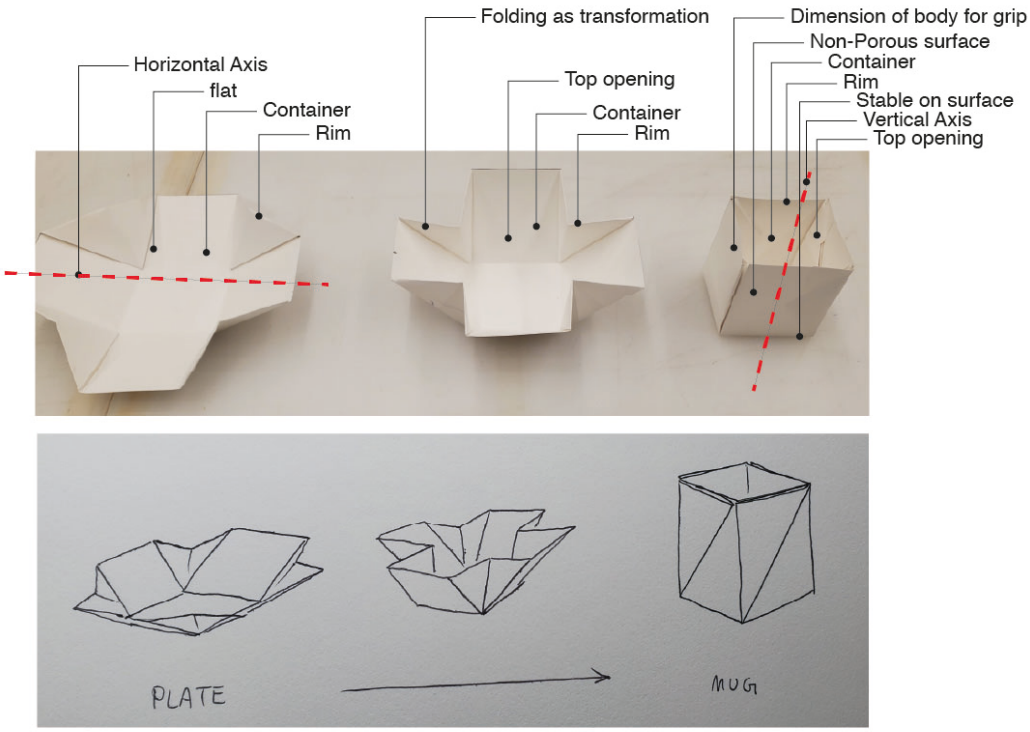



Figure 51:
Chaparro, Y. (2023) Visual Analysis - Feature Recognition - W2. P12 [notation diagram on photo, participant drawing photo]

### Oral Term Definitions

The students were asked orally to define the same concepts they had written in section 2.2.2. The oral definitions were consistent with the written ones, even though some of the oral questions remained unanswered. The most notable insights were that one participant confused typology and morphology in their oral answer, and another incorporated the prompt into their oral definition of typology, stating “In this project going from a plate to a mug, I was thinking how the function would change…” I deduced that they understood the concept of typology due to the use of function to describe the elements of the sequence. See Volume 2 – Appendix, Workshop Two (p.221), for all answer transcriptions.

### Summary of Workshop Two

- The understanding of the basic design concepts did not change throughout the workshop.

- The participants were given a more structured explanation of transformation for the sequences when shown the physical models developed by the researcher. Participants translated that into their sequences, specifically in the middle piece, as a way of exemplifying the morphological tools used.

- The participants continue to have an understanding of the main requirements of the typologies used in the sequence.

- The typologies given as a prompt for the sequences, plate to mug, made the exercise simpler for the participants, removing any technology requirements (such as those included in a lamp in the previous workshop).

**Action Research, Modifications to be applied to Workshop Three**

- The participants can identify features needed for each typology; new typologies will be chosen for the next workshop. A tray and a vase have few defining features; the typologies chosen for workshops three and four will have more features to work with.
- The participants will be shown the initial transformation grid and asked to identify bowls only, not pitchers, to make it less complex.
- The participants will be given two groups of transformations, one organised and one disorganised, to determine whether there is a difference in their perception of pieces.

## 5.3. Workshop Three

[3 October 2022]

The workshop sessions included twenty-one MFA Interior Design students from Parsons as participants. See Volume 2 – Appendix, Workshop Three (p.238) for detailed answers. The main findings are as follows:

### Term Definitions

Participants completed a questionnaire that included basic concepts similar to those presented in the previous workshops. These were the main findings for each concept:

***Typology*** The researcher deduced that amongst the group there was a general understanding. As with previous workshops, the use of 'type' or 'typology' as part of the answer indicates a lack of confidence in articulating the concepts; however, the use of words such as 'category', 'categorising', 'subcategory', and 'organising' confirms a basic understanding. The participants also used descriptors such as: 'representation', 'shape', and 'patterns'. The researcher concluded that the participants were adding layers of understanding to the concept of typology, which could lead to new questions, offering a positive opportunity for the student to explore the terms in more depth under the instructor's guidance.

***Morphology*** Six participants out of the 21 did not answer this question or answered that they did not know. Three of the participants described it as 'morphing', 'changing', 'flexibility to adapt/morph', which has been identified in previous workshops too. Most of the group described it in a way that led the researcher to conclude that they understood the concept.

***Object*** All participants showed an understanding of this concept.

***Practical function*** Except for one participant who did not answer the question, all showed evidence of understanding the concept using words such as: 'usability', 'purpose', 'performance', and 'what an object can do'.

***Aesthetic function*** This concept was described by the participants with words including: 'visual', 'the look', 'beautiful aspect'.

***Usability*** Most participants explained usability with the word 'use', which suggests they understand the concept; yet, as with other concepts, they struggle to articulate it without using the word itself.

### Sequences and Bowl Identification

Participants were asked to examine one of two grids, each showing pieces between Bowl and Pitcher. One grid displayed the sequence in order, while the other showed the pieces of the sequence in a disordered arrangement. Each participant would receive one of the two grids, as shown in Figure 52 with the organised sequences, and Figure 53 with the

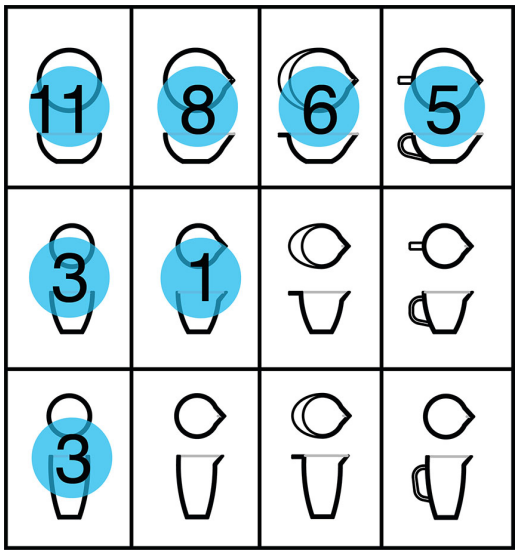



Figure 52:
Chaparro, Y. (2023) Bowl to Pitcher Sequences Grid in Order [diagram]

disorganised sequences. Roughly half of the participants received the grid in order, while the other half received it in disorder. The participants were asked only to mark the pieces they identified as a ‘BOWL’.

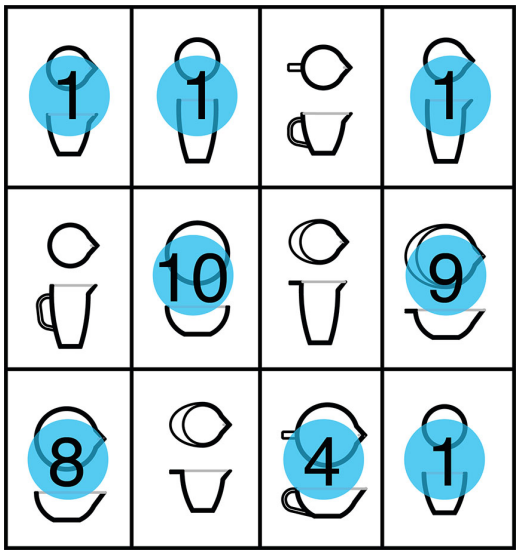



Figure 53:
Chaparro, Y. (2023) Bowl to Pitcher Sequences Grid in Disorganised Order [diagram]

In a group of twenty-one participants, eleven received the grid in order and, in total, identified thirty-seven of the pieces as ‘bowl’. The remaining ten participants received the disorganised grid and marked thirty-five as ‘bowl’. The results indicate that most participants read the same forms as bowls, mainly rounded low pieces with an open top. If the pieces are narrower and taller, the addition of features such as a spout or a handle will make it less likely for participants to mark it as a bowl.

Participants were asked to examine the individual sequences and identify each element as ‘BOWL’, ‘PITCHER’, ‘BOTH’, or ‘NONE’.

***Sequence 1***, In Figure 54, twenty participants out of twenty-one identified the first piece, the hollow half hemisphere, as a ‘bowl’. The remaining participants identified it as ‘both’. On the second piece, where extrusions are added, fourteen participants still thought the piece was a ‘bowl’. Once the handle and the spout are defined visually, fourteen of the students identify the piece as ‘both’, and the other seven identify it as ‘pitcher’. For the final piece, where the handle is pierced, twelve identify it as ‘pitcher’ and the remaining nine as ‘both’.

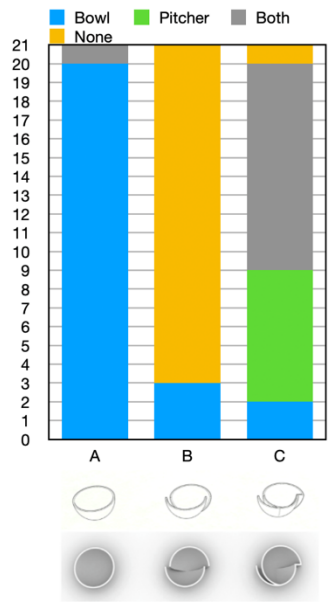



Figure 54:
Chaparro, Y. (2023) Sequence 2. W3 [table, diagram]

***Sequence 2***, as shown in Figure 55, twenty of the twenty-one participants agreed that the first piece was a ‘bowl’; the remaining participant thought it was ‘both’. The second piece indicates the morphological tools applied (cut and shift). Eighteen of the twenty-one labelled it as ‘none’; the remaining three labelled it as ‘bowl’. Finally, by defining the spout and handle, the piece becomes a ‘bowl’ for two participants, a ‘pitcher’ for seven, ‘both’ for eleven, and ‘none’ for one participant.

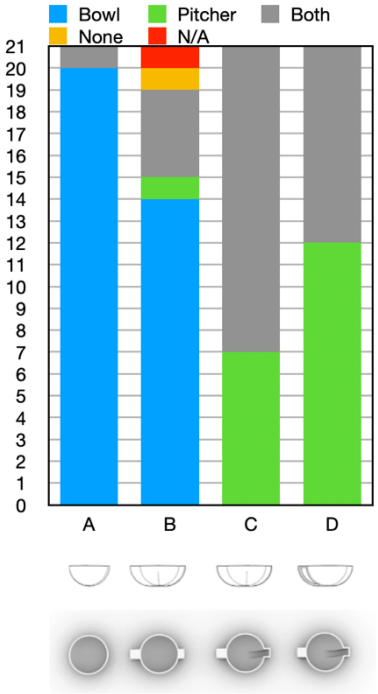



Figure 55:
Chaparro, Y. (2023) Sequence 1. W3 [table, diagram]

***Sequence 3***, as shown in Figure 56, twenty of the twenty-one participants agree that the first piece is a bowl, and the other one identified it as 'both'. Fifteen participants identified the

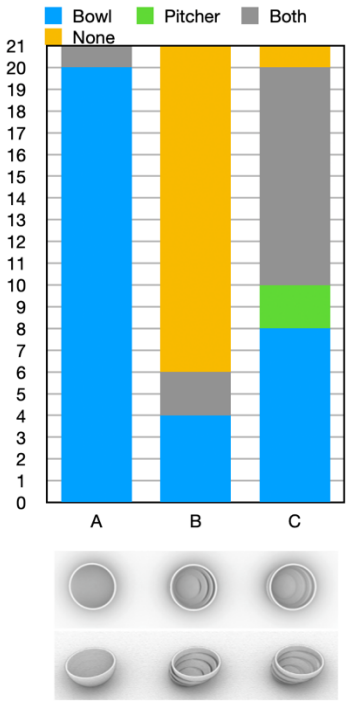



Figure 56:
Chaparro, Y. (2023) Sequence 3. W3 [table, diagram]

middle step of cutting and shifting as 'none', two as 'both', and four as 'bowl'. Finally, eight

participants identified the last piece as ‘bowl’, two as ‘pitcher’, ten as ‘both’ and one as ‘none’.

***Sequence 4***, as shown in Figure 57, reveals that twenty of the twenty-one participants agree that the first piece is a ‘bowl’, while one identified it as ‘both’. For the second piece, sixteen of the participants identified it as ‘none’, one as ‘pitcher’, and four as ‘bowl’. The last piece was identified as ‘bowl’ by one participant, as ‘pitcher’ by eight participants, and as ‘both’ by the remaining twelve participants.

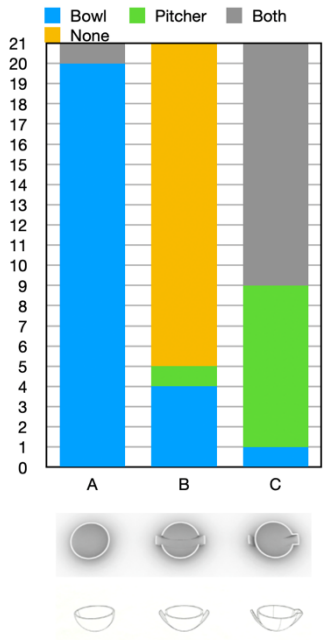



Figure 57:
Chaparro, Y. (2023) Sequence 4. W3 [table, diagram]

The height and diameter of the pieces shown in these sequences, Figures 48 to 51, remain unchanged. The researcher concluded that because of the proportions, the participants read them as a ’bowl’ and ‘both’ in greater numbers in the final transformation. Furthermore, the final pieces that featured a spout and a handle showed larger instances of ‘pitcher’ and ‘both’. The middle piece/s were mainly labelled ‘none’ by the participants, as it served as an explanation of the morphological tool used; in other words, the forces applied to the bowl removed the continuous and non-porous surface. In the final iteration, the surface of the piece is stitched together, albeit with new added features.

## Bowl and Pitcher Typologies

The participants answered further questions about their understanding of bowls and pitchers. The complete individual answers are included in Appendix - Workshop Three (p.238).

***What are the characteristics or features of a bowl?*** As in workshops One and Two, the participants in this case also responded after hearing the explanation of the 3D sequences shown by the workshop facilitator. There are references to the historical shape of a bowl while also responding to the actions typically associated with bowls.

***What are the characteristics or features of a pitcher?*** Once again, as in the previous question, the participants are reacting to the examples shown to them by the workshop facilitator, as evidenced by the expansion of their understanding of what a pitcher could be. The participants also mention the added features, such as a spout and a handle, as important elements. The proportions are described as a difference with the bowl, for example, “taller than it is wide” (participant 39).

***How does one transform a bowl to a pitcher?*** Most participants described the change in terms of the actions performed by the two typologies. They also explained the possible forces that can alter the shape of the bowl as a way of transforming it into a pitcher, for example, “By changing the shape of the bowl by pinching and pushing”. It was clear to the researcher that the participants had understood the questions posed by the demonstration of the 3D sequences. After thinking about them, the participants could explain their conclusions back to the facilitator.

### Visual Analysis of Typologies

Using the photos taken during the workshops of the sequences in both 2D and 3D forms, going from a tray to a vase, this pairing of objects to create the sequence allows the student to move from a horizontal piece to a vertical one (mostly). Aided by the oral interviews where participants explained their process, diagrams were created directly on the photos. See Volume 2 – Appendix, Workshop Three (p.238).

The participants identified the basic features of each typology: the tray typology, as a surface to hold elements and the vase typology, as a container that in most cases had a vertical proportion. The sequences make the description of the essence of each typology visible through the sketch materials. The participants were asked to create a 2D sketch drawing first, which focused on planning their sequence. As we will see in the selected sequences below, the participants continue to work on the sequence as they work with the chosen sketch material (clay, paper, or wire).

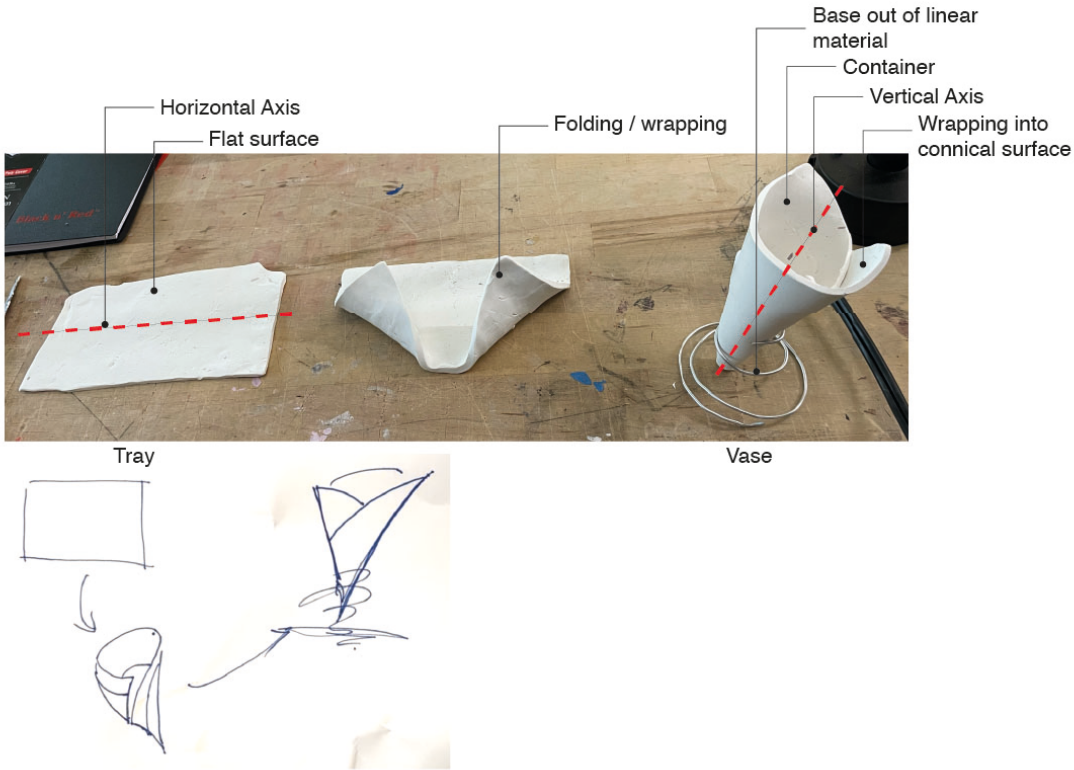



Figure 58:
Chaparro, Y. (2023) Visual Analysis - Feature Recognition - W3. P30 [notation diagram on photo, participant drawing photo]

The middle artefact in the sequence indicated the morphological tools used by the participant to go from the tray to the vase. The sequence shown in Figure 58 exemplifies the transformation from tray to vase clearly, including the basic features of the tray such as its flat surface and horizontal axis. The participant uses folding and wrapping as morphological tools to transform the slab into a conical vase. The participant added a metal base to the vase; otherwise, it could not stand by itself. I concluded that this was a response to fulfil the requirement of the vase's stability.

The tray typology does not always follow the rectangular shape; it is also understood as a round shape as in Figure 59, if there is a flat surface to hold elements on it. The surface was cut into concentric circles, with the largest circle positioned higher in space. The rings form a conical composition that when stitched together creates a vase typology. This example of a vase also shows the differences in vases; not all vases have a narrow tall and vertical shape.

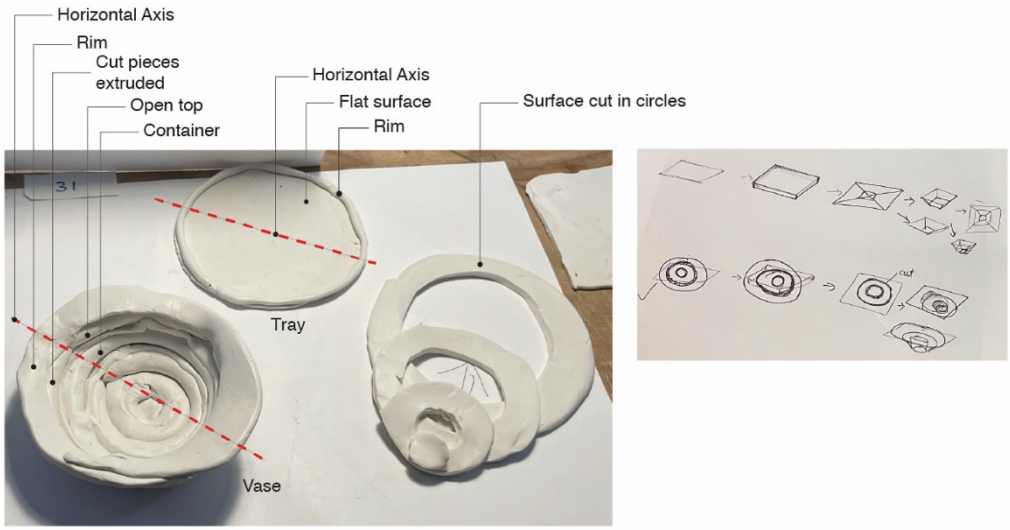



Figure 59:
Chaparro, Y. (2023) Visual Analysis - Feature Recognition - W3. P31 [notation diagram on photo, participant drawing photo]

The sequence shown in Figure 60 was made with paper. The morphological tools used were cut and fold. The first element of the sequence is a flat square; the cut-out corners create a cross that indicates where folds should occur. When the folds are enacted and closed, the piece becomes a container that can be understood as a vase. The folding of a flat surface became a container through folding.

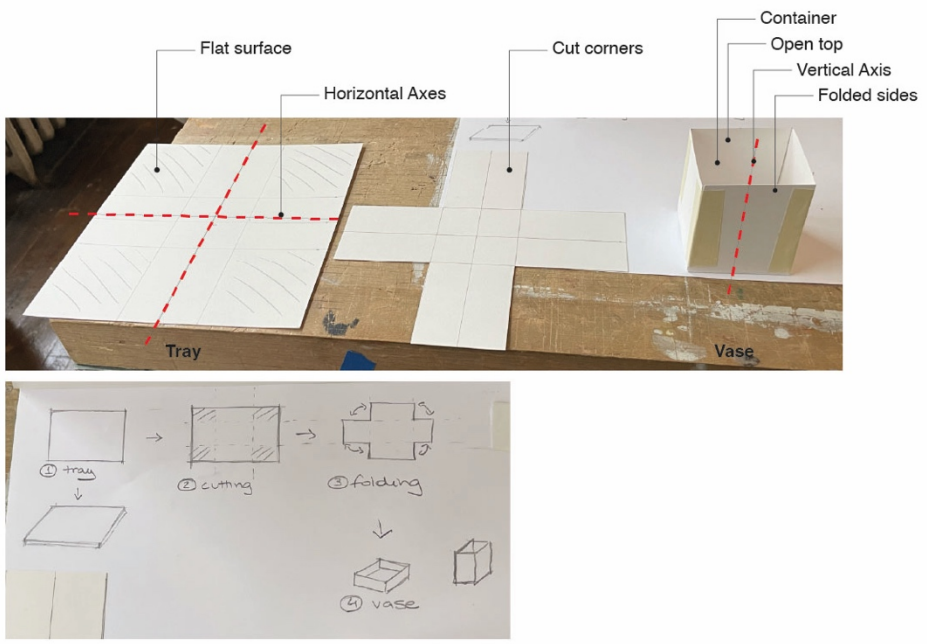



Figure 60:
Chaparro, Y. (2023) Visual Analysis - Feature Recognition - W3. P35 [notation diagram on photo, participant drawing photo]

A few participants produced different versions of the typologies in the 2D and the 3D sketches. Therefore, it can be deduced that the participants continued to work on the

sequence. The 2D sketch drawing organised the initial approach to the sequence, while the 3D sketch material and its manipulation further developed the details of the artefacts in the sequence. In Figure 61, the tray walls are taller in the artefact than in the drawing. The artefacts include a pinching of the corners not specified in the 2D sketch drawing: the details of the corners make the artefacts more finished and cohesive between each other.

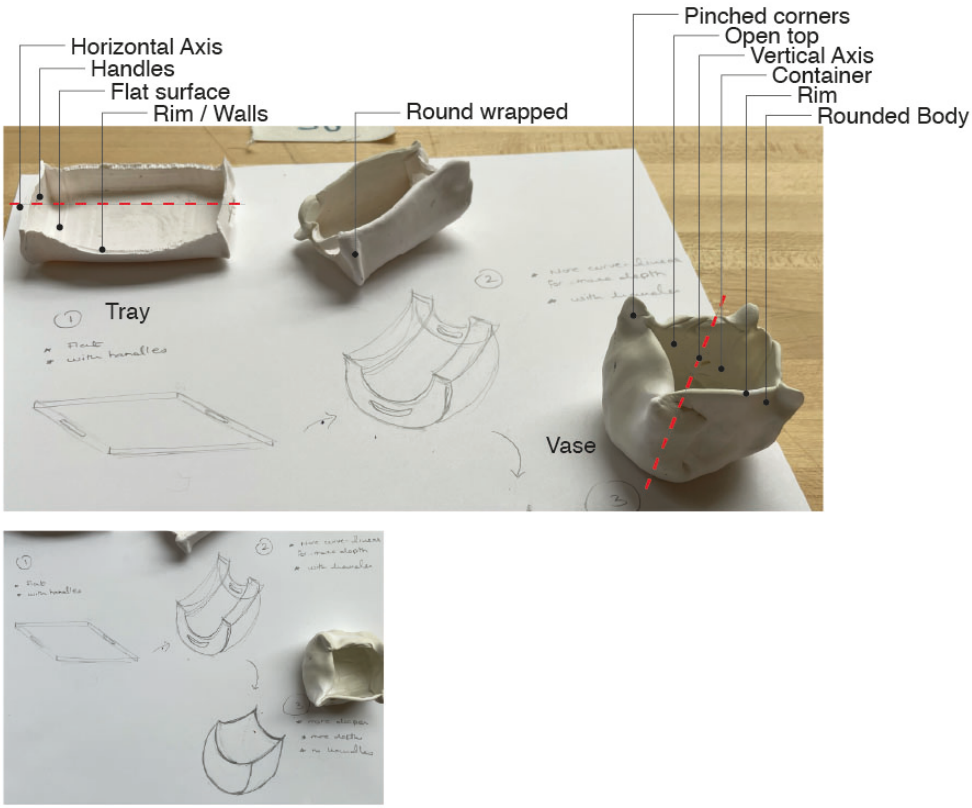



Figure 61. Visual Analysis - Feature Recognition - W3. P36 [notation diagram on photo, participant drawing photo]

In Figure 62, we see the opposite happen from the previous observation (Figure 55): the participant created the plan to follow in the 2D sketch drawing, showing proportional differences between the typologies of the sequence; however, the 3D sketch artefacts are not following the proportions correctly, the pieces are too similar and not showing the different typologies clearly. The tray typology has taller walls than depicted in the drawing. The middle artefact is very similar to the tray artefact, and the vase typology artefact is not as vertical as indicated in the 2D sketch drawing. In this instance, the manipulation of the clay might have made it difficult for the participant to express the idea correctly.

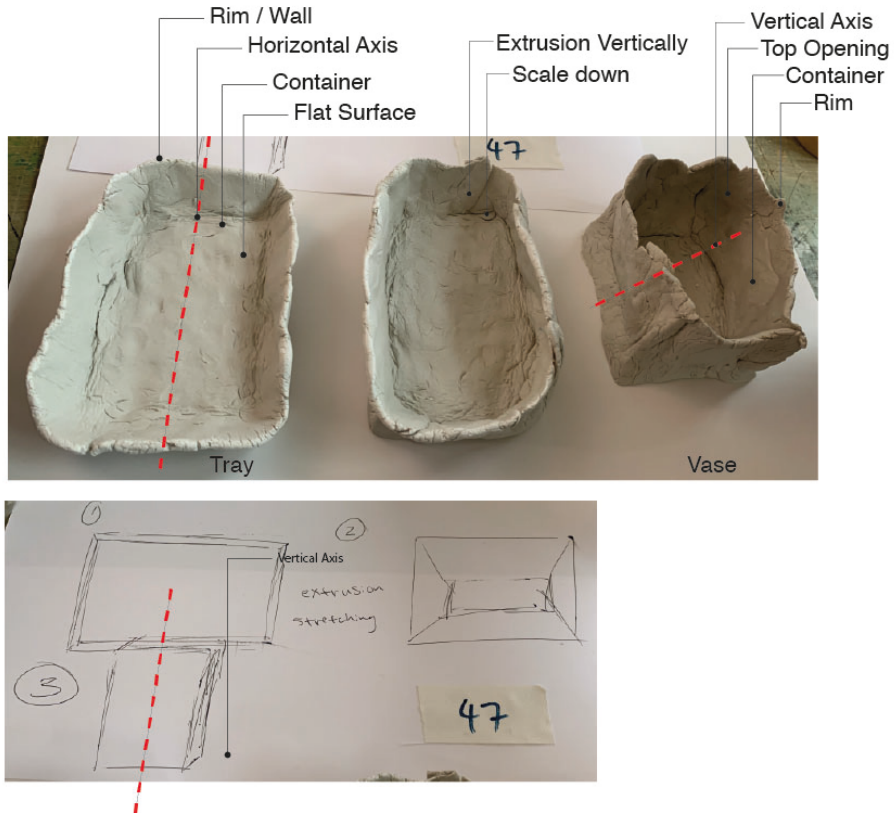



Figure 62:
Chaparro, Y. (2023) Visual Analysis - Feature Recognition - W3. P47 [notation diagram on photo, participant drawing photo]

The middle artefact in the sequence could be a de-composition of the first tray typology, producing parts that are put back together in a different way. The re-composition produces a different typology, in this case a vase. The transformation through de-composition and re-composition in the sequence can be observed in Figure 63 and Figure 64, as the tray and vase share the same components. The tray and vase are familiar pieces since they share formal decisions. In Figure 61 the pieces were cut to have the same height as the sides, but in Figure 64, the tray was divided into different dimension pieces for the walls, producing a vase with two shorter walls.

It was also noted in Figure 63 that the angled walls of the tray artefact allow for the hands to hold the tray, making the wall's surfaces the handles.

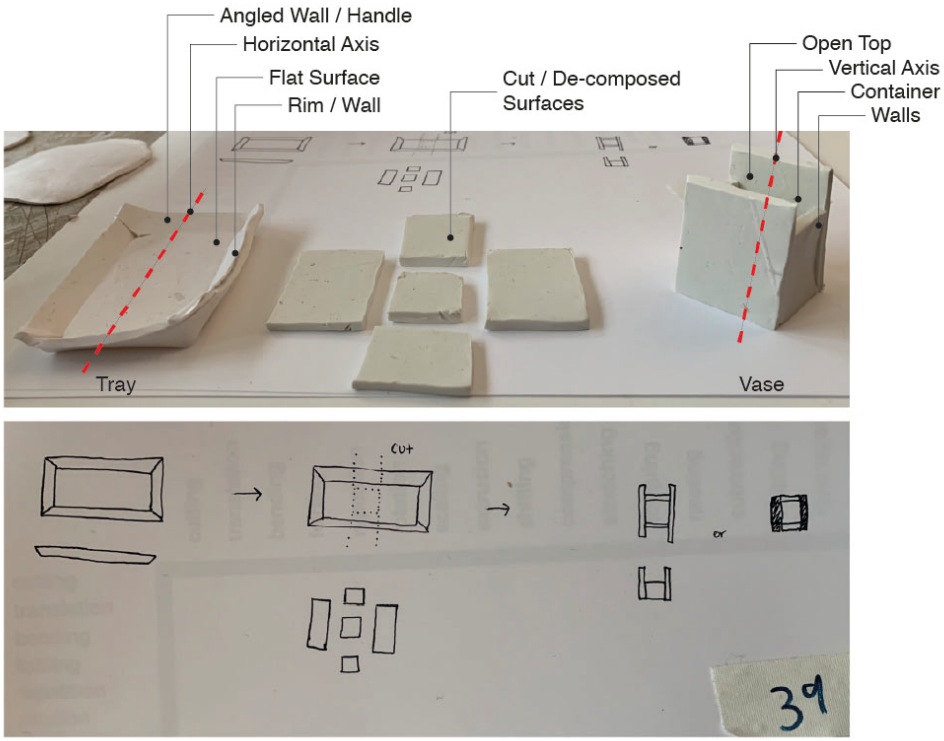



Figure 63:
Chaparro, Y. (2023) Visual Analysis - Feature Recognition - W3. P39 [notation diagram on photo, participant drawing photo]

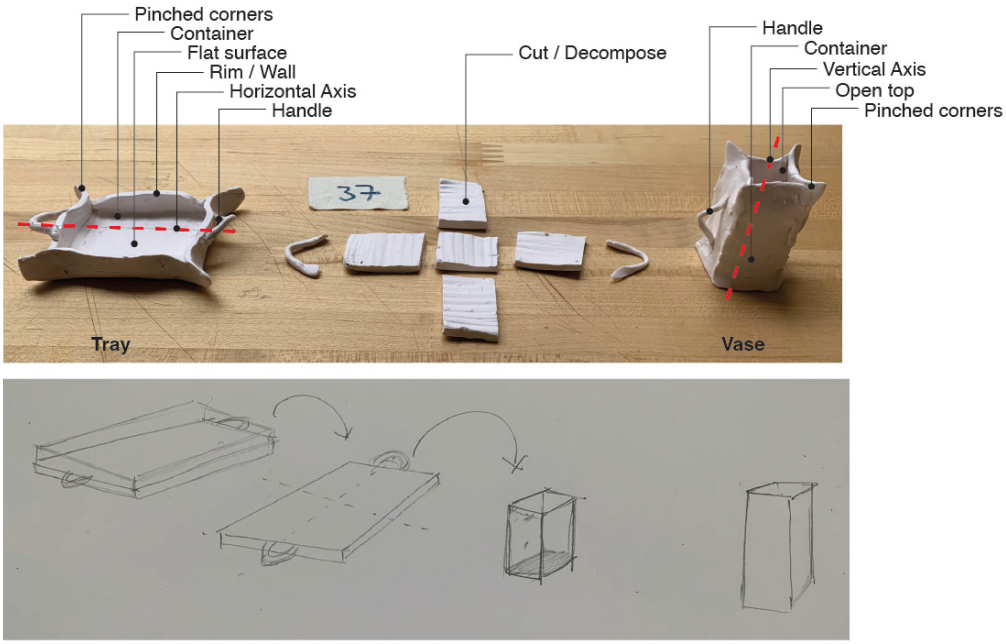



Figure 64:
Chaparro, Y. (2023) Visual Analysis - Feature Recognition - W3. P37 [notation diagram on photo, participant drawing photo]

The middle piece serves as an instruction on how to transform the tray typology into the vase typology. This is exemplified in Figure 65 and Figure 66. Figure 65 indicates that the tray would be rolled into a cylinder to create the sketch for a vase typology. It is important to note that the tray in Figure 65 is not symmetrical or square like most other trays but rather an organic piece.

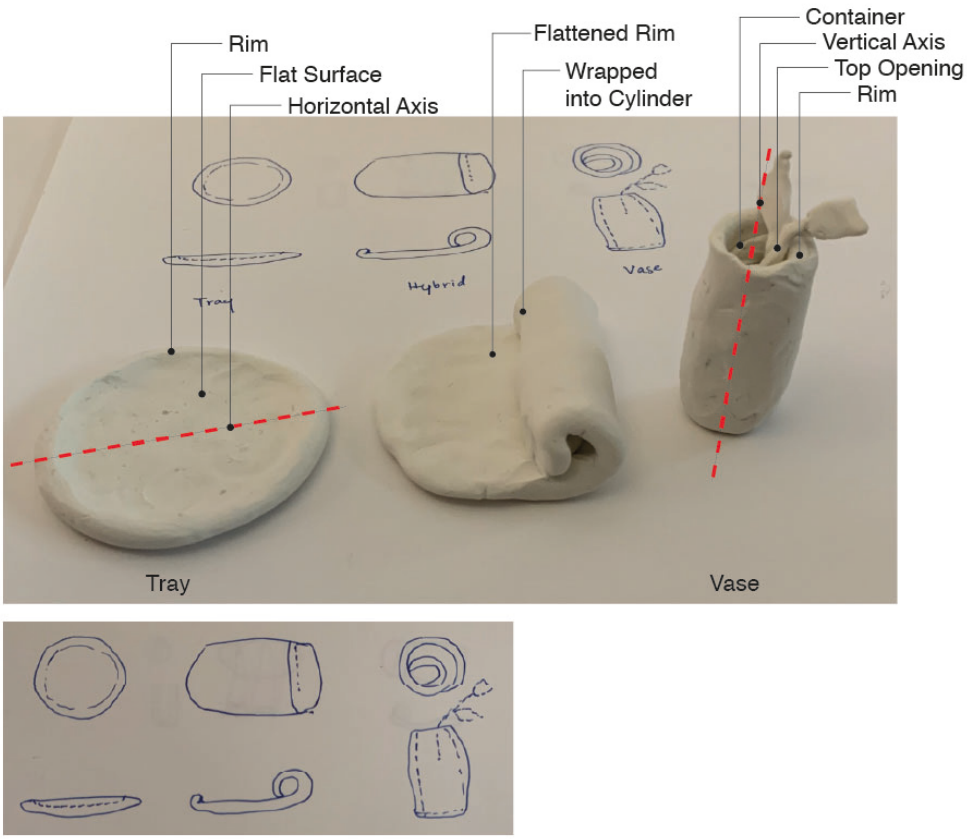



Figure 65:
Chaparro, Y. (2023) Visual Analysis - Feature Recognition - W3. P51 [notation diagram on photo, participant drawing photo]

Figure 66 illustrates the process to be followed in creating the vase typology, in this case through cuts and folding. The 2D drawing indicates the instructions and the 3D sketch models demonstrate how to follow the plan.

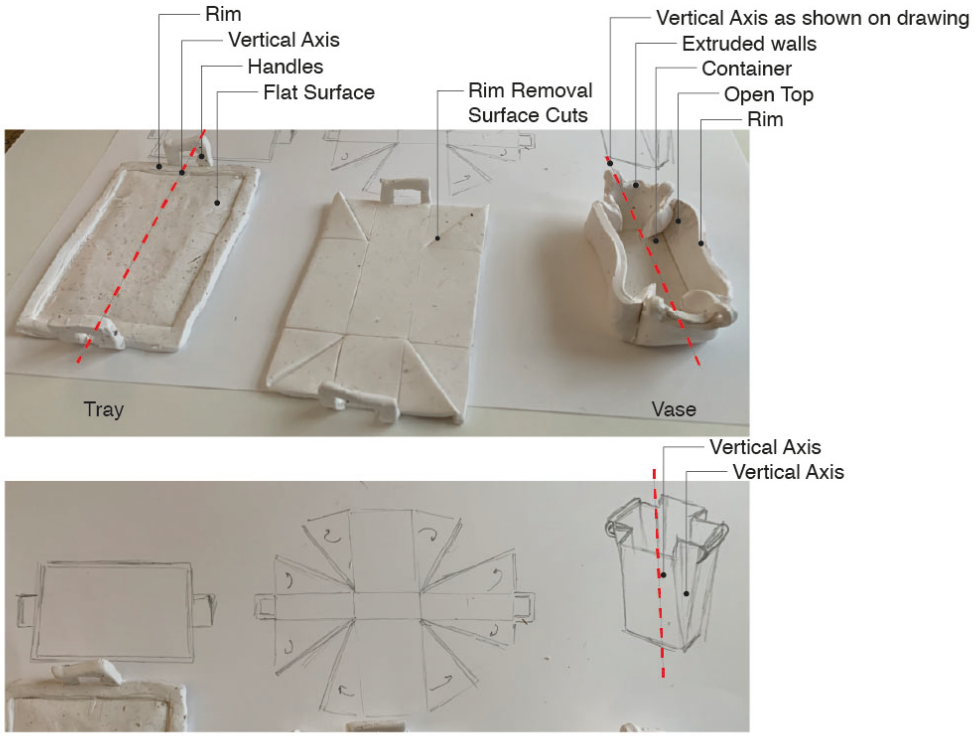



Figure 66:
Chaparro, Y. (2023) Visual Analysis - Feature Recognition - W3. P49 [notation diagram on photo, participant drawing photo]

Figure 67 shows one of the only two sequences in metal wire during this workshop session. The first piece showing the tray typology, is a flat circle with handles. The middle artefact has been pulled with the handles still on the top sides, showing the action that creates the third piece. Finally, the last piece showing the vase typology, is pulled even further with the handles still as a feature. The dimensions of the tray's diameter and the vase's diameter remain unchanged. Most trays by the participants indicate a larger footprint.

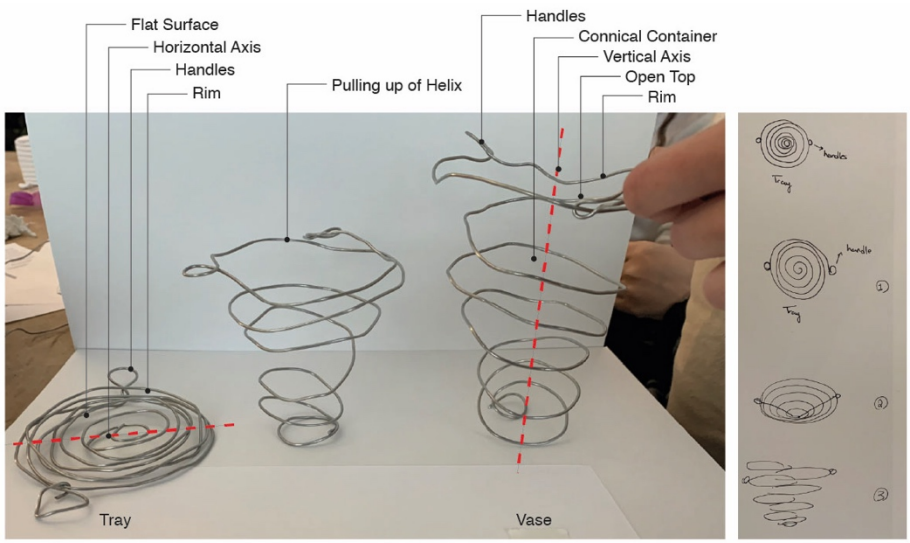



Figure 67:
Chaparro, Y. (2023) Visual Analysis - Feature Recognition - W3. P40 [notation diagram on photo, participant drawing photo]

The sequence shown in Figure 68 begins with a small flat circular piece representing the tray typology, which has a defined edge. The middle piece shows the edge extruded along the vertical axis. Finally, the third piece starts with what appears to be the first piece with extruded walls that form a cylinder along the vertical axis. The cylinder has a tighter midsection, creating a flared bottom and flared top end or mouth for the vase. As shown in Figure 67, this sequence also features a smaller tray area which remains constant in the vase typology, serving as the base in this case. These sequences (Figure 67 and Figure 68) indicate that the participants understand that there is no specific fixed diameter for trays and vases, but rather that it depends on the features and how they can fulfil their practical functional requirements, which make them specific typologies. As these sequences are sketches, it is understood that they will continue to be developed to culminate in a design proposal.

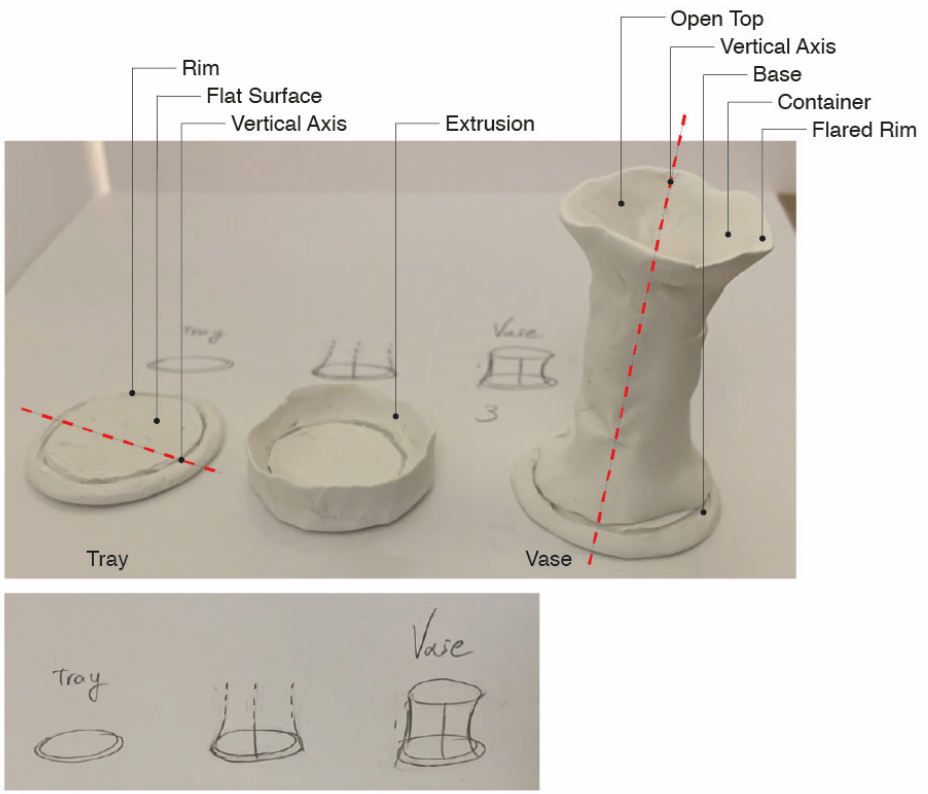



Figure 68:
Chaparro, Y. (2023) Visual Analysis - Feature Recognition - W3. P42 [notation diagram on photo, participant drawing photo]

### Oral Term Definitions

The participants were asked orally to define the same concepts they had written in section 5.3.1. Not all oral questions were answered. A few participants felt that they did not change the definition of the concepts; others described understanding the concepts better or learning something about them by making their sequence. See Volume 2 -Appendix, Workshop Two (p.221), for all answer transcriptions.

### Summary of Workshop Three

- The participants were asked to make a 2D sketch drawing first. Thus, it was clear that the drawing organised the sequence intent for the participants. When a student is encouraged to plan the work, they are working towards a *programme*. The use of sketch materials to create a 3D sketch sequence demonstrated that participants continued to work on the ideas by making decisions, such as how to connect the material at the edges or where to add material to make the pieces larger.

- The participants were shown a sequence as an example of what the prompt meant (they were shown a sequence from a bowl to a pitcher). The sequence shown was structured in that it included morphological tools to apply to the first piece, to produce the transformation and to develop the last piece. This indicated to the participants that they should consider using morphological tools in their sequences. In this workshop, participants incorporated morphological tools; therefore, they not only considered the features necessary for a particular typology but also learned how to create a structured sequence using these tools.

- The participants took various approaches to the possible applications of the tools. A few created clear instructions to follow in the sequence, while others de-composed the first typology and reassembled the parts to produce the second typology.

- The participants were successful at identifying the basic features of each typology. Tray and Vase. Being able to identify the basic features of a typology means that they are ready to initiate a *programme* for their project.

- Most of the transformations from tray to vase involved a change in axis from horizontal to vertical.

- The surface of the tray is open, and the vase is closed in on itself, creating a container.

- The middle artefact of the sequence exemplified the morphological tools or concepts used to transform the tray typology into the vase typology.

- The drawings, as in the past workshop, are valuable not only as a secondary source of information for me to understand the intention of the sequences but also as a way of prompting the participants to develop a system or strategy to produce the sequence.

**Action Research Modifications to be applied to Workshop Five ***

- Workshops three and four are the same workshop given to two different groups of participants, Interior Design graduate students and Industrial Design graduate students at Parsons; therefore, the changes are applied to Workshop five.
- The participants have demonstrated that they understand the features from typologies and are able to transform one into another. This is how a *programme* is initiated through the understanding of requirements. As a next step, in workshop five, the participants are asked to start a *programme* in diagrammatic form. This will reinforce the concept of *the programme* making it clear to the participants that they already work around the concept.
- The labelling of example sequences from bowl to pitcher will be removed, and the grids, with organised or disorganised sequences, will be shown instead. The question with both became redundant.

*This Workshop Three and the following Workshop Four are the same workshop delivered to two different groups; therefore, the modifications will be applied to Workshop Five.

## 5.4. Workshop Four

[17 November 2022]

The workshop sessions included ten design students as participants. See Volume 2 - Appendix, Workshop Four (p.281) for detailed answers. The main findings are as follows:

### Term Definitions

Participants completed the questionnaire with questions about the definition of basic design concepts as follows:

***Typology*** The researcher deduced that all participants have a basic understanding of what this concept is. In this group, only two out of the ten participants used the word ‘type’ in their descriptions, as opposed to earlier groups where it was more prevalent. Five participants used a word related to ‘category’ indicating that they understood the basics of what a typology is.

***Morphology*** Not all participants answered this question. Seven out of the ten participants understood the concept due to the use of words such as ‘form’ and ‘shape’; furthermore, three participants did not respond or responded, ‘don’t know’.

***Object*** I concluded that nine out of the ten participants understood the concept due to the use of words such as ‘item’, ‘thing’, and ‘physical’.

***Practical Function*** The participants used words such as ‘purpose’, ‘useful’, and ‘use’, indicating that they understood the concept as an element that helps fulfil a need or requirement; it speaks to an action that is possible.

***Aesthetic Function*** The participants used words such as ‘visual’, ‘looking’, and ‘feel’, indicating an understanding of the concept.

***Usability*** Through the words ‘interaction’, ‘used’, ‘response’, and ‘understanding’, I can deduce that the participants have a general understanding of the concept.

### Sequences and Bowl Identification

Participants were asked to examine a grid based on the first set of experiments, which progressed from Bowl to Pitcher. Half of the participants received the grid in order shown in Figure 70, and the other half received the scrambled grid shown in Figure 69. The participants were asked to label the items that they considered ‘bowls’.

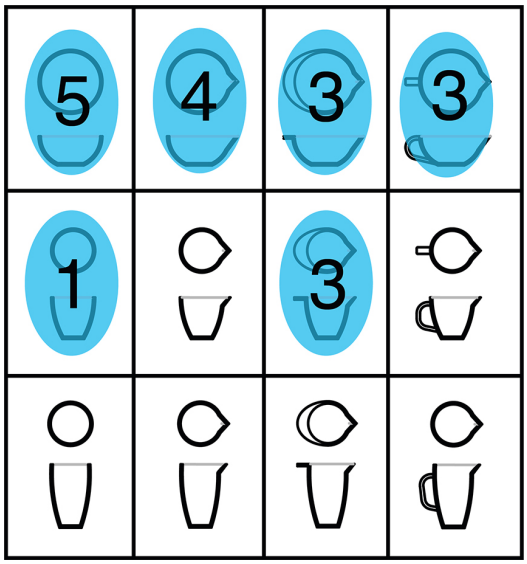



Figure 69:
Chaparro, Y. (2023) Bowl to Pitcher Sequences Grid in Order [diagram]

Five of the ten participants received the organised grid and in total identified nineteen of the pieces as ‘bowl’. The remaining five participants received the disorganised grid and identified twenty of the pieces as ‘bowl’. The results indicate that most participants read the same forms as bowls, mainly rounded low pieces with an open top. If the pieces are narrower and taller, the addition of features such as a spout or a handle will make it less likely for the participants to mark it as a bowl.

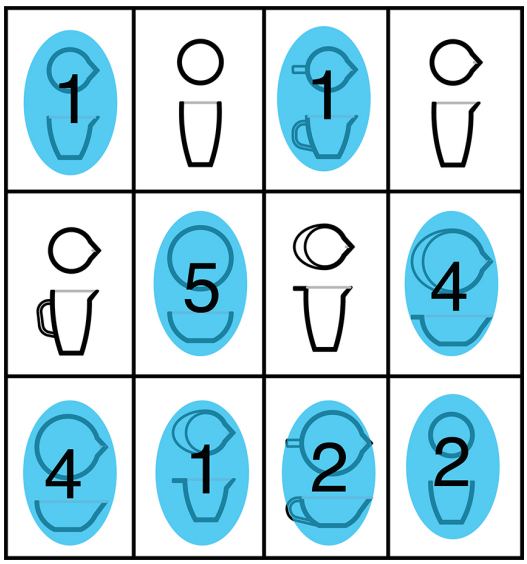



Figure 70:
Chaparro, Y. (2023) Bowl to Pitcher Sequences Grid in Disorder [diagram]

Participants were asked to look at the sequences created by the researcher. As explained in the Practice chapter, the sequences are artefacts showing transformations that go from a

bowl to a pitcher. The students were asked to identify and label each element of the sequence as: ‘bowl’, ‘pitcher’, ‘both’, or ‘none’.

***Sequence 1*** is shown in Figure 71. Nine out of ten participants labelled the first piece ‘bowl’ and one ‘both’. For the second piece, seven out of the ten participants identified it as ‘bowl’, one as ‘pitcher’, and two as ‘both’. For the third piece, eight out of ten were labelled ‘pitcher’ and two as ‘both’. For the last piece, seven out of ten were ‘pitcher’ and three were ‘both’.

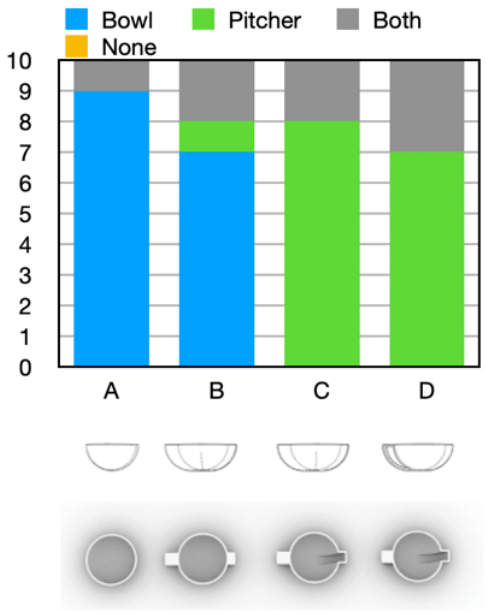



Figure 71:
Chaparro, Y. (2023) Sequence 1. W4 [table, diagram]

***Sequence 2*** is shown in Figure 72. For the first item of the sequence, nine out of ten participants labelled it ‘bowl’ and one ‘both’. For the middle piece, two were labelled ‘bowl’, one ‘both’, and seven ‘none’. Two participants labelled the last piece as ‘bowl’, three as ‘pitcher’, and five as ‘both’.

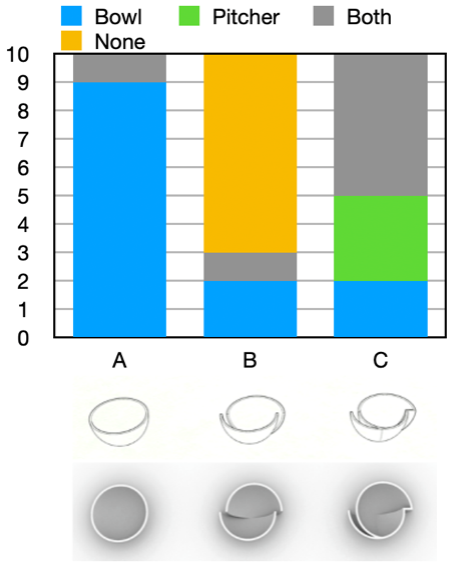



Figure 72:
Chaparro, Y. (2023) Sequence 2. W4 [table, diagram]

***Sequence 3*** is shown in Figure 73. The first element has been identified by eight of the ten participants as ‘bowl’, by one ‘pitcher’, and by one ‘both’. The second piece has been identified by two of the ten participants as ‘bowl’, one ‘both’, and seven ‘none’. Finally, the last piece is identified as ‘bowl’ by six, ‘pitcher’ by one, and ‘both’ by three.

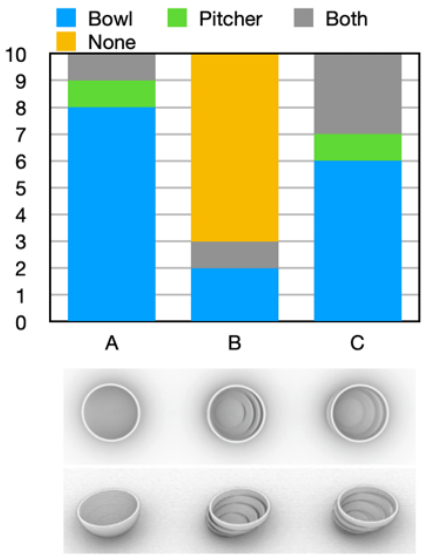



Figure 73:
Chaparro, Y. (2023) Sequence 3. W4 [table, diagram]

***Sequence 4*** is shown in Figure 74. The first piece is identified as ‘bowl’ by eight of the ten participants, one as ‘pitcher’, and one as ‘both’. The middle piece is identified as ‘bowl’ by

three of the ten participants; the seven other participants identified it as ‘none’. The last piece was identified as ‘pitcher’ by six of the ten participants and four as ‘both’.

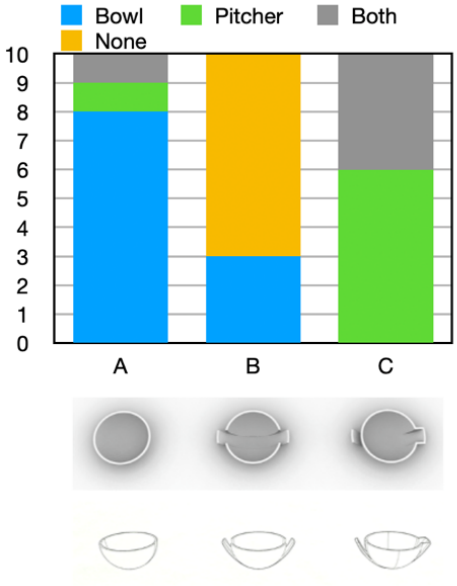



Figure 74:
Chaparro, Y. (2023) Sequence 4. W4 [table, diagram]

Most of the participants labelled the initial typical bowl as ‘bowl’ in all sequences. The majority of participants labelled the middle pieces of the sequences as ‘none’; except for the middle pieces in Figure 71 (showing sequence 1), these pieces include a vessel or container form even if they are in transition from the bowl to the pitcher, as opposed to the other three sequences where the middle pieces do not have a closed surface to be still considered a container.

The form of the last pieces of Figure 71 (showing sequence 1) is wide, with a low profile, with a clear container shape, and both a clear handle and spout, which explains why the majority of the participants labelled it as: ‘pitcher’, in Figure 72 (showing sequence 2), the characteristics of the overall shape is the same as in Figure 71, but in this case the handle and spout are not as precise, explaining why half of the participants labelled it as ‘both’.

In Figure 73 (showing sequence 3), the last piece has a wide-open top, a low profile, and is a container, which is the reason the majority of the participants label it as a ‘bowl’. Finally, in Figure 74 (showing sequence 4), the piece has a wide top opening, a short profile, and a clear handle and spout; the majority of participants labelled it as ‘pitcher’, while the remaining participants labelled it ‘both’.

It is deduced from these results that pieces with the same proportions as a typical bowl (wide top and short profile) can be read as either a pitcher or a bowl, remaining mostly as a bowl if the features of the handle and spout are not clearly defined.

### Bowl and Pitcher Typologies

The participants were asked to answer a few questions orally about their methods for describing a bowl and a pitcher, in addition to how they would transition from one to the other. This provides insight into how participants understand the typologies and how they think through the transformation from one typology to another. See Volume 2 – Appendix, Workshop Four (p.281):

***What are the characteristics or features of a bowl?*** The participants used concepts such as ‘volume’, ‘container’, and ‘inside’ to describe the essence of the bowl typology. The use of basic formal features reinforced that understanding.

***What are the characteristics or features of a pitcher?*** The participants demonstrated an understanding of the typology through the use of words such as ‘volume’, ‘container’, and ‘pouring’. Mentions of physical features such as a handle, and a spout helped them describe the typology further.

***How does one transform a bowl to a pitcher?*** The increase in height and volume, the addition of handle and spout features, and the ability to pour liquid, are representative of most participants.

### Visual Analysis of Typologies

Using the photos taken of the sequences made by the participants during the workshop, from a tray to a vase, diagrams were created directly on the photos. These diagrams were created using notations to identify features applied to the artefacts.

The participants were asked to create a 2D sketch illustrating the sequence as a means of thinking through the exercise and as a tool for explaining it. The 2D sketches are used during the Visual Analysis, firstly as a way of understanding the thinking behind the 3D sketches and as a way of interpreting the 3D sketch sequences when the photo is not easily readable, or as a means of clarifying a feature choice.

As in Workshop Three, participants were prompted to create a sequence going from a tray to a vase. The participants understood the tray as a surface to hold items and the vase as a mostly vertical container to hold water and elements such as flowers.

Participants approach the sequence in different ways. One strategy as shown in Figure 75, explains the morphological tools applied in separate steps. The initial typology of a tray featured folding walls to create a boundary for the tray and a way of holding it. The middle piece of the sequence is labelled as ‘fold’ by the participant, who applies that tool to make the walls higher and the base area smaller. The final piece of the sequence, which is the vase typology, introduces the second morphological tool as ‘stretch’. The walls are stretched upward vertically and outward, creating a wider top opening for the vertical container. The 3D sketch made of clay changes the axis to a vertical from the horizontal of the tray.

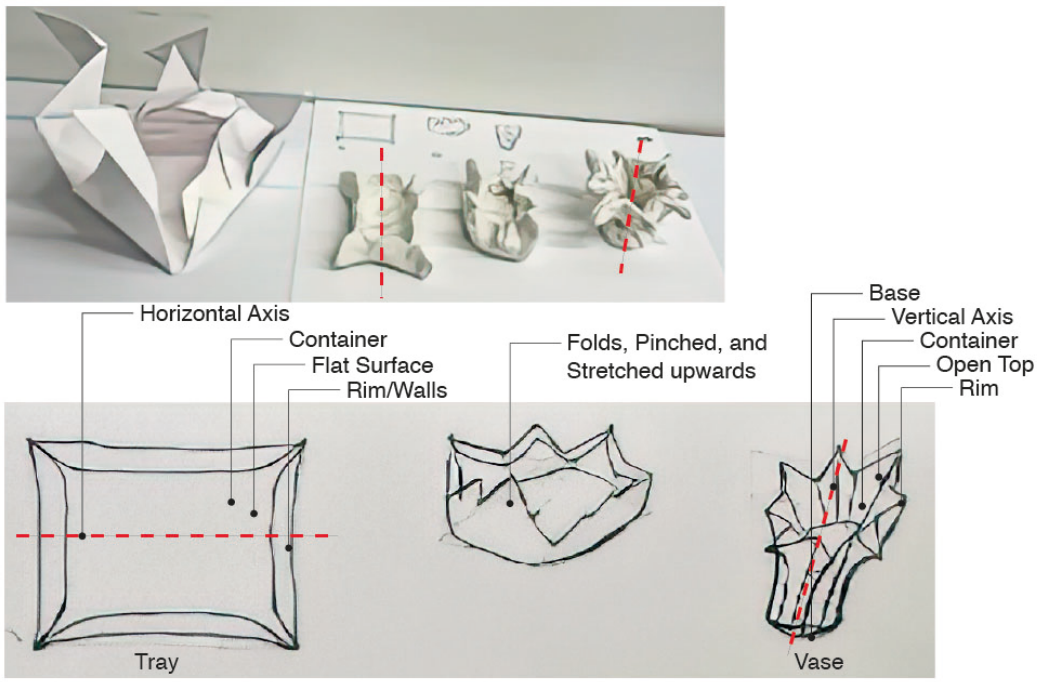



Figure 75:
Chaparro, Y. (2023) Visual Analysis - Feature Recognition - W4. P60 [notation diagram on photo, participant drawing photo]

In the case of Figure 76, another strategy is exemplified. The participant used the middle piece of the sequence to explain the morphological tool that would be used to transform the tray into a vase. The material chosen for the 3D sketch, paper, lends itself to folding. The instructions are detailed and clear in the 2D sketch drawing. In this case the vase does not change the directional axis; it remains horizontal, as in the tray. However, the walls are tall enough to delimit a volume, rendering it a container. This is considered a valid outcome, as there are different types of vases, not only due to varying socio-cultural or historical bases but also due to different typologies of vases, such as bud vases, single-stem vases, and bouquet vases, among others.

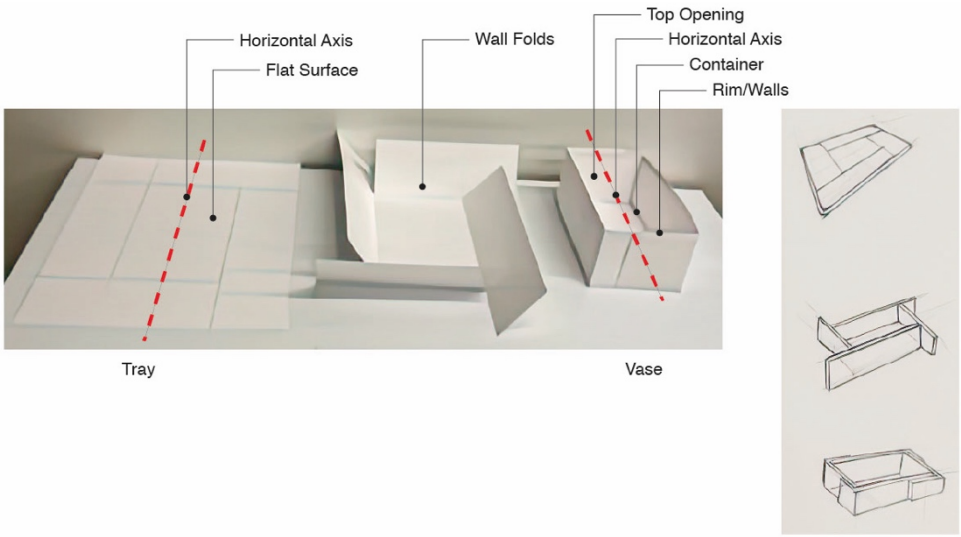



Figure 76. Visual Analysis - Feature Recognition - W4. P61 [notation diagram on photo, participant drawing photo]

The 3D sketch models are constructed in different ways. In the case of the sequence shown in Figure 77, the participant used the tray piece to create the vase and later recreated the pieces to complete the whole sequence. Most participants, however, create each piece separately. Furthermore, it is observed that participants using paper used the tray as a simple sheet that could be divided into sections, as in previous examples, or, in the case of Figure 77, as a sheet to roll into itself to form the conical vase.

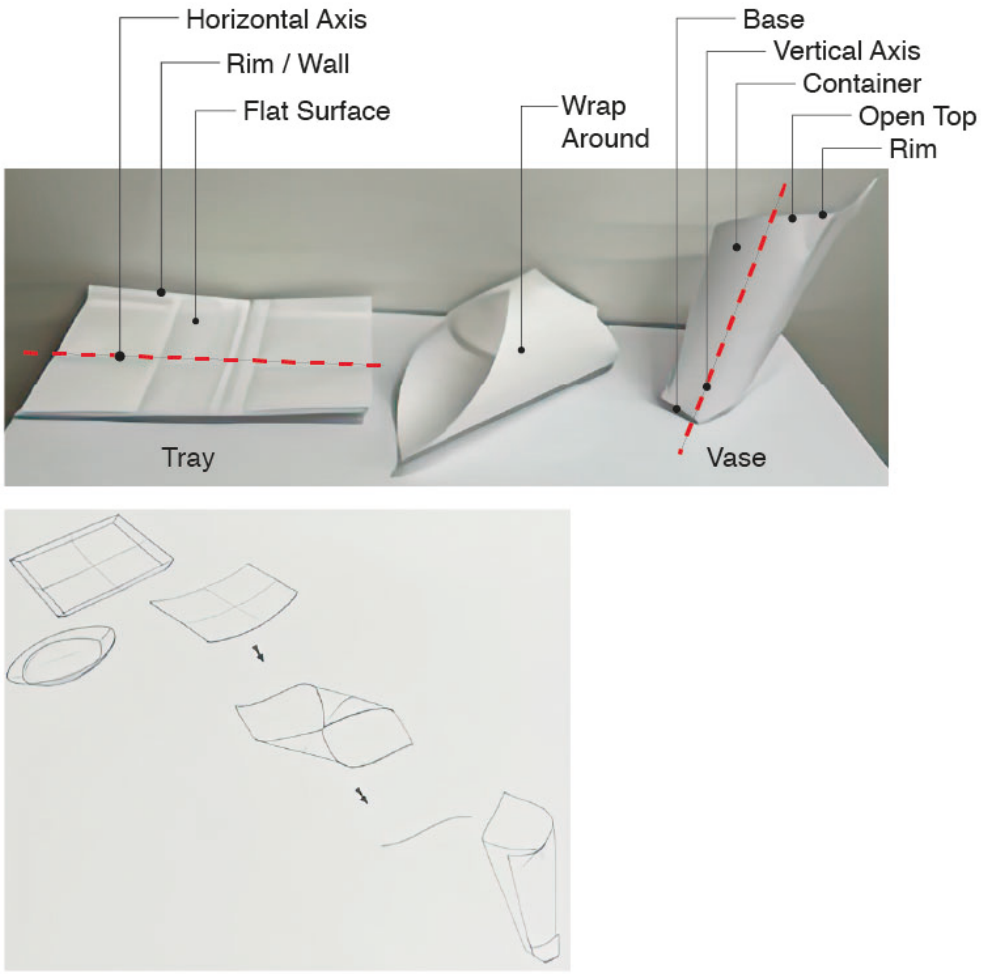



Figure 77:
Chaparro, Y. (2023) Visual Analysis - Feature Recognition - W4. P62 [notation diagram on photo, participant drawing photo]

In some cases, the sequence can be a modular system; the participant exemplifies this approach in Figure 78. The first typology features a round-section ring surrounding a flat surface, so the tray can probably only hold a single small element. The middle piece isolates the ring from the flat surface. The final typology is constructed by repetition of the ring, stacking each one over the other to create a cylindrical vessel.

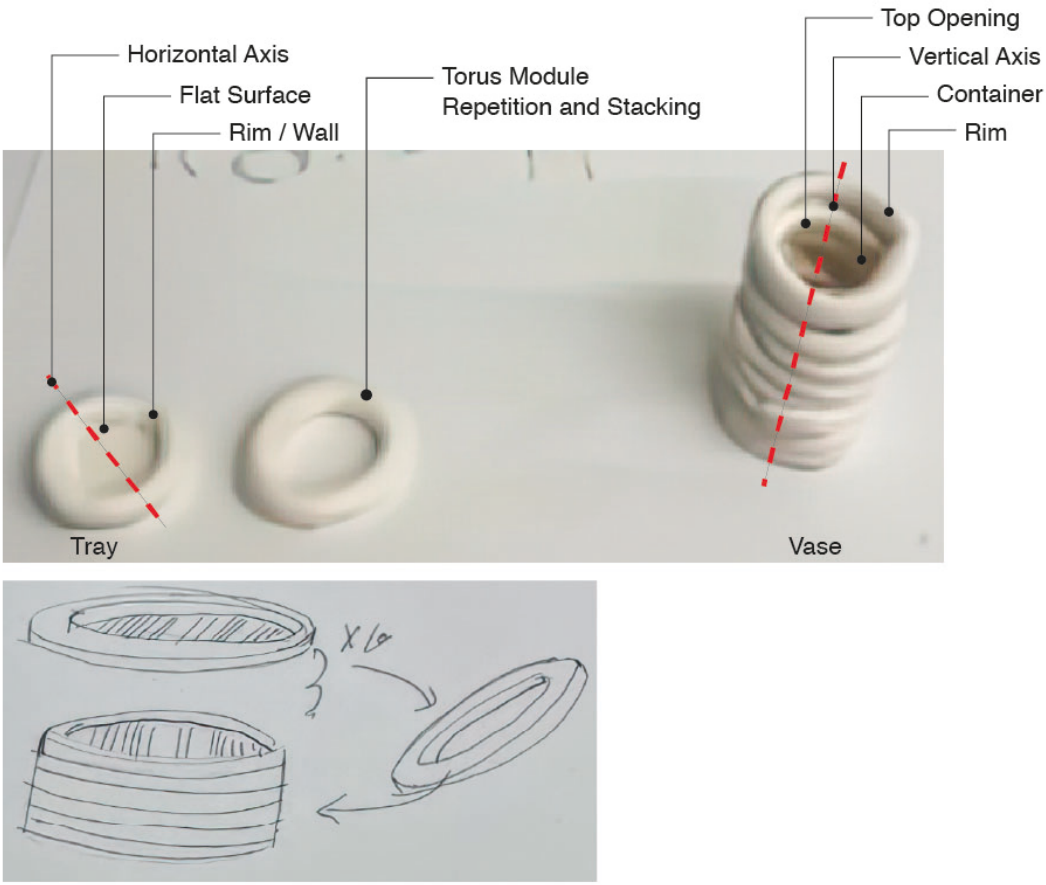



Figure 78:
Chaparro, Y. (2023) Visual Analysis - Feature Recognition - W4. P65 [notation diagram on photo, participant drawing photo]

The participant creating the sequence shown in Figure 79 chose the round shape of the tray because it seemed the easier shape to turn into a vase. The researcher concluded that participants would consider the basic elements of the two typologies before making decisions; in some cases, depending on the image of the vase, the participant would decide on the shape of the tray.

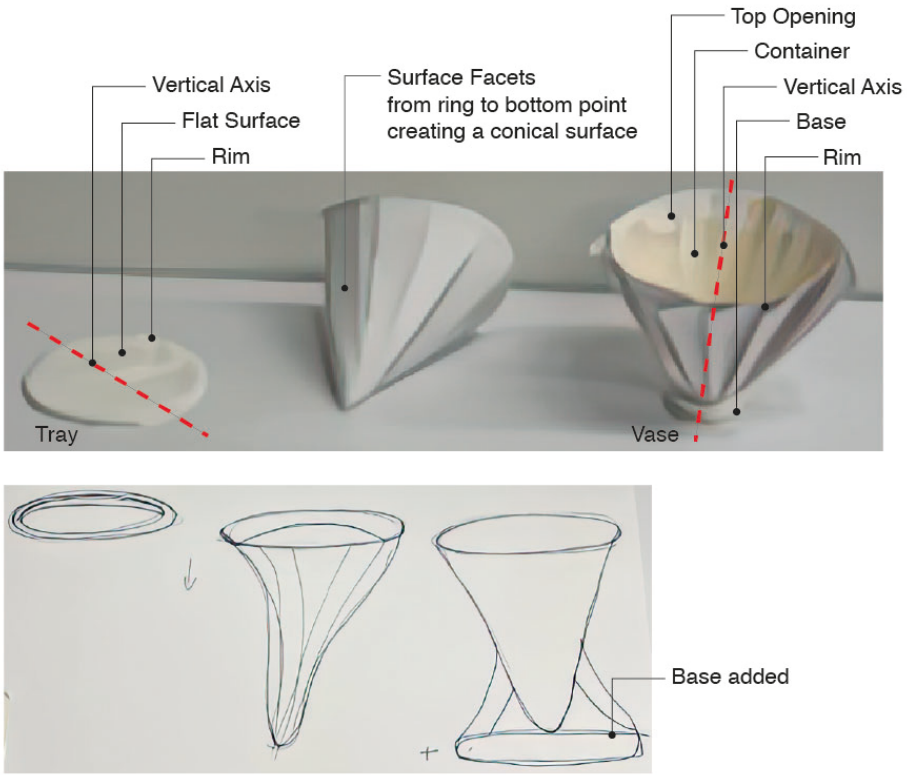



Figure 79:
Chaparro, Y. (2023) Visual Analysis - Feature Recognition - W4. P66 [notation diagram on photo, participant drawing photo]

The 2D drawing of the sequence has been helpful for the researcher in most instances. In the sequence shown in Figure 80, the pieces are much more defined and better explained in the 3D artefacts. I concluded that the participant physically transformed a tray into a vase and did not have a clear understanding of how the transformation occurred until it was made. In previous observations, it has been deduced that participants continue to work on their sequence after the 2D drawing. This case is a good example.

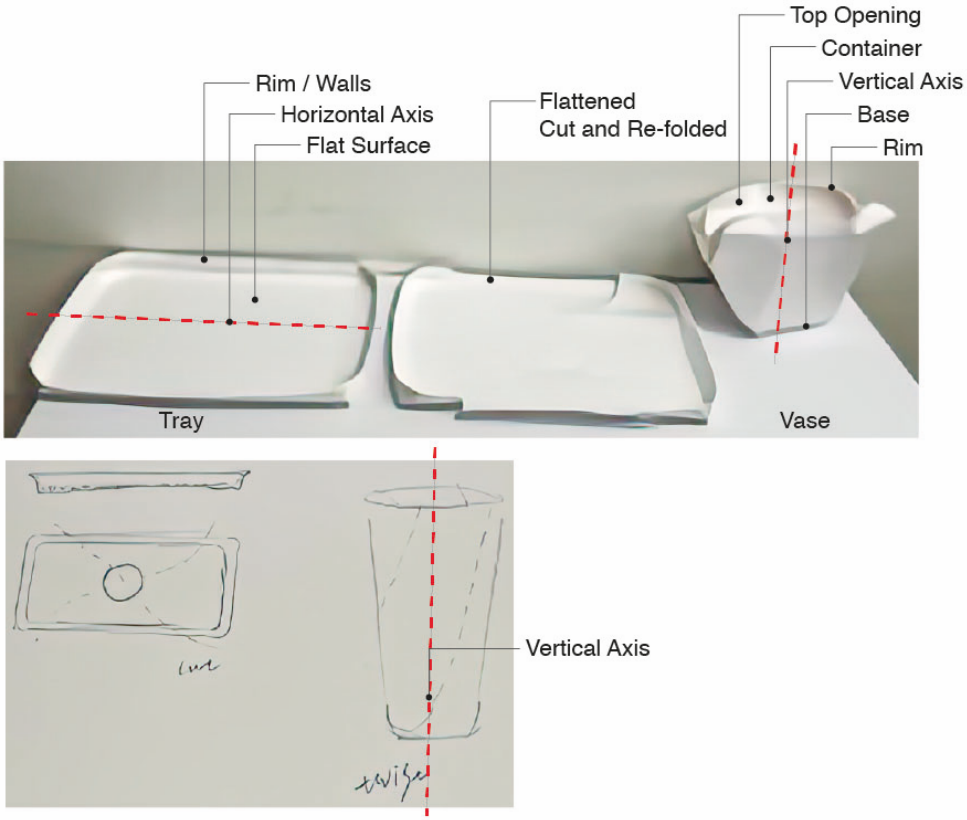



Figure 80:
Chaparro, Y. (2023) Visual Analysis - Feature Recognition - W4. P69 [notation diagram on photo, participant drawing photo]

## Summary of Workshop Four

- The participants took varied approaches to the sequence prompt, going from a tray typology to a vase typology. The strategies included showing the morphological tools applied in the transformation, using the two steps to show the tools.

- The 2D sketch drawing is where participants think through the sequence, and the 3D sketch, this plan is developed and applied. As in previous workshops, this ability to think through a plan before making, indicates that the students are ready to initiate a *programme*.

- The participants were successful at identifying the basic features of each typology (tray and vase).

- Most of the transformations from tray to vase involved a change in axis from horizontal to vertical.

- The surface of the tray is open, and the vase is closed in on itself, creating a container. Understanding the features of the typologies to work with indicates that students can build their *programme*.

- The middle artefact of the sequence was used as an example of what concepts were used to transform the tray typology into the vase.

- The drawings, as in the past workshop, are beneficial as a secondary source of information for me to understand the intention of the sequences. I deduced that the choice of material for the 3D sketch is not always as straightforward as the participants would like and cannot be used to communicate as clearly.

### Action Research Modifications to be applied to Workshop Five

- Workshops three and four are the same workshop given to two different groups of participants, Interior Design students and Industrial Design students; therefore the changes will be applied to Workshop five.
- The participants will be asked about the typologies they are working on instead of the bowl to pitcher transformation.
- The participants will be asked to start a *programme* in diagrammatic form.
- The labelling of example sequences from bowl to pitcher will be removed from the questionnaire; the grids, with organised or disorganised sequences, will continue to be shown.

## 5.5. Workshop Five

[25 April 2023]

The workshop sessions included five design students as participants. See Volume 2 – Appendix, Workshop Five (p.309) for detailed answers. The main findings are as follows:

### Term Definitions

Participants filled out a questionnaire with questions about the definitions of fundamental design concepts, including typology, morphology, object, practical and aesthetic functions, and usability.

***Typology*** Four out of five participants showed an understanding of the concept utilising 'categorisation' related words, with the addition of 'type' making it clear.

***Morphology*** Three out of five participants were clear on what this concept is by using words such as 'form' and 'shape'. One participant described it as the transformation of forms, and the remaining participant mentioned function and mechanism, which is the opposite of the definition of morphology.

***Object*** All participants (five out of five) accurately described the concept demonstrating their understanding by using words such as, 'thing', 'entity', and 'product'.

***Practical Function*** The researcher deduced from the answers that the participants understood the concept; the answers included words such as 'working quality', 'performs', 'how it works', and 'practical activity'.

***Aesthetic Function*** The participants used words such as 'look', 'feel', 'emotional impact', and 'visual' which led me to conclude that they understand the concept as having to do with the appearance of the object.

***Usability*** The concept is clear to the participants, they all spoke of 'users', 'interaction', and how something works in relation to the user.

### Sequences and Bowl Identification

Participants were asked to examine a grid based on the first set of experiments going from Bowl to Pitcher. Three of the participants received the grid with sequences in order, and the other two received the grid with sequences in a disorganised manner.

As shown in Figure 81 and Figure 82, the organised grid had six choices of ‘bowl’, while the disorganised grid had four. There was a difference in the pieces chosen as ‘bowls’ in both grids which the researcher concludes means that when the pieces are disorganised the participants are only reacting to the shapes without any belonging to a sequence. In the

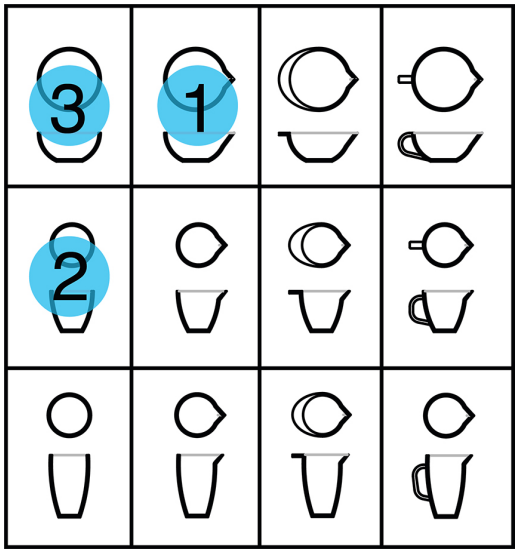



Figure 81:
Chaparro, Y. (2023) Bowl to Pitcher Sequences Grid in Order [diagram]

organised grid, the participants see the pieces as parts of a sequence, which means that the pieces that look similar are together.

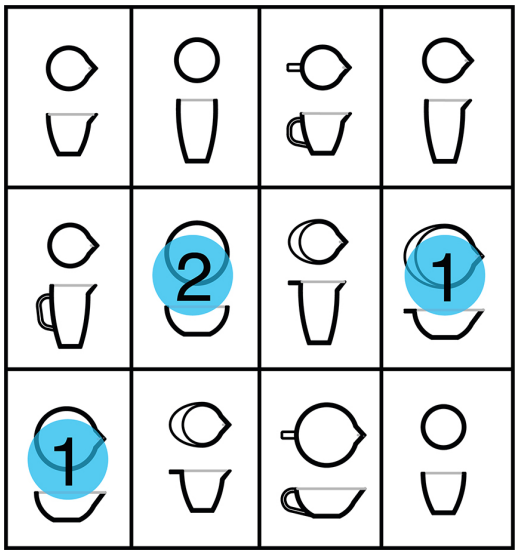



Figure 82:
Chaparro, Y. (2023) Bowl to Pitcher Sequences Grid in Disorder [diagram]

### Plate and Mug Typologies and Prompt Process

The participants were asked to answer questions orally.

***What are the characteristics or features of a plate?*** The participants were able to describe the main features of a plate, including ‘flat surface’, ‘round’, ‘material that is food safe’, and ‘mainly for holding food’.

***What are the characteristics or features of a mug?*** The participants were also able to describe the typology well, including comments such as, ‘circular, usually has a handle’, ‘diameter must be big enough to hold a significant amount of liquid but small enough to fit into a hand’, ‘Simple form to hold liquids’.

***How does one transform a plate into a mug?*** The participants were able to explain how formal changes occur when going from one typology to the another. The following are selected statements exemplifying this: ‘Scale down the flat base, push the surrounding part upwards to form vertical surfaces’, ‘by shrinking the central surface and stretching the rim vertically’, ‘by moulding, morphing the shape of the plate, with different sketch materials. One can twist, stretch, pull, cut, and form the shape of the plate into a cylinder, open it on one side (top), closing it on the bottom end and adding a handle to it’. All participants were clear on the differences between the typologies in the sequence, from a horizontal axis to a vertical axis, and adding recognisable features such as a handle.

### Visual analysis of typologies

Using the photos taken during the workshops of the sequences made by the students, going from a plate to a mug, I created diagrams directly on the photos. These diagrams were created using notations to identify features applied to the artefacts. The participants were asked to create a 2D sketch illustrating the sequence as a way of thinking through the exercise and as a tool to explain it. In the Visual Analysis, I used the 2D sketch when the 3D photo was unclear or to clarify a feature choice.

Going from a plate to a mug provided the participants with simple typologies that have well-known features. This allowed the participants to play with options of the typologies without struggling with the requirements. An example of this is illustrated in Figure 83. The participant’s 2D sketch shows options, as the participant had a different solution for the second piece in the 2D sketch and the 3D artefacts, indicating that the participant continued to work on developing the sequence from the 2D sketch drawing to the 3D sketch.

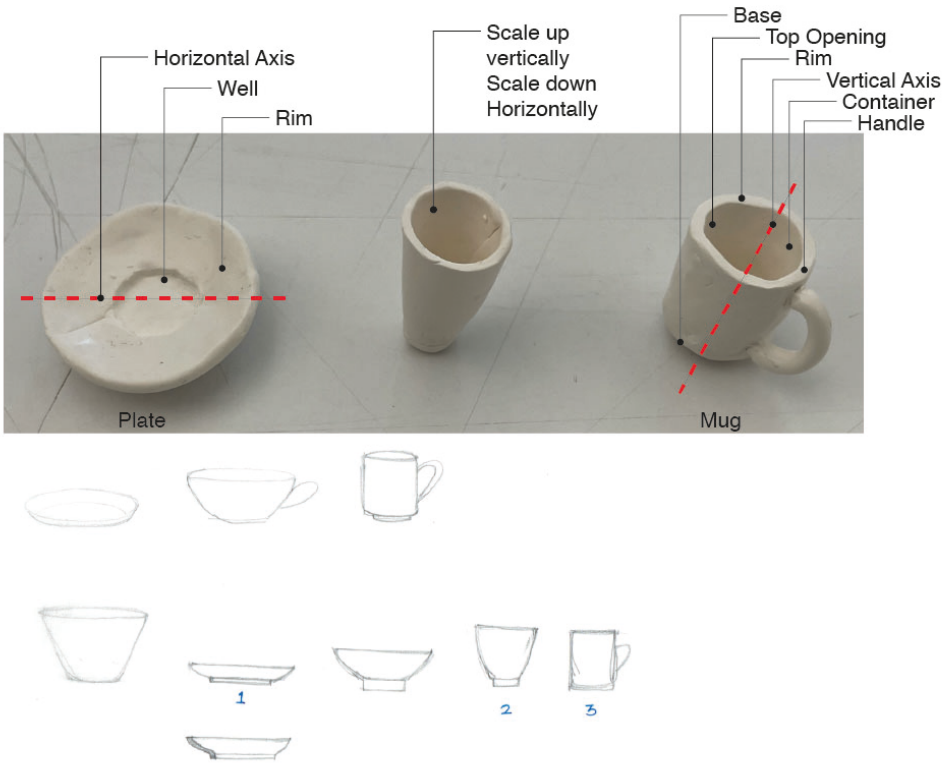



Figure 83:
Chaparro, Y. (2023) Visual Analysis - Feature Recognition - W5. P82 [notation diagram on photo, participant drawing photo]

The sequence in Figure 84 illustrates the misunderstanding among most participants in this workshop. Instead of going from a plate to a mug, four out of the five participants went from a mug to a plate. The results are equally valid.

Figure 84 is also a good example of a sequence where the middle item adopts a different typology, in this case a bowl. The participant created a family of objects out of the sequence.

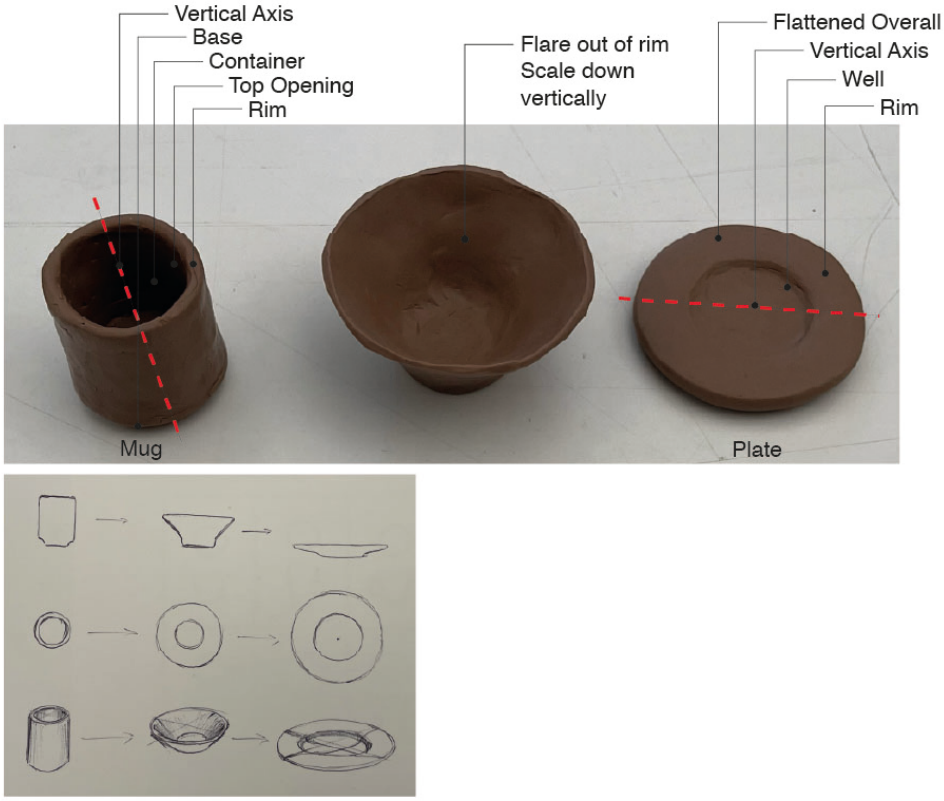



Figure 84:
Chaparro, Y. (2023) Visual Analysis - Feature Recognition - W5. P83 [notation diagram on photo, participant drawing photo]

The sequence shown in Figure 85 is a good example of the middle piece being an indication of the transformative process. It appears to be a frozen stage between the two main typologies, characterised by a scaling up of the bottom and a pushing down of the cup volume and handle.

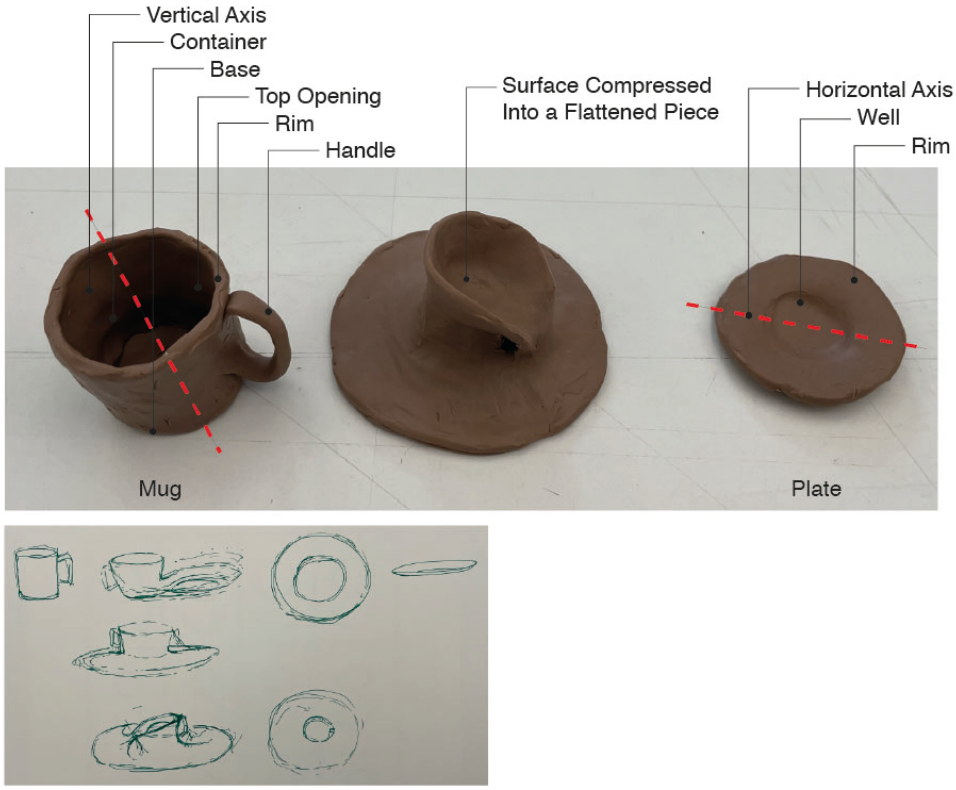


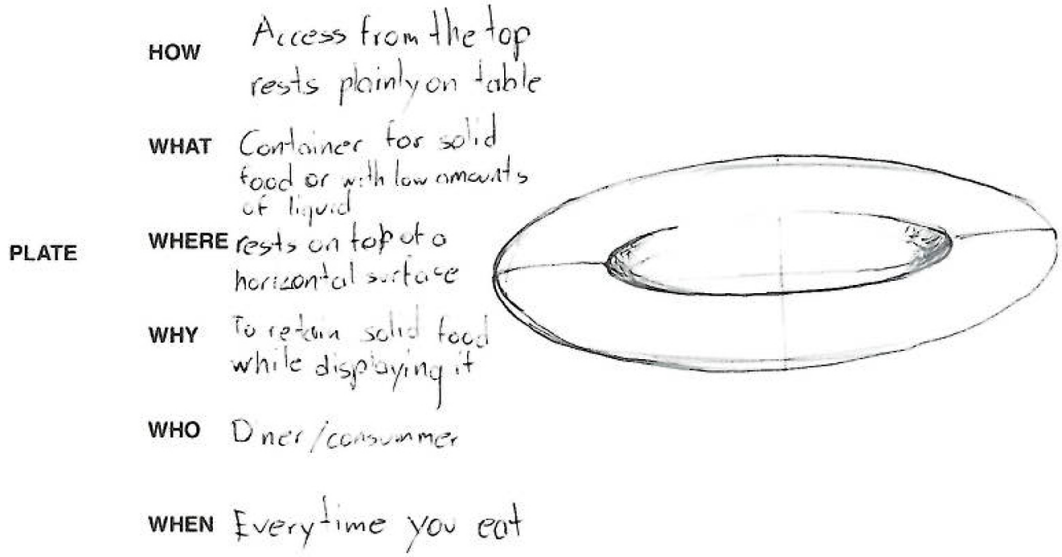

Figure 85:
Chaparro, Y. (2023) Visual Analysis - Feature Recognition - W5. P86 [notation diagram on photo, participant drawing photo]

### Initial *Programme* Diagrams

The participants were asked to make the starting programme for each of the two typologies they worked on in their sequence. They were first shown an example by the research assistant using the same bowl and pitcher example that had been used earlier. The participants were prompted to begin by clarifying their understanding of the context and diagramming the basic features of each typology.

The use of the journalistic six questions (also known as the 5W + 1H) - What, When, Who, Where, Why, and How (Harris, 2002) - helped participants determine the starting requirements, which are then translated into the features of each typology. Answering questions about the context helps de-compose a typology into its main requirements through abstraction, as shown in 4. Chapter One (p.58). Furthermore, it helps students and/or designers remove the typology's name, enabling typologies to be reimagined or new ones to be created.

Figure 86 is an example of the starting programme for the plate and mug, illustrating the identification of the most basic requirements and how the participant applied basic ideas from the typologies when creating the sketches.




Sketch a beginning Programme for a MUG typology:

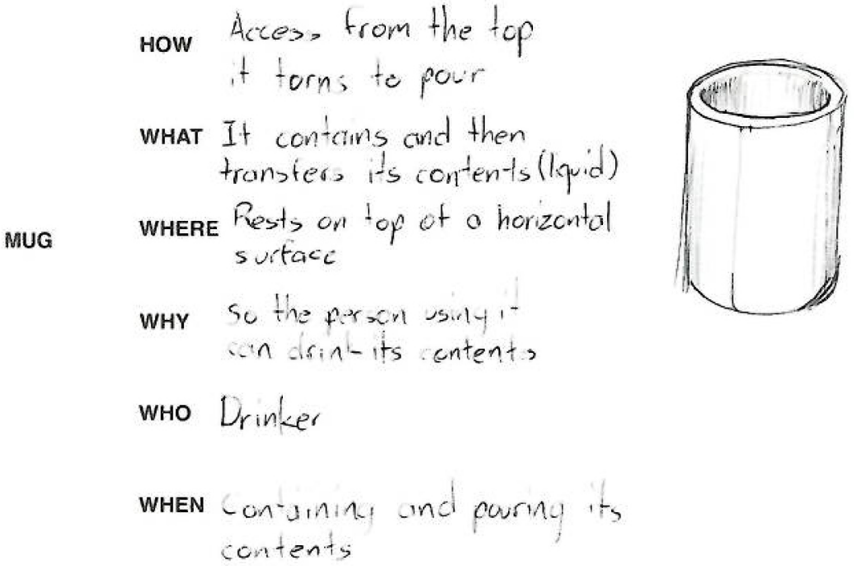
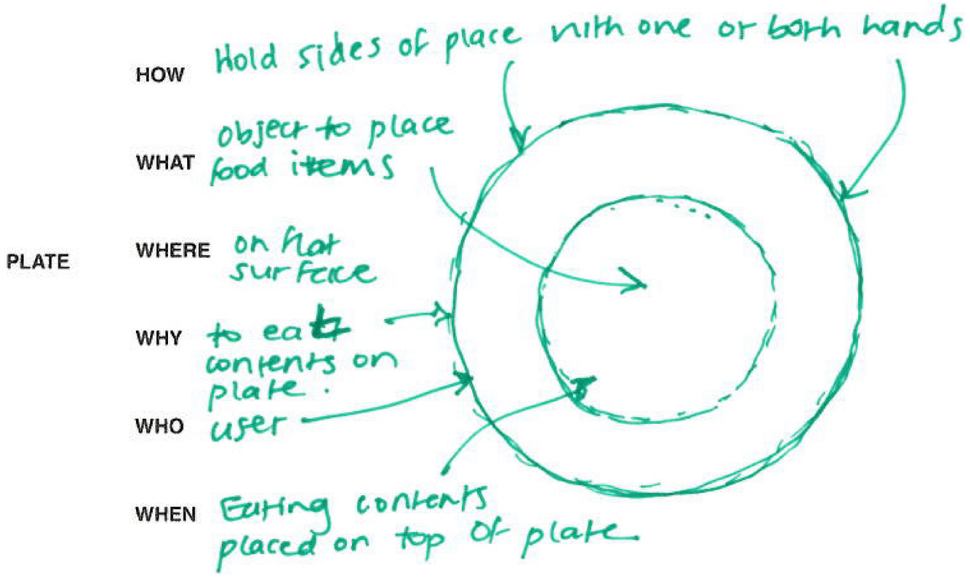



Figure 86:
Chaparro, Y. (2023) *Programme* Start by Participant P83 [diagram]

When the features are indicated on the drawing of the typology, as shown in Figure 87, the participant understands the link between *the programme* and how formal decisions are

applied to a typology. The indication of features and how they are applied to a typology starts *the programme*; the sketches can initiate the process. The researcher's proposal envisions a diagram in which the drawing portion allows for iterative sketching. In other words, the idea of the product will change as *the programme* develops.

Sketch a beginning Programme for a PLATE typology:




Sketch a beginning Programme for a MUG typology:

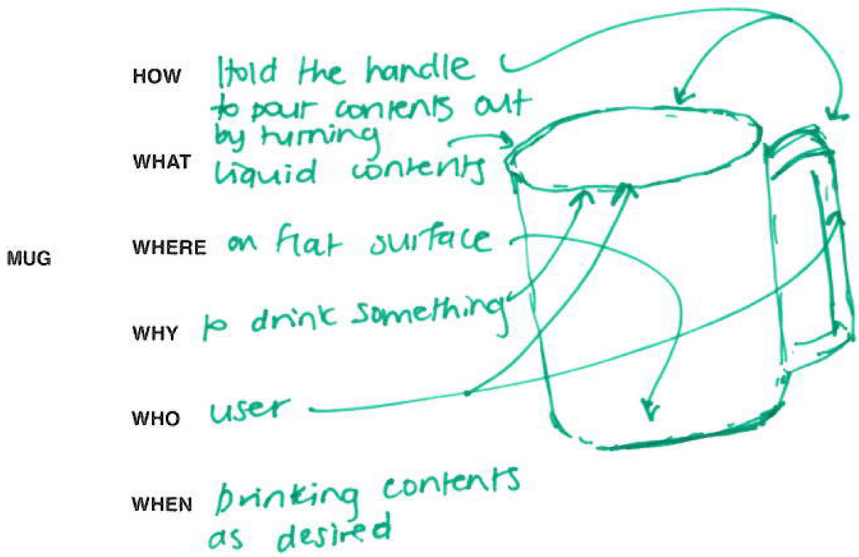
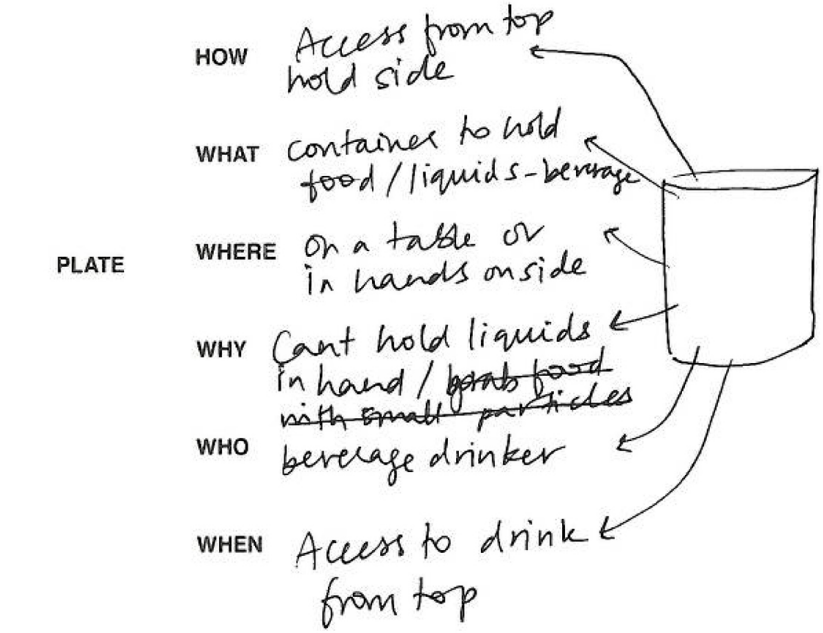



Figure 87:
Chaparro, Y. (2023) *Programme* Start by Participant P86 [diagram]




PLATE

Sketch a beginning Programme for a ~~MUG~~ typology:

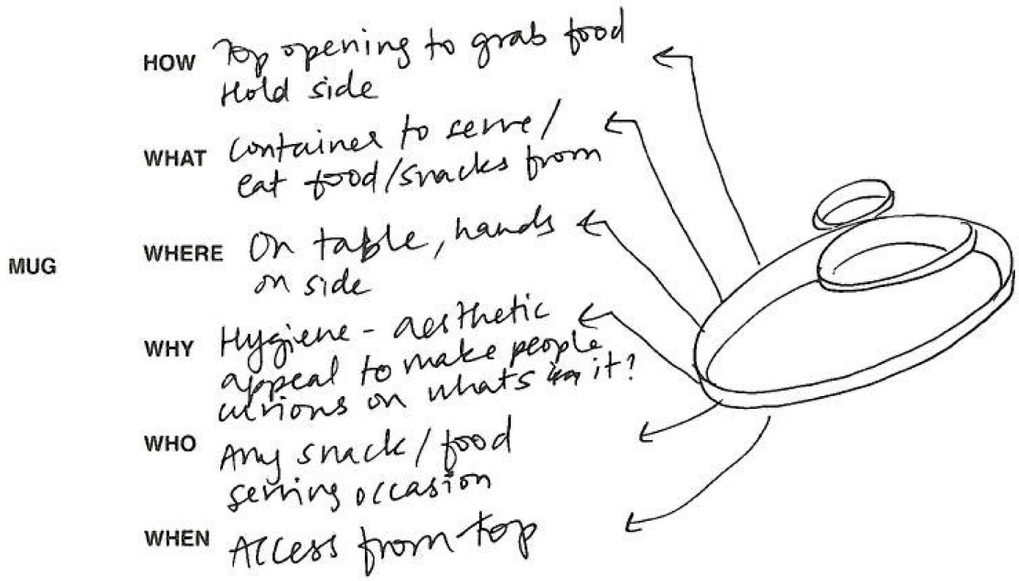



Figure 88:
Chaparro, Y. (2023) *Programme* Start by Participant P84 [diagram]

A few participants used the typologies developed in their sequence exercise as thumbnail sketches for the start of *the programme*, as shown in Figure 87.

The participant's initial *programme,* in Figure 88, is not detailed enough about where the features are applied, it is more detailed in Figure 87, showing more specifically the area of formal decisions applied to a typology; as *the programme* develops, the arrows can indicate formal decisions more clearly.

### Summary of Workshop Five

- By introducing the general concepts as part of the initial questionnaire, the participants are reminded about that language, helping them understand the questions about typologies as presented to them with the 3D pieces showing a transformational sequence between a bowl and a pitcher.

- By asking the participants to transform simple typologies that they were familiar with beforehand, the exercise of figuring out the features was not complicated for the participants. It also allowed them to exercise freedom of design.

- Framing the prompt around transformation between two typologies, aids the participants in starting to develop *the programme* for the two typologies at play.

- The main concepts of *the programme,* typology and morphology, are reinforced to the participants.

- The participants were able to start their programme for each typology by listing their basic requirements. The participants had identified the features of the typologies earlier in the workshop when developing their sequence artefacts. Therefore, they already had the necessary information. *The programme* prompt allowed for a more thought-out understanding of the typologies.

- The students were introduced to the Journalistic Six as a way of understanding the context and, therefore, making the identification of requirements and features easier.

- As design students are exposed to prompts as Briefs, they will be absorbing how designers produce their prompts. They are allowed to understand how designers create starting points to answer their questions.

**Modifications to be applied to the reframing of the programme as a new pedagogical methodology in Chapter Three.**

- The new pedagogical methodology can start by referencing Workshop Five, where students initiated a *programme* diagram. The diagram sketches prompted and completed by the participants will help.
- Each step of the methodology will be described so as to create a lesson plan for a learning plan given to students of Industrial Design.
- *The programme* methodology will be explained through a diagram and a lesson plan.

## 5.6. Summary of Chapter Two

The diagram of the programme continues to be built through Chapter Two, the workshops exemplify how the students have gone through the process of analysis, abstraction, de-composition, coming up with a composition and in the case of the workshops, a sequence. They have made a presentation through the sketch models and have described the work. See Figure 89.

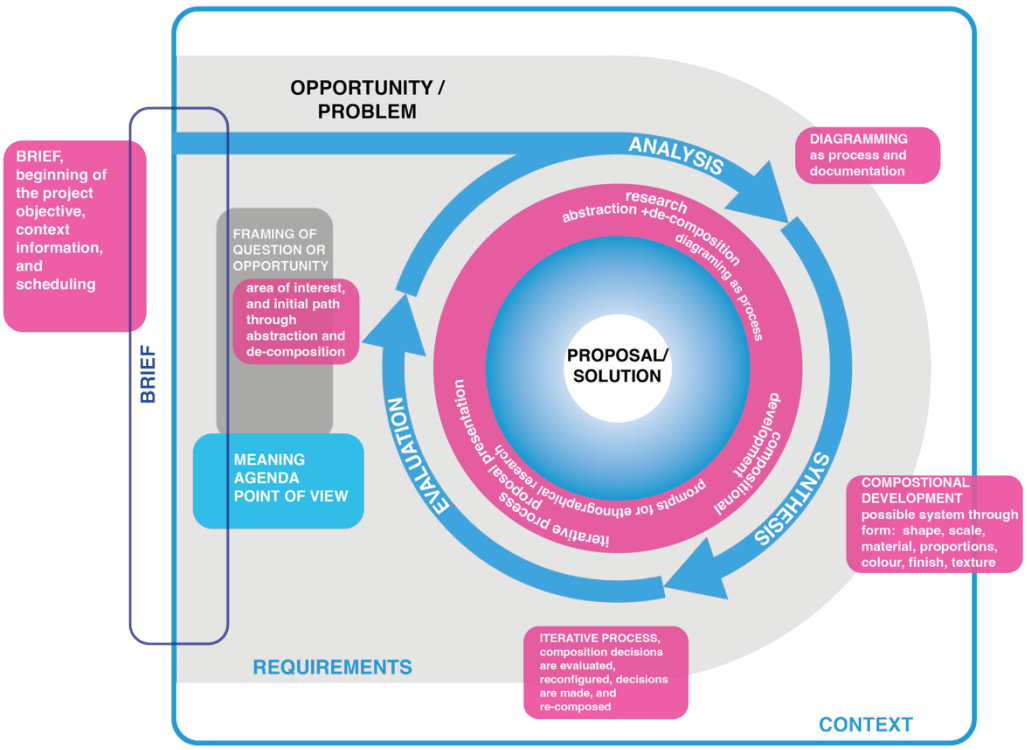



Figure 89:
Chaparro, Y. (2025) The Programme Including Compositional Development, Iterative Process [diagram]

## 6. CHAPTER THREE. REFRAMING *THE PROGRAMME* AS A NEW PEDAGOGICAL METHODOLOGY (developing *The Chaparro Reframed Programme 2026*)

This chapter proposes a new pedagogical methodology for teaching and practising Industrial Design through the concept of *the programme.* This is built upon the reflections of practice explorations in Chapter One (p.58) and the results of the workshops in Chapter Two (p.73). As discussed in the Source Review (p.30), *the programme* has been used mainly in architecture and debated throughout architecture over the last century. The concept has been considered a rigid construct in architecture, even though there have been proposals within architectural discourse to make it more flexible (p.36). However, *the programme* will always be flexible when applied to Industrial Design if it is to be helpful. One of the main differences between Architecture and Industrial Design regarding our process is apparent in the 1:1 possibility. All design disciplines require the iterative process; in Industrial Design, however, the evaluation phase includes immediate manipulation and experiencing of the system or product. Therefore, the Industrial Designer constantly retrieves tactile, emotional, interactive, material-based information. This new contextual information prompts *the programme* to require constant change based on the immediate evaluation.

The concept of *the programme* is situated in relation to the project's Brief requirements and the process of design. The Brief is described in the Introduction (p.14), where the intention of the design is introduced; the Brief can be either narrow and specific or open and vague. *The programme* determines the requirements for a design, goes through the process of design and can continue after the proposal is introduced into the market. Figure 90 indicates that the relationship between the Brief, the design process, and requirements is a flexible and moveable progression. The process of design, and therefore *the programme,* are not linear constructs. However, they do have a direction where decisions are made sequentially.

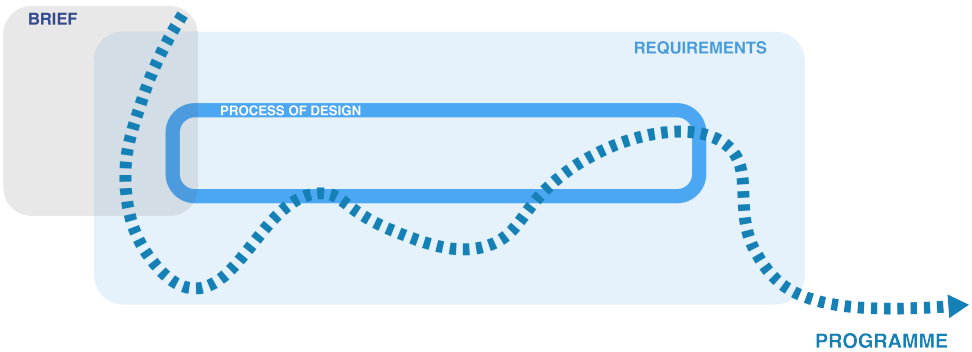



Figure 90:
Chaparro, Y. (2024) *The Programme* in Relation to the Brief and the Process of Design [diagram]

## 6.1. Diagram as *The Chaparro Reframed Programme*

*The programme* is represented as a diagram, which will be described in 6.2. *The programme* is reframed as a pedagogical methodology (p.129); it helps the designer organise information visually and identify the requirements needed to understand the context of a design project. The list of requirements will translate into questions for more information, prompts for testing, and formal decisions to complete a composition; therefore, the requirements can be converted into features.

As discussed earlier in 2.3. Morphology and Typology as related to *the programme* (p.40), Tschumi's definition of *the programme* emphasises the relationship between function and form (2015, video 18'52"). Therefore, it can be divided into two important concepts: Typology and Morphology. Typology is a categorisation of elements that enables designers to identify and comprehend artefacts in their historical and cultural contexts. At the same time, morphology is the study of form in nature.

The concepts of typology and morphology are used in this research project to teach design students how decisions are made in Industrial Design. Workshops with Product/Industrial Design students, as described in Chapter Two (p.73), focused on how a typology relates to a specific morphological composition. Students were asked to identify the initial *programme* for a specific typology. Making students aware of how a designer moves from a Brief to a design process, culminating in a proposal, helps them understand how designers make decisions. *The programme* also helps them plan how to move through the process of design. Even though, at times, a designer can be given a typology as a Brief, a designer usually does not start with a typology in mind but rather with an action or experience to fulfil. For example, it is common to define a design project as a system for sitting or relaxing — the resulting proposal by the designer might be a chair or a chaise. However, it might also be a pod for relaxation. Therefore, using a typology as a prompt is an exercise that directs the students to understand the concept first and offers insight into how designers arrive at a typology.

In Figure 91, the general *programme* is shown as a sequence, which helps illustrate how *the programme* progresses through its basic elements and the process of design. *The programme* helps the designer plan the trajectory from Brief, requirement identification, and the design process. This plan is not a recipe or a rigid set of steps; rather, it allows for the plan to change as the designer works through the process of design. The diagram presented here is a general representation that helps the designer understand the elements of *the programme* and how they work together throughout the process of design. The student is reminded of the cyclical movement of the design process and how to go through the *programme*. The diagram developed through critical reflection on how designers go through

the process of design, is exemplified through the workshops in Chapter Two (p.73). Students will, therefore, initiate their diagrams by identifying the elements of *the programme*; the diagram made by the student or designer is unique and different for each project. By closely following the creation of the diagram, one can identify the decisions made throughout the completion of an Industrial Design project. Therein lies the importance of making the diagram as part of the exercise; the students will be made aware of how they make decisions as part of the learning process. The diagram is the reframed *programme* in its basic form as I have shown earlier, this diagram becomes more complex as the designer and/or student works through a project of design. What makes the use of *the programme* innovative is that it is not commonly used as a teaching tool, or in industrial design. By utilising *the programme* as a pedagogical tool, students reflect on the process of design and how they move through it.

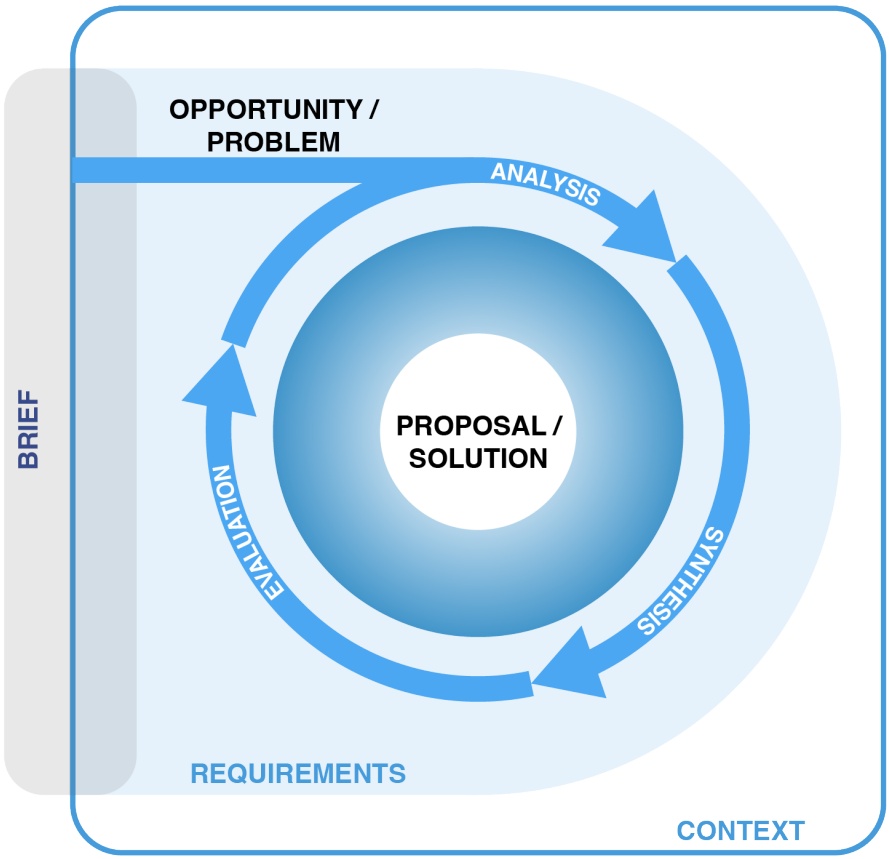



Figure 91:
Chaparro, Y. (2024) *The Programme* Sequence as a General Diagram [diagram]

## 6.2. *The Chaparro Reframed Programme* as a pedagogical methodology

The diagram shown in Figure 91 above is used as a basis for developing a methodology. Information on steps taken during the process can be added to the diagram to explain the

milestones necessary to create the personal diagram as part of the methodology. See Figure 92 below.

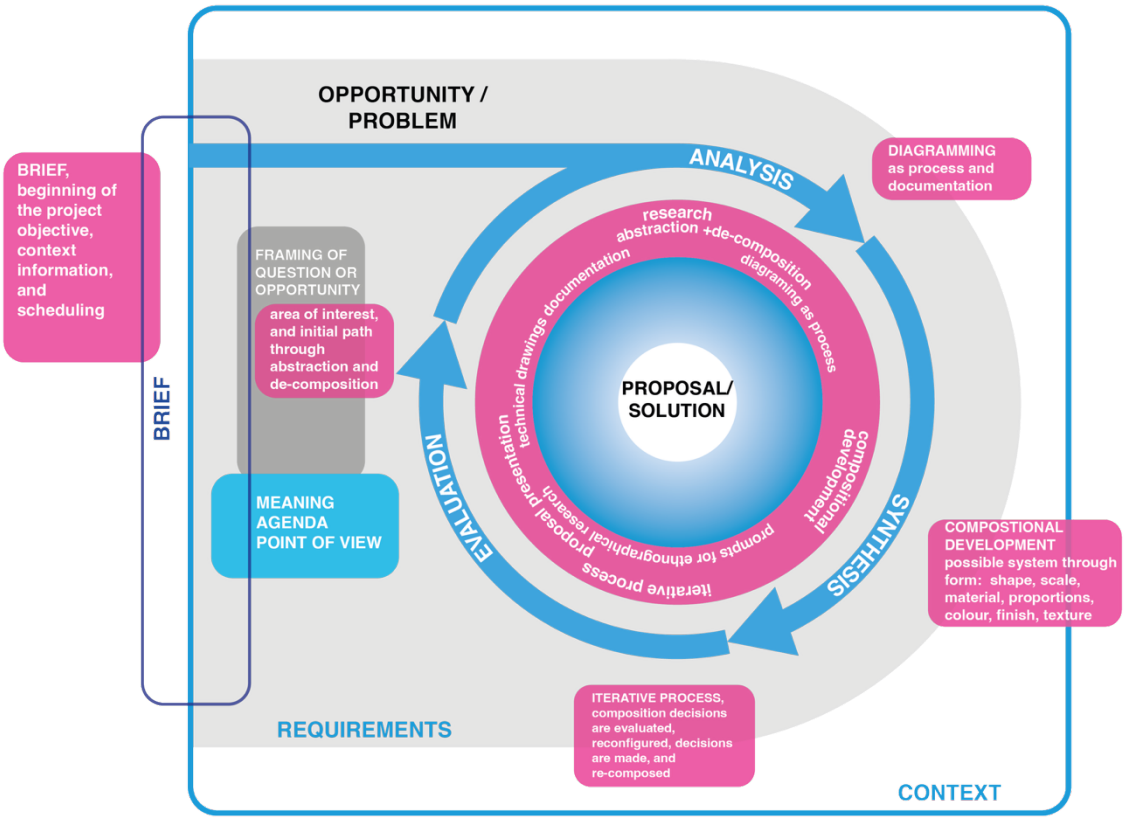



Figure 92:
Chaparro, Y. (2025) Milestone Information from the General *Programme* Diagram [diagram]

By identifying the milestones necessary during the process of design, the design student can develop their working *programme* diagram. As mentioned earlier in this chapter, the working *programme* diagram will be different for every project and will be executed differently by every design student or designer. Figure 93 is an example of a template that includes the milestones the working *programme* diagram will cover. This working diagram template can be altered and updated as the process requires. Phases such as the Iterative Process are repeated as many times as needed. The diagram changes as the student moves through the process of design; the *programme* constantly feeds itself from the context, through every iteration produced and evaluated. The iterative process can take as many passes as needed to produce a proposal or solution to be presented. Through ethnographic research, cultural probes, and testing, the *programme* constantly seeks new information and will, therefore, remain open to change.

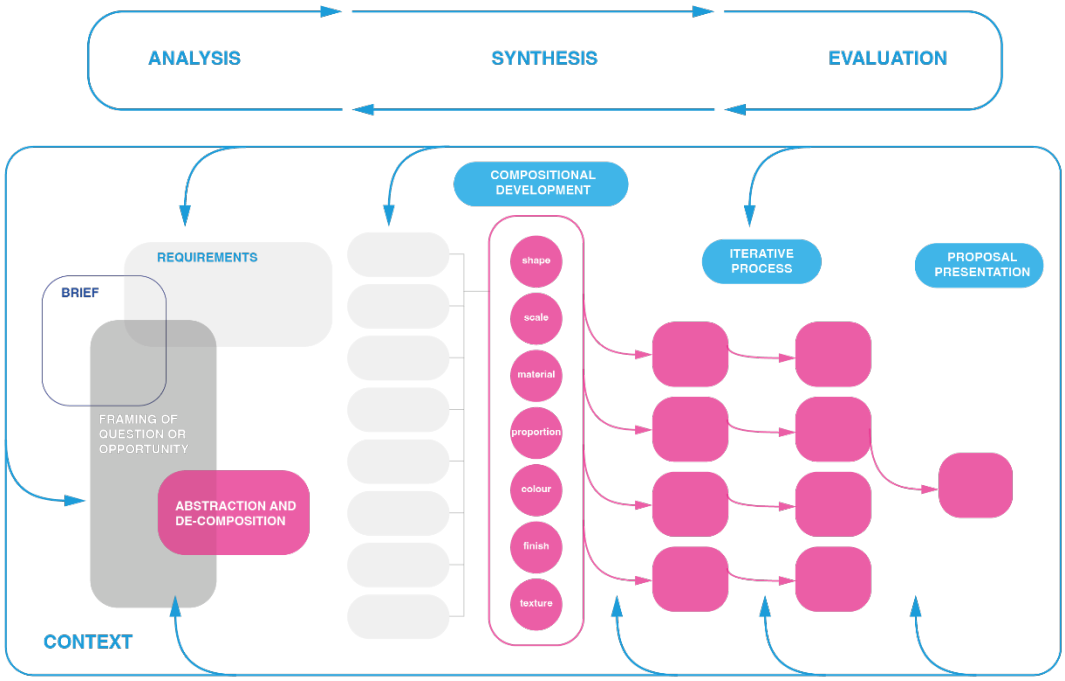



Figure 93:
Chaparro, Y. (2024) Prototype Template of the *Programme* as a Working Diagram [diagram]

The steps of *the Chaparro Reframed Programme* methodology are:

**Brief** is the starting point. The Brief is usually given to the designer by the client, the employer, or developed by the designer. For this PhD by practice, it is given to the student by the teacher. The Brief can be stated as a question or as a statement prompt. It often includes information such as a project and payment schedule, as well as deliverable expectations.

**Framing of the opportunity or problem** Through the analysis of the Brief and explorations of the context and preliminary research, the opportunity is framed. Industrial Designers use the Journalistic Six (5Ws and 1H) framework to understand the context around a design project. (Sorel 2011).

**Development of Requirements** The requirements are listed as a starting point, providing the student with a sense of direction towards the features that the system or product should possess to fulfil the Brief. Therefore, the requirements serve as a list of objectives; they are also a distillation of the Brief and the framing of the problem or opportunity.

**Diagramming** *The programme* is developed in the form of a diagram. The student is asked to describe their journey through the creation of a diagram that begins with the preliminary

listing of requirements and documents the various decisions made throughout the process of design.

As the design student moves through the process of design, creating the working diagram of *the programme* makes them aware of the decisions they are making. Decision-making through the process of design is not only moving the process forward, but also documenting the work and decisions taken. The students will know how they design as they learn to make their own design decisions.

## 6.3. *The Chaparro Reframed Programme* as a pedagogical methodology – Case Study

To test my *Chaparro Reframed Programme* methodology in practice, I followed the steps of the methodology by developing one of the artefacts produced through this PhD by practice. The chosen artefact is a 'bowl-pitcher', which was produced as a concept through the Practical Explorations described in Chapter One (p.58). As shown in Figure 94, this object was developed as a 3D model and subsequently 3D printed; it is, however, not a finalised object of Industrial Design at this stage. Figure 94 shows the interaction with a hand, including the grip and movement of pouring.

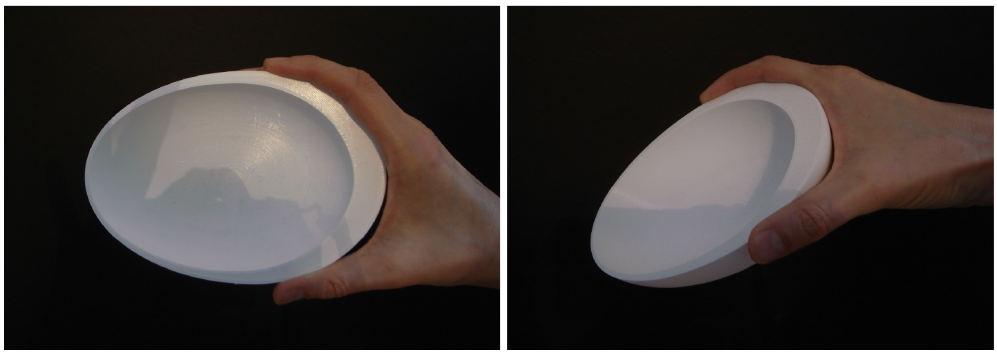


Figure 94:
Chaparro, Y. (2022) Pinched Pitcher Showing Single Hand Manipulation [photos, user interaction]

**Brief:** The 'bowl-pitcher' was a result of the prompt of morphological transformations going from a bowl to a pitcher.

**Requirements as objective:** *The programme* is a plan to reach a solution or proposal in the form of a product, in this case, a product of Industrial Design. The requirements are determined by the Brief and the framing of the opportunity — all of this happens through an understanding of the context. The use of the journalistic six (What, When, Who, Where, Why, and How) is used as a way of understanding the context and developing the

requirements. As shown in Figure 95, the requirements identify the features that a pitcher should possess, in addition to what actions need to be possible for it to be classified as a pitcher. In this example, my analysis was initiated by an artefact known in our culture; however, this same method can be used to identify the requirements of an unknown system or typology based solely on an action.

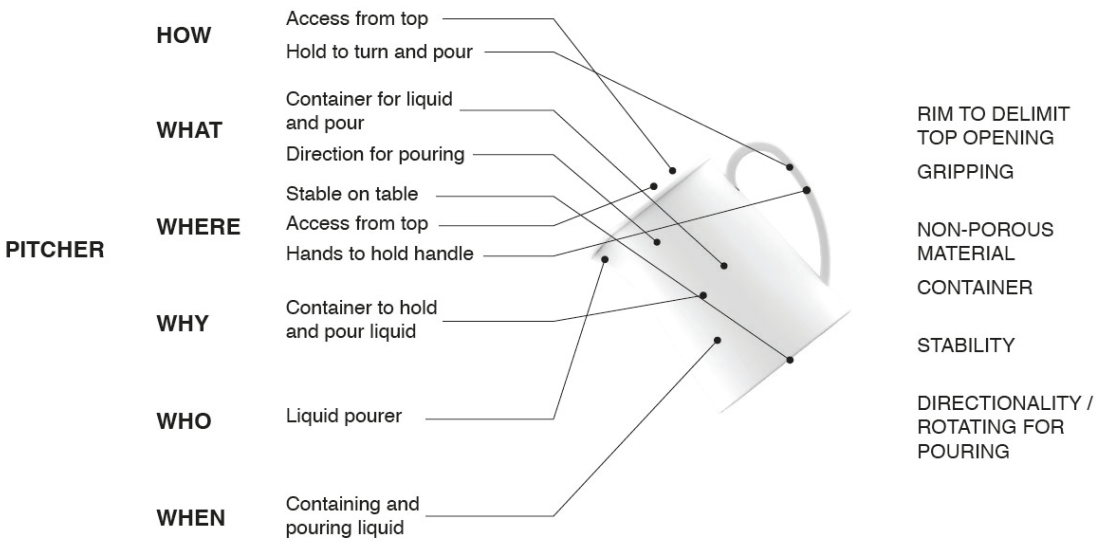



Figure 95:
Chaparro, Y. (2023) Example of Requirements of a Pitcher [diagram]

**The basic requirements for a pitcher include:**

- Container capable of holding liquid - non-porous material
- Element to be stable on a surface without spilling the liquid
- Possibility of transporting that liquid from one place to another
- Possibility of pouring the liquid into a cup or other container
- Possibility of pouring using one hand-gripping
- Semiotic cues to indicate how to fill with liquid, lift, pour, and set on a surface — for the user to interact with it correctly

*The programme* is set as a potential path that allows for a variety of possibilities. With each decision made, the designer or student can narrow down the possibilities; therefore, *the programme* is expected to change as we move through the process of design. Chapter One demonstrated the iterative process that design requires to explore an idea. In this case, the materiality and manufacturing decisions are the next steps in developing the concept into a product of Industrial Design. As *the programme* takes the designer or student through the process of design, the question is framed more specifically. The diagram in Figure 96

illustrates a preliminary sketch of how decision-making for manufacturing and material choices could be implemented. This sketch is based on the template in Figure 93.

*The programme* will continue to help us loop back and forth as needed, allowing us to rethink each decision. This diagram will be unique to every project and will change depending on the requirements, the decision-making, and the way each designer or student applies it.

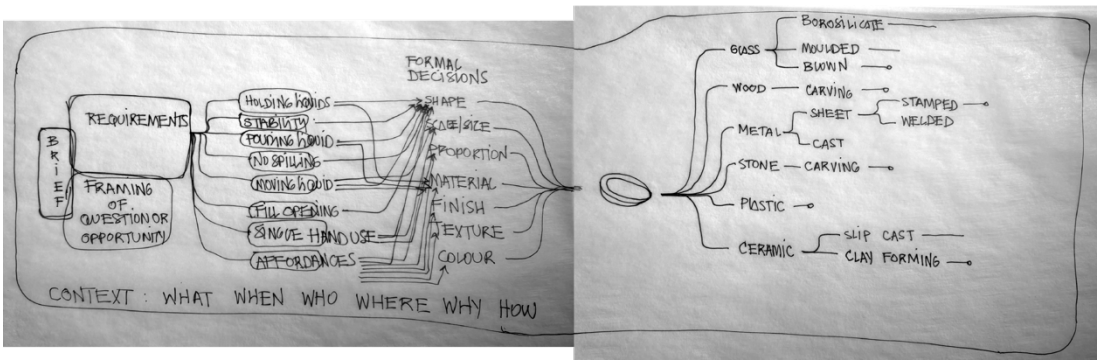



Figure 96:
Chaparro, Y. (2024) Example of Start of *Programme* [sketch diagram]

Diagram-making is part of the methodology. Enabling the design students to go through the project as they reflect on the steps they are taking and how their decisions move the process along will encourage reflection and will make the students aware of how they are applying their decision-making. *The programme* will help them organise their actions and see the solution and how it changes at every step. Finally, other layers can be incorporated to the scheme, such as time management and interactions with the client, which are usually included in the brief. In the following Figure 97, a changing diagram is exemplified using of Miro, a whiteboard software designed for collaborative and dynamic diagrams. For images 92-95, 98, 100, and 104, see the full high-definition boards in Volume 2 - Appendix 3 (p.337).

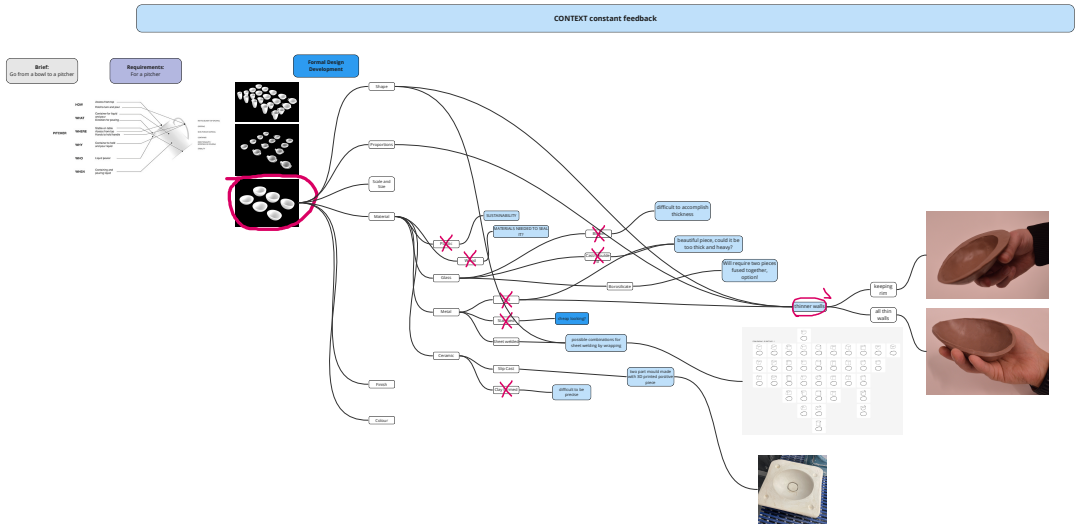



Figure 97:
Chaparro, Y, (2024) *Programme* Diagram - Example of Initial Possibilities [diagram in Miro]

In Figure 97, the choice of the formal direction is based on the requirements and formal exploration, followed by the formal design development components: shape, proportions, scale/size, material, finish, texture, and colour.

From the previous decision-making steps, considerations such as shape, proportions, and scale/size have been decided. It is important to note that these can still change as the *programme* continues, as it is flexible. As decisions are made, the looping through evaluation will continue to require new decisions and the designer's or student's openness to modifications.

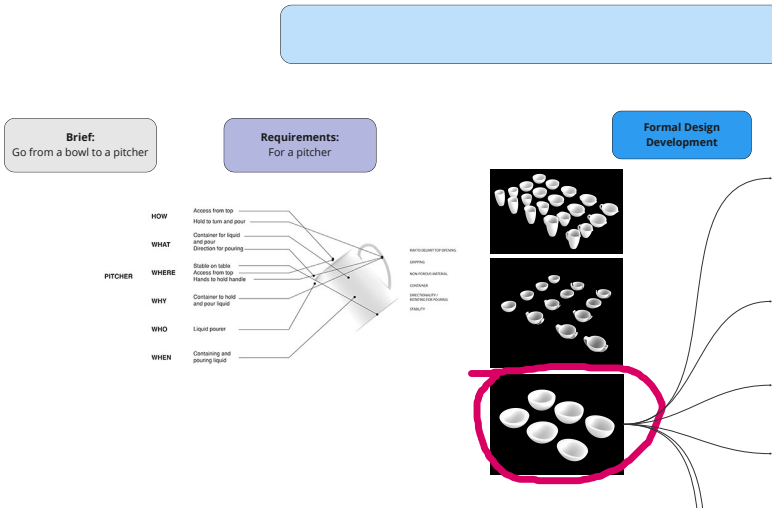



Figure 98:
Chaparro, Y. (2024) Detail View of *Programme* Diagram Sketch Showing Initial Formal Decisions [diagram in Miro]

This diagram illustrates the initial thought process when creating a product of design. In this case, once the basic formal concept is determined, the choice of materials and processes will continue to develop the piece. Notations are added to the diagram as needed to show the decision process throughout the project; it is also helpful to show when decisions involve closing a possible path. This is exemplified in the detailed view in Figure 99: the magenta 'x' notations indicate a path that has been eliminated due to a decision having been made.

The example in Figure 99 illustrates the decisions made regarding material choices, which are primarily based on the manufacturing process. 'Plastic' was eliminated quickly due to sustainability considerations, and 'wood' was eliminated due to liquid absorption of the material without any coating. Other materials, such as metal and glass, required more analysis, as shown below.

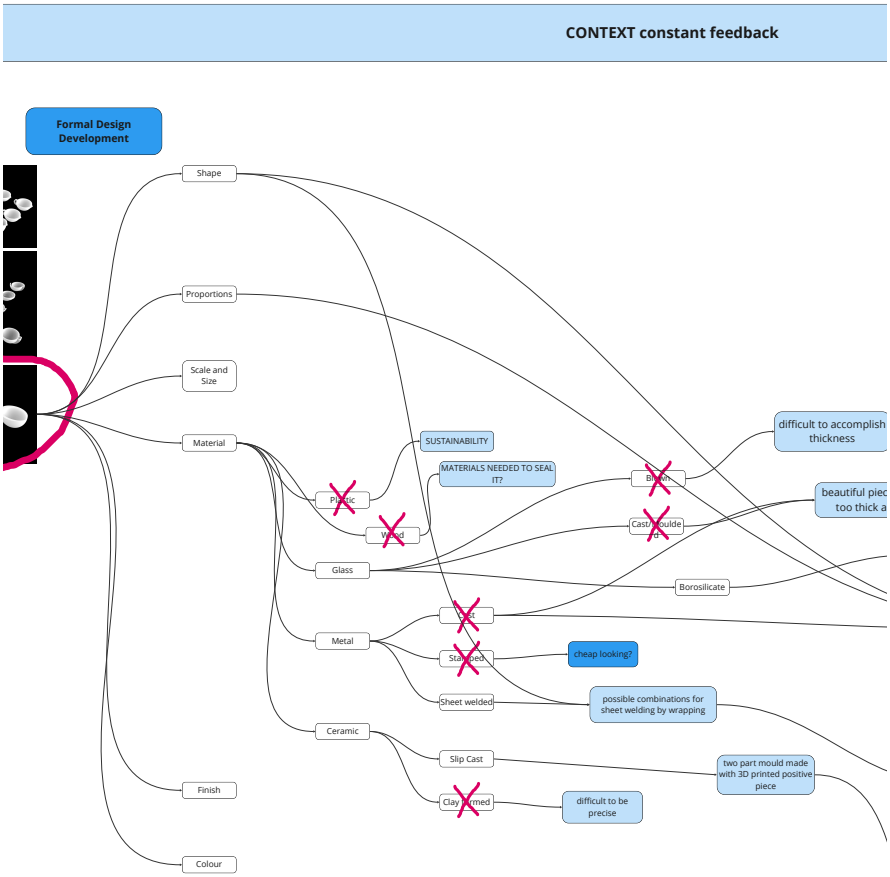



Figure 99:
Chaparro, Y. (2024) Detail View of *Programme* Diagram Sketch Showing Possible Paths Elimination [diagram in Miro]

**Glass** The possible methods of manufacturing listed in the diagram are blown glass, moulded glass, and borosilicate glass. Blown glass was eliminated because the piece was not completely round and required a thick wall showing the direction of the spout edge. A moulded piece would be beautiful but heavy to hold with one hand; therefore, it was also eliminated. Finally, borosilicate glass was considered, as shown in Figure 100: the piece would have to have a double wall, and due to the borosilicate process, it would require two parts that are fused.

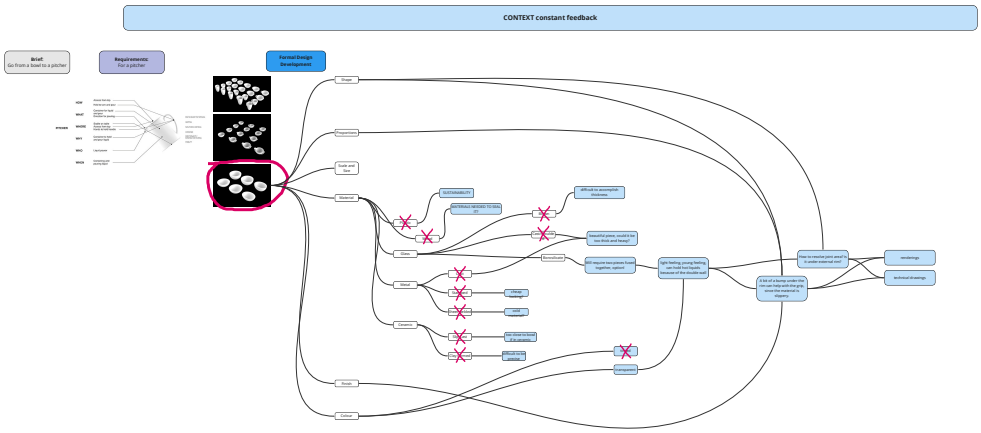



Figure 100:
Chaparro, Y. (2024) Example of *Programme* Diagram - Borosilicate Pathway [diagram in Miro]

To determine how the piece would be manufactured, a rendering was developed, as in Figure 101.



Figure 101:
Chaparro, Y. (2024) Bowl Pitcher Borosilicate Glass [Rendering]

The manufacturing details, including the double wall and the need to fuse two parts, are shown in the technical specifications in Figure 102. Making a prototype in the actual material will help evaluate how well the piece feels and interacts when in use.

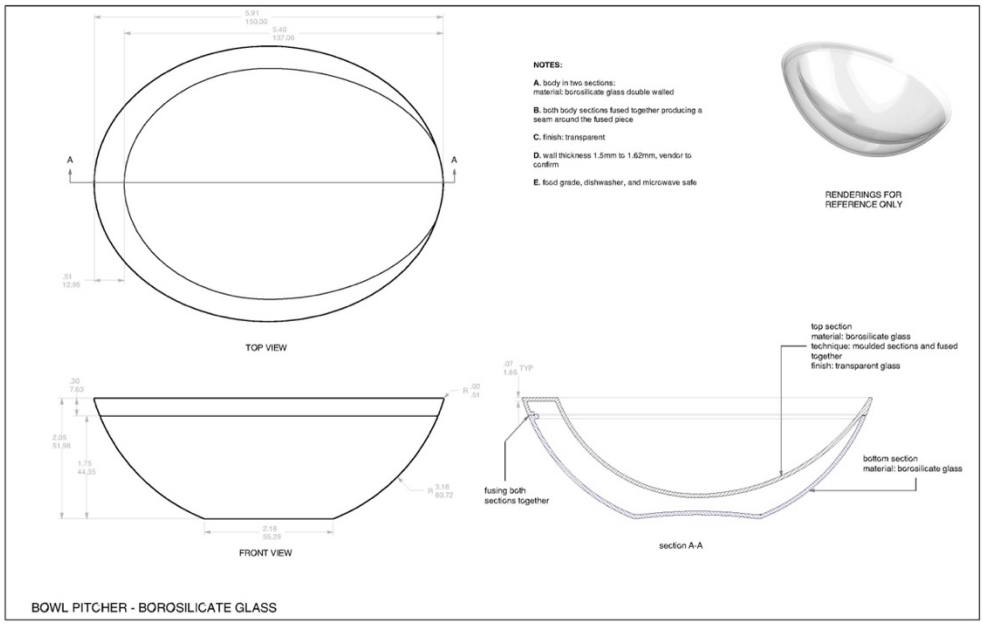



Figure 102:
Chaparro, Y. (2024) Bowl Pitcher Borosilicate Glass [Technical Specifications]

**Metal** The possible methods of manufacturing listed in the diagram are sheet metal stamping, sheet metal welding, and casting. Sheet metal stamping is eliminated due to the perception of cheapness of the product; sheet metal welding, showed more promise. It goes through various iterative exploration options of formal applications; it can be produced with a thin wall that overlaps. The pathway is shown in Figure 103.

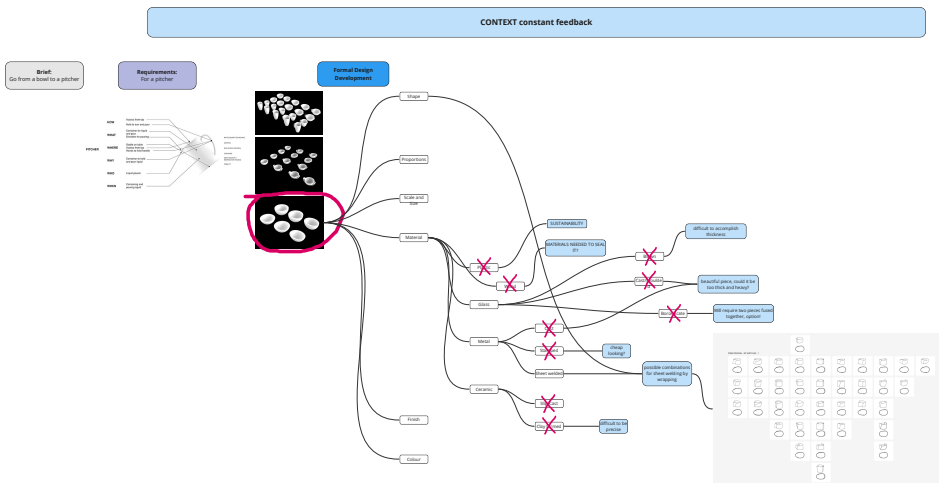



Figure 103:
Chaparro, Y. (2024) Example of *Programme* Diagram - Sheet Metal Pathway [diagram in Miro]

Figure 104 illustrates the iterative explorations conducted for sheet metal wrapping, which involves creating overlapping layers on the walls of the pieces.

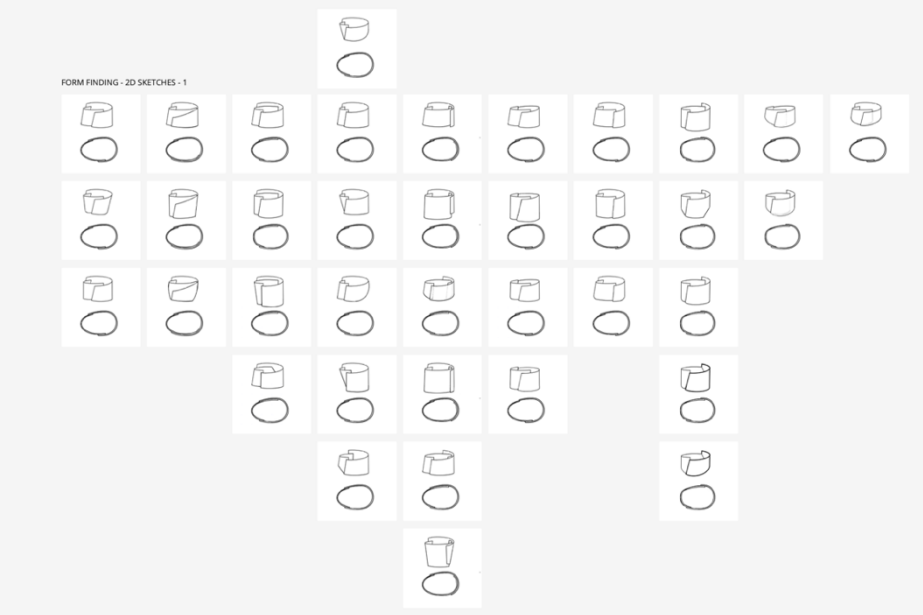



Figure 104:
Chaparro, Y. (2024) Sheet Metal Welded Pitcher Iterative Exploration [drawings diagram]

Finally, the cast metal option is shown in Figure 105. The pathway is also based on a thinner wall that can keep the option of a wide rim as a cantilevered element.

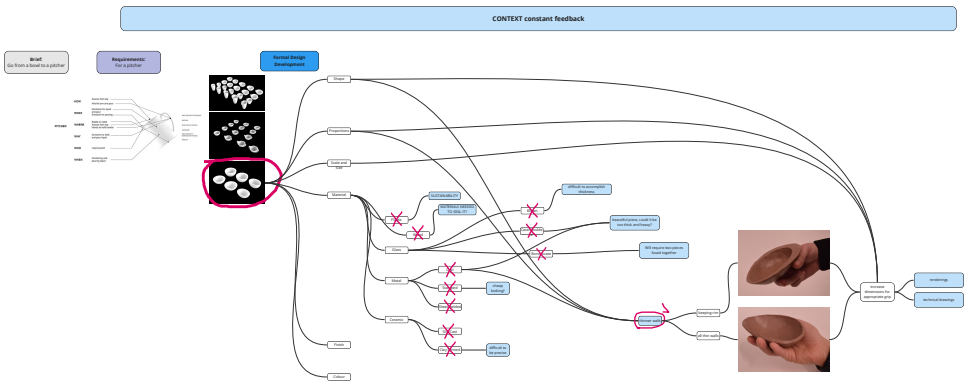



Figure 105:
Example of *Programme* Diagram – Cast Metal Pathway.

Figure 106 shows both possibilities in clay models, with and without the cantilevered rim.

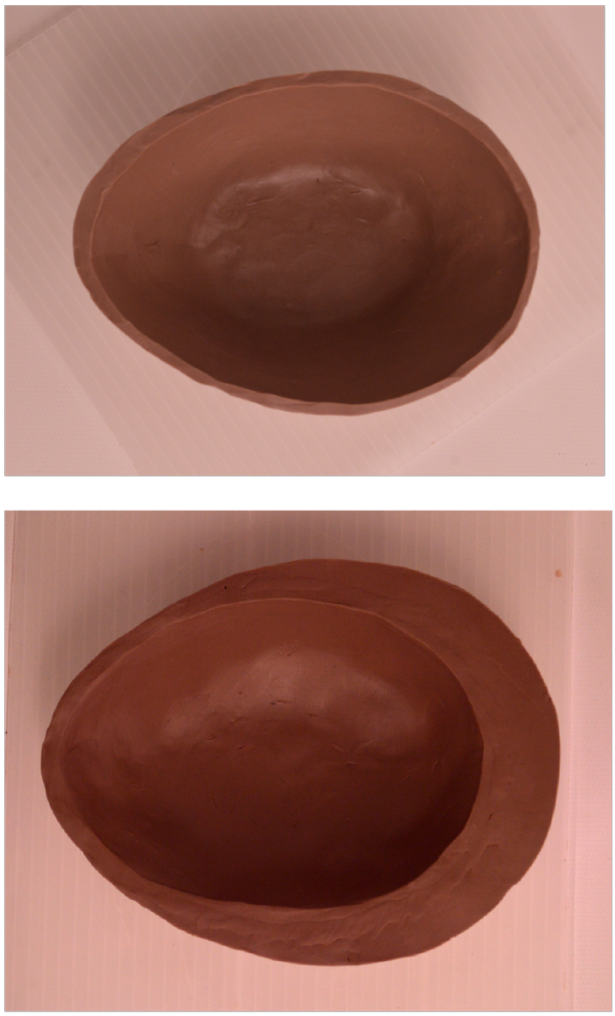


Figure 106:
Cast Metal Explorations - Without Wide Rim and With Cantilevered Rim [clay models, photos]

The cast metal option is developed through iteration culminating in a rendering to visualise how it will be understood in a material form. See Figure 107.



Figure 107:
Chaparro, Y. (2024) Cast Metal Bowl Pitcher [Rendering]

If prototypes are needed to interact with the actual piece, then technical specifications must be produced for manufacturing. See Figure 108. A prototype would aid in understanding how interaction with the actual piece would feel. The user will experience the actual weight of the material, the feel of the texture, its usability while lifting and pouring, and so on.

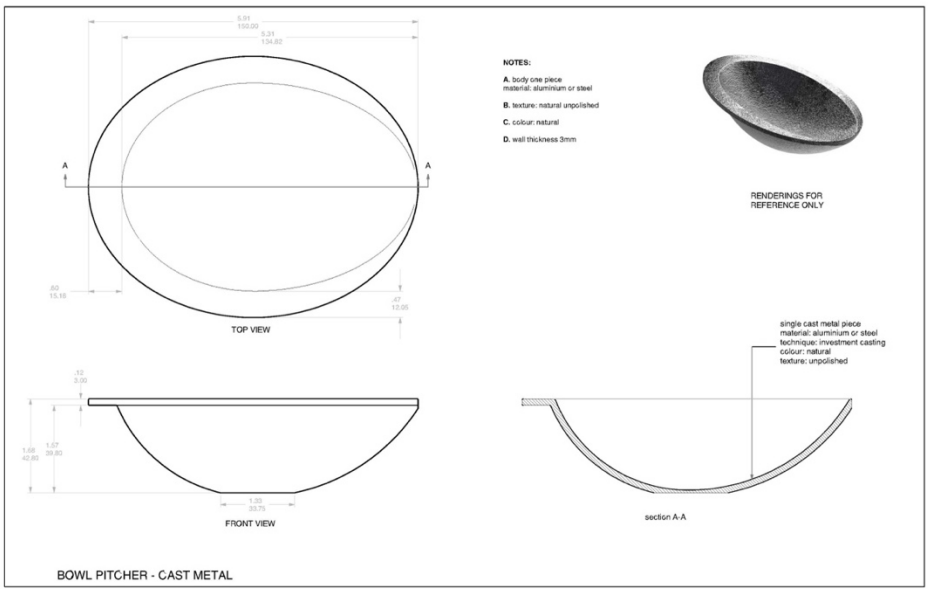



Figure 108:
Chaparro, Y. (2024) Bowl Pitcher Cast Metal [technical specifications]

**Ceramic** The ceramic pathway had two listed manufacturing processes, formed clay and slip-casting. Formed clay was eliminated first due to the difficulty in repeatability for a product of Industrial Design. The slip-cast pathway is included in Figure 109.

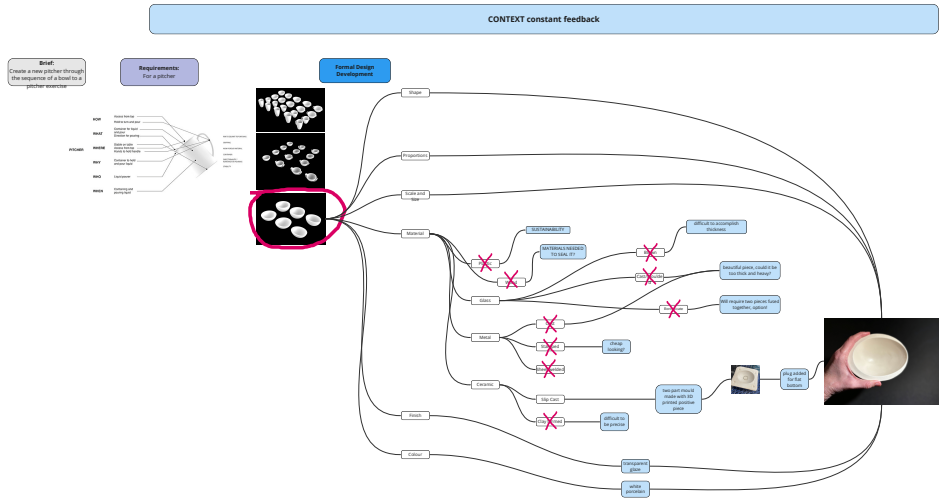



Figure 109:
Chaparro, Y. (2024) Example of *Programme* Diagram – Slip-Cast Ceramic Pathway [diagram in Miro]

The ceramic piece was developed with both a rendering and a technical specifications document. For the rendering, see Figure 110.



Figure 110:
Chaparro, Y. (2024) Bowl Pitcher Ceramic [Rendering]

For a prototype being manufactured by a vendor, the technical specifications were developed, as shown in Figure 111.

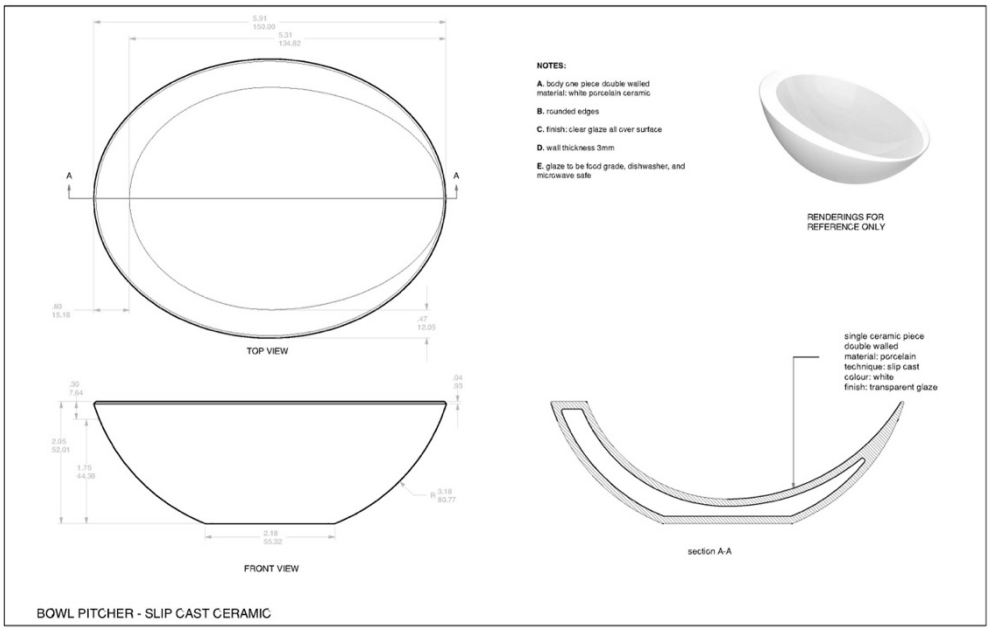



Figure 111:
Chaparro, Y. (2024) Bowl Pitcher Ceramic [Technical Specifications]

A two-part plaster mould was produced with the help of a 3D-printed positive model. To slip-cast the ceramic ‘bowl-pitcher’, a plug had to be added to one side of the mould to produce the flat bottom of the artefact. See Figure 112.



Figure 112:
Chaparro, Y. (2024) Plaster Two-Part Mould and Positive PLA 3D Printed Positive Used to Create Mould [photo and mould making credit, research assistant Kavvya Krishnan]

After the ceramic slip-cast process, a prototype of the ‘bowl-pitcher’ was produced. See Figure 113.



Figure 113:
Chaparro, Y. (2024) Ceramic Slip-Casting Process [photo and slip-casting credit, research assistant Kavvya Krishnan]

The final prototype in ceramic was finished with a clear glaze. See Figure 114. The final prototype was tested for usability in interaction photos, as in Figure 115.



Figure 114:
Chaparro, Y. (2024) Ceramic Bowl-Pitcher Final Prototype [photo]



Figure 115:
Chaparro, Y. (2024) Ceramic Bowl-Pitcher Final Prototype, Showing Single Hand Manipulation [photos, user interaction]

The example described above through *programme* diagrams indicates how a product is produced. As mentioned above, the manufacturing processes differ for each material; therefore, *the programme* diagram varies each time. The *Chaparro Reframed Programme* diagram illustrates the flexibility of professional practice in Industrial Design while serving as a pedagogical methodology for the field. The diagram will be directed by the faculty (in the USA, 'faculty' refers to teachers or tutors in higher education) but completed by the student. To guide the student in creating a *programme* diagram and applying the pedagogical methodology, refer to Figure 118, Figure 117, Figure 118, and Figure 119, which include a

possible lesson plan to exemplify *The Chaparro Reframed Programme* that can be utilised in Industrial Design.

## 6.4. Lesson Plan Example

This lesson plan serves as an example for faculty teaching Industrial Design students, demonstrating how *the programme* can be applied as a visual diagramming tool to deepen their understanding of the design process. Additionally, it raises students' awareness of how they make decisions through a design project as a prompt. As the process of Industrial Design requires the creation of artefacts in the form of 3D sketch models and more finalised prototypes, documentation of the process via photos can be incorporated into the diagrammatic construction.

The level of study will require differences in the lesson plan. For example, if the lesson plan is geared towards undergraduate students, it will focus on skill building rather than action research. If the lesson plan is intended for postgraduate level (Master's) students, it can focus on a deeper understanding of research and action research. Therefore, the lesson plan presented here is a general framework that can be changed as needed by the faculty utilising it.

The lesson plan is based on the Industrial Design (Product Design/3D Design) curriculum and uses learning outcomes typical of the discipline; however, it can be applied to any design field curriculum. This example considers the use of a project exercise, which will require approximately 4 to 6 weeks of class meetings, held twice a week, for a total of 9 hours per week. (This calculation is based on the MFA Industrial Design 15-week studio course every semester, which consists of 9 hours contact time per week).

To demonstrate the flexibility of *The Chaparro Reframed Programme*, I have included the same lesson plan in two versions: one intended for an undergraduate-level course, as shown in Figure 116 and Figure 117, and one intended for a graduate level class, as shown in Figure 118 and Figure 119.

## THE PROGRAMME AS A PEDAGOGICAL METHODOLOGY LESSON PLAN EXAMPLE - Undergraduate Level

**Aims**
This lesson plan aims to explain and direct the use of the pedagogical methodology based on the concept of *the programme* to teach Industrial Design.

**Learning Outcomes**
By the successful completion of this exercise, students will be able to:

- Understand the process of design through practical project-based execution
- Develop ideas based on analytical prompts and the iterative process
- Apply design research tools and strategies to develop prompts for exploration
- Engage in physical 3D model-making throughout the design process
- Learn diagramming skills
- Learn how designers can document their process and decision-making through diagramming
- Understand and apply the concept of abstraction analysis through de-composition exercises
- Understand the concepts of typology and morphology as components of *the programme*

**Steps**

1. **BRIEF** [WK 1]: Instructor to develop a prompt for the students, including the framework to be used. Design terms of typology and morphology are to be introduced and explained.

2. **ANALYSIS** [WK 1]: Instructor to facilitate the framing of the opportunity or problem based on the prompt. Analytical exercises through **context building, exploration, and experimentation;** Physical-making exercises based on abstraction, non-linear explorations, and 3D sketch modelling to be used.

3. **SYNTHESIS** [WK 2-3]: The student will initiate ***the programme*** through the listing of **requirements**. An understanding of the concept of typology will aid the student in this step. The instructor can encourage students to create their diagrammatic output, using the diagram template on the next page as a starting point.

4. **SYNTHESIS** [WK 2-3]: Students will engage in an **iterative process** developing physical ideas and models based on the requirements outlined in Step 3, including testing and searching out feedback from different sources.

5. **SYNTHESIS** [WK 2-3]: The students will continue to develop ***the programme's diagram,*** which evolves and changes as they work through the development of ideas and iteration through the creation of 3D sketch models and other artefacts.

6. **EVALUATION** [WK 3-4]: The students will make decisions based on **feedback, testing, observation, and evaluation** of possible ideas in the form of artefacts.

7. **PROPOSAL** [WK 4]: Final development of an artefact/system to be presented as a **proposal/solution**.

Figure 116:
Chaparro, Y. (2025) Example of Lesson Plan for the Pedagogical Methodology Based on the *Chaparro Reframed Programme*, Page 1 of Lesson Plan for Undergraduate Level Students [text document]

## THE PROGRAMME AS A PEDAGOGICAL METHODOLOGY LESSON PLAN EXAMPLE - Undergraduate Level

8. **DOCUMENTATION** [WK 4]: and final evaluation of the proposal by the student with the guidance of the instructor.

9. **PRESENTATION** [WK 4]: The student will recount the decision-making process using *the programme*, as documented in the **diagram**.

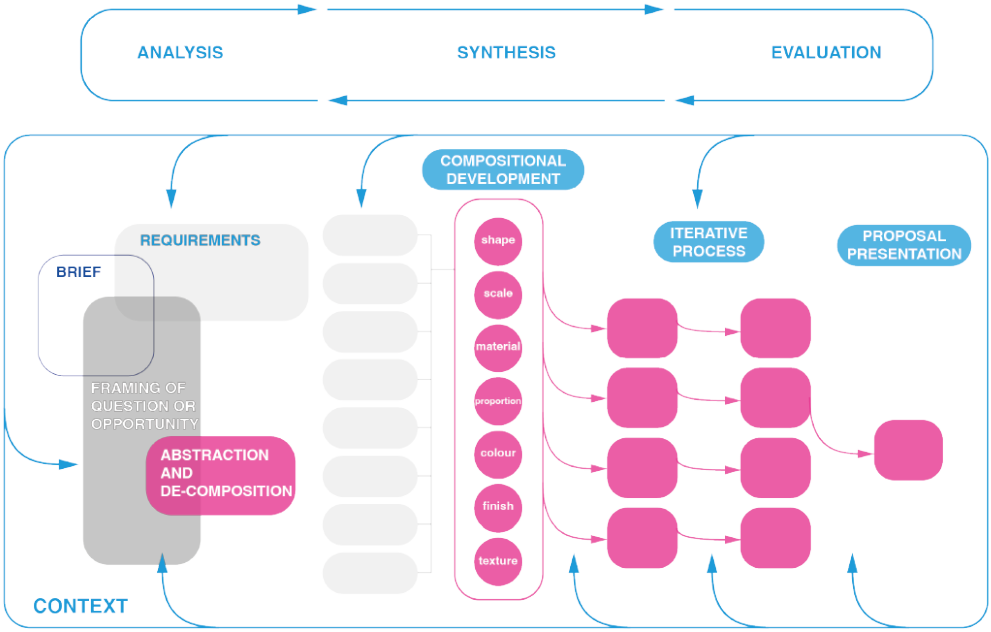



**Diagram example**
The instructor can use the above image as an example or starting point to explain to students how we can diagram our process of design. The instructor and students should be encouraged to make their own version of the diagram.

Figure 117:
Chaparro, Y. (2025) Example of Lesson Plan for the Pedagogical Methodology Based on *the Chaparro Reframed Programme*, Page 2 of Lesson Plan for Undergraduate Level Students [text document]

## THE PROGRAMME AS A PEDAGOGICAL METHODOLOGY LESSON PLAN EXAMPLE - Postgraduate Level

**Aims**
This lesson plan aims to explain and direct the use of the pedagogical methodology based on the concept of *the programme* to teach Industrial Design.

**Learning Outcomes**
By the successful completion of this exercise, students will be able to:

- Understand the process of design through practical project-based execution
- Develop ideas based on analytical prompts and the iterative process
- Apply design research tools such as Constructive Design Research and strategies to develop prompts for exploration
- Engage in physical 3D model-making throughout the design process
- Demonstrate the development of diagrams as a way of explaining and documenting the decision-making process
- Utilize abstraction analysis as a way of understanding the basic elements of an opportunity
- Understand the concepts of typology and morphology as components of *the programme*
- Apply Action Research as part of the iterative process of design

**Steps**
1. **BRIEF** [WK 1]: Instructor to develop a prompt for the students, including the framework to be used. Design terms of typology and morphology are to be introduced.

2. **ANALYSIS** [WK 1]: Instructor to facilitate the framing of the opportunity or problem based on the prompt. Analytical exercises through **context building, exploration, and experimentation;** Physical-making exercises based on abstraction, non-linear explorations, and 3D sketch modelling to be used.

3. **SYNTHESIS** [WK 2-3]: The student will initiate ***the programme*** through the analysis of the framing in the form of **requirements**. An understanding of the concept of typology will aid the student in this step. The diagrammatic output by the student should be their own. The instructor can use the image shown on the next page as a starting point.

4. **SYNTHESIS** [WK 2-3]: Students will engage in an **iterative process** of developing physical ideas and models based on the requirements outlined in Step 3, including testing and searching out feedback from different sources. Through Action Research, the student will be encouraged to return to the analysis phase as necessary.

5. **SYNTHESIS** [WK 2-3]: The students will continue to develop ***the programme's diagram,*** which evolves and changes as they work through the development of ideas and iteration through the creation of 3D sketch models and other artefacts.

6. **EVALUATION** [WK 3-4]: The students will make decisions based on **feedback, testing, observation, and evaluation** of possible ideas in the form of artefacts. Continuing with Action Research, the student will continue to loop back into the Analysis and Synthesis phases of the process. The diagrammatic output of *the programme* will also show this process looping back.

Figure 118:
Chaparro, Y. (2025) Example of Lesson Plan for the Pedagogical Methodology Based on *the Chaparro Reframed Programme*, Page 1 of Lesson Plan for Postgraduate Level Students [text document]

## THE PROGRAMME AS A PEDAGOGICAL METHODOLOGY LESSON PLAN EXAMPLE - Postgraduate Level

7. **PROPOSAL** [WK 4]: Final development of an artefact/system to be presented as a **proposal/solution**.
8. **DOCUMENTATION** [WK 4]: and final evaluation of the proposal by the student.
9. **PRESENTATION** [WK 4]: As part of the final presentation, the student will recount the decision-making process using *the programme*, as documented in the **diagram**.

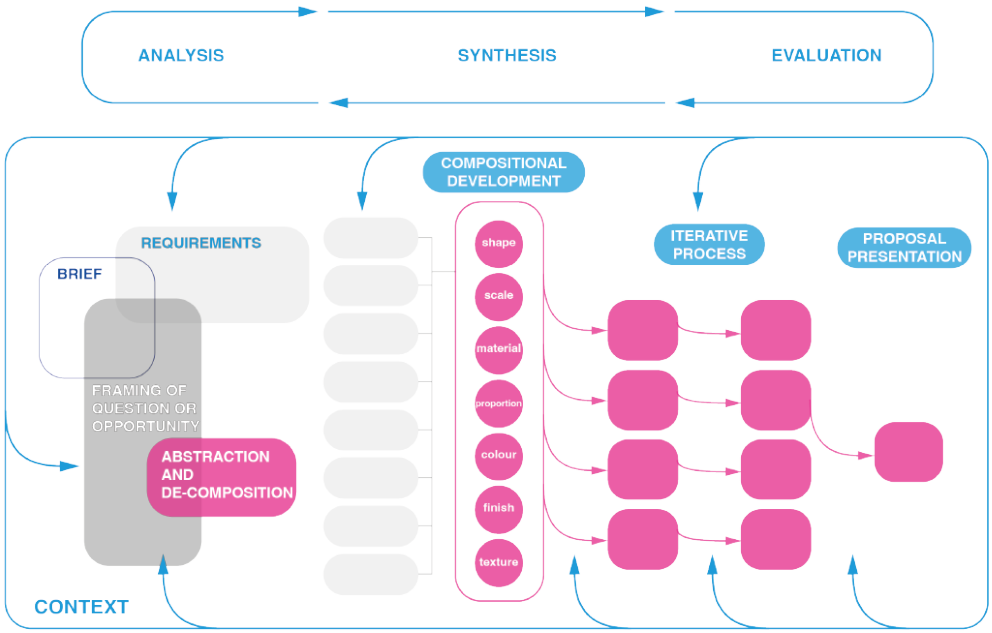



**Diagram example**
The instructor can use the above image as an example or starting point to explain to students how we can diagram our process of design. The instructor and students should be encouraged to make their own version of the diagram.

Figure 119:
Chaparro, Y. (2025) Example of Lesson Plan for the Pedagogical Methodology Based on *the Chaparro Reframed Programme,* Page 2 of Lesson Plan for Postgraduate Level Students [text document]

## 6.5. Summary

- The diagram can be as refined or sketch-like as the student decides. Through the instructor's guidance, students can document their process in a diagram of *the programme*. The designer or student will have a point of reference for how to begin yet will understand that each *Chaparro Reframed Programme* diagram will be different as it evolves throughout the process of design.

- The students will be asked to complete the diagram of *the programme* with data collected from research. The initial prompts for this data will make the student or designer aware of the need for the data to feed the programme diagram. As the student progresses through *the programme*, the need to update the diagram will prompt them to ask more questions and gather more data.

- This methodology will introduce students to concepts and their definitions in Industrial Design through the practice of design. Project-based teaching introduces students to the actual practice of design.

- By creating a sequence of diagrams, the process of design is shown as a way of arriving at a proposal. The students will have the opportunity to see how they complete the diagrams themselves and will realise that the diagrams change depending on the project, its stage, and even the designer themself.

- Once the formal direction is chosen, *The Chaparro Reframed Programme* continues to grow and change, offering new decision-making options. The design process continues to loop around as part of the iterative progression; the tentacular diagrams shown above represent this iterative endeavour.

- Flexibility is the rule of *The Chaparro Reframed Programme* diagram. The students should be required to remake, redraw, and rethink the diagram as they develop a product of Industrial Design through the process of design directed by *the programme*.

- The student will be asked to reflect on how decision-making happens while engaged in the process of design. *The programme* diagram they draft will visualise this process and develop the student's critical thinking.

- The cyclical essence of this diagram relates to the Experiential Learning Cycle by Kolb (2015) described in the Introduction (p.22). Kolb's cyclical explanation of experiential learning aligns with the process of design and its iterative nature. We

are learning and practising design through an experiential process. This pedagogical framework informs the way *the programme* is applied to the teaching of Industrial Design.

- The *Chaparro Reframed Programme* can be adapted to various circumstances, including different learning outcomes depending on the educational level of the course or to projects varying in scope and brief requirements.

# 7. CONCLUSION

The aim of this PhD by practice research project was to explore, analyse, and present the application of the concept of *the programme* as the basis for a new methodological approach to design pedagogy through Constructive Design Research and Action Research: see the Introduction (p.25 and p.27). *The programme* is a concept widely used in architecture but less so in Industrial Design; see the Source Review Section (p.30). However, I have used *the programme* in my professional Industrial Design practice and as a teaching tool in Industrial Design for many years but more recently began to experience the rigidity as it is used in architecture's design process and pedagogy. Through this PhD by practice, I have reframed and redefined *the programme* in Chapter Three (p.138) titling it *The Chaparro Reframed Programme for pedagogical and Industrial Design applications* and to distinguish it from the programme which was the starting point. Through rigorous and critical reflection in this thesis by practice, I have demonstrated that *the programme* can be reframed and used as an even more valuable tool to visualise the decision-making design process and therefore, as a tool to teach Industrial Design.

## 7.1. Summary of Thesis

The following sections frame the scope of this PhD by practice: 1. Introduction (p.14), which outlines the framework; 2. Source Review (p.30), setting the historical and conceptual context, an explanation of methodologies and methods (p.49); followed by Chapter One (p.58) with practical explorations based on the professional practice of Industrial Design while focusing on Constructive Design Research; Chapter Two (p.73) describes a series of workshops and their analysis; and Chapter Three (p.138), which demonstrates a reframing of *the programme* as a new pedagogical methodology. This structure has led to identifying a gap in pedagogy as an opportunity to explain the decision-making that occurs during the design process. This PhD by practice, facilitated detailed research to critically examine the process of enabling students to learn about decision-making while practising Industrial Design. In other words, with *the programme,* it is possible to guide students as they go through the process of design, making them aware of their decision-making through intentional visual diagramming.

The Introduction (p.14) framed the direction of the PhD by practice, laying out the framework and relevant terminology in the areas of 1.1. Design Process, Professional Practice, and Pedagogy; 1.2. PhD by Practice and Constructivist Design Research; 1.3. Workshops, Action Research, and Thematic Analysis; and finally, 1.4. Structure of the Thesis.

To understand *the programme*, it is helpful to reflect on the value it has had in the discipline of architecture since the 1950s. Through a Source Review (p.30), which established an

understanding of the history of *the programme* and its use in the field of architecture, I identified the differences with its use in Industrial Design, mainly that even though *the programme* in architecture has had calls for its flexible use, the perception of *the programme* in architecture is still that of a rigid construct. In Industrial Design, however, *the programme* needs to be flexible; the Industrial Designer interacts with the product of Industrial Design during its development, receiving immediate experiential feedback through the process, which includes context building, immediate testing, and iteration. This is due to the difference in scale between the two disciplines, in addition to the manipulability of products of Industrial Design as compared to those of Architecture, which are usually more permanent. These represent key differences between the iterative processes in architecture and Industrial Design. A product of Industrial Design is manipulated, experienced, and tested by the designer through artefacts and prompts to understand its context. An Industrial Designer learns how to create prototypes and other artefacts to replicate the feel and interactive features and evaluate the product's use through observation. The practice of Industrial Design, through the design process, requires reflection and exploration through tactility and immediate interaction, which is reflected in this PhD by practice.

The main gap in knowledge identified through the source review is the need to understand how we prepare and plan for a project in Industrial Design once we have received the brief. This gap is exemplified in questions such as: How do we navigate the process of design? and how can we illustrate this progression effectively to students? Furthermore, how can we apply the concept of *programme* in Industrial Design by reframing it? The lack of discussion around *the programme* in Industrial Design became evident early on in this PhD by practice through the recognition that the term *programme* was not considered an Industrial Design term, despite my professional connection to it, I had been using this construct since my undergraduate degree, in part because my course of study included an introductory year of classes given to a mixed group of Architecture and Industrial Design students, and I had architects as my instructors. I had, therefore, appropriated the concept and devised a way of applying it in my professional work as well as a feature in the way I teach design to students. Having completed the source review, I became aware of the possibility of exploring how to develop the *Chaparro Reframed Programme* in a cohesive way geared towards Industrial Design pedagogy and practice.

Additionally, a significant gap in knowledge that became relevant during the source review compilation was the lack of discourse around Industrial Design terminology regarding concepts such as Typology and Morphology – terms that are used frequently in the industry and academic settings-- yet have not been defined within the discipline, however they have been defined by other disciplines such as architecture.

The Methodologies and Methods used in this PhD by Practice include Constructive Design Research and Action Research. Constructive Design Research is directly connected to the practice of Industrial Design, allowing for the construction of knowledge through practical design research, see Introduction, section 1.2. (p.25). Constructive Design Research also overlaps with Action Research since both methodologies rely on critical reflection. Action Research requires looping or circling back as a reflection of how we work as professionals, analysing and improving through an iterative sequence. In order to activate these methodologies at a practical level, methods are also added to the PhD by Practice; the methods include abstraction and de-composition, morphological transformations, intersection exercises, comparative juxtapositions, reflective journalling, questionnaires, semi-structured interviews, prompt and instructional development, critical reflection, diagrammatic sequences, 3D design sequences, diagramming, thematic analysis, sketching, documenting, and 3D model-making.

Chapter One (p.58) includes professional practice explorations to evaluate the concepts around *the programme*, typology and morphology. These experiments demonstrated how we designers use morphology to move within the typology's cultural, societal, and historical limits. The chapter has answered questions such as: What are the main features of a typology through abstraction? How far can a typology go before it becomes a new typology? When does a morphological variation push a typology to a sub-typology version? For example, when does a cereal bowl become a soup or serving bowl? What are the morphological characteristics? Designers will confront these questions with every project they approach. Using iteration and reflection, we take our typologies to the limits by manipulating morphology. The two concepts of Typology and Morphology linked to *the programme* are also used in different ways when teaching. Typology is the categorisation and naming of the kinds of objects we work with; it helps us understand how we use *the programme*. It is also important to understand how we use typologies as designers. Most of the time, we give a name to a product after it has been defined and developed. It is not always given a name from the start; this allows for innovation and the production of new typologies. Abstraction plays an important role in this regard. The typological requirements are not always directly tied to an existing typology; instead, the features and requirements come first, and the typology emerges last. Even if it is a well-known typology, practitioners and students need to remove themselves from the name of the typology while going through the process of design to understand the basic features of an object, thereby avoiding constraints imposed by the existing version.

The use of Constructive Design Research informed this PhD by Practice on the importance of reflection as part of research in design through practice itself. Constructive Design Research is the most suitable methodology when it comes to a PhD by practice based on

Industrial Design professional practice. This methodology involves constructing knowledge through the design process, producing professional work, and reflecting upon it. Therefore, Constructive Design Research is applied in this PhD by Practice through the production of practical exploratory exercises that draw on my professional experience in Chapter One (p.58).

Chapter Two (p.73) applies prompts devised from the questions posed in Chapter One (p.58) through a series of workshops, following the methodology of Action Research. Students from Parsons participated in the workshops, which included questionnaires, semi-structured oral interviews, and prompts to develop 2D and 3D sketches of a sequence moving from one typology to another. The students answered questions about *the programme*, typology, and morphology to remind them of the terms in questionnaires and semi-structured interviews. The last workshop (Workshop Five) asked the participants to start a *programme* diagram by analysing the context of a specific typology. The research assistants documented the workshops and tabulated the information to keep me from identifying the participants. I later analysed the data through thematic analysis, leading to critical analysis. Each iteration of the workshops was analysed and improved to make them more straightforward for the participants and to facilitate the collection of relevant data. By using Action Research to explore, explain, and teach our process of design through *the programme*, the process of design itself is reaffirmed, as it requires iteration, just as the process of design does (p.73).

The workshops were designed to explore the concepts of typology and morphology, helping participants understand *the programme* while reinforcing the terminology and its application in design. To this end, the participants were guided to explore through making; they were encouraged to make choices of materials and how they approached the prompts. The outcomes of each workshop, and the debriefing from each, offered me the opportunity to assess what worked well and what could be improved. The process, including this iterative approach through the workshops, was based on the Action Research Methodology, as mentioned earlier, with looping back as the process is evaluated.

Including Industrial Design and Interior Design students was beneficial for the PhD by practice since it assured that the participants would be accustomed to sketching in both 2D and 3D, were familiar with the design process, and had been introduced to the terminology of *programme*, typology, and morphology during their time at Parsons. This allowed for the explanations and examples shown by the facilitator of the Workshop to be understood quickly and effectively.

Chapter Three builds upon the findings of Chapters One and Two, describing *The Chaparro Reframed Programme* presented in this PhD by practice. I developed a series of steps exemplified through a practical exercise and a proposed lesson plan. The exercise illustrated is based on one of the artefacts I developed during the practical explorations of Chapter One (p.58); it goes through the manufacturing phase of the design process, and *the programme* is shown in a series of diagrams. The diagrams illustrate how designers can visualise their decision-making throughout the design process. The diagram is a flexible and evolving structure that accepts new information resulting from further research or feedback from the iterative process. Making the decision-making visible through diagramming during the design process would encourage design students and professionals to reflect on their design approach.

The presented lesson plan demonstrates that *The Chaparro Reframed Programme* is a flexible system since it can be adapted to different levels of instruction in higher education. I have drafted two possible versions of the same lesson plan, one for undergraduate students and one for graduate students. For undergraduate students, the learning outcomes focus on skill building, whereas graduate level instruction can focus more on the Action Research methodology. The flexibility can also be applied in the variability of exercises and how each faculty and student decide to approach the diagramming and planning of the work.

Regarding pedagogic theory, applying Action Research to the process of design, is analogous to Kolb's experiential learning (Kolb, 2015), as described in section 1.1. (p.15). In this case, a design instructor will guide design students. The analysis section of this chapter revealed that the students participating in workshops understand the terms of typology and morphology but are sometimes unable to articulate the concepts effectively. The workshops aid in introducing and reinforcing these concepts to the students.

## 7.2. Contributions to Knowledge

### *The Chaparro Reframed Programme* as Pedagogical Tool

*The Chaparro Reframed Programme* is intended to aid designers and educators in various ways, most importantly through visualisation, to help design students understand how decisions are made. This, in turn, engages them in producing diagrams of their *programme* as they progress through the process of design, fostering reflection. The value of Action Research is evident, as it helps practitioners understand how their practice can be improved as part of the process of design due to the requirement for reflection. The working diagram will be revised and redrawn to aid the reflection as the student progresses through it.

The concept of *the programme* guides the process of design by devising a plan that the designer can follow. The history of *the programme* over the past hundred years reveals how *the programme* has been utilised and defined within the discipline of architecture. As a designer and educator, I found that *the programme* in its architectural version is both considered a restricting construct and not open enough to be used in Industrial Design; therefore, when applied to Industrial Design, it requires its framing as a flexible and open to changes as it guides the designer through the process of design. Since we can represent *the programme* with a diagram, we can reflect upon the decisions taken while designing. Therefore, *the programme* and its diagramming can be used to teach design, as it is a pedagogical methodology that helps students visualise their process and understand how they make decisions (p.138).

The contribution not only lies in the opportunity to use it to teach design but also in its reframing as a flexible construct. The contribution extends to the awareness it creates in design students and design practitioners about their decision-making while designing.

It is critical to mention the inclusion of Constructive Design Research and Action Research in creating prompts to teach Industrial Design through a project can help students reflect on their decision-making as they work through iteration, evaluation, and refinement. In other words, the contribution to knowledge requires that *The Chaparro Reframed Programme* be used while working on a design project.

### Engaging in Terminology Discourse and Interdisciplinary Collaboration

Another implication of this PhD by practice is the realisation of the importance of engaging in terminology discourse within the discipline of Industrial Design by reflecting on the terms typology and morphology, which are commonly used in both professional and academic settings. Industrial Design practitioners and educators have primarily relied on other disciplines to define the concepts, exemplifying interdisciplinary work. In addition, by investigating *the programme* and its conceptual elements, typology and morphology, the discourse around terminology in Industrial Design is encouraged. It also offers a collaborative opportunity in an interdisciplinary way by understanding concepts across different design disciplines.

Since the discipline has historically borrowed terms from other disciplines, this project has allowed me to interrogate my practice and teaching methods, utilising interdisciplinary knowledge and practices to identify differences and explore how they can lead to conceptual innovation in practice. As demonstrated in this PhD by practice, employing a term from architecture, *the programme*, and reframing it to be applied to Industrial Design fosters

collaboration and promotes innovative ways of discussing our practices through a deeper understanding of them. There are many overlaps between our disciplines, not only in terms of systems and products but also in the way we approach solutions/proposals; understanding these similarities and differences can help us collaborate and learn from each other.

### 7.3. Further Research

Among future opportunities for further development in the reframing of *the programme*, work implementing the proposed methodology in the classroom and documenting results can lead to new possible adaptations and improvements for its application.

As mentioned in 2.2. Flexibility in *the programme* (p.36), the inclusion of voices from among the users who ultimately live with the products is what gives *the programme* its flexibility when applied to Industrial Design. Nevertheless, these methods can be further developed, such as designing with the community of the final users of the system or product of Industrial Design through design approaches like decolonisation, the radically inclusive studio, and feminist design, to name a few. A possible exploration in this area is the integration of *the programme* in a project such as 'A Decolonized & Decarbonized Dinner Party', in which I am involved, which can help exemplify the flexibility of the programme with thematics around regenerative materials, waste and food systems, water scarcity, indigenous knowledge, and more. (Gorman, Chaparro, Gopinath, 2023, 2024, 2025).

In addition, we can expand the terminology of Industrial Design through these approaches, which involve relearning and opening our process of design to new and diverse voices. The expanding discourse in the discipline of Industrial Design terminology can be further explored. This would involve identifying terms used in the profession that are not defined or discussed, in addition to examining the differences and similarities with other design disciplines and how they utilise the same terminology.

There is an opportunity to investigate how *The Chaparro Reframed Programme* can be applied to other design disciplines while fostering collaborations in new and innovative ways. Due to its flexible nature, *The Chaparro Reframed Programme* can be easily adapted for this exploration.

Dissemination of the work began after the first year of my PhD by practice. I have given several presentations at Parsons/The New School, during the LJMU/Transart summer intensives in Liverpool, UK, at the Swimming Hole Foundation in New York, and the Universidad de Monterrey in Mexico (this last one via Zoom). The research, presented at various stages, has been well received, confirming its interest in the design community and its capacity for broader dissemination.

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Towards an Understanding of *the Programme* in Industrial Design: Developing a new pedagogical methodology through action research.

**VOLUME 2 of 2**

**Yvette C. Chaparro**

A thesis submitted in partial fulfilment of the requirements of Liverpool John Moores University for the degree of Doctor of Philosophy.

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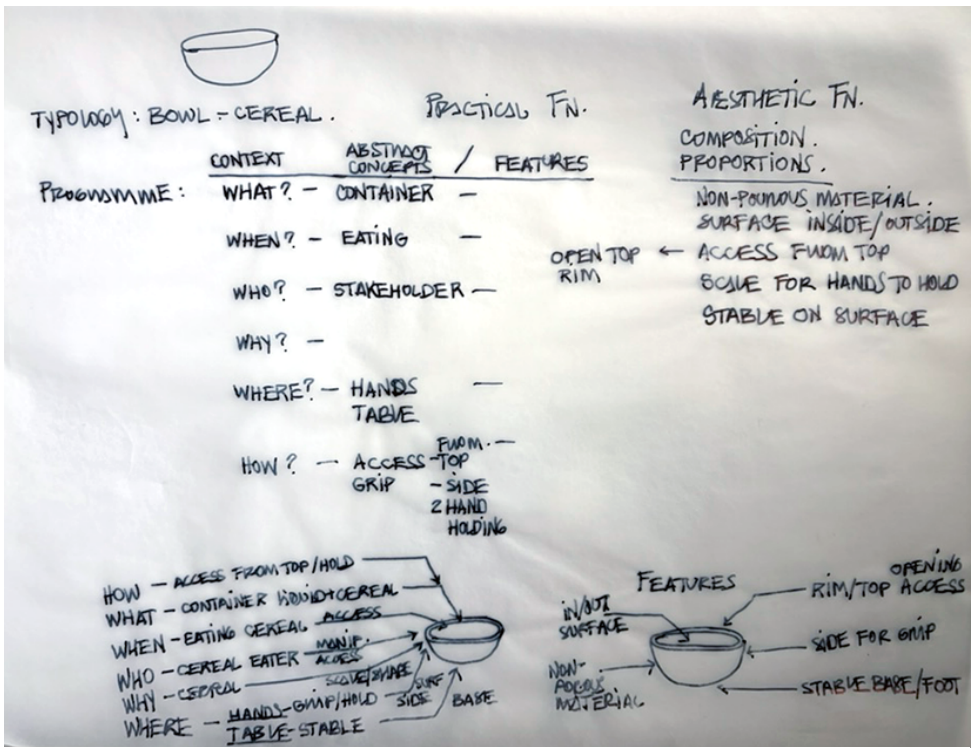
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## Appendix 1: Professional Practice and Exploration. Supporting material for Chapter One

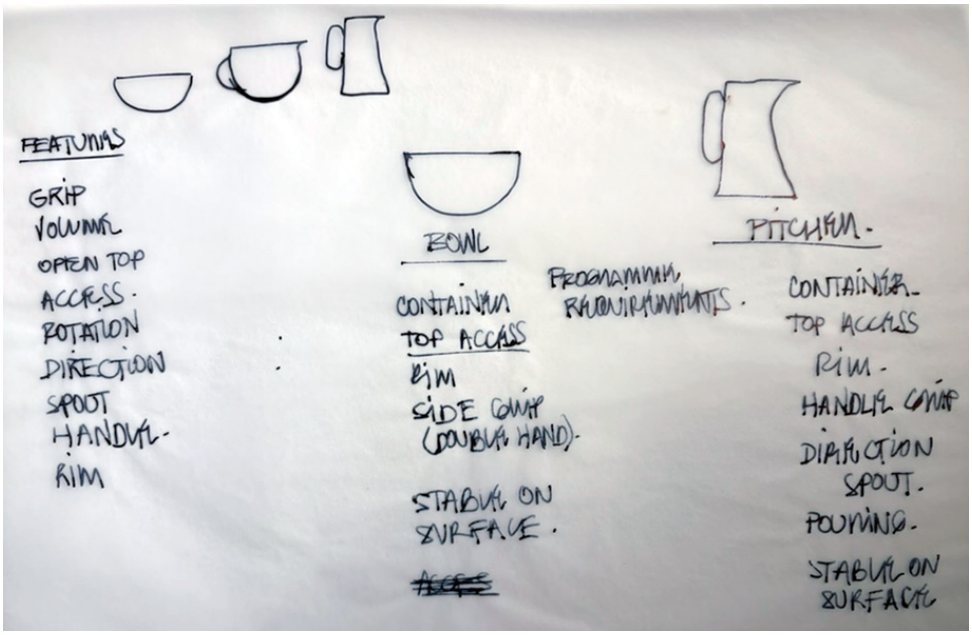
The images shown in Appendix 1 show the initial investigation into a *programme* which involves identifying the features of specific typologies and analyzing the context.

### Analysis of bowl typology

The sketch diagrams shown Figure_Apx. 1 and Figure_Apx. 2 are initial explorations of the features and their relationship to a *programme*, to understand the primary elements of a bowl and a pitcher.




Figure_Apx. 1:
Chaparro, Y. (2022) Bowl Typology Analysis [diagram sketch]




Figure_Apx. 2:
Chaparro, Y.(2022) Analysis of Bowl and Pitcher Through Features [diagram sketch]

## Set of 30 bowls. Original pieces purchased commercially.

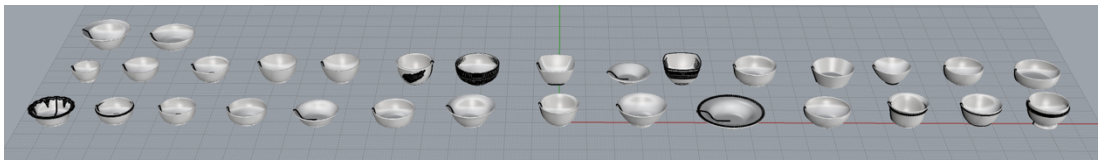
Bowls bought commercially, all identified as the same typology: Cereal Bowls.



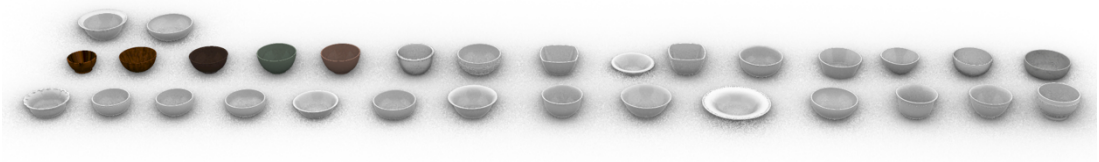
Figure_Apx. 3:
Chaparro, Y. (2019) Cereal Bowls, Bought Commercially [photo]

## 3D digital set of 31 bowls. Digitized from original pieces purchased commercially.

All bowls bought commercially were identified as the same typology: cereal bowls. All bowls were digitized with the help of research assistant Mara Zimmerman and manipulated by me. The digitized bowls were manipulated in different ways, as shown below, shaded, with their given materials, and finally as a white finish.



Figure_Apx. 4:
Chaparro, Y. (2021) 3D Digital Array of Bowls [shaded screengrab]



Figure_Apx. 5:
Chaparro, Y. (2021) 3D Digital Array of Bowls. [rendering]



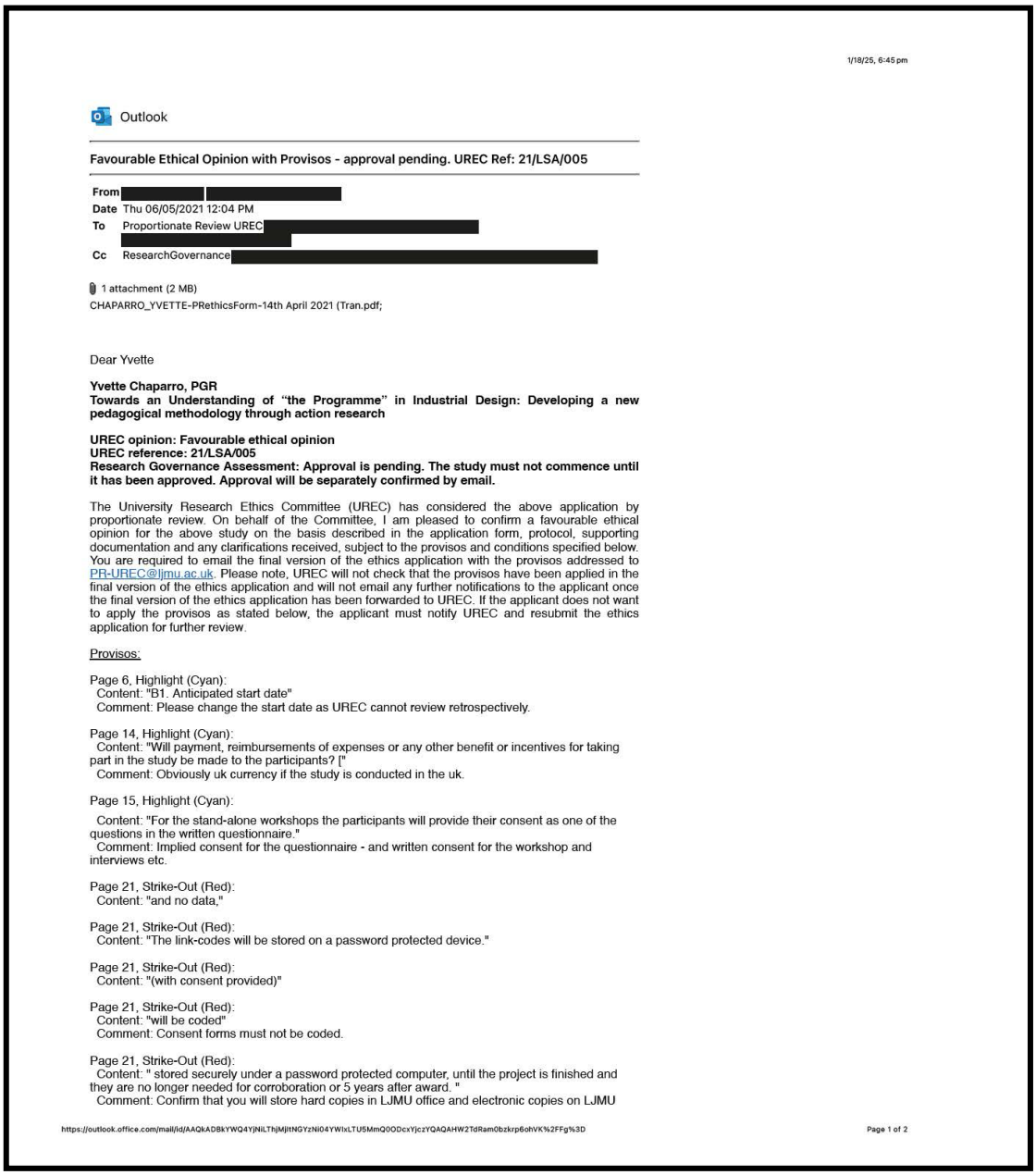
Figure_Apx. 6:
Chaparro, Y.(2021) 3D Digital Array of Bowls. White Finish [rendering]

# Appendix 2: Ethical Approvals. Analysis of Workshops. Action Research transcripts, Data Collection, and Thematic Analysis. Raw data for Chapter Two.

## Ethical Approvals

Ethical approvals were obtained from both LJMU and Parsons / The New School, to include student participants in the workshops described in Chapter Two, as the study took place at LJMU, and the student participants were from Parsons / The New School.

### Ethical approval from LJMUfor student participants in workshops



1/18/25, 6:45 pm

Outlook

**Favourable Ethical Opinion with Provisos - approval pending. UREC Ref: 21/LSA/005**

**From** [redacted]
**Date** Thu 06/05/2021 12:04 PM
**To** Proportionate Review UREC [redacted]
**Cc** ResearchGovernance [redacted]

1 attachment (2 MB)
CHAPARRO_YVETTE-PRethicsForm-14th April 2021 (Tran.pdf;

Dear Yvette

**Yvette Chaparro, PGR**
**Towards an Understanding of "the Programme" in Industrial Design: Developing a new pedagogical methodology through action research**

**UREC opinion: Favourable ethical opinion**
**UREC reference: 21/LSA/005**
**Research Governance Assessment: Approval is pending. The study must not commence until it has been approved. Approval will be separately confirmed by email.**

The University Research Ethics Committee (UREC) has considered the above application by proportionate review. On behalf of the Committee, I am pleased to confirm a favourable ethical opinion for the above study on the basis described in the application form, protocol, supporting documentation and any clarifications received, subject to the provisos and conditions specified below. You are required to email the final version of the ethics application with the provisos addressed to PR-UREC@ljmu.ac.uk. Please note, UREC will not check that the provisos have been applied in the final version of the ethics application and will not email any further notifications to the applicant once the final version of the ethics application has been forwarded to UREC. If the applicant does not want to apply the provisos as stated below, the applicant must notify UREC and resubmit the ethics application for further review.

Provisos:

Page 6, Highlight (Cyan):
Content: "B1. Anticipated start date"
Comment: Please change the start date as UREC cannot review retrospectively.

Page 14, Highlight (Cyan):
Content: "Will payment, reimbursements of expenses or any other benefit or incentives for taking part in the study be made to the participants? ["
Comment: Obviously uk currency if the study is conducted in the uk.

Page 15, Highlight (Cyan):
Content: "For the stand-alone workshops the participants will provide their consent as one of the questions in the written questionnaire."
Comment: Implied consent for the questionnaire - and written consent for the workshop and interviews etc.

Page 21, Strike-Out (Red):
Content: "and no data,"

Page 21, Strike-Out (Red):
Content: "The link-codes will be stored on a password protected device."

Page 21, Strike-Out (Red):
Content: "(with consent provided)"

Page 21, Strike-Out (Red):
Content: "will be coded"
Comment: Consent forms must not be coded.

Page 21, Strike-Out (Red):
Content: " stored securely under a password protected computer, until the project is finished and they are no longer needed for corroboration or 5 years after award. "
Comment: Confirm that you will store hard copies in LJMU office and electronic copies on LJMU

https://outlook.office.com/mail/id/AAQkADBkYWQ4YjNiLThjMjItNGYzNi04YWIxLTU5MmQ0ODcxYjczYQAQAHW2TdRam0bzkrp6ohVK%2FFg%3D

Page 1 of 2

Figure_Apx. 7:
Ethics Approval (2021) Favorable Ethical Opinion with Provisos by LJMU [email]

## Ethical approval from Parsons/The New School



newschool.edu Mail - Protocol # 2021-63 - Initial: Submission - Limited IRB Letter 1/18/25, 6:35 pm

THE NEW SCHOOL

Yvette Chaparro [redacted]

**Protocol # 2021-63 - Initial: Submission - Limited IRB Letter**

1 message

[redacted] Mon, Nov 1, 2021 at 6:25 AM

THE NEW SCHOOL
RESEARCH SUPPORT

Provost's Office of Research Support | Research Integrity
Human Research Protection Program (HRPP) | Institutional Review Board (IRB)
79 Fifth Avenue, 17th Floor, New York, NY 10003 | researchnewschool.com/hrpp

November 1, 2021

| | |
|---|---|
| Principal Investigator: | Yvette Chaparro |
| Study #: | Protocol # 2021-63 |
| Study title: | *Towards an Understanding of "the Programme" in Industrial Design: Developing a new pedagogical methodology through action research.* |
| Submission: | Initial |
| Effective date: | November 1, 2021 |
| Determination: | Exempt - Limited IRB |
| Category: | Category 3.(i). Research involving benign behavioral interventions in conjunction with the collection of information from an adult subject through verbal or written responses (including data entry) or audiovisual recording if the subject prospectively agrees to the intervention and information collection and at least one of the following criteria is met:<br>(C) The information obtained is recorded by the investigator in such a manner that the identity of the human subjects can readily be ascertained, directly or through identifiers linked to the subjects, and an IRB conducts a limited IRB review to make the determination required by §46.111(a)(7).<br>Category 7. Storage or maintenance for secondary research for which broad consent is required: Storage or maintenance of identifiable private information or identifiable biospecimens for potential secondary research use if an IRB conducts a limited IRB review and makes the determinations required by §46.111(a)(8). |

This human subjects research study meets the criteria as being Exempt with Limited IRB review in accordance with federal regulations and our HRPP policies. As with any exempt determination, the highest ethical and professional standards for protecting human subjects continue to apply. Any unanticipated problems involving risks to subjects or others, noncompliance incidents, and subject complaints must be promptly reported to the HRPP in Cayuse Human Ethics.

**Please remember:**

- This research is expected to be conducted in accordance with the **described** protocol.
- Any proposed changes to this study must be submitted for review through Cayuse Human Ethics.
- This **letter** and the **stamped packet** are under the Submission Details section in Cayuse Human Ethics.
- All other university policies such as the Information Security Policy are also applicable.
- This human subjects research protocol does not have an expiration date.
- Close your protocol in Cayuse Human Ethics before you leave the university, or when the study is complete.

If you have any questions, please contact the HRPP and include your study title and protocol number.

hrpp@newschool.edu | 646.909.3836

[redacted] Institutional Official [redacted] Institutional Review Board Chair [redacted] Human Protections Administrator

https://mail.google.com/mail/u/0/?ik=502e953b9c&view=pt&search=all&permthid=thread-f:1715221096654813081&simpl=msg-f:1715221096654813081 Page 1 of 1

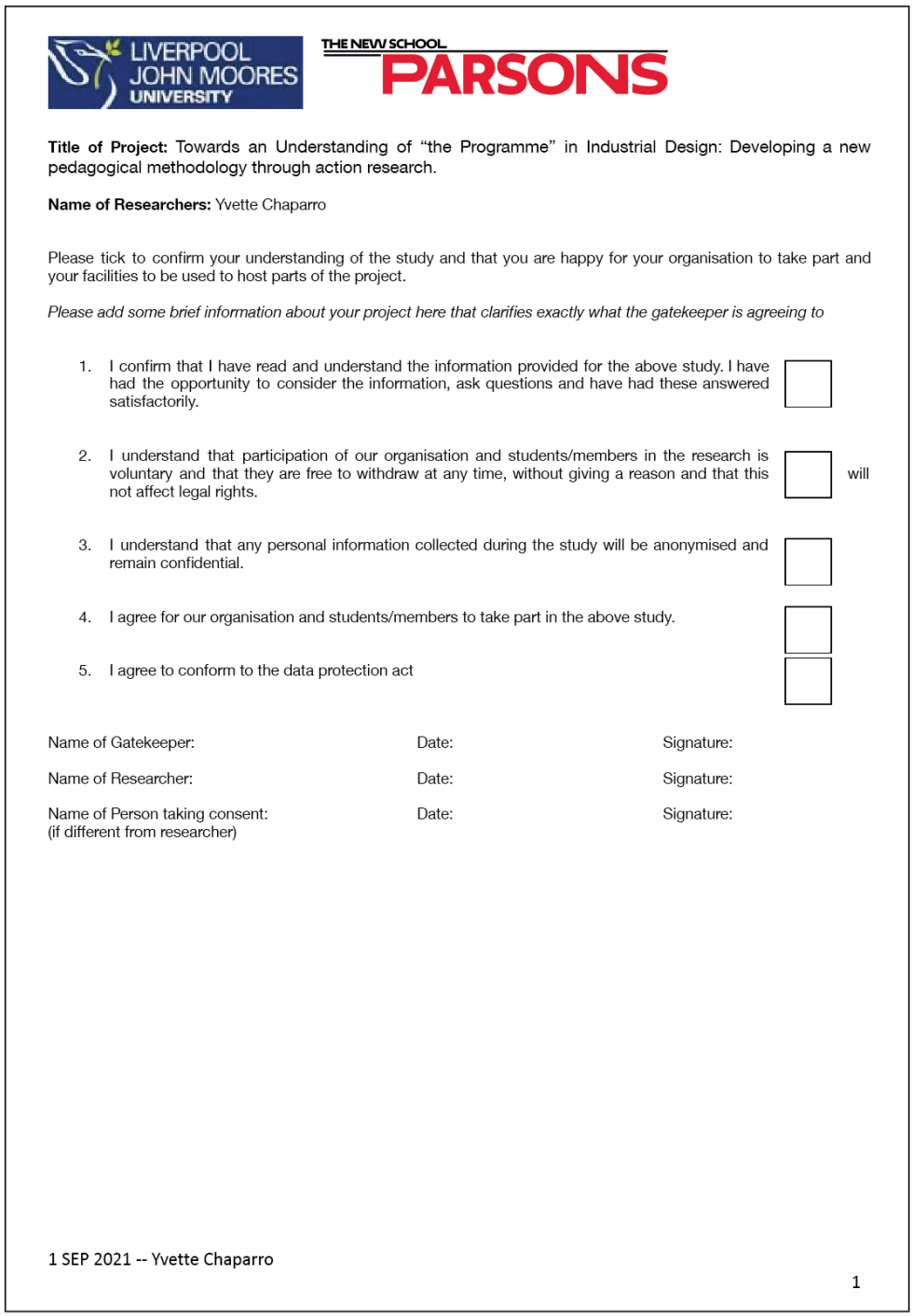
Figure_Apx. 8:
Ethics Approval (2021) Ethical Approval Letter from The New School [email]

## Workshop One

[9 December 2021]

### Documents given to participants. Workshop One.

Gate keeper consent form – if needed for Workshop One. Page 1.



LIVERPOOL JOHN MOORES UNIVERSITY

THE NEW SCHOOL PARSONS

**Title of Project:** Towards an Understanding of "the Programme" in Industrial Design: Developing a new pedagogical methodology through action research.

**Name of Researchers:** Yvette Chaparro

Please tick to confirm your understanding of the study and that you are happy for your organisation to take part and your facilities to be used to host parts of the project.

*Please add some brief information about your project here that clarifies exactly what the gatekeeper is agreeing to*

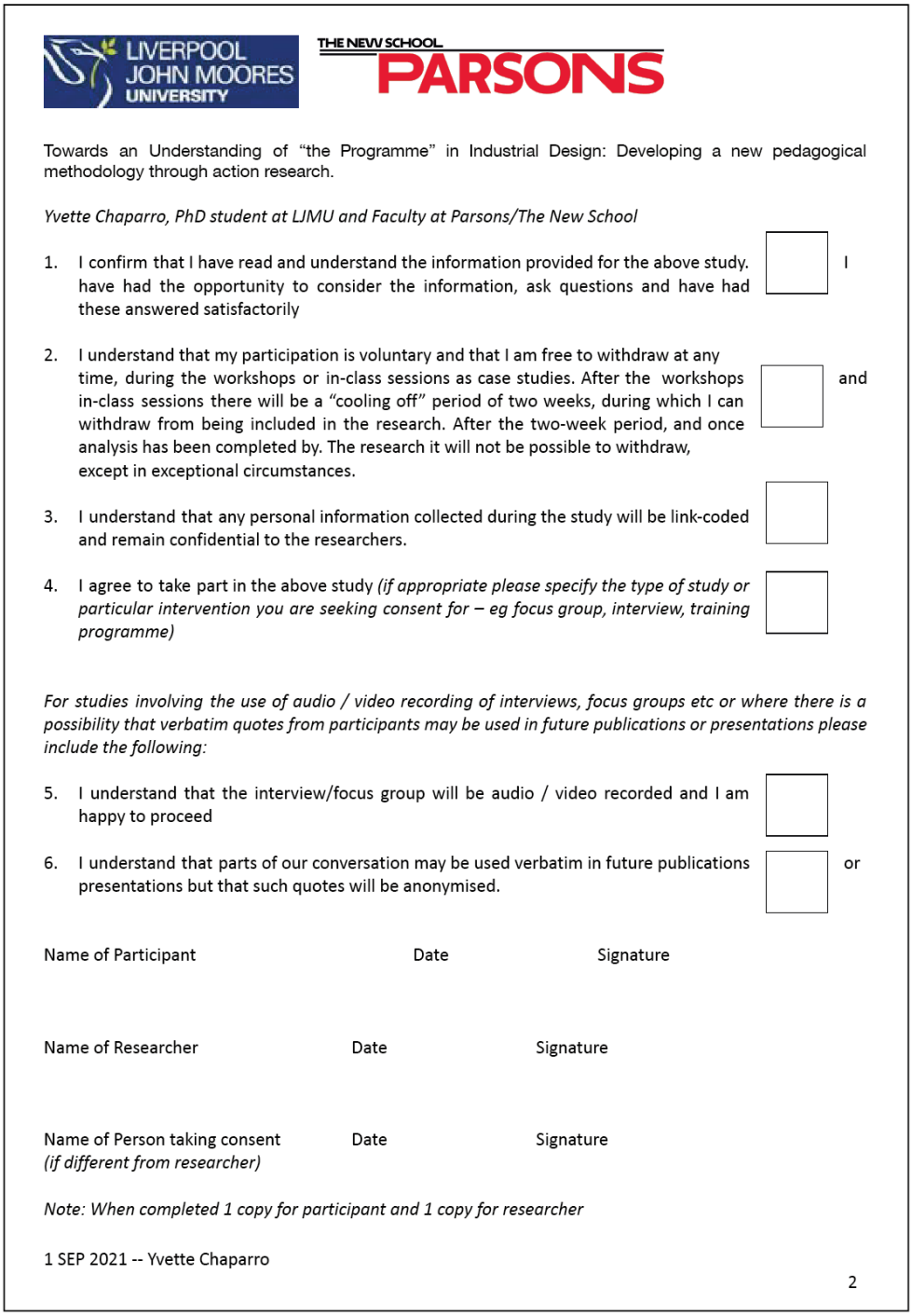
1. I confirm that I have read and understand the information provided for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily. ☐
2. I understand that participation of our organisation and students/members in the research is voluntary and that they are free to withdraw at any time, without giving a reason and that this not affect legal rights. ☐ will
3. I understand that any personal information collected during the study will be anonymised and remain confidential. ☐
4. I agree for our organisation and students/members to take part in the above study. ☐
5. I agree to conform to the data protection act ☐

| | | |
|---|---|---|
| Name of Gatekeeper: | Date: | Signature: |
| Name of Researcher: | Date: | Signature: |
| Name of Person taking consent: (if different from researcher) | Date: | Signature: |

1 SEP 2021 -- Yvette Chaparro

1

Figure_Apx. 9:
Chaparro, Y. (2021) Gate Keeper Consent Form. Page 1 [Documents]



LIVERPOOL JOHN MOORES UNIVERSITY

THE NEW SCHOOL PARSONS

Towards an Understanding of "the Programme" in Industrial Design: Developing a new pedagogical methodology through action research.

*Yvette Chaparro, PhD student at LJMU and Faculty at Parsons/The New School*

1. I confirm that I have read and understand the information provided for the above study. have had the opportunity to consider the information, ask questions and have had these answered satisfactorily ☐ I

2. I understand that my participation is voluntary and that I am free to withdraw at any time, during the workshops or in-class sessions as case studies. After the workshops in-class sessions there will be a "cooling off" period of two weeks, during which I can withdraw from being included in the research. After the two-week period, and once analysis has been completed by. The research it will not be possible to withdraw, except in exceptional circumstances. ☐ and

3. I understand that any personal information collected during the study will be link-coded and remain confidential to the researchers. ☐

4. I agree to take part in the above study *(if appropriate please specify the type of study or particular intervention you are seeking consent for – eg focus group, interview, training programme)* ☐

*For studies involving the use of audio / video recording of interviews, focus groups etc or where there is a possibility that verbatim quotes from participants may be used in future publications or presentations please include the following:*

5. I understand that the interview/focus group will be audio / video recorded and I am happy to proceed ☐

6. I understand that parts of our conversation may be used verbatim in future publications presentations but that such quotes will be anonymised. ☐ or

Name of Participant Date Signature

Name of Researcher Date Signature

Name of Person taking consent *(if different from researcher)* Date Signature

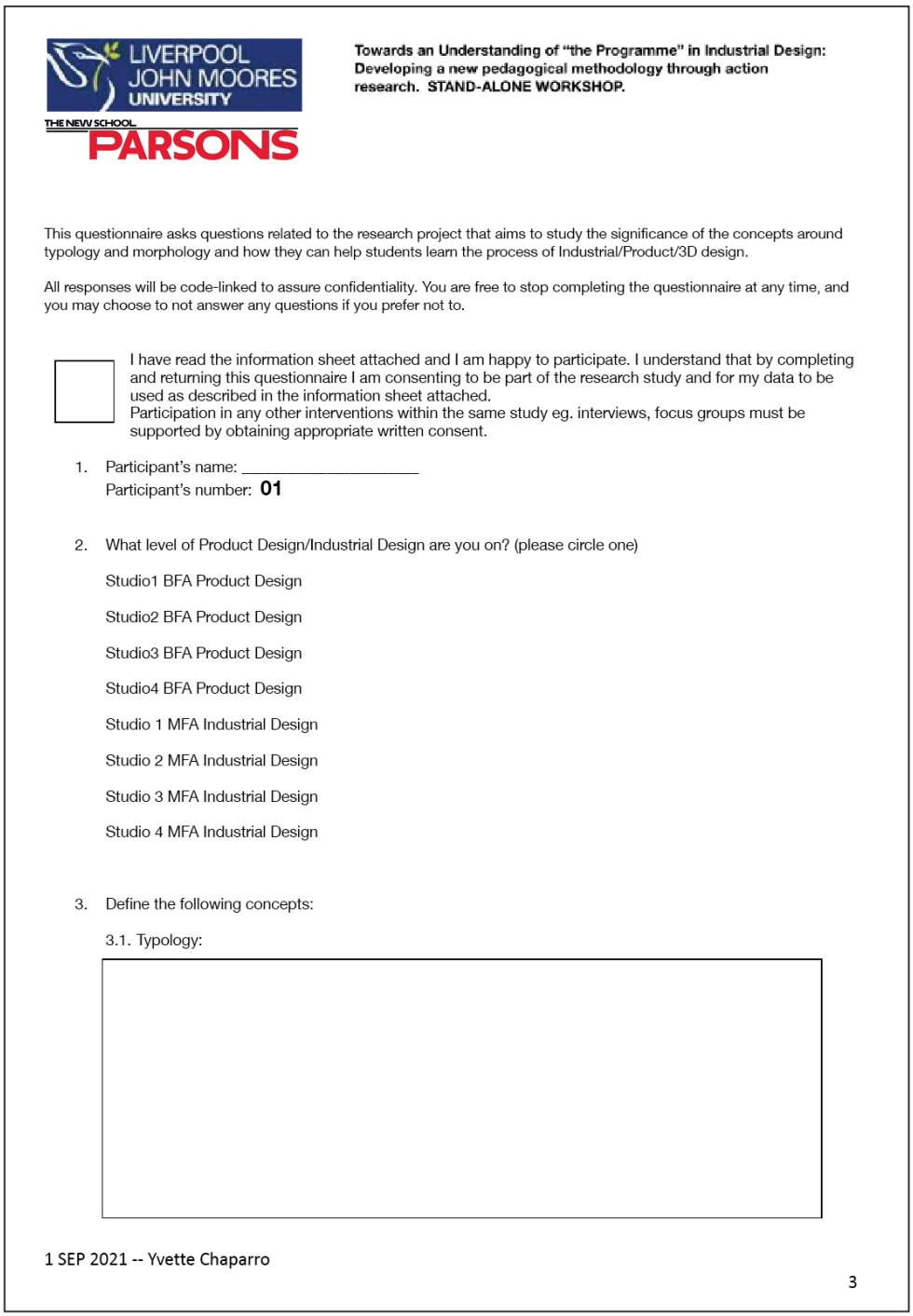
*Note: When completed 1 copy for participant and 1 copy for researcher*

1 SEP 2021 -- Yvette Chaparro

2

Figure_Apx. 10:
Chaparro, Y. (2021) Gate Keeper Consent Form. Page 2 [document]

Participant Information and questionnaire form for student participants for Workshop One. Page 3.



LIVERPOOL JOHN MOORES UNIVERSITY

THE NEW SCHOOL PARSONS

**Towards an Understanding of "the Programme" in Industrial Design: Developing a new pedagogical methodology through action research. STAND-ALONE WORKSHOP.**

This questionnaire asks questions related to the research project that aims to study the significance of the concepts around typology and morphology and how they can help students learn the process of Industrial/Product/3D design.

All responses will be code-linked to assure confidentiality. You are free to stop completing the questionnaire at any time, and you may choose to not answer any questions if you prefer not to.

☐ I have read the information sheet attached and I am happy to participate. I understand that by completing and returning this questionnaire I am consenting to be part of the research study and for my data to be used as described in the information sheet attached.
Participation in any other interventions within the same study eg. interviews, focus groups must be supported by obtaining appropriate written consent.

1. Participant's name: _____
   Participant's number: **01**

2. What level of Product Design/Industrial Design are you on? (please circle one)

   Studio1 BFA Product Design

   Studio2 BFA Product Design

   Studio3 BFA Product Design

   Studio4 BFA Product Design

   Studio 1 MFA Industrial Design

   Studio 2 MFA Industrial Design

   Studio 3 MFA Industrial Design

   Studio 4 MFA Industrial Design

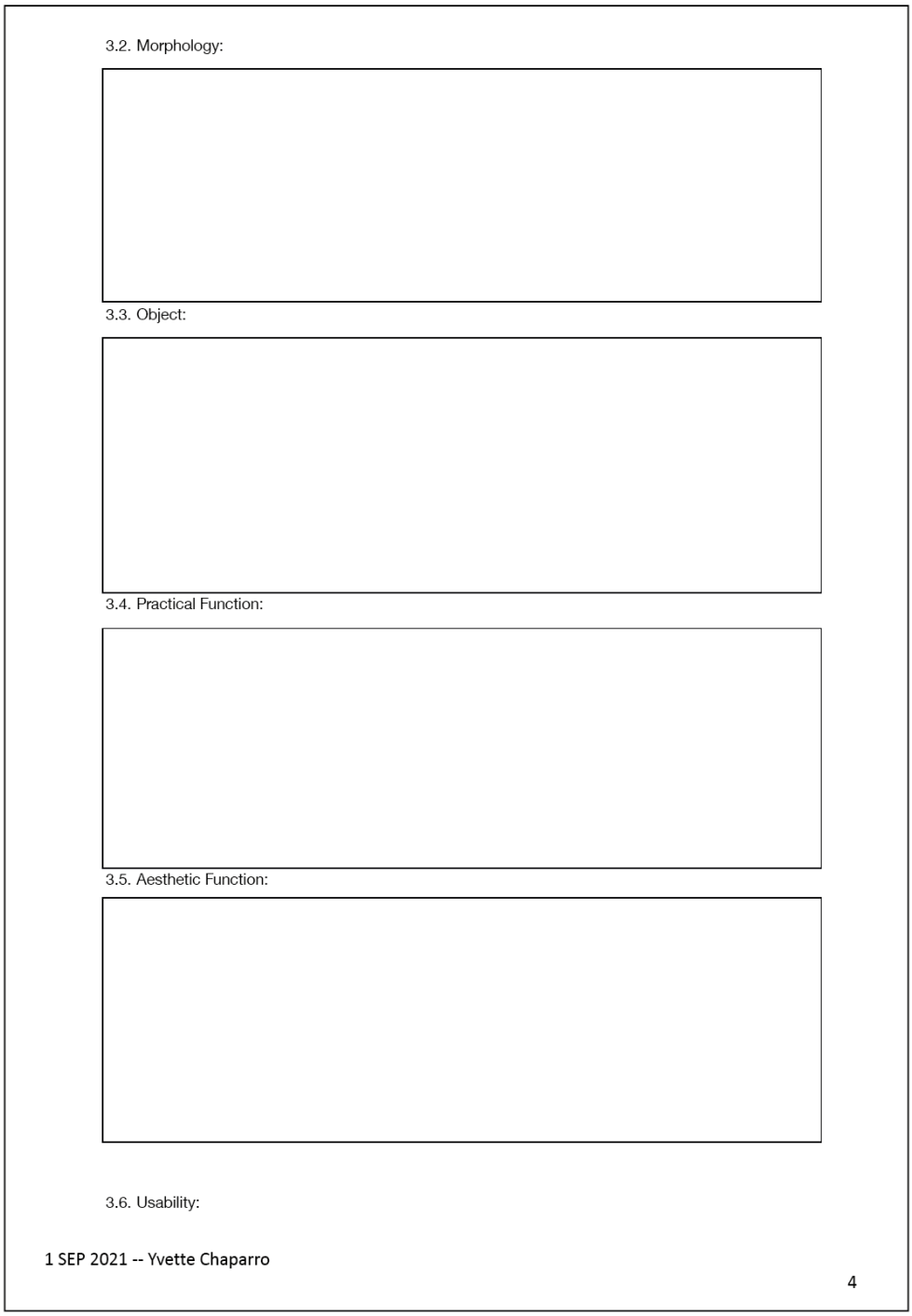
3. Define the following concepts:

   3.1. Typology:

1 SEP 2021 -- Yvette Chaparro

3

Figure_Apx. 11:
Chaparro, Y. (2021) Questionnaire. Page 3 [document]



3.2. Morphology:

3.3. Object:

3.4. Practical Function:

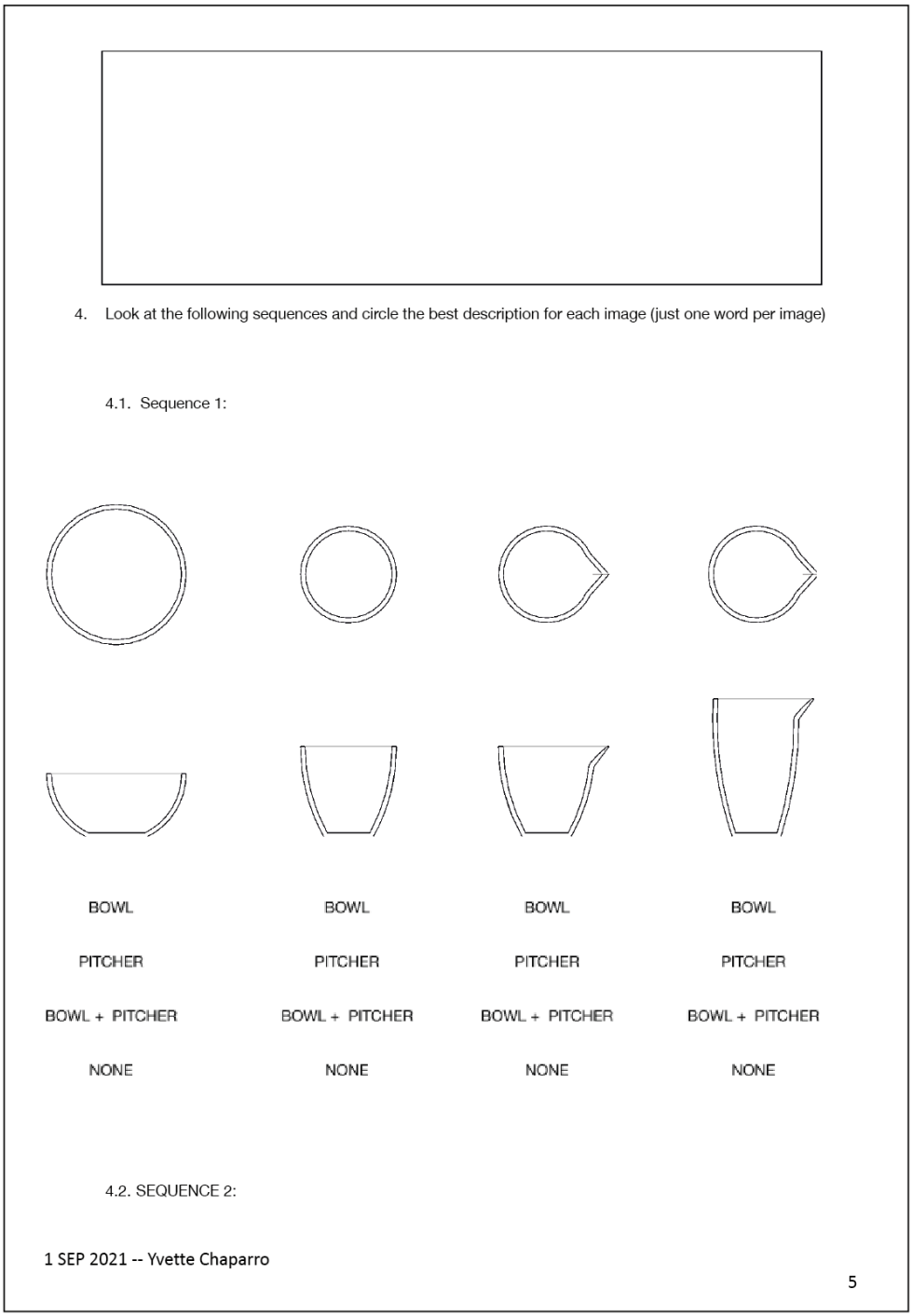
3.5. Aesthetic Function:

3.6. Usability:

1 SEP 2021 -- Yvette Chaparro

4

Figure_Apx. 12:
Chaparro, Y. (2021) Questionnaire. Page 4 [document]



4. Look at the following sequences and circle the best description for each image (just one word per image)

4.1. Sequence 1:

BOWL
PITCHER
BOWL + PITCHER
NONE

BOWL
PITCHER
BOWL + PITCHER
NONE

BOWL
PITCHER
BOWL + PITCHER
NONE

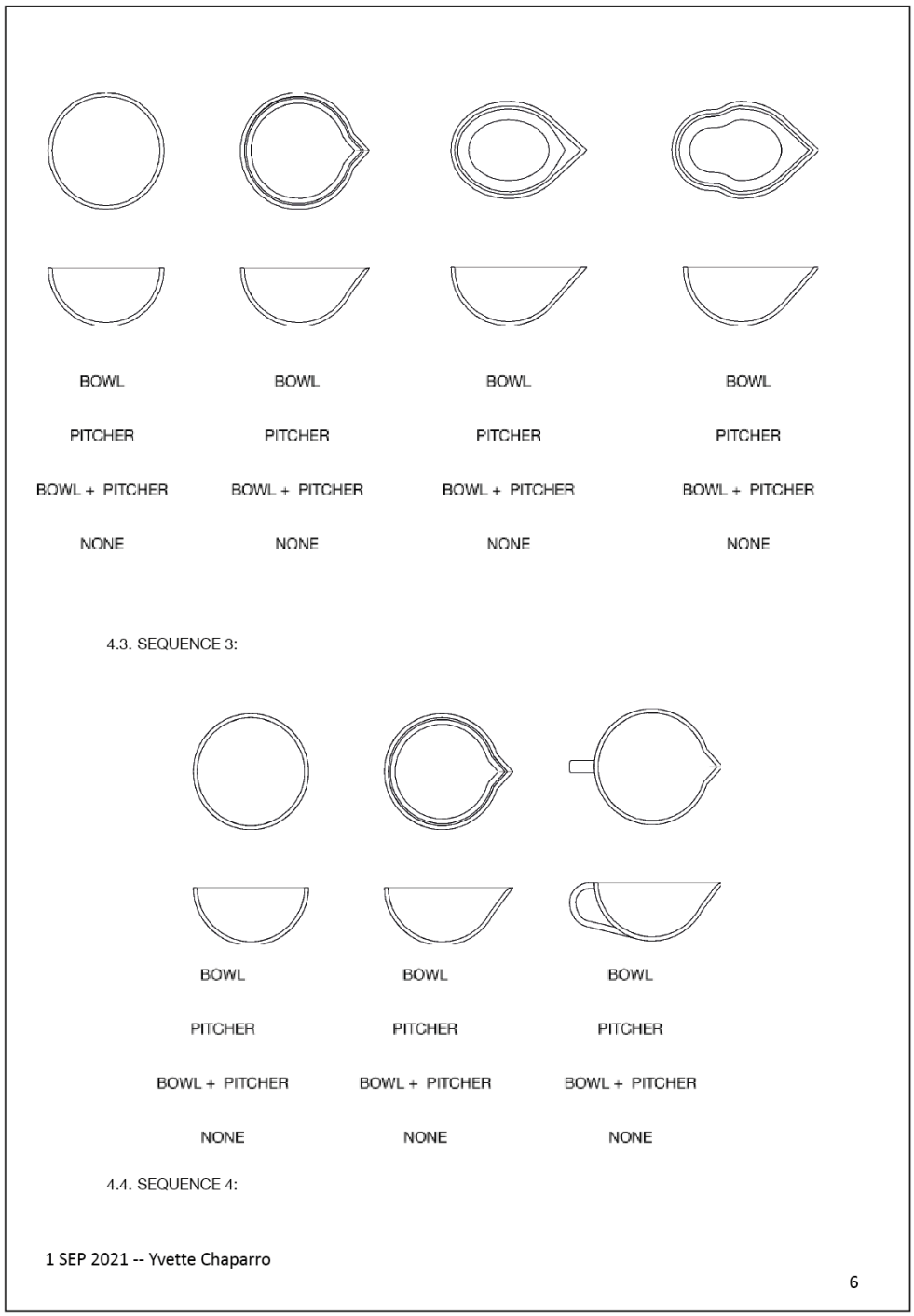
BOWL
PITCHER
BOWL + PITCHER
NONE

4.2. SEQUENCE 2:

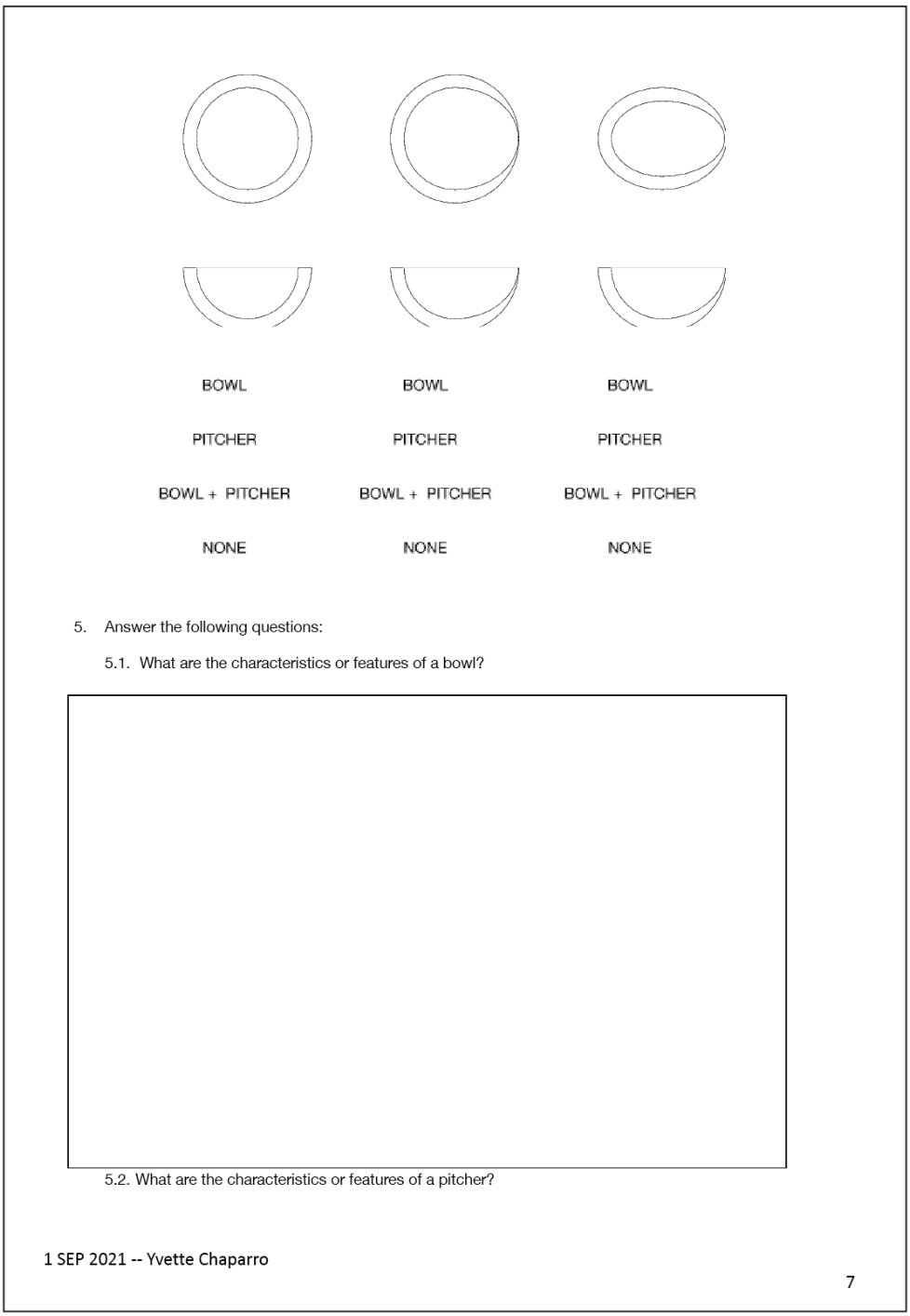
1 SEP 2021 -- Yvette Chaparro

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Figure_Apx. 13:
Chaparro, Y. (2021) Questionnaire. Page 5 [document]




Figure_Apx. 14:
Chaparro, Y. (2021) Questionnaire. Page 6 [document]



BOWL

PITCHER

BOWL + PITCHER

NONE

BOWL

PITCHER

BOWL + PITCHER

NONE

BOWL

PITCHER

BOWL + PITCHER

NONE

5. Answer the following questions:

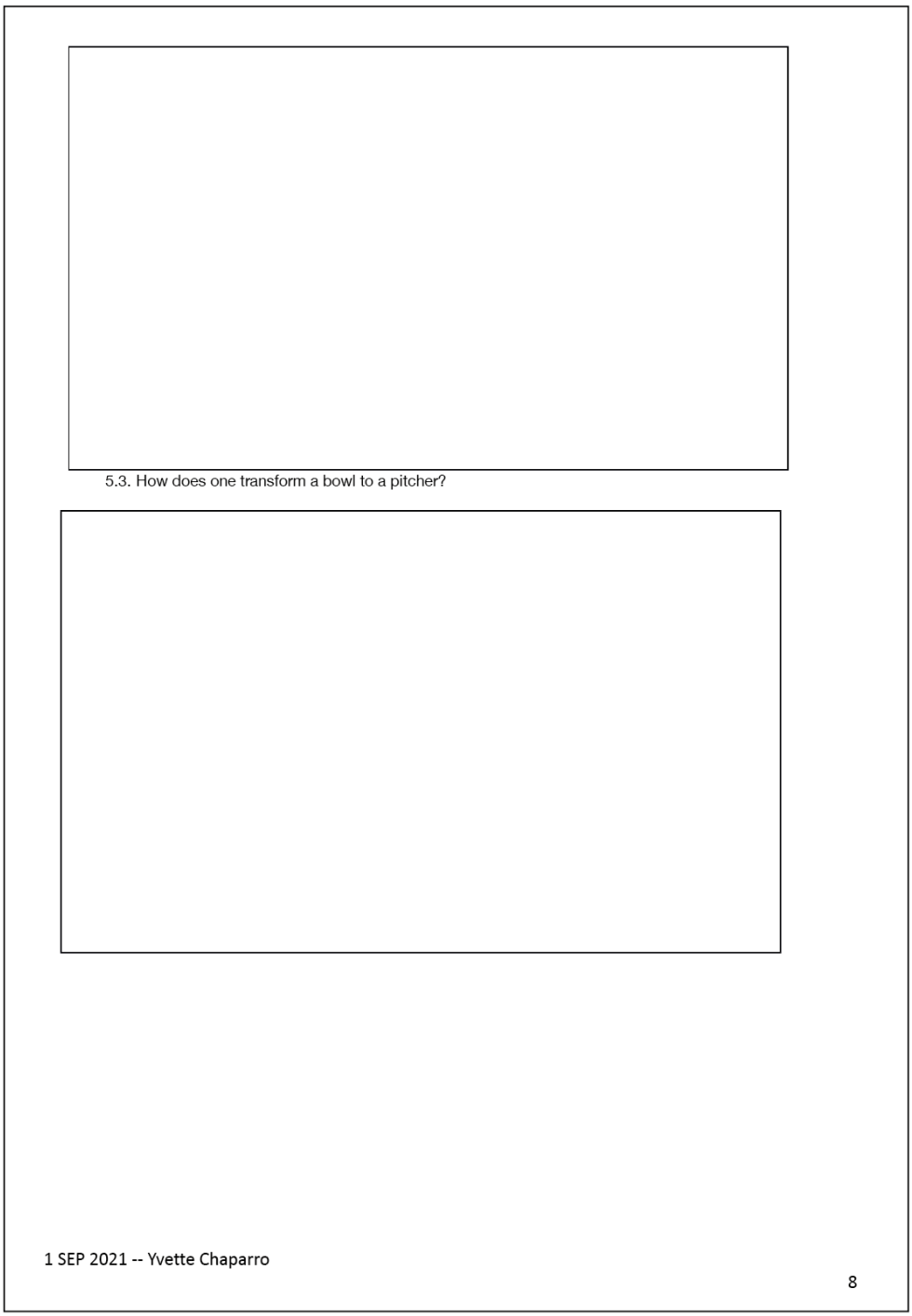
5.1. What are the characteristics or features of a bowl?

5.2. What are the characteristics or features of a pitcher?

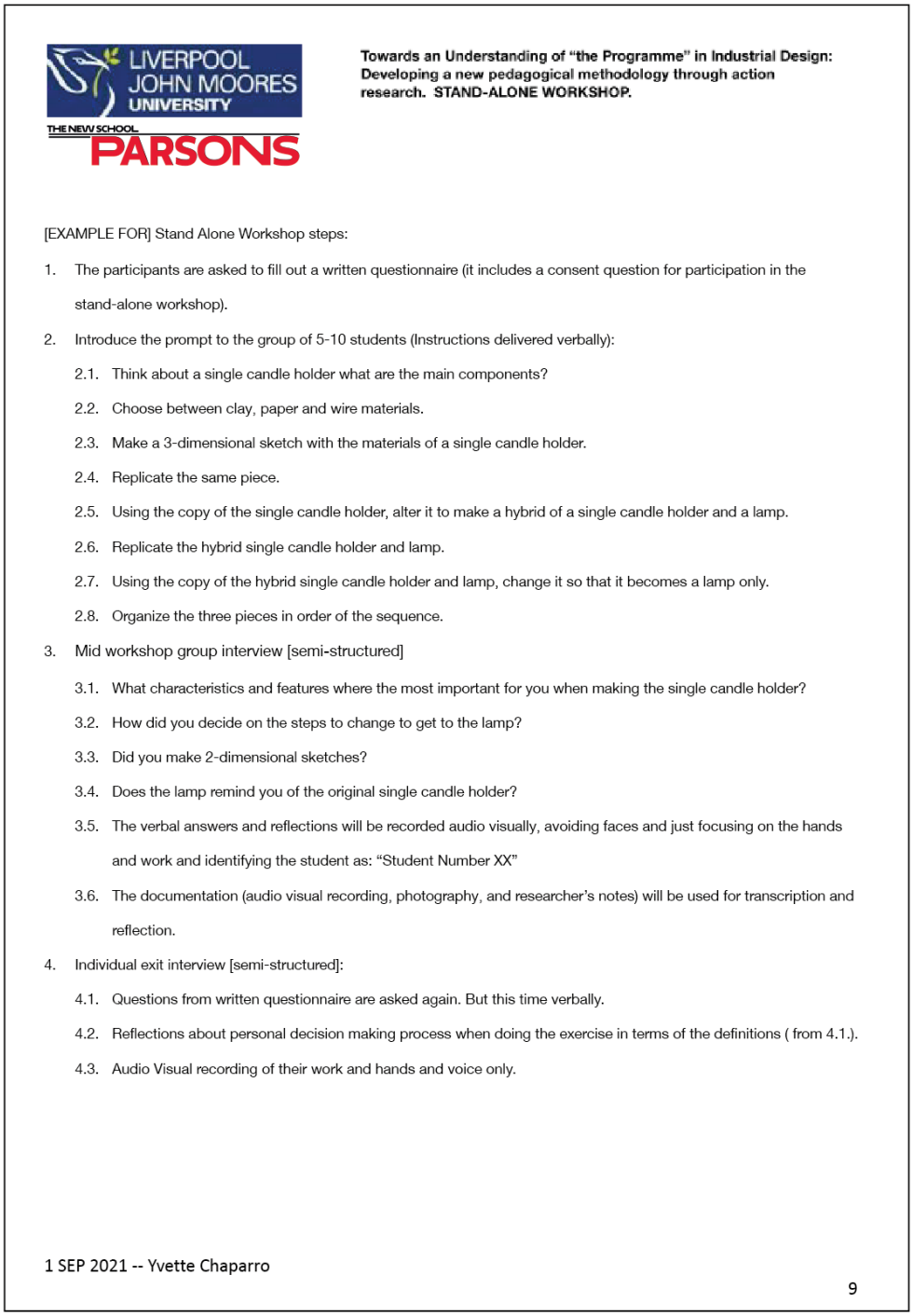
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Figure_Apx. 15:
Chaparro, Y. (2021) Questionnaire. Page 7 [document]




Figure_Apx. 16:
Chaparro, Y. (2021) Questionnaire. Page 8 [document]



LIVERPOOL JOHN MOORES UNIVERSITY

THE NEW SCHOOL PARSONS

**Towards an Understanding of "the Programme" in Industrial Design: Developing a new pedagogical methodology through action research. STAND-ALONE WORKSHOP.**

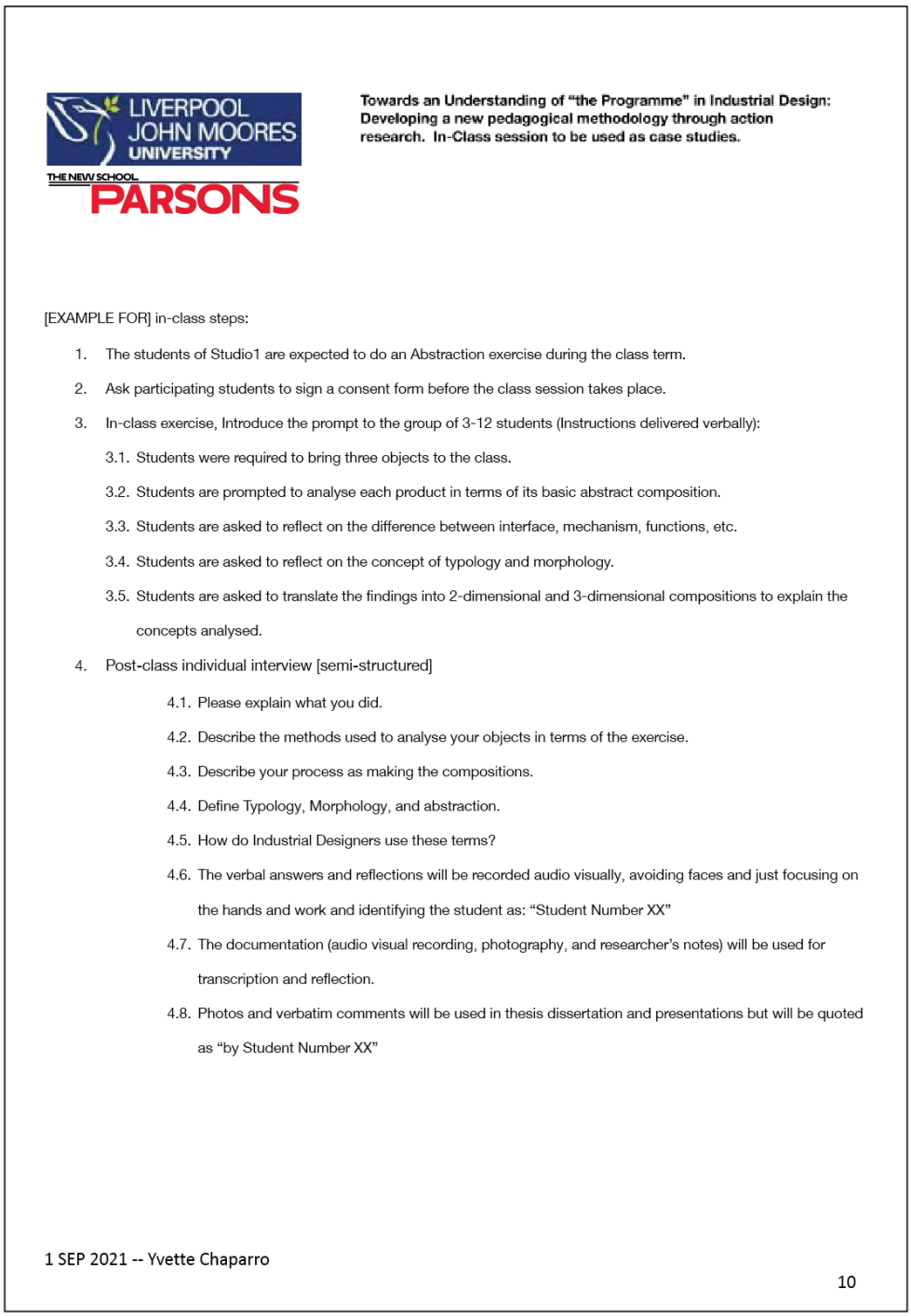
[EXAMPLE FOR] Stand Alone Workshop steps:

1. The participants are asked to fill out a written questionnaire (it includes a consent question for participation in the stand-alone workshop).
2. Introduce the prompt to the group of 5-10 students (Instructions delivered verbally):
   - 2.1. Think about a single candle holder what are the main components?
   - 2.2. Choose between clay, paper and wire materials.
   - 2.3. Make a 3-dimensional sketch with the materials of a single candle holder.
   - 2.4. Replicate the same piece.
   - 2.5. Using the copy of the single candle holder, alter it to make a hybrid of a single candle holder and a lamp.
   - 2.6. Replicate the hybrid single candle holder and lamp.
   - 2.7. Using the copy of the hybrid single candle holder and lamp, change it so that it becomes a lamp only.
   - 2.8. Organize the three pieces in order of the sequence.
3. Mid workshop group interview [semi-structured]
   - 3.1. What characteristics and features where the most important for you when making the single candle holder?
   - 3.2. How did you decide on the steps to change to get to the lamp?
   - 3.3. Did you make 2-dimensional sketches?
   - 3.4. Does the lamp remind you of the original single candle holder?
   - 3.5. The verbal answers and reflections will be recorded audio visually, avoiding faces and just focusing on the hands and work and identifying the student as: "Student Number XX"
   - 3.6. The documentation (audio visual recording, photography, and researcher's notes) will be used for transcription and reflection.
4. Individual exit interview [semi-structured]:
   - 4.1. Questions from written questionnaire are asked again. But this time verbally.
   - 4.2. Reflections about personal decision making process when doing the exercise in terms of the definitions ( from 4.1.).
   - 4.3. Audio Visual recording of their work and hands and voice only.

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Figure_Apx. 17:
Chaparro, Y. (2021) Questionnaire. Page 9 [document]



LIVERPOOL JOHN MOORES UNIVERSITY

THE NEW SCHOOL PARSONS

**Towards an Understanding of "the Programme" in Industrial Design: Developing a new pedagogical methodology through action research. In-Class session to be used as case studies.**

[EXAMPLE FOR] in-class steps:

1. The students of Studio1 are expected to do an Abstraction exercise during the class term.
2. Ask participating students to sign a consent form before the class session takes place.
3. In-class exercise, Introduce the prompt to the group of 3-12 students (Instructions delivered verbally):
   - 3.1. Students were required to bring three objects to the class.
   - 3.2. Students are prompted to analyse each product in terms of its basic abstract composition.
   - 3.3. Students are asked to reflect on the difference between interface, mechanism, functions, etc.
   - 3.4. Students are asked to reflect on the concept of typology and morphology.
   - 3.5. Students are asked to translate the findings into 2-dimensional and 3-dimensional compositions to explain the concepts analysed.
4. Post-class individual interview [semi-structured]
   - 4.1. Please explain what you did.
   - 4.2. Describe the methods used to analyse your objects in terms of the exercise.
   - 4.3. Describe your process as making the compositions.
   - 4.4. Define Typology, Morphology, and abstraction.
   - 4.5. How do Industrial Designers use these terms?
   - 4.6. The verbal answers and reflections will be recorded audio visually, avoiding faces and just focusing on the hands and work and identifying the student as: "Student Number XX"
   - 4.7. The documentation (audio visual recording, photography, and researcher's notes) will be used for transcription and reflection.
   - 4.8. Photos and verbatim comments will be used in thesis dissertation and presentations but will be quoted as "by Student Number XX"

1 SEP 2021 -- Yvette Chaparro

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Figure_Apx. 18:
Chaparro, Y. (2021) Instructions for Facilitator. Page 10 [document]

## Transcribed Data. Workshop One.

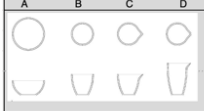
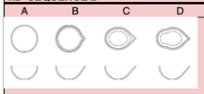
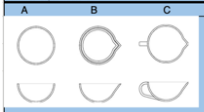
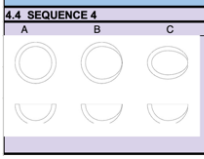
[The full spreadsheet for Workshop One can be found here: LINK, this link includes all excerpts from Figure_Apx. 19to Figure_Apx. 22]

The data was collected and transcribed by the Research Assistant Michelle Levy. The participants were students in the department I directed, so they needed to be anonymised so that they felt comfortable participating in the study. The data was tabulated into a spreadsheet since it was important to keep all information organized and readily accessible for its review through Thematic Analysis. This section includes the first part of the questionnaire, which includes term definitions.

| Workshop | 1, Fall 2021 | 1, Fall 2021 | 1, Fall 2021 | 1, Fall 2021 | 1, Fall 2021 | 1, Fall 2021 | 1, Fall 2021 |
|---|---|---|---|---|---|---|---|
| Participant # | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 2 Product/Industrial Design level | STUDIO 3 MFA | STUDIO 3 MFA | STUDIO 3 MFA | STUDIO 3 MFA | STUDIO 3 MFA | STUDIO 3 MFA | STUDIO 3 MFA |
| 3.1 TYPOLOGY | It's a category of products. | The type of product defined by characteristics and usability. | Typology is a study of type and archetype within a discipline. | Relating to the categorization of products or type of object; how the form fits within a context. | The language used to define a design. | Category or family of artefact. | A category of product that it fits into. Usually, it's more specific and also talks about the environment it sits in. |
| 3.2 MORPHOLOGY | Form study. | The ability to adapt/evolve into something else. | Morphology is the study of the forms and its interaction with other objects. | The changing of a form, shifting of shape. | Adjust object. | Way to deform object or type of deformation method. | N/A |
| 3.3 OBJECT | It's a physical item/thing that has a form/shape. | A physical product. | Object is a physical product. | Mass, a product that is tangible. | A form in a space. | Artefact. | A physical body. |
| 3.4 PRACTICAL FUNCTION | It's a design's feature that works for the need efficiently. | The action an object has to be useful to. | Practical function represents the interaction between the user and the designed piece that serves as a catalyst to improve a set of actions. | The purpose the object/ or product is meant to serve, there's an action that takes place. | A form/object that can be used in a practical way. An object that serves a function. | What it does. | Something that serves a purpose/ aids in any activity. |
| 3.5 AESTHETIC FUNCTION | It's beauty of design. It addresses intuitive human/non human needs. The elements contains visual, touch, scent, taste, temperature or other senses awaken our senses. | The visual a product provides. | Aesthetic function is the perceived emotional, historical, and other visual stimulii generated by the designed piece. This is intentional by the designer. | Something that is only meant to serve via the way it looks, its appearance dictates how it works. | An object that is visually beautiful. | What its appearance does. | Communicating the function through the product. |
| 3.6 USABILITY | It makes sure that it will work easily for the target. | How a product can/should be used or was designed to be used. | Usability refers to the interaction between the user and the object and its ease of interaction. | How something is meant to be interacted with. | Has a function. | How functional or practical it is. | The level of ease of use the product provides. |

Figure_Apx. 19:
Chaparro, Y. (2021) Workshop One - Data Transcription from Questionnaire. Part 1. [table excerpt]

Labelling of example sequences by participants. The participants were asked to label each element in the sequences as: bowl, pitcher, both, or none. The research assistant, Michele Levy, tabulated the data into the spreadsheet.

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **4.1 SEQUENCE 1** | | | | | | | |
| A B C D | | | | | | | |
|  | A: BOWL | A: BOWL | A: BOWL | A: BOWL | A: BOWL | A: BOWL | A: BOWL |
| | B: NONE | B: NONE | B: BOWL | B: NONE | B: BOWL | B: NONE (wrote in Cup/Vase) | B: PITCHER |
| | C: NONE | C: PITCHER | C: PITCHER | C: BOWL + PITCHER | C: BOWL + PITCHER | C: BOWL + PITCHER | C: BOWL + PITCHER |
| | D: PITCHER | D: PITCHER | D: PITCHER | D: PITCHER | D: PITCHER | D: PITCHER | D: NONE |
| **4.2 SEQUENCE 2** | | | | | | | |
| A B C D | | | | | | | |
|  | A: BOWL | A: BOWL | A: BOWL | A: BOWL | A: BOWL | A: BOWL | A: BOWL |
| | B: BOWL | B: BOWL + PITCHER | B: BOWL + PITCHER | B: BOWL + PITCHER | B: BOWL | B: BOWL + PITCHER | B: BOWL |
| | C: BOWL | C: BOWL + PITCHER | C: BOWL + PITCHER | C: BOWL + PITCHER | C: BOWL | C: NONE (wrote in BOAT) | C: BOWL + PITCHER |
| | D: BOWL | D: BOWL + PITCHER | D: NONE | D: BOWL + PITCHER | D: BOWL + PITCHER | D: PITCHER | D: NONE |
| **4.3 SEQUENCE 3** | | | | | | | |
| A B C | | | | | | | |
|  | A: BOWL | A: BOWL | A: BOWL | A: BOWL | A: BOWL | A: BOWL | A: NONE |
| | B: BOWL | B: BOWL + PITCHER | B: BOWL + PITCHER | B: BOWL + PITCHER | B: BOWL | B: BOWL + PITCHER | B: NONE |
| | C: NONE | C: BOWL + PITCHER | C: BOWL + PITCHER | C: PITCHER | C: BOWL + PITCHER | C: NONE | C: PITCHER |
| **4.4 SEQUENCE 4** | | | | | | | |
| A B C | | | | | | | |
|  | A: BOWL | A: BOWL | A: BOWL | A: BOWL | A: BOWL | A: BOWL | A: NONE |
| | B: BOWL | B: BOWL | B: BOWL | B: BOWL | B: BOWL | B: BOWL | B: NONE |
| | C: BOWL | C: BOWL | C: BOWL | C: BOWL | C: BOWL | C: BOWL | C: NONE |

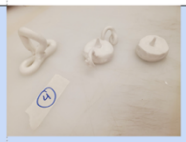
Figure_Apx. 20:
Chaparro, Y. (2021) Transcribed Data from Bowl Labeling of Sequences by Participants. [table excerpt]

Questionnaire answers, Part 2.

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **5.1 WHAT ARE THE CHARACTERISTICS OR FEATURES OF A BOWL?** | Rounded; Low height; Thin; Slippery. | The roundness and capacity to safely hold product. | It has a serving space for consumption and emptiness for placing consumable goods. | Concave vessel; To be eaten out of; Contain liquid or semi-liquid; Round. | Without handle; Shallow/short; Round (in this case) | A bowl has a 1:3 ratio; No handle; No spout. | It's slightly not spherical but ovalish; It contains more "soupy" ingredients compared to a plate; It can't be tall, it'll be a glass. |
| **5.2 WHAT ARE THE CHARACTERISTICS OR FEATURES OF A PITCHER?** | Handle; Beak; Heavy. | The ability to hold and pour product. | It has a spout for pouring liquids. It also has depth for storage- alternative pitchers also have lids. | Meant to pour (from one object into another); Always contains liquid and usually only liquid; Has a spout/area to pour from; Handle/way to hold. | Tall; Can have a handle/doesn't always have to; Lip | A pitcher has a spout; Preferably is tall. | It's tall; Usually meant to hold liquid; It's an add-on, if it's easy to pour. |
| **5.3 HOW DOES ONE TRANSFORM A BOWL TO A PITCHER?** | Length of height; Beak; Width of circle. | Adding a feature that allows for a good pour. | Adding a spout, adjusting the concavity of the interior form to allow for storage. | Have a deep cavity while also having any area for a grip to pour. Change what food or drink or object that is being placed within each object. | Short bowl with handle | If you make a bowl that is easy to grip and pour it can be a pitcher. Maybe add a lip, maybe make squeezable. | Extrude it and add a handle. Handles might be necessary for a pitcher. |

Figure_Apx. 21:
Chaparro, Y. (2021) Transcription of Data from Questionnaire - Part 2. by Participants. [table excerpt]

Sequence descriptions by participants. Semi-structured interviews. Part 1.
The participants were asked to make a quick 3D sketch sequence using clay, paper, or metal wire. The prompt was for the sequence to show how to go from a candle holder to a lamp with three artefacts. The participants were asked to describe their decisions while making the sequence.

| Workshop | Standalone workshop, 12/9/2021 | Standalone workshop, 12/9/2021 | Standalone workshop, 12/9/2021 | Standalone workshop, 12/9/2021 |
|---|---|---|---|---|
| Participant # | 1 | 2 | 3 | 4 |
| 2 Product/Industrial Design level | STUDIO 3 MFA | STUDIO 3 MFA | STUDIO 3 MFA | STUDIO 3 MFA |
| IMAGE |  |  |  |  |
| 3.1 What characteristics and features were the most important for you when making the single candle holder? | The handle. | Just the circle for the candle itself and the wax that would melt. | So for me, it has to be a sturdy base as well as a place to collect the wax of the candle once it melts. And a way to hold it so it's not too hot when you touch it. | A weighted base, having like a hearty weighted base and a spike to hold the candle in place. |
| 3.2 How did you decide on the steps to change to get to the lamp? | There will be no danger of flames (in the lamp and hybrid) so I put more aesthetic into the form and also simplified it. | Well.. at first, I thought the center can hold the lamp and the candle, but I was thinking if I need to hold them at the same time, the light that they will produce can't be obstructed by one another. So i was thinking of pointing the light in the same directions so the candle will be here in the (center), and these are little LEDs maybe (around the edge). | I wanted to keep kind of the similar form but in terms of structural ability it was very curious to me in what place would the light emanate the most and spread in a way it lights up a room. (moving the direction of the light) | I was trying to consider maybe an arm that reaches out away towards the flame, so if it was illuminating only upwards, maybe we need something that would illuminate outwards as well. So i was thinking about these arms extending out away from the candle holder kind of like a desk lamp. |
| 3.3 Did you make 2-dimensional sketches? | Just models. | No. | Just the materials. | I just went at it with no sketches. |
| 3.4 Does the lamp remind you of the original candle holder? | Only the roundness. | It does, I feel like the form of this one (last) was derived from the first one. What changed is I was thinking about enclosing the light rather than just exposing it. (Exposed v directed light) | The base is similar but the actual form was very very different. I changed how I wanted the light to project and so that altered the way original candle holder looked. | Not at all. The lamp was kind of inspired off of the arms that I did in the combo candle lamp, and so then i kind of went along that path of the coil. |
| 4.2 Reflections about personal decision making process when doing the definitions. | Features. (when asked follow up "what made you decide for example that this item was a bowl?") | It was hard for me to find the correct words, I was just trying to express the idea I have of them rather than reciting the actual definition because I dont have it memorized, it's just what they mean to me. | Based on previous understanding of the terms as well as what was taught in class. | Just reflecting off of personal experiences as well as what I recall Yvette teaching last year. |
| (added in my own question): Were you considering the practical and the aesthetic function when you were making these models? | | Mostly the practical function. | Practical before aesthetic. | I think i started with practical function and then i ventured to aesthetic function. |

Figure_Apx. 22:
Chaparro, Y. (2021) Data Transcribed from Semi-Structured Interview. Decision Making Description by Participants. Part 1 [table excerpt]

Sequence descriptions by participants. Semi-structured interviews. Part 2.

| Standalone workshop, 12/9/2021 | Standalone workshop, 12/9/2021 | Standalone workshop, 12/9/2021 |
|---|---|---|
| 5 | 6 | 7 |
| STUDIO 3 MFA | STUDIO 3 MFA | STUDIO 3 MFA |
|  |  |  |
| Form. For me I was just imagining the candle needing a surface and a hole to put it in. | A base, and a place to hold the candle. | The two most important parts were the base and the piece that holds the candle. |
| | I still kept the place where the lighting is going to be held but i elevated it to make it into downward facing where a bulb would be as opposed to just straight up. | To be completely honest, I was thinking of the candle holder and the lamp as two separate objects and the hybrid was the one where it meets in the middle. |
| I just played with the materials. | I just worked with the materials. | Just these models. I tried playing with paper but came to the conclusion that clay would be the best. |
| I think the language is pretty similar. I definitely wanted to play with the fluidity of the first one but incorporate more so some sort of mechanism for the cord management. | Yes, they both have that circular base and elliptical mouth part where the lighting would go (candle/bulb) just different proportions I guess. | |
| As you can see I struggled. My process was just trying to think back to class. In terms of identifying what the objects were and weren't, i wish i had seen the 3d models on the table, they would have helped me. In terms of form for example the height, looked much taller in person than in the diagram. | I am an apostle of Yvette so I pretty much remember everything we were taught/talked about in her course. | I think it was definitely what my experience is with those words, like what a bowl means vs what a pitcher means, the kind of tool they are and the function that they do. For example, this is a pitcher because is has the ability to pour something and also to hold liquid. It fits more of a pitcher than a bowl to me due to the handle. |
| I used aesthetics first. | For the candleholder I was thinking about the aesthetics, but for the rest of them I was thinking about the practical features of the materials and how to make it physically stand and not so much about the aesthetics. | |

Figure_Apx. 23:
Chaparro, Y. (2021) Data Transcribed from Semi-Structured Interview. Description of Decision-Making by Participants. Part 2 [table excerpt]

Workshop One participants were prompted to develop a 3D sequence going from a candle holder to a lamp by utilising sketch materials. Research Assistant Michelle Levy documented the sequences via video recordings and photographs.

Image of sequence by Participant 1.



Figure_Apx. 24:
(2021) Sequence Artefacts. Workshop One - Participant 1. [photo] Photo credit: Michelle Levy.

Image of sequence by Participant 2.



Figure_Apx. 25:
(2021) Image of Sequence. Workshop One – Participant 2 [photo] Photo credit: Michelle Levy.

Image of sequence by Participant 3.



Figure_Apx. 26:
(2021) Image of Sequence. Workshop One – Participant 3 [photo] Photo credit: Michelle Levy.

Image of sequence by Participant 4.



Figure_Apx. 27:
(2021) Image of Sequence. Workshop One – Participant 4 [photo] Photo credit: Michelle Levy.

Image of sequence by Participant 5.



Figure_Apx. 28:
(2021) Image of Sequence. Workshop One – Participant 5. [photo] Photo credit: Michelle Levy.

Image of sequence by Participant 6.



Figure_Apx. 29:
(2021) Image of Sequence. Workshop One – Participant 6. [photo] Photo credit: Michelle Levy.

Image of sequence by Participant 7.



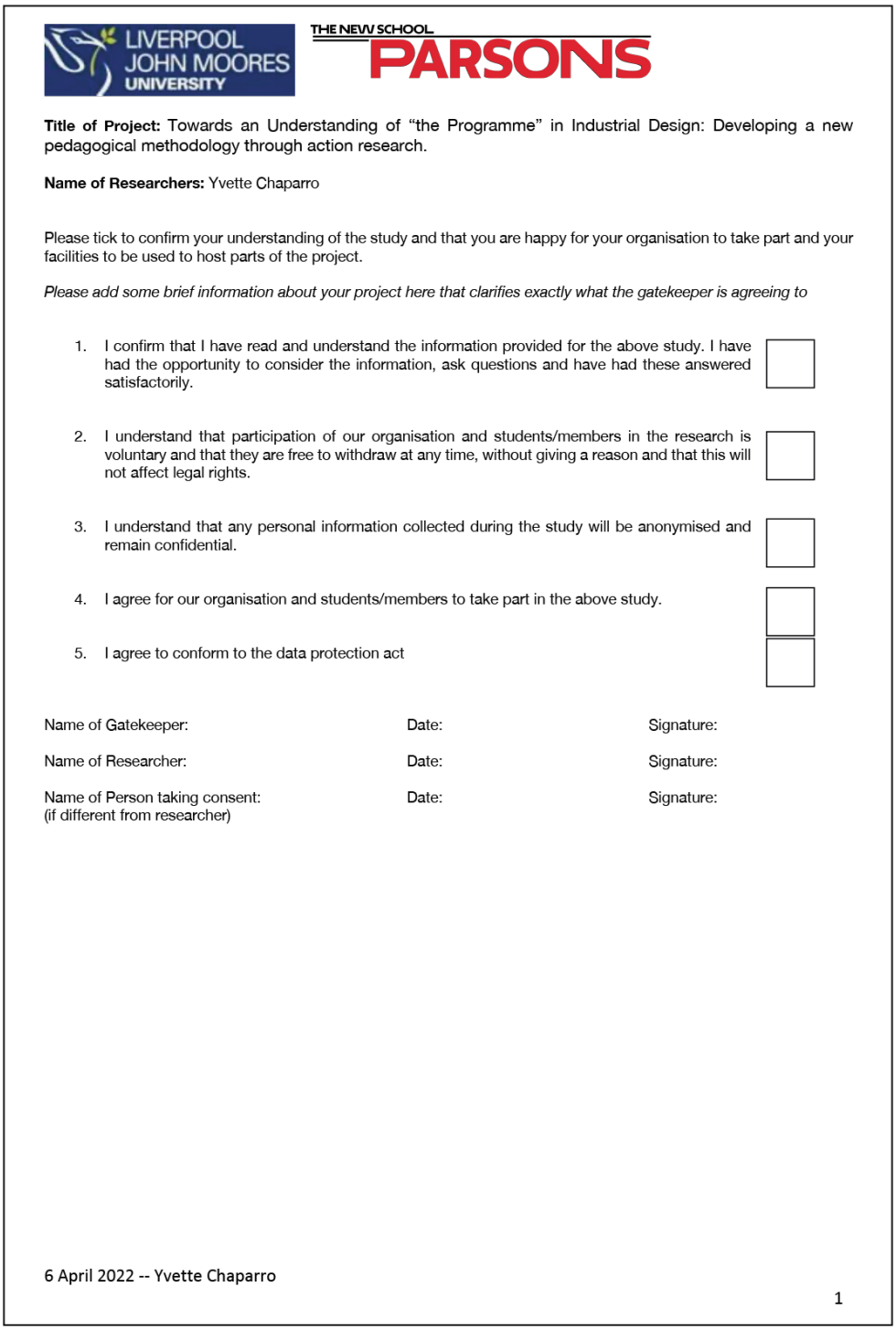
Figure_Apx. 30:
(2021) Image of Sequence. Workshop One – Participant 7. [photo] Photo credit: Michelle Levy.

## Workshop Two

[6 April 2022]

### Documents given to Participants. Workshop Two.

Gate keeper consent form – for Workshop One. Page 1.



LIVERPOOL JOHN MOORES UNIVERSITY

THE NEW SCHOOL PARSONS

**Title of Project:** Towards an Understanding of "the Programme" in Industrial Design: Developing a new pedagogical methodology through action research.

**Name of Researchers:** Yvette Chaparro

Please tick to confirm your understanding of the study and that you are happy for your organisation to take part and your facilities to be used to host parts of the project.

*Please add some brief information about your project here that clarifies exactly what the gatekeeper is agreeing to*

1. I confirm that I have read and understand the information provided for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily. ☐
2. I understand that participation of our organisation and students/members in the research is voluntary and that they are free to withdraw at any time, without giving a reason and that this will not affect legal rights. ☐
3. I understand that any personal information collected during the study will be anonymised and remain confidential. ☐
4. I agree for our organisation and students/members to take part in the above study. ☐
5. I agree to conform to the data protection act ☐

Name of Gatekeeper: Date: Signature:

Name of Researcher: Date: Signature:

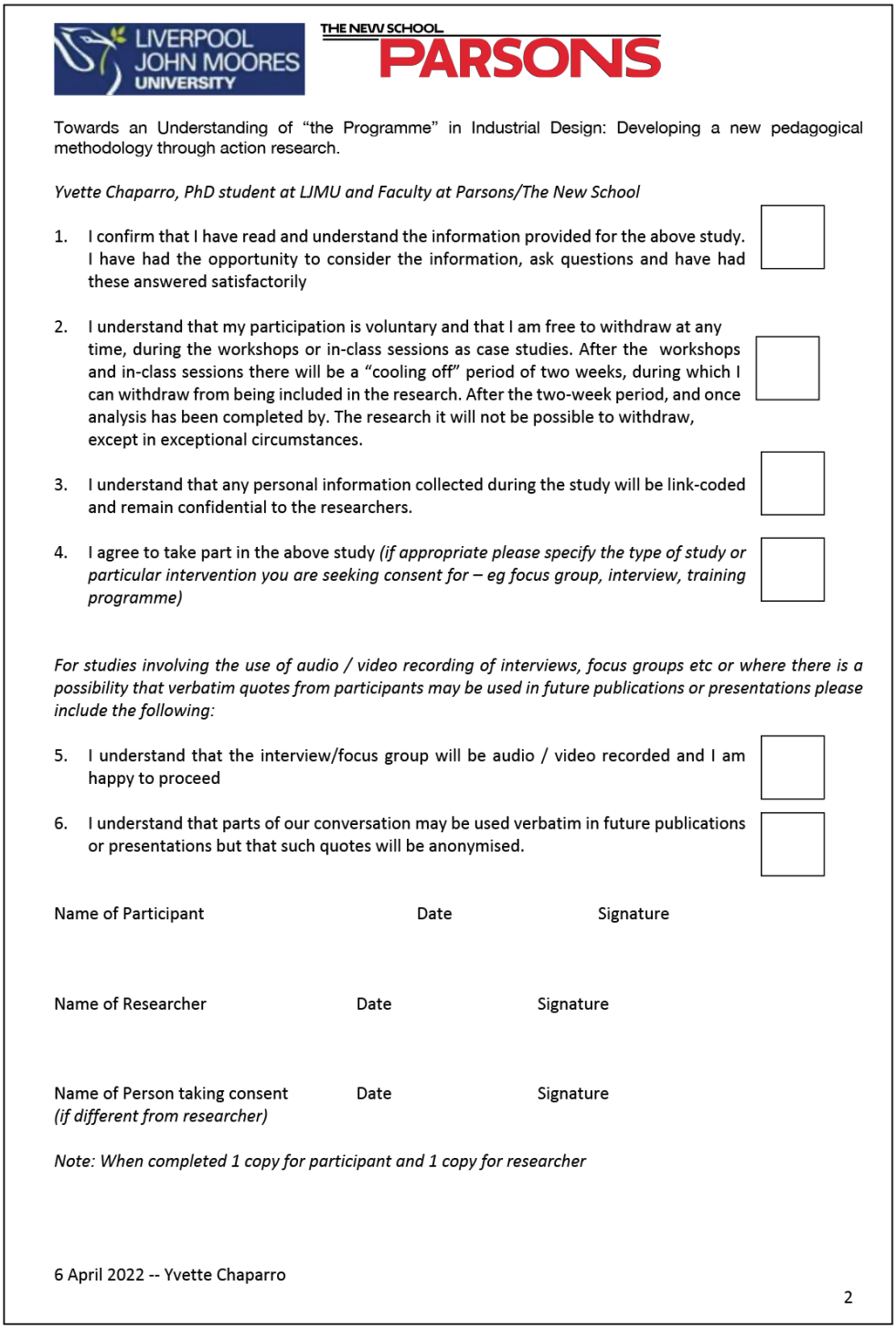
Name of Person taking consent: (if different from researcher) Date: Signature:

6 April 2022 -- Yvette Chaparro

1

Figure_Apx. 31:
Chaparro, Y. (2022) Gate Keeper Consent Form for Workshop. Page 1 [document]

Consent Forms for student participants for workshop. Page 2



LIVERPOOL JOHN MOORES UNIVERSITY

THE NEW SCHOOL PARSONS

Towards an Understanding of "the Programme" in Industrial Design: Developing a new pedagogical methodology through action research.

*Yvette Chaparro, PhD student at LJMU and Faculty at Parsons/The New School*

1. I confirm that I have read and understand the information provided for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily ☐

2. I understand that my participation is voluntary and that I am free to withdraw at any time, during the workshops or in-class sessions as case studies. After the workshops and in-class sessions there will be a "cooling off" period of two weeks, during which I can withdraw from being included in the research. After the two-week period, and once analysis has been completed by. The research it will not be possible to withdraw, except in exceptional circumstances. ☐

3. I understand that any personal information collected during the study will be link-coded and remain confidential to the researchers. ☐

4. I agree to take part in the above study *(if appropriate please specify the type of study or particular intervention you are seeking consent for – eg focus group, interview, training programme)* ☐

*For studies involving the use of audio / video recording of interviews, focus groups etc or where there is a possibility that verbatim quotes from participants may be used in future publications or presentations please include the following:*

5. I understand that the interview/focus group will be audio / video recorded and I am happy to proceed ☐

6. I understand that parts of our conversation may be used verbatim in future publications or presentations but that such quotes will be anonymised. ☐

Name of Participant Date Signature

Name of Researcher Date Signature

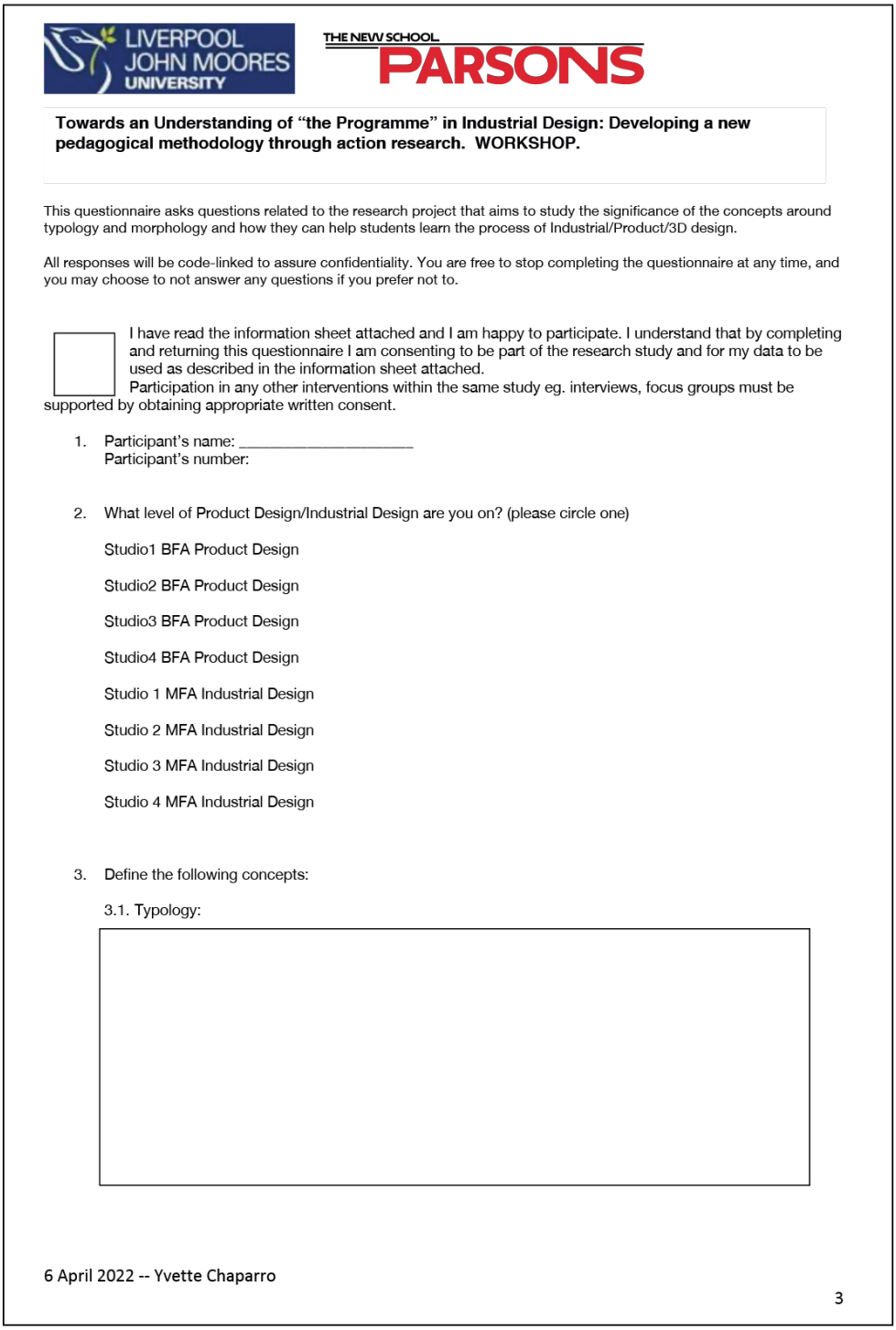
Name of Person taking consent *(if different from researcher)* Date Signature

*Note: When completed 1 copy for participant and 1 copy for researcher*

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2

Figure_Apx. 32:
Chaparro,Y. (2022) Consent Forms from Students. [document]



LIVERPOOL JOHN MOORES UNIVERSITY

THE NEW SCHOOL PARSONS

**Towards an Understanding of "the Programme" in Industrial Design: Developing a new pedagogical methodology through action research. WORKSHOP.**

This questionnaire asks questions related to the research project that aims to study the significance of the concepts around typology and morphology and how they can help students learn the process of Industrial/Product/3D design.

All responses will be code-linked to assure confidentiality. You are free to stop completing the questionnaire at any time, and you may choose to not answer any questions if you prefer not to.

☐ I have read the information sheet attached and I am happy to participate. I understand that by completing and returning this questionnaire I am consenting to be part of the research study and for my data to be used as described in the information sheet attached.
Participation in any other interventions within the same study eg. interviews, focus groups must be supported by obtaining appropriate written consent.

1. Participant's name: _____
   Participant's number:

2. What level of Product Design/Industrial Design are you on? (please circle one)

   Studio1 BFA Product Design

   Studio2 BFA Product Design

   Studio3 BFA Product Design

   Studio4 BFA Product Design

   Studio 1 MFA Industrial Design

   Studio 2 MFA Industrial Design

   Studio 3 MFA Industrial Design

   Studio 4 MFA Industrial Design

3. Define the following concepts:

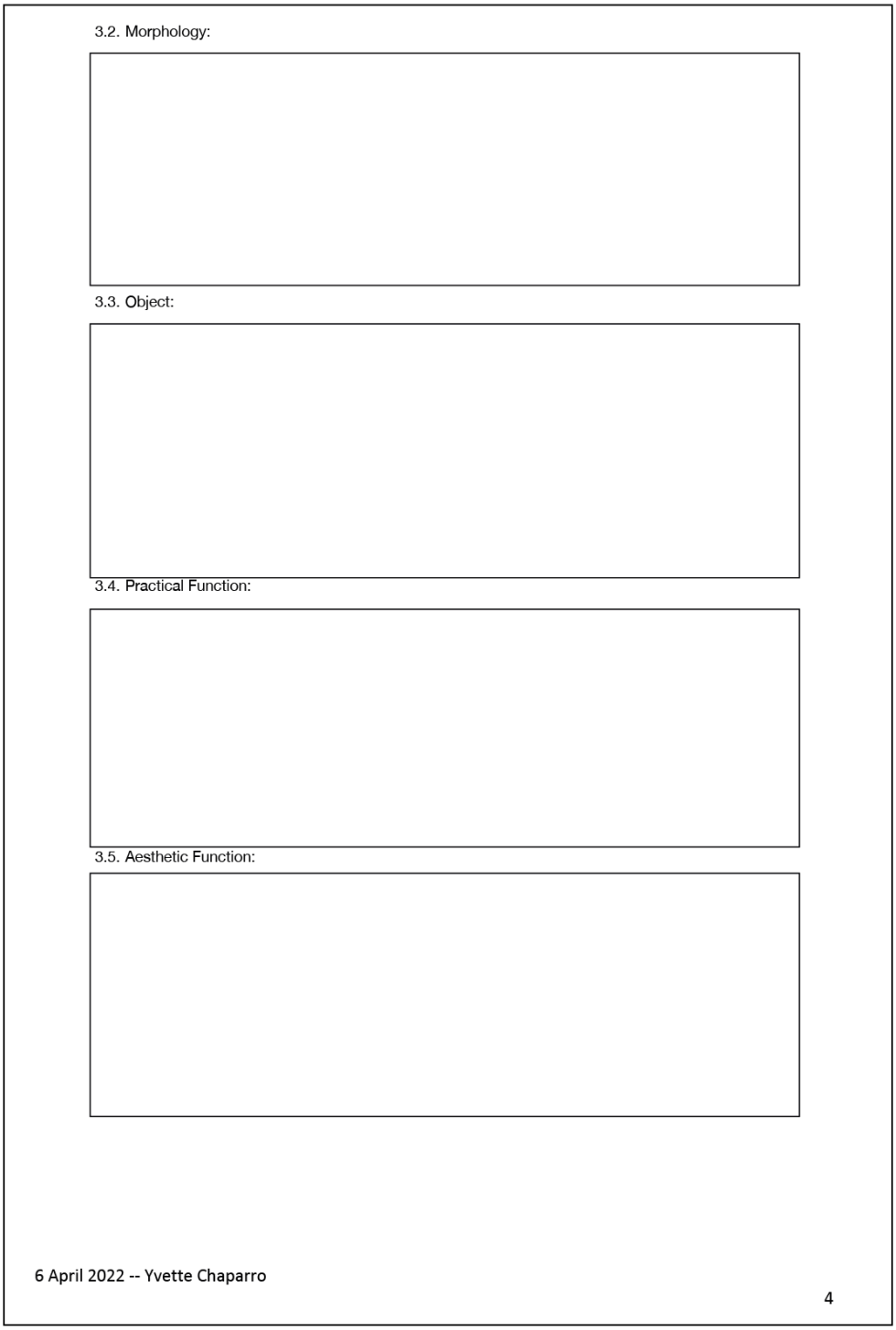
   3.1. Typology:

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3

Figure_Apx. 33:
Chaparro, Y. (2022) Questionnaire. Page 3 [document]

Questionnaire Forms for student participants for workshop. Page 4

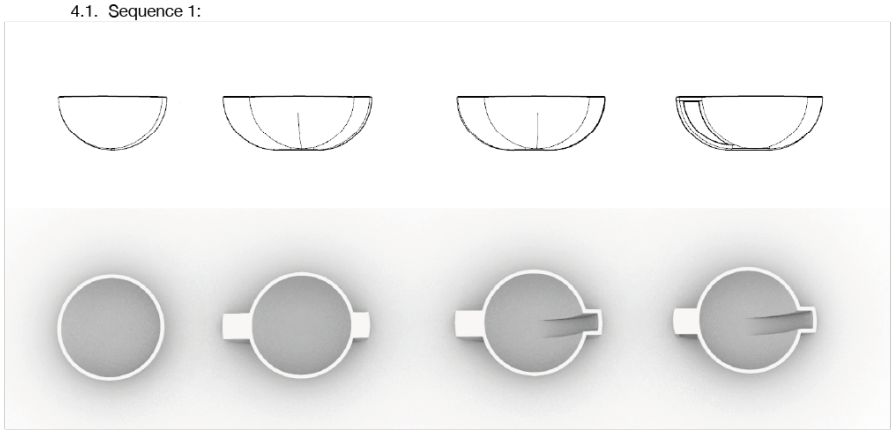



Figure_Apx. 34:
Chaparro, Y. (2022) Questionnaire. Page 4 [document]

3.6. Usability:

4. Look at the following sequences and circle the best description for each image (just one word per image)

4.1. Sequence 1:

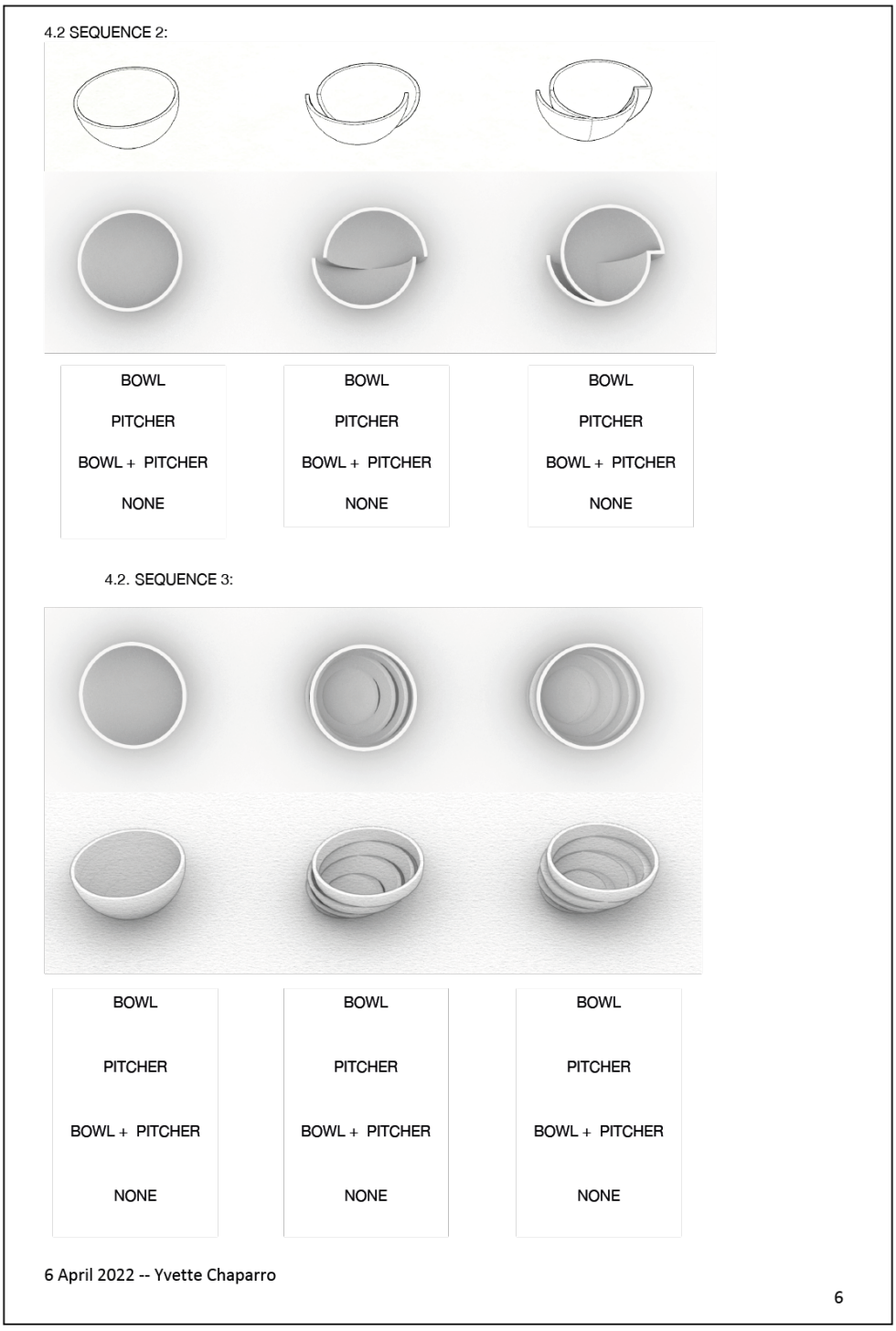


| | | | |
|---|---|---|---|
| BOWL | BOWL | BOWL | BOWL |
| PITCHER | PITCHER | PITCHER | PITCHER |
| BOWL + PITCHER | BOWL + PITCHER | BOWL + PITCHER | BOWL + PITCHER |
| NONE | NONE | NONE | NONE |

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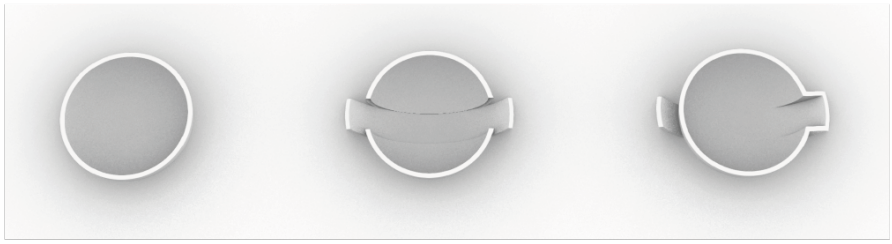
5

Figure_Apx. 35:
Chaparro, Y. (2022) Questionnaire. Page 5 [document]




Figure_Apx. 36:
Chaparro, Y. (2022) Questionnaire. Page 6 [document]

4.3. SEQUENCE 4:





| | | |
|---|---|---|
| BOWL | BOWL | BOWL |
| PITCHER | PITCHER | PITCHER |
| BOWL + PITCHER | BOWL + PITCHER | BOWL + PITCHER |
| NONE | NONE | NONE |

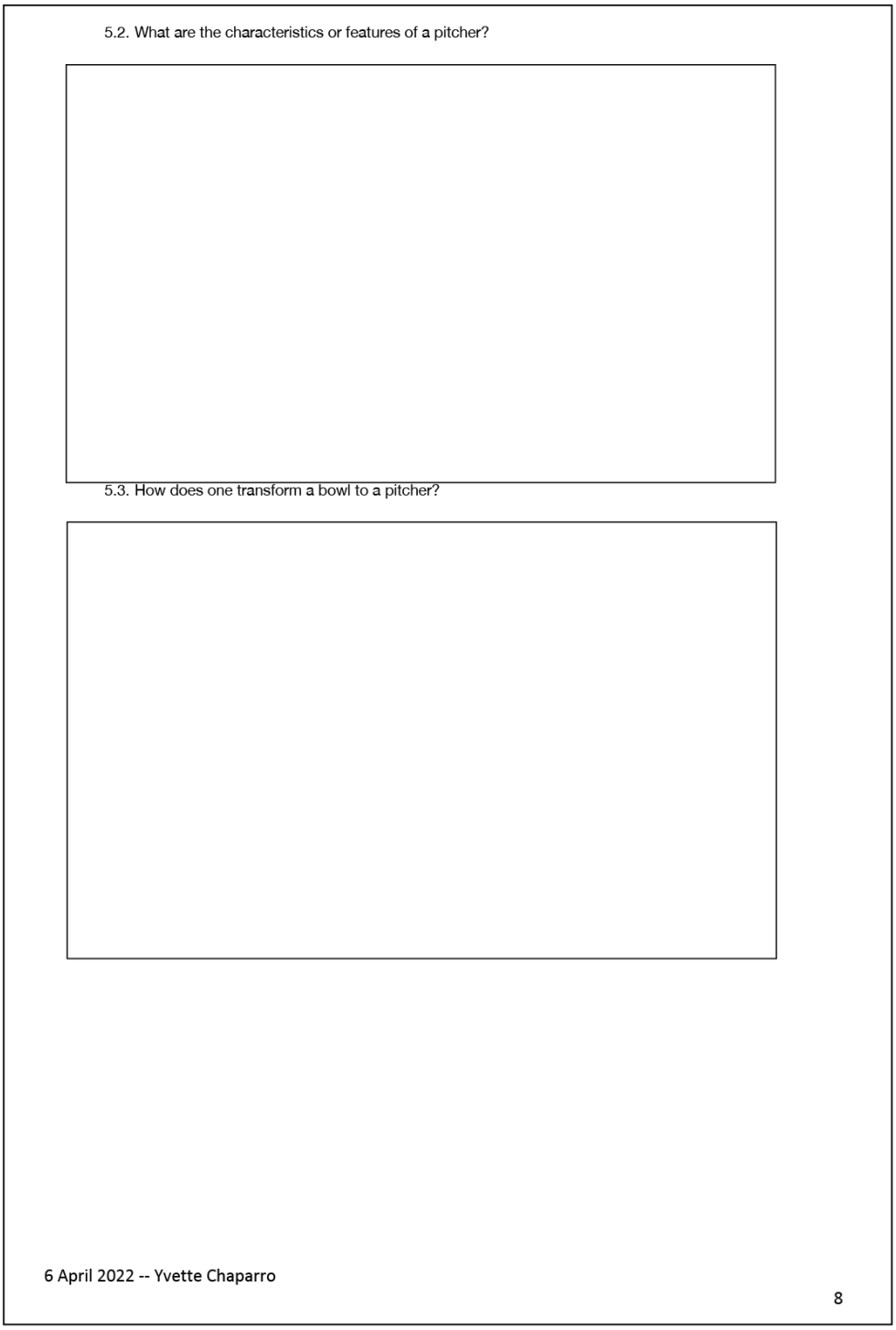
5. Answer the following questions:

5.1. What are the characteristics or features of a bowl?

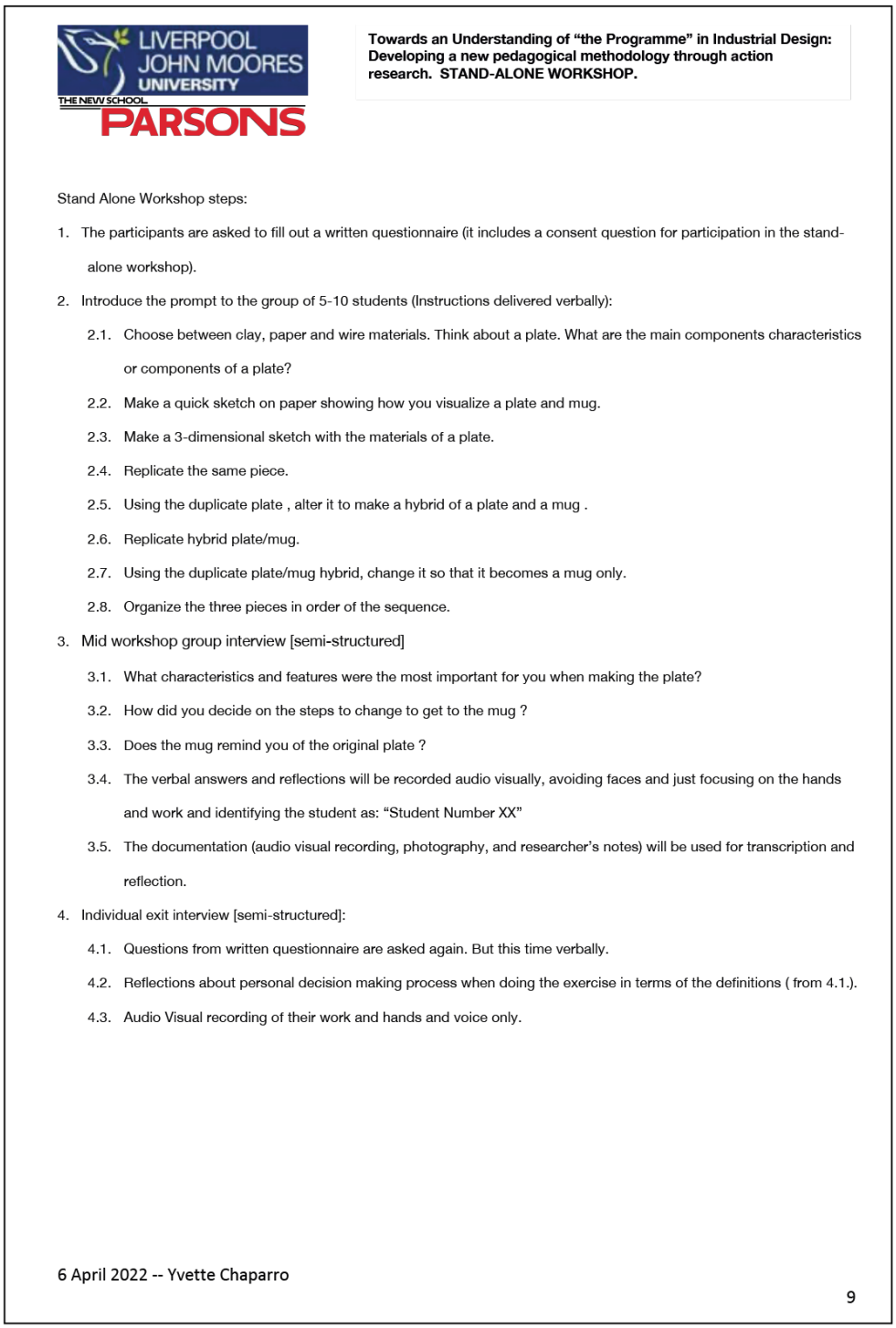
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Figure_Apx. 37:
Chaparro, Y. (2022) Questionnaire. Page 7 [document]




Figure_Apx. 38:
Chaparro, Y. (2022) Questionnaire. Page 8 [document]



**Towards an Understanding of "the Programme" in Industrial Design: Developing a new pedagogical methodology through action research. STAND-ALONE WORKSHOP.**

Stand Alone Workshop steps:

1. The participants are asked to fill out a written questionnaire (it includes a consent question for participation in the stand-alone workshop).
2. Introduce the prompt to the group of 5-10 students (Instructions delivered verbally):
   - 2.1. Choose between clay, paper and wire materials. Think about a plate. What are the main components characteristics or components of a plate?
   - 2.2. Make a quick sketch on paper showing how you visualize a plate and mug.
   - 2.3. Make a 3-dimensional sketch with the materials of a plate.
   - 2.4. Replicate the same piece.
   - 2.5. Using the duplicate plate , alter it to make a hybrid of a plate and a mug .
   - 2.6. Replicate hybrid plate/mug.
   - 2.7. Using the duplicate plate/mug hybrid, change it so that it becomes a mug only.
   - 2.8. Organize the three pieces in order of the sequence.
3. Mid workshop group interview [semi-structured]
   - 3.1. What characteristics and features were the most important for you when making the plate?
   - 3.2. How did you decide on the steps to change to get to the mug ?
   - 3.3. Does the mug remind you of the original plate ?
   - 3.4. The verbal answers and reflections will be recorded audio visually, avoiding faces and just focusing on the hands and work and identifying the student as: "Student Number XX"
   - 3.5. The documentation (audio visual recording, photography, and researcher's notes) will be used for transcription and reflection.
4. Individual exit interview [semi-structured]:
   - 4.1. Questions from written questionnaire are asked again. But this time verbally.
   - 4.2. Reflections about personal decision making process when doing the exercise in terms of the definitions ( from 4.1.).
   - 4.3. Audio Visual recording of their work and hands and voice only.

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Figure_Apx. 39:
Chaparro, Y. (2022) Instructions for Facilitator to Deliver Workshops. Page 9 [document]

## Transcribed Data. Workshop Two.

[The full spreadsheet for Workshop Two can be found here: LINK this link includes all excerpts from Figure_Apx. 40 to Figure_Apx. 44]

The data was collected and transcribed by the Research Assistant Michelle Levy. The participants were students in the department I directed, so they needed to be anonymised so that they felt comfortable participating in the study. The data was tabulated into a spreadsheet since it was important to keep all information organized and readily accessible for its review through Thematic Analysis.

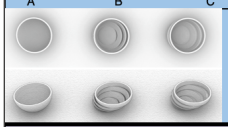
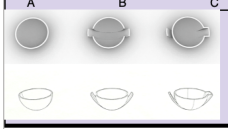
Transcription of participants answers to questionnaire.

| **Workshop** | 2; Spring 2022 | 2; Spring 2022 | 2; Spring 2022 | 2; Spring 2022 |
|---|---|---|---|---|
| **Participant #** | 1 | 2 | 3 | 4 |
| **2 Product/Industrial Design level** | STUDIO 2 MFA | STUDIO 2 MFA | STUDIO 2 MFA | STUDIO 2 MFA |
| **3.1 TYPOLOGY** | Classification of things. | Type + logy; Knowledge of types. How the object would be like in certain situations. | A category in which objects are related by function. The function can be very specific, or broad. For example, for holding objects, serving food, moving, etc... | Language defining characteristics of an object/ design/ artwork. Aesthetic elements form this language. |
| **3.2 MORPHOLOGY** | Understanding and studying of the form of object. | Alike something, or take the spirit/image from. | A category in which objects are related by form. For example, spherical, rectilinear, etc... | Skewing/ morphing/ changing typology wihtout entirely remaking it. |
| **3.3 OBJECT** | The things around us that we can define them through our five senses. | Physical object. A product, an item. | Something that takes up space, or the removal of space. | Non living entity. |
| **3.4 PRACTICAL FUNCTION** | The main and necessary function of objects. We would not be able to define an object without it. | A function that could be work/workable, not the unfunctional prototype which is just an object with an appearance. | Function based on action/activity, such as carrying, moving, lifting, etc... | Most direct use of an object/action. |
| **3.5 AESTHETIC FUNCTION** | The function that is mostly received through observation. | I think this means that a certain object/design has an aesthetic value, its look has been designed (by people or may also be by nature) | Function based on form and emotion, such as flowing, ephemeral, rigid, etc... | Indirect desired outcome that may reflect a form of expression/ emotion/ outward appeal. |
| **3.6 USABILITY** | How great the objects work. | The usable aspect. How the <object/design/product> can be used, and the depth of the range. | How well an object interacts with its intended user. How well is defined by its intended function (aesthetic and/or practical). | Diverse functions, performing certain actions. Fulfilling specific needs. |

Figure_Apx. 40:
Chaparro, Y. (2022) Transcription from Questionnaire [spreadsheet]

Labelling of items in sequence.

Labelling of example sequences by participants. The participants were asked to label each element in the sequences as: bowl, pitcher, both, or none. The research assistant, Michele Levy, tabulated the data into the spreadsheet.

| | | | | |
|---|---|---|---|---|
| **4.1 SEQUENCE 1** | | | | |
| A B C D  | A: BOWL | A: BOWL | A: BOWL | A: BOWL |
| | B: BOWL | B: NONE | B: BOWL | B: BOWL |
| | C: BOWL + PITCHER | C: PITCHER | C: PITCHER | C: BOWL + PITCHER |
| | D: BOWL + PITCHER | D: BOWL + PITCHER | D: PITCHER | D: PITCHER |
| **4.2 SEQUENCE 2** | | | | |
| A B C  | A: BOWL | A: BOWL | A: BOWL | A: BOWL |
| | B: NONE | B: NONE | B: NONE | B: NONE |
| | C: NONE | C: PITCHER | C: BOWL + PITCHER | C: BOWL + PITCHER |
| **4.3 SEQUENCE 3** | | | | |
| A B C  | A: BOWL | A: BOWL + PITCHER | A: BOWL | A: BOWL |
| | B: NONE | B: NONE | B: NONE | B: NONE |
| | C: NONE | C: PITCHER | C: BOWL | C: BOWL |
| **4.4 SEQUENCE 4** | | | | |
| A B C  | A: BOWL | A: BOWL | A: BOWL | A: BOWL |
| | B: NONE | B: NONE | B: NONE | B: NONE |
| | C: BOWL + PITCHER | C: PITCHER | C: PITCHER | C: PITCHER |

Figure_Apx. 41:
Chaparro, Y.(2022) Transcription from Labeling of Artefact Pieces [spreadsheet]

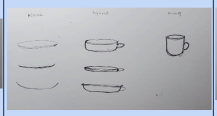
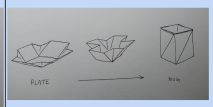
Transcription of answers to questionnaire.

| | | | | |
|---|---|---|---|---|
| **5.1 WHAT ARE THE CHARACTERISTICS OR FEATURES OF A BOWL?** | Hemispheres, having circular element, holding other objects. | Safe and stable to contain the food, especially soup. So it might have to be fully covered around the surface. | A bowl has the function of holding something. It cannot be a bowl if it cannot hold something well, like if it has cracks or holes. | Usually round, elliptical, closed organic shaped mouth tapering smoothly down. Has the ability to hold liquids/food without tipping over. Meant to sit on a surface. Often holds a single size serving of liquid/food. Sometimes larger for mixing/serving purposes. |
| **5.2 WHAT ARE THE CHARACTERISTICS OR FEATURES OF A PITCHER?** | Need handles. Need spouts for pouring. | A function of holding something easy to remove and to fill in. | A pitcher is used primarily to move a liquid from one location to another. If it cannot effectively move liquid to another location, it is not a pitcher. More specifically, the mechanism of moving liquid is pouring. | Container for liquids usually with a handle and mouth for pouring over. |
| **5.3 HOW DOES ONE TRANSFORM A BOWL TO A PITCHER?** | I think the nature of both objects are the same. Both hold the things. But what makes them different is that pitcher is specifically used for pouring. | Different height/depth of containers and with a difference of usability. People have different action using each of them. | The functional differences and aesthetic differences inform this transformation. A bowl needs to have the function to move liquid, and communicate that function, to be considered a pitcher. Therefore, it must be functionally good at pouring and communicate how it will pour to be considered a pitcher. Perhaps one can find a way to pour liquid with a bowl, but if the communication is not immediately clear and requires analysis to figure out, the bowl is not a pitcher. | Extending height to hold more liquid, adding a handle for firmer, stable grip and a mouth for smooth and directed pour. |

Figure_Apx. 42:
(2022) Transcribed Data from Questionnaire About Sequences [spreadsheet]

Transcript of sequence descriptions by participants. Semi-structured interviews.

The participants were asked to make a quick 3D sketch sequence using clay, paper, or metal wire. The prompt was for the sequence to show how to go from a plate to a mug with three artefacts. The participants were asked to describe their decisions while making the sequence.

| **Workshop** | Standalone workshop, April 6, 2022 | Standalone workshop, April 6, 2022 | Standalone workshop, April 6, 2022 | Standalone workshop, April 6, 2022 |
|---|---|---|---|---|
| **Participant #** | 1 | 2 | 3 | 4 |
| **2 Product/Industrial Design level** | STUDIO 2 MFA | STUDIO 2 MFA | STUDIO 2 MFA | STUDIO 2 MFA |
| **2.2 Make a quick sketch on paper showing how you visualize a plate and mug.** |  |  |   |  |
| **2.3- 2.8 Make 3 dimensional sketches working from a plate towards a mug using replication and alteration.** |  |  |  |  |
| **3.1 What characteristics and features were the most important for you when making the plate?** | Circles. | Flat. | A plate is something like a surface, and whatever is being held on a plate– so obviously a plate wants to hold something– want to make sure that object does not touch the ground or the surface the object is supposed to rest on. So its a barrier between the object and whatever its supposed to rest on. But primarily a plate i think of it as holding a solid object, so something not in a liquid form. | It has to sit flat but have an outer rim/slight taper to keep things in. But essentially flat. |
| **3.2 How did you decide on the steps to change to get to the mug?** | Making negative space on the surface of the side view of the plate. Making it taller and adding negative space for a handle. | Thinking of the difference between the two containers, and i think for a mug the height has to be more tall than the plate, and also its more narrow than the plate. | I thought about the function of a mug, the practical function being that it is meant to hold a liquid, like be a barrier between a liquid and a surface. And actually for both a plate and a mug it should be accessible, so if you need to grab the object it is easy to do so. But its a barrier, it doesnt touch whatever surface its supposed to rest on. I thought about how the form, from a plate to a mug, would sort of shift to accomodate from something being a solid to a liquid. | Kind of like I show here [in the pen sketch]- stretching the taper down. I just did a circle because for right now it was the fastest to make but it doesnt necessarily have to be, you can get bowls and plates in different shapes. But basically it should be organic without any sharp edges. |
| **3.3 Does the mug remind you of the original plate?** | Yes, it does. I was thinking about the mug as a part of the plate, like a separated deformed plate, converted to the mug. | Because of the scale, the mug looks more like a teacup. I added a support to the mug to make it more functional, more easy to move on the surface. | I think its because of the way the project/assignment was set up, the transforming, I thought about the whole picture already. I knew the start, i knew the end, and i knew how they would transform. I used origami folding and something opening up or closing in, surfaces getting closer to eachother or farther away. | *[subject realizes they did the exercise wrong and went from plate to bowl instead of plate to mug. RA Michelle asks, Is there something you would change, now that you have this information? Can you show me now how you might change this bowl into a mug?]* I would make it less round, make it go lower, and add a handle. Adding a rim on the bottom also so it doesn't tip over and also doesnt leave a hot mark on the table. |

Figure_Apx. 43:
(2022) Transcribed Data from Semi-Structured Interview [table]

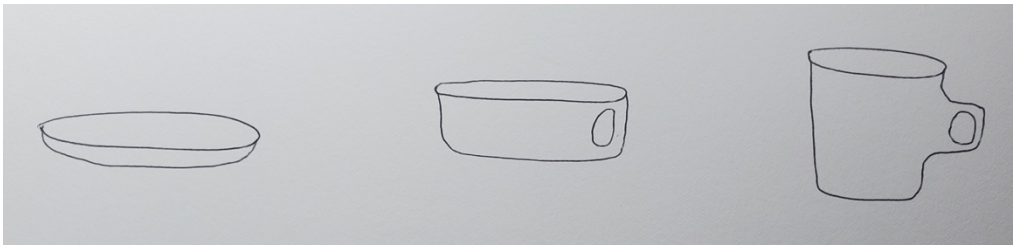
Transcript of oral semi-structured interview of Workshop Two participants, asking about terms from the initial quesitonnaire.

| **4.1 Questions from written questionnaire are asked again, verbally.** | | | | |
|---|---|---|---|---|
| **Typology** | Identification of the form | A certain object or design in a certain situation. | A categorization of objects based on their function, the function being something that is an action, for example holding something. In this project going from a plate to a mug, I was thinking how the function would change, and thats sort of how the typology– because of the function change– the typology would change as well from a plate to a mug. | The aesthetic elements that form the language of design/ an object |
| **Morphology** | Categorizing things | Something has the spirit from something else or a likeness from something else. | Also a categorization of objects, but based on their form. Form then is based on aesthetics and emotions, geometry, how they relate to how something might feel. | How you create forms, either by skewing or remaking. Not entirely changing it. How forms come into being. |
| **Object** | | A physical thing that we can see, touch | Something that takes up space or something that forms a barrier or encapsulates space. It must take up or at least encapsulate space. | Non-living entity. |
| **Usability** | Usability is more like a level, when we talk about if something is usable, its comparing to something else. We cannot talk about if this plate is usable or not when we are considering only this plate. If you have some other plate, i think you can talk about usability. | How can we use a certain object, what kind of use and the range of using it/usage. | Related to both the practical function as well as the aesthetic function, the practical and aesthetic they do relate. But in terms of usability its how an object connects to the intended user and how well in that connection it achieves its function in both the practical and the aesthetic function. | How something is perfoming actions/needs, doing its functions. |
| **Practical Function** | | | The action associated with it, like carrying, lifting, moving. | Most direct use-case |
| **Aesthetic Function** | | | I relate that to form, which I then relate to how the physical geometry of it affects emotion, something makes you excited or at ease or anxious. | Play into emotions, expression |
| **4.2 Reflections about personal decision making process when doing the definitions. *[RA Michelle added: when you were working on this, did you consider ideas of typology, morphology etc or was it more of an organic process?]*** | I was thinking about typology- they are kind of the same type of typology. All of them are considered objects, the function of all of them is holding the things. So i can categorize in the same kind of objects because all of them holding the things. But for mugs specifically, you think about holding the liquid. So if you consider this [the plate] as the mother of the thing, this [the mug] is like the child or the subtype of the thing. | I just really felt it out. I didn't think about how it was gonna be. I think in this case, the aesthetic can add into the function. Normally I think aesthetic and practical are separate. | Yes I did. | I wouldn't say directly, but these are basic things that you keep in mind. Also these are existing forms, so I didn't have to think too much about redesigning the actual morphology or how making the form comes into play, because we are familiar with these forms. |

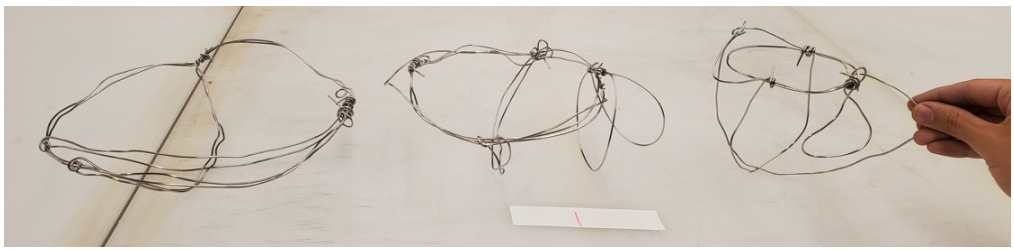
Figure_Apx. 44:
(2022) Transcription of Data from Orally Asked Questions from Questionnaire.[table]

Workshop Two participants were prompted to develop a 2D drawn sketch and a 3D sequence from a candle holder to a lamp using sketch materials. Research Assistant Michelle Levy documented the sequences.

Images of sequence by Participant 1.

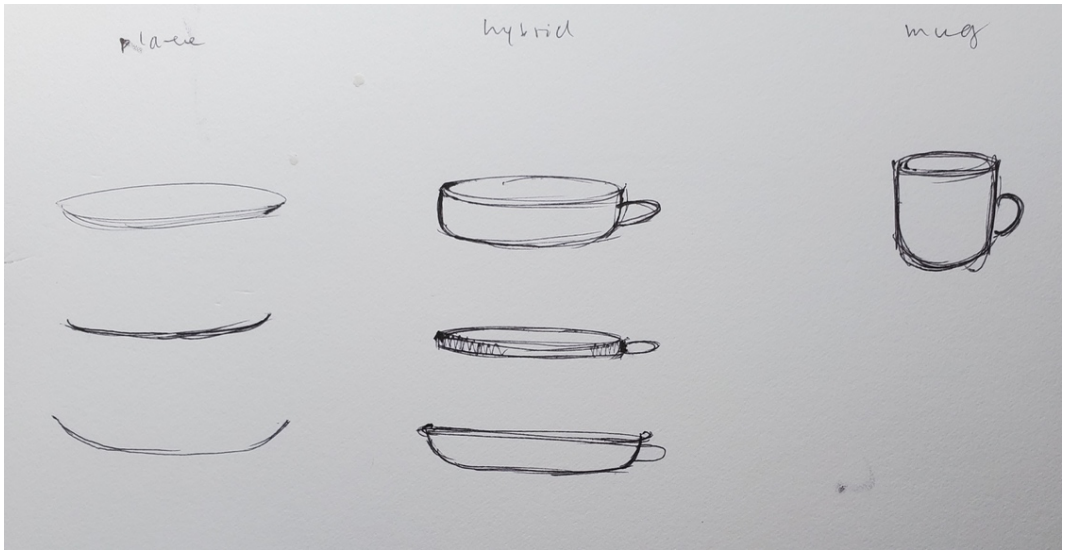


Figure_Apx. 45:
(2022) 2D Sketch of Sequence. Workshop Two – Participant 1. [photo] Photo credit: Michelle Levy.



Figure_Apx. 46:
(2022) 3D Sketch of Sequence. Workshop Two – Participant 1. [photo] Photo credit: Michelle Levy.

Images of sequence by Participant 2.

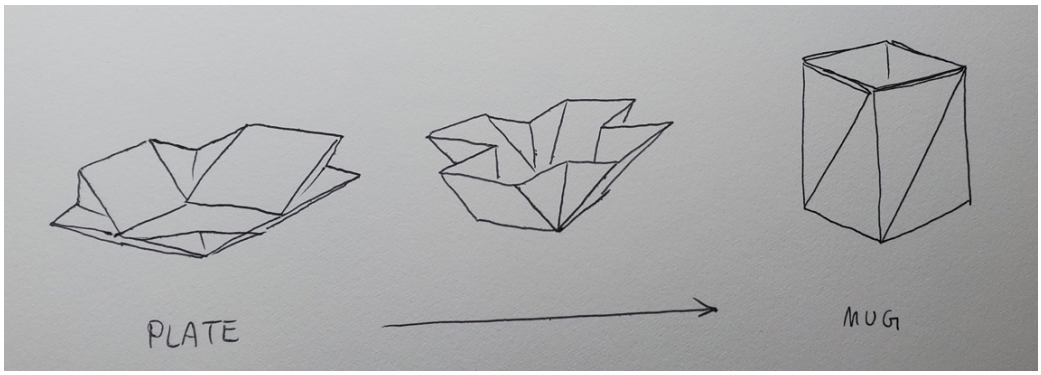



Figure_Apx. 47:
(2022) 2D Sketch of Sequence. Workshop Two – Participant 2. [photo] Photo credit: Michelle Levy.

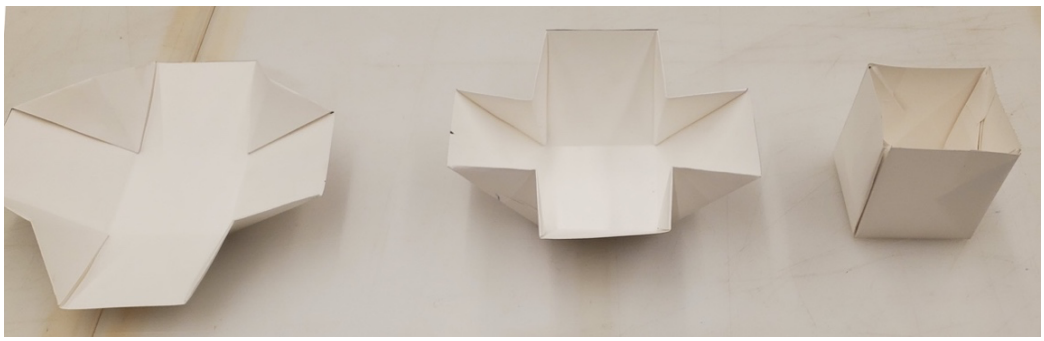


Figure_Apx. 48:
(2022) 3D Sketch of Sequence. Workshop Two – Participant 2. [photo] Photo credit: Michelle Levy.

Images of sequence by Participant 3.

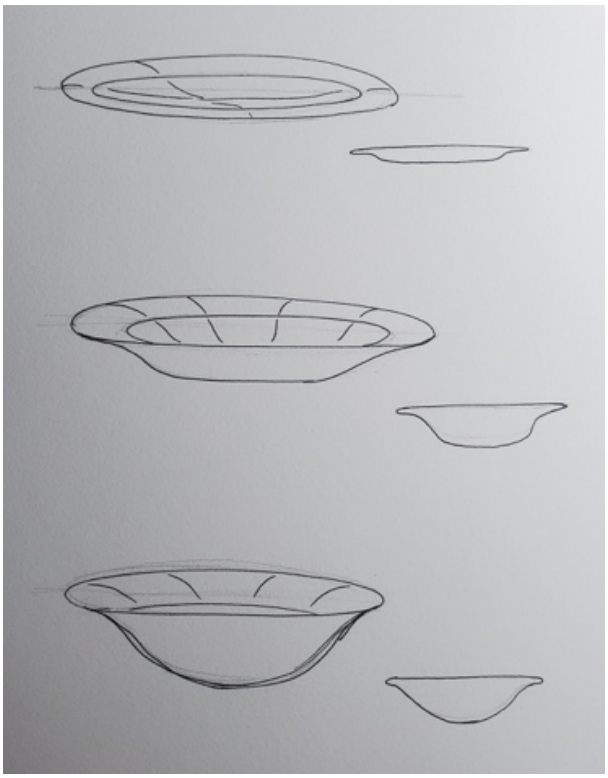



Figure_Apx. 49:
(2022) 2D Sketch of Sequence. Workshop Two – Participant 3. [photo] Photo credit: Michelle Levy.



Figure_Apx. 50:
(2022) 3D Sketch of Sequence. Workshop Two – Participant 3. [photo] Photo credit: Michelle Levy.

Images of sequence by Participant 4.



Figure_Apx. 51:
(2022) 2D Sketch of Sequence. Workshop Two – Participant 4. [photo] Photo credit: Michelle Levy.



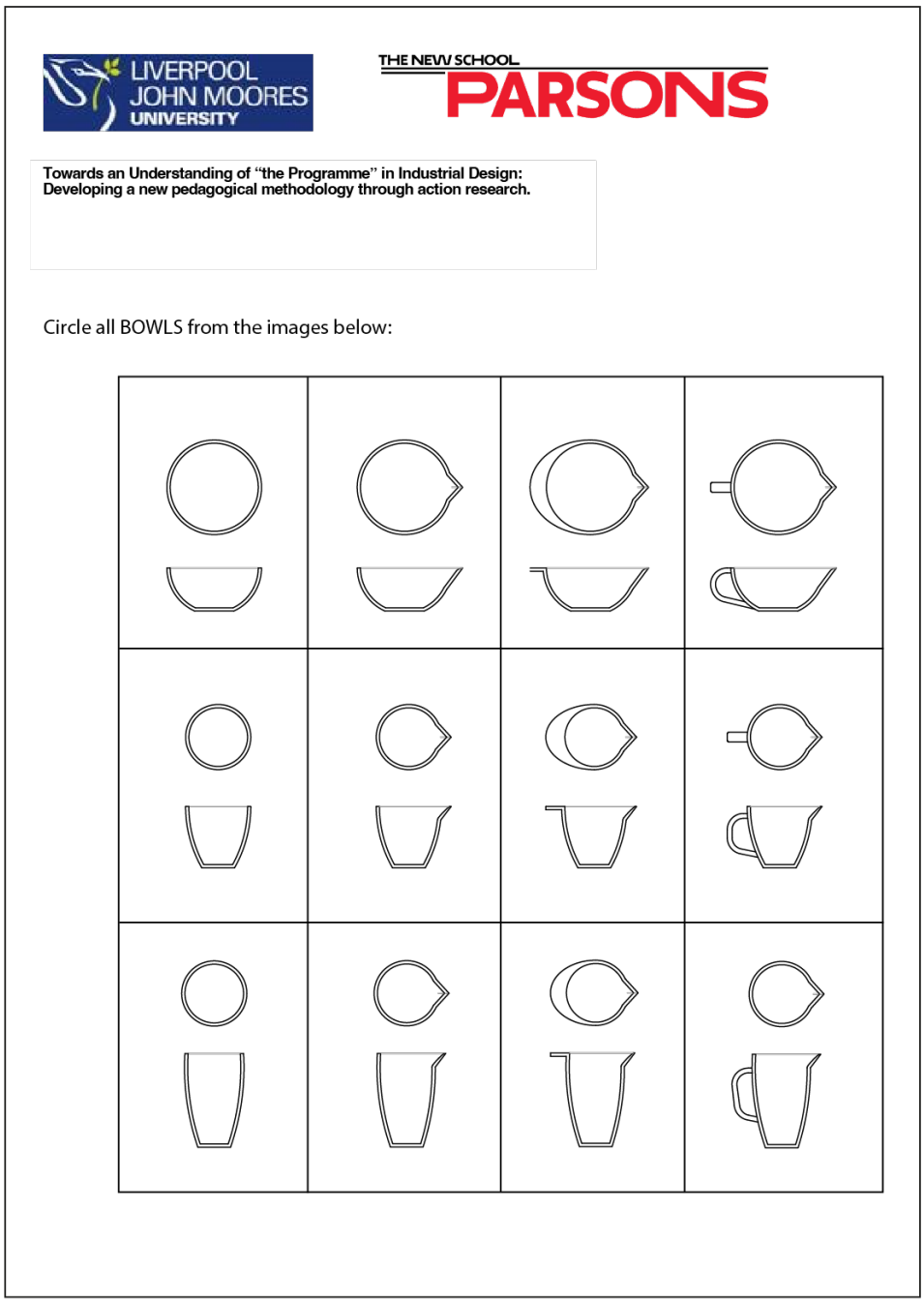
Figure_Apx. 52:
(2022) 3D Sketch of Sequence. Workshop Two – Participant 4. [photo] Photo credit: Michelle Levy.

## Workshop Three

[3 October 2022]

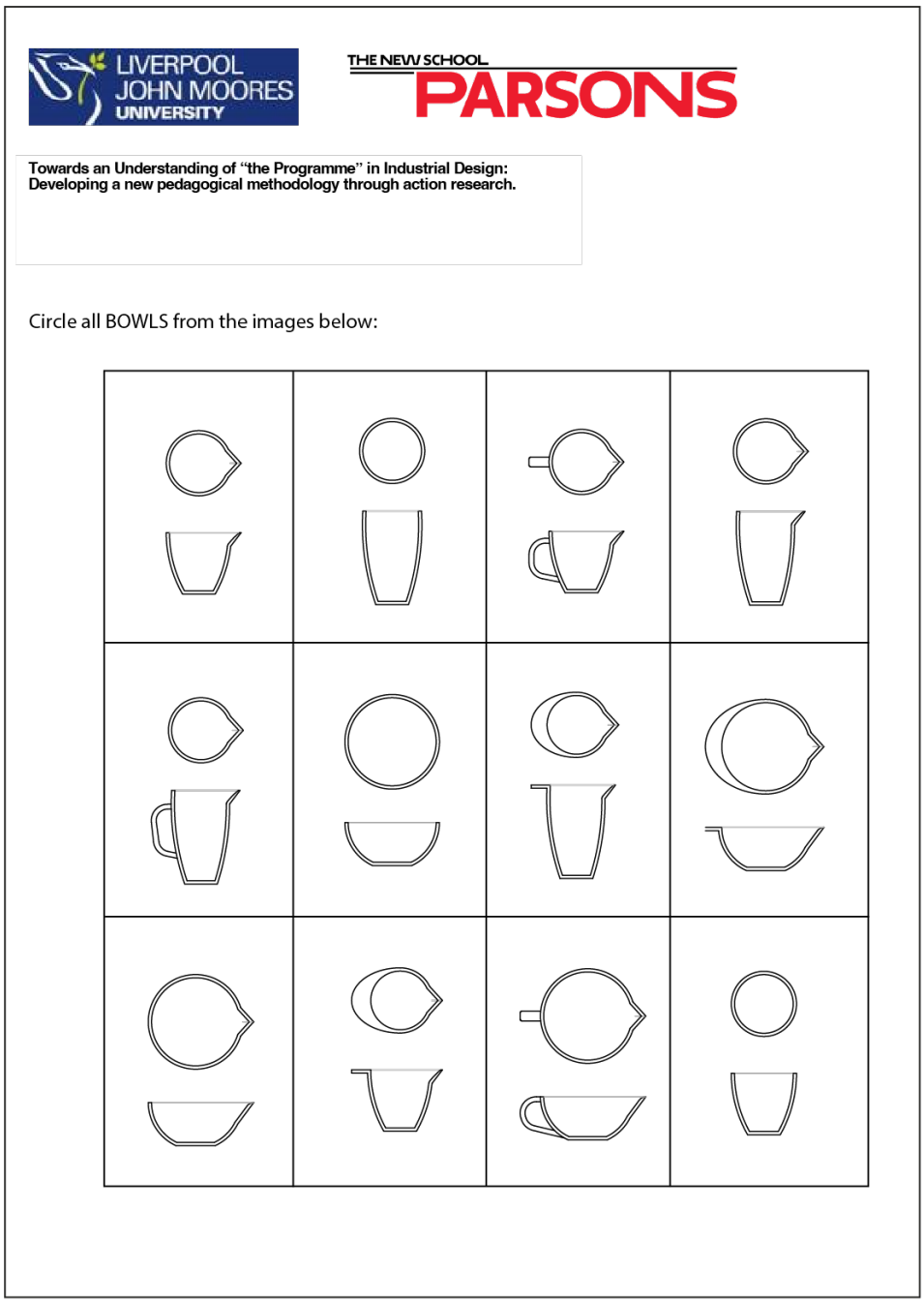
### Documents given to participants. Workshop Three.

Participants were asked to select bowls out of a grid with sequences going from a bowl to a pitcher.



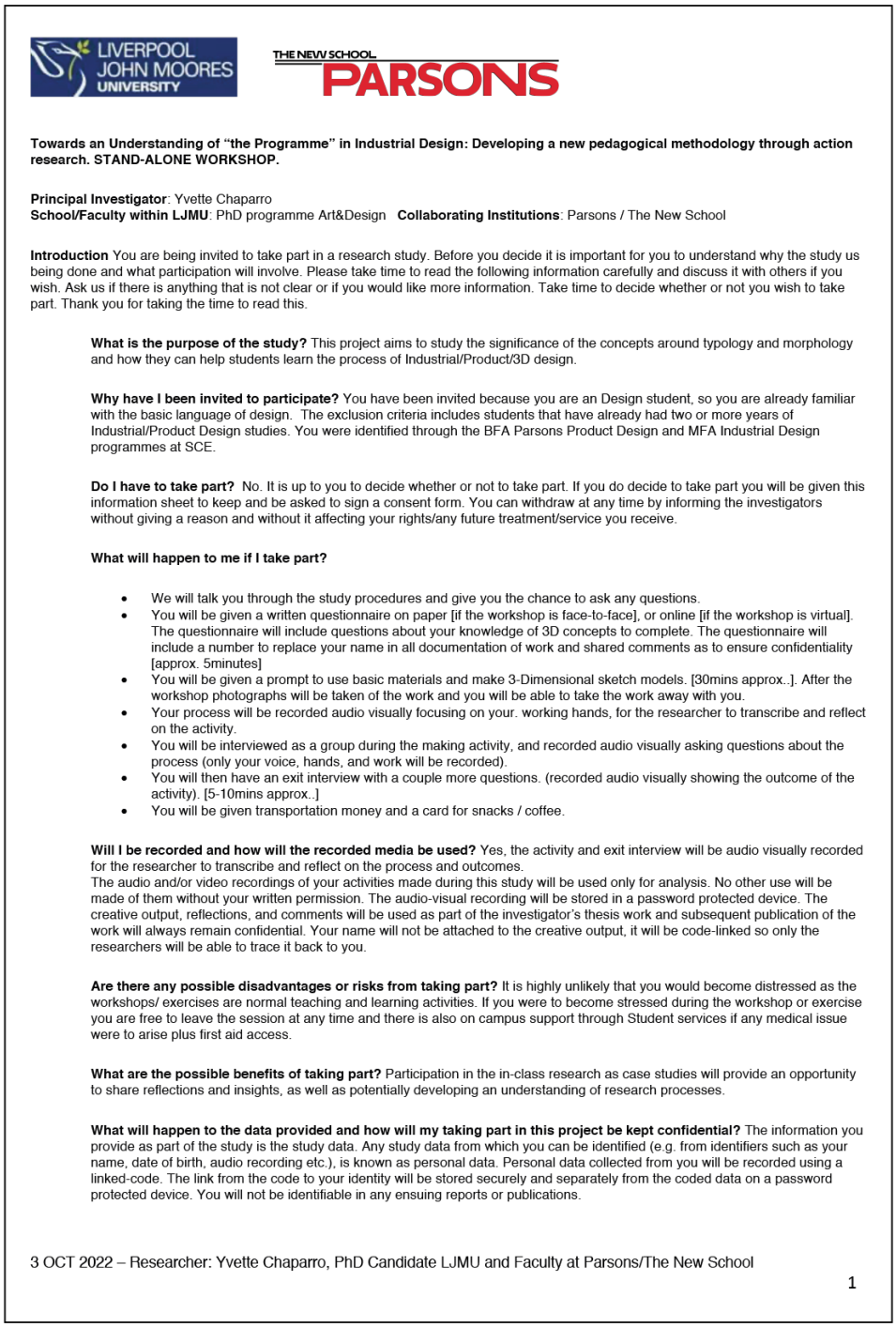

Figure_Apx. 53:
Chaparro, Y. (2022) Grid for Selection of Bowls. Organized Sequences [document]

Participants were asked to select bowls out of a grid with sequences going from a bowl to a pitcher.




Figure_Apx. 54:
Chaparro, Y. (2022) Grid for Selection of Bowls. Disorganized Sequences [document]

Consent form for participants for workshop. Page 1



**Towards an Understanding of "the Programme" in Industrial Design: Developing a new pedagogical methodology through action research. STAND-ALONE WORKSHOP.**

**Principal Investigator**: Yvette Chaparro
**School/Faculty within LJMU**: PhD programme Art&Design **Collaborating Institutions**: Parsons / The New School

**Introduction** You are being invited to take part in a research study. Before you decide it is important for you to understand why the study us being done and what participation will involve. Please take time to read the following information carefully and discuss it with others if you wish. Ask us if there is anything that is not clear or if you would like more information. Take time to decide whether or not you wish to take part. Thank you for taking the time to read this.

**What is the purpose of the study?** This project aims to study the significance of the concepts around typology and morphology and how they can help students learn the process of Industrial/Product/3D design.

**Why have I been invited to participate?** You have been invited because you are an Design student, so you are already familiar with the basic language of design. The exclusion criteria includes students that have already had two or more years of Industrial/Product Design studies. You were identified through the BFA Parsons Product Design and MFA Industrial Design programmes at SCE.

**Do I have to take part?** No. It is up to you to decide whether or not to take part. If you do decide to take part you will be given this information sheet to keep and be asked to sign a consent form. You can withdraw at any time by informing the investigators without giving a reason and without it affecting your rights/any future treatment/service you receive.

**What will happen to me if I take part?**

- We will talk you through the study procedures and give you the chance to ask any questions.
- You will be given a written questionnaire on paper [if the workshop is face-to-face], or online [if the workshop is virtual]. The questionnaire will include questions about your knowledge of 3D concepts to complete. The questionnaire will include a number to replace your name in all documentation of work and shared comments as to ensure confidentiality [approx. 5minutes]
- You will be given a prompt to use basic materials and make 3-Dimensional sketch models. [30mins approx..]. After the workshop photographs will be taken of the work and you will be able to take the work away with you.
- Your process will be recorded audio visually focusing on your. working hands, for the researcher to transcribe and reflect on the activity.
- You will be interviewed as a group during the making activity, and recorded audio visually asking questions about the process (only your voice, hands, and work will be recorded).
- You will then have an exit interview with a couple more questions. (recorded audio visually showing the outcome of the activity). [5-10mins approx..]
- You will be given transportation money and a card for snacks / coffee.

**Will I be recorded and how will the recorded media be used?** Yes, the activity and exit interview will be audio visually recorded for the researcher to transcribe and reflect on the process and outcomes.
The audio and/or video recordings of your activities made during this study will be used only for analysis. No other use will be made of them without your written permission. The audio-visual recording will be stored in a password protected device. The creative output, reflections, and comments will be used as part of the investigator's thesis work and subsequent publication of the work will always remain confidential. Your name will not be attached to the creative output, it will be code-linked so only the researchers will be able to trace it back to you.

**Are there any possible disadvantages or risks from taking part?** It is highly unlikely that you would become distressed as the workshops/ exercises are normal teaching and learning activities. If you were to become stressed during the workshop or exercise you are free to leave the session at any time and there is also on campus support through Student services if any medical issue were to arise plus first aid access.

**What are the possible benefits of taking part?** Participation in the in-class research as case studies will provide an opportunity to share reflections and insights, as well as potentially developing an understanding of research processes.

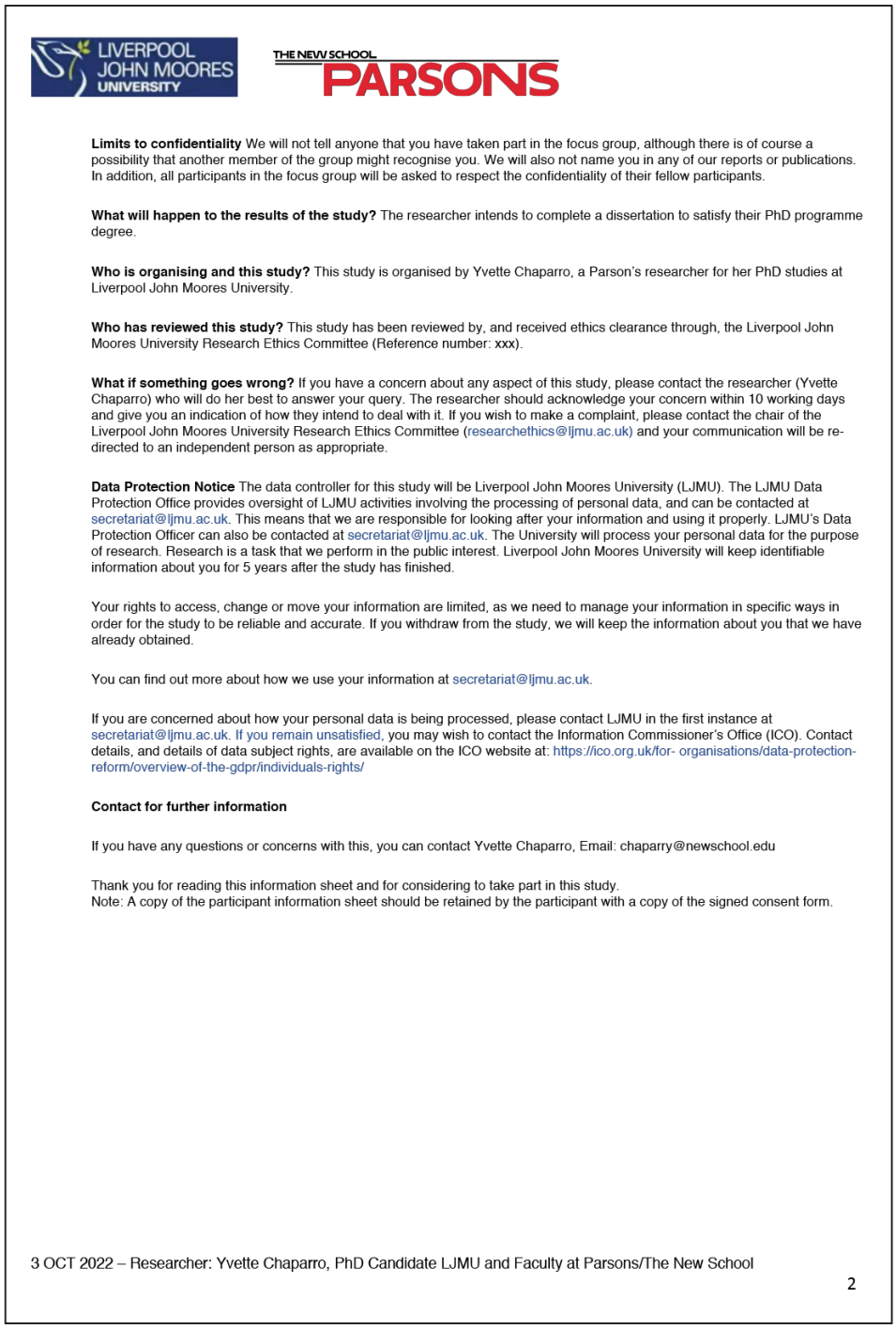
**What will happen to the data provided and how will my taking part in this project be kept confidential?** The information you provide as part of the study is the study data. Any study data from which you can be identified (e.g. from identifiers such as your name, date of birth, audio recording etc.), is known as personal data. Personal data collected from you will be recorded using a linked-code. The link from the code to your identity will be stored securely and separately from the coded data on a password protected device. You will not be identifiable in any ensuing reports or publications.

3 OCT 2022 – Researcher: Yvette Chaparro, PhD Candidate LJMU and Faculty at Parsons/The New School

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Figure_Apx. 55:
Chaparro, Y. (2022) Consent Form for Participants. Page 1 [document]

Consent form for participants for workshop. Page 2.



**Limits to confidentiality** We will not tell anyone that you have taken part in the focus group, although there is of course a possibility that another member of the group might recognise you. We will also not name you in any of our reports or publications. In addition, all participants in the focus group will be asked to respect the confidentiality of their fellow participants.

**What will happen to the results of the study?** The researcher intends to complete a dissertation to satisfy their PhD programme degree.

**Who is organising and this study?** This study is organised by Yvette Chaparro, a Parson's researcher for her PhD studies at Liverpool John Moores University.

**Who has reviewed this study?** This study has been reviewed by, and received ethics clearance through, the Liverpool John Moores University Research Ethics Committee (Reference number: xxx).

**What if something goes wrong?** If you have a concern about any aspect of this study, please contact the researcher (Yvette Chaparro) who will do her best to answer your query. The researcher should acknowledge your concern within 10 working days and give you an indication of how they intend to deal with it. If you wish to make a complaint, please contact the chair of the Liverpool John Moores University Research Ethics Committee (researchethics@ljmu.ac.uk) and your communication will be re-directed to an independent person as appropriate.

**Data Protection Notice** The data controller for this study will be Liverpool John Moores University (LJMU). The LJMU Data Protection Office provides oversight of LJMU activities involving the processing of personal data, and can be contacted at secretariat@ljmu.ac.uk. This means that we are responsible for looking after your information and using it properly. LJMU's Data Protection Officer can also be contacted at secretariat@ljmu.ac.uk. The University will process your personal data for the purpose of research. Research is a task that we perform in the public interest. Liverpool John Moores University will keep identifiable information about you for 5 years after the study has finished.

Your rights to access, change or move your information are limited, as we need to manage your information in specific ways in order for the study to be reliable and accurate. If you withdraw from the study, we will keep the information about you that we have already obtained.

You can find out more about how we use your information at secretariat@ljmu.ac.uk.

If you are concerned about how your personal data is being processed, please contact LJMU in the first instance at secretariat@ljmu.ac.uk. If you remain unsatisfied, you may wish to contact the Information Commissioner's Office (ICO). Contact details, and details of data subject rights, are available on the ICO website at: https://ico.org.uk/for- organisations/data-protection-reform/overview-of-the-gdpr/individuals-rights/

**Contact for further information**

If you have any questions or concerns with this, you can contact Yvette Chaparro, Email: chaparry@newschool.edu

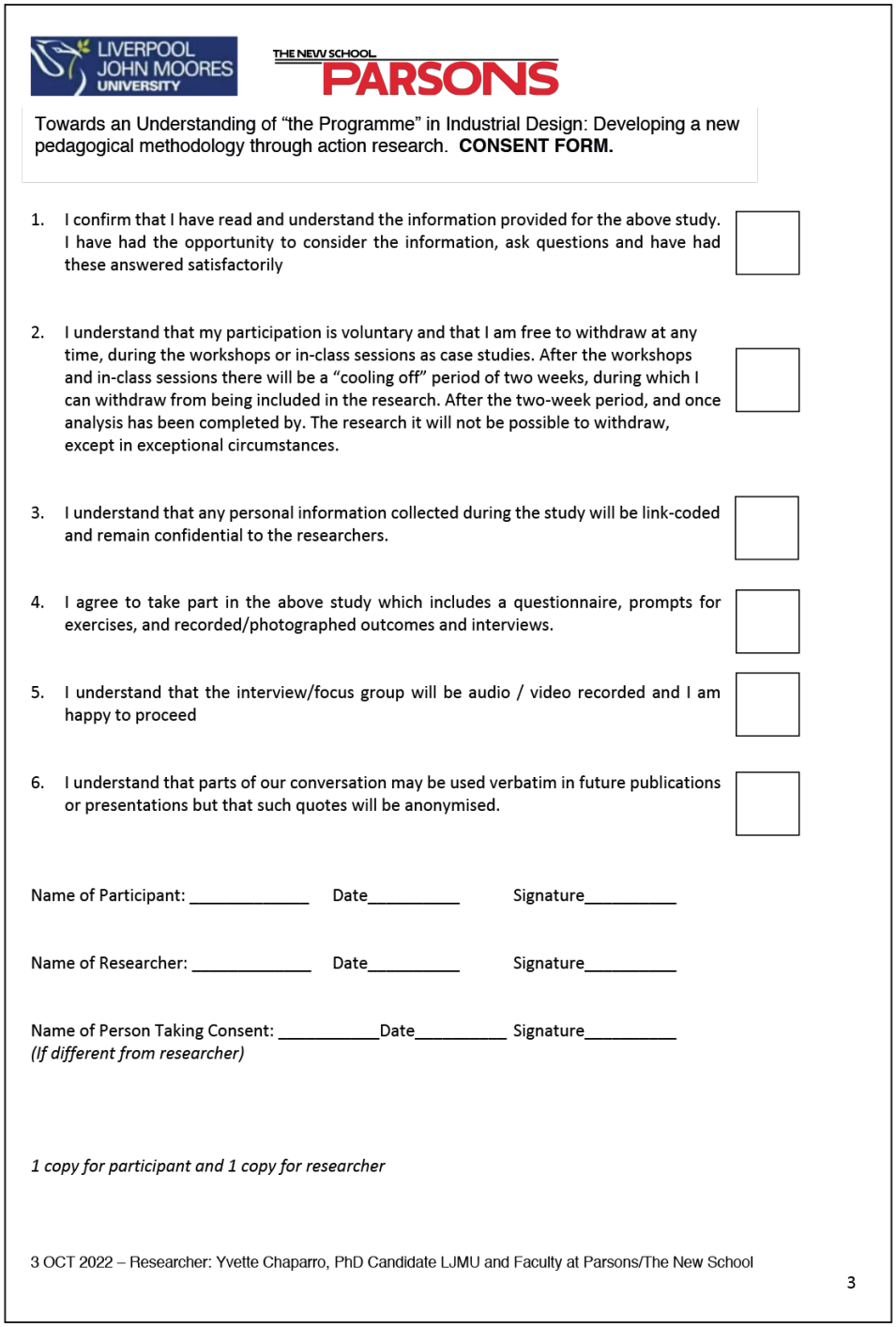
Thank you for reading this information sheet and for considering to take part in this study.
Note: A copy of the participant information sheet should be retained by the participant with a copy of the signed consent form.

3 OCT 2022 – Researcher: Yvette Chaparro, PhD Candidate LJMU and Faculty at Parsons/The New School

2

Figure_Apx. 56:
Chaparro, Y. (2022) Consent Form for Participants. Page 2 [document]

Consent form for participants for workshop. Page 3.



LIVERPOOL JOHN MOORES UNIVERSITY

THE NEW SCHOOL PARSONS

Towards an Understanding of "the Programme" in Industrial Design: Developing a new pedagogical methodology through action research. **CONSENT FORM.**

1. I confirm that I have read and understand the information provided for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily ☐

2. I understand that my participation is voluntary and that I am free to withdraw at any time, during the workshops or in-class sessions as case studies. After the workshops and in-class sessions there will be a "cooling off" period of two weeks, during which I can withdraw from being included in the research. After the two-week period, and once analysis has been completed by. The research it will not be possible to withdraw, except in exceptional circumstances. ☐

3. I understand that any personal information collected during the study will be link-coded and remain confidential to the researchers. ☐

4. I agree to take part in the above study which includes a questionnaire, prompts for exercises, and recorded/photographed outcomes and interviews. ☐

5. I understand that the interview/focus group will be audio / video recorded and I am happy to proceed ☐

6. I understand that parts of our conversation may be used verbatim in future publications or presentations but that such quotes will be anonymised. ☐

Name of Participant: _____ Date_____ Signature_____

Name of Researcher: _____ Date_____ Signature_____

Name of Person Taking Consent: _____Date_____ Signature_____
*(If different from researcher)*

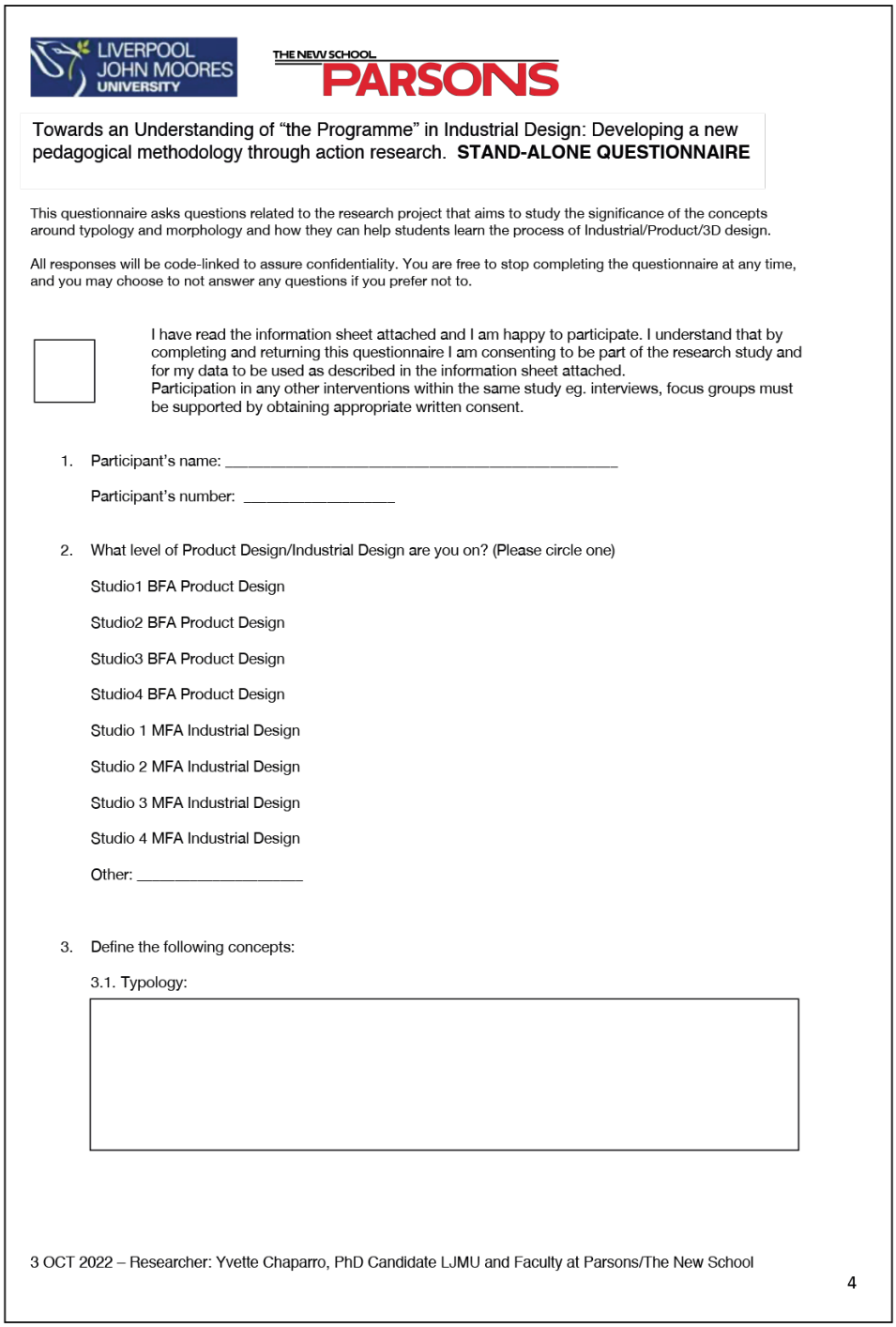
*1 copy for participant and 1 copy for researcher*

3 OCT 2022 – Researcher: Yvette Chaparro, PhD Candidate LJMU and Faculty at Parsons/The New School

3

Figure_Apx. 57:
Chaparro, Y. (2022) Consent Form for Participants. Page 3 [document]

Questionnaire Forms for participants for workshop. Page 4.



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Towards an Understanding of "the Programme" in Industrial Design: Developing a new pedagogical methodology through action research. **STAND-ALONE QUESTIONNAIRE**

This questionnaire asks questions related to the research project that aims to study the significance of the concepts around typology and morphology and how they can help students learn the process of Industrial/Product/3D design.

All responses will be code-linked to assure confidentiality. You are free to stop completing the questionnaire at any time, and you may choose to not answer any questions if you prefer not to.

☐ I have read the information sheet attached and I am happy to participate. I understand that by completing and returning this questionnaire I am consenting to be part of the research study and for my data to be used as described in the information sheet attached.
Participation in any other interventions within the same study eg. interviews, focus groups must be supported by obtaining appropriate written consent.

1. Participant's name: _____

   Participant's number: _____

2. What level of Product Design/Industrial Design are you on? (Please circle one)

   Studio1 BFA Product Design

   Studio2 BFA Product Design

   Studio3 BFA Product Design

   Studio4 BFA Product Design

   Studio 1 MFA Industrial Design

   Studio 2 MFA Industrial Design

   Studio 3 MFA Industrial Design

   Studio 4 MFA Industrial Design

   Other: _____

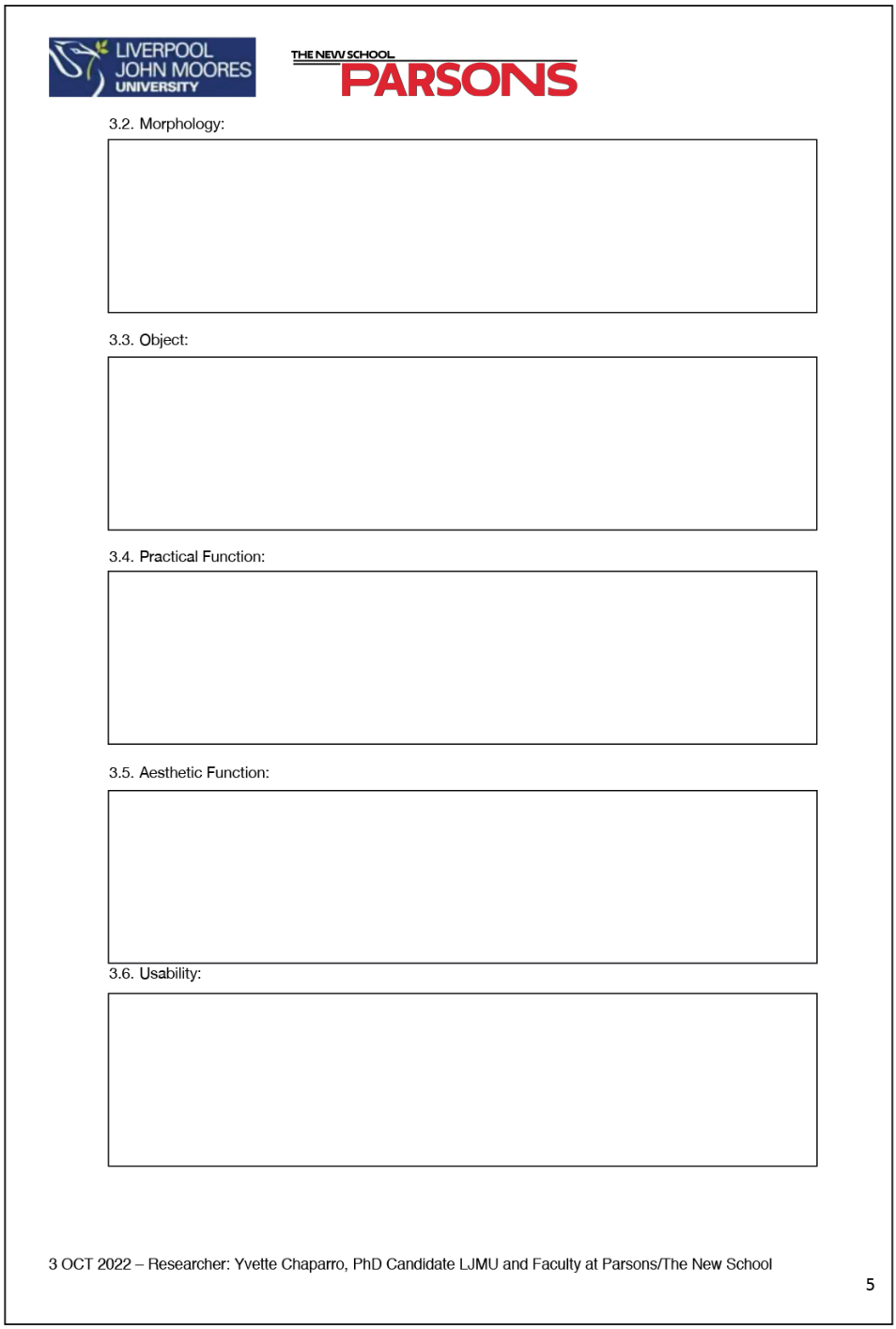
3. Define the following concepts:

   3.1. Typology:

3 OCT 2022 – Researcher: Yvette Chaparro, PhD Candidate LJMU and Faculty at Parsons/The New School

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Figure_Apx. 58:
Chaparro, Y. (2022) Questionnaire Form for Participants. Page 4 [document]



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3.2. Morphology:

3.3. Object:

3.4. Practical Function:

3.5. Aesthetic Function:

3.6. Usability:

3 OCT 2022 – Researcher: Yvette Chaparro, PhD Candidate LJMU and Faculty at Parsons/The New School

5

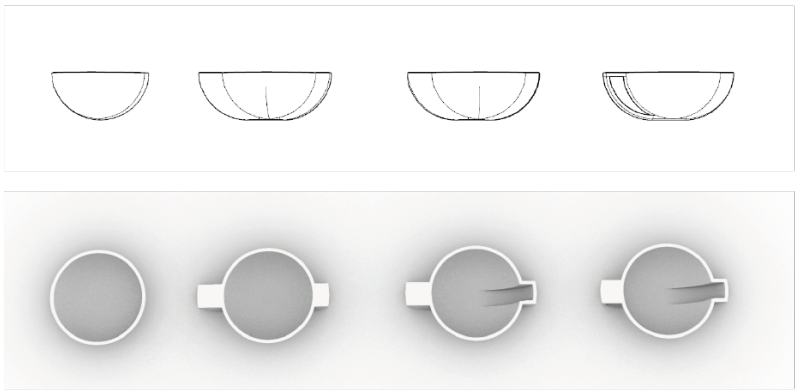
Figure_Apx. 59:
Chaparro, Y. (2022) Questionnaire Form for Participants. Page 5 [document]

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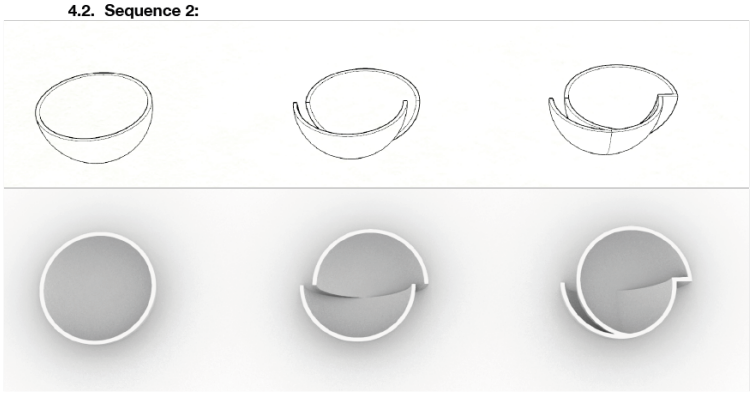
4. Look at the following sequences and circle the best description for each image (just one word per image)

**4.1. Sequence 1:**



| | | | |
|---|---|---|---|
| BOWL | BOWL | BOWL | BOWL |
| PITCHER | PITCHER | PITCHER | PITCHER |
| BOWL + PITCHER | BOWL + PITCHER | BOWL + PITCHER | BOWL + PITCHER |
| NONE | NONE | NONE | NONE |

**4.2. Sequence 2:**

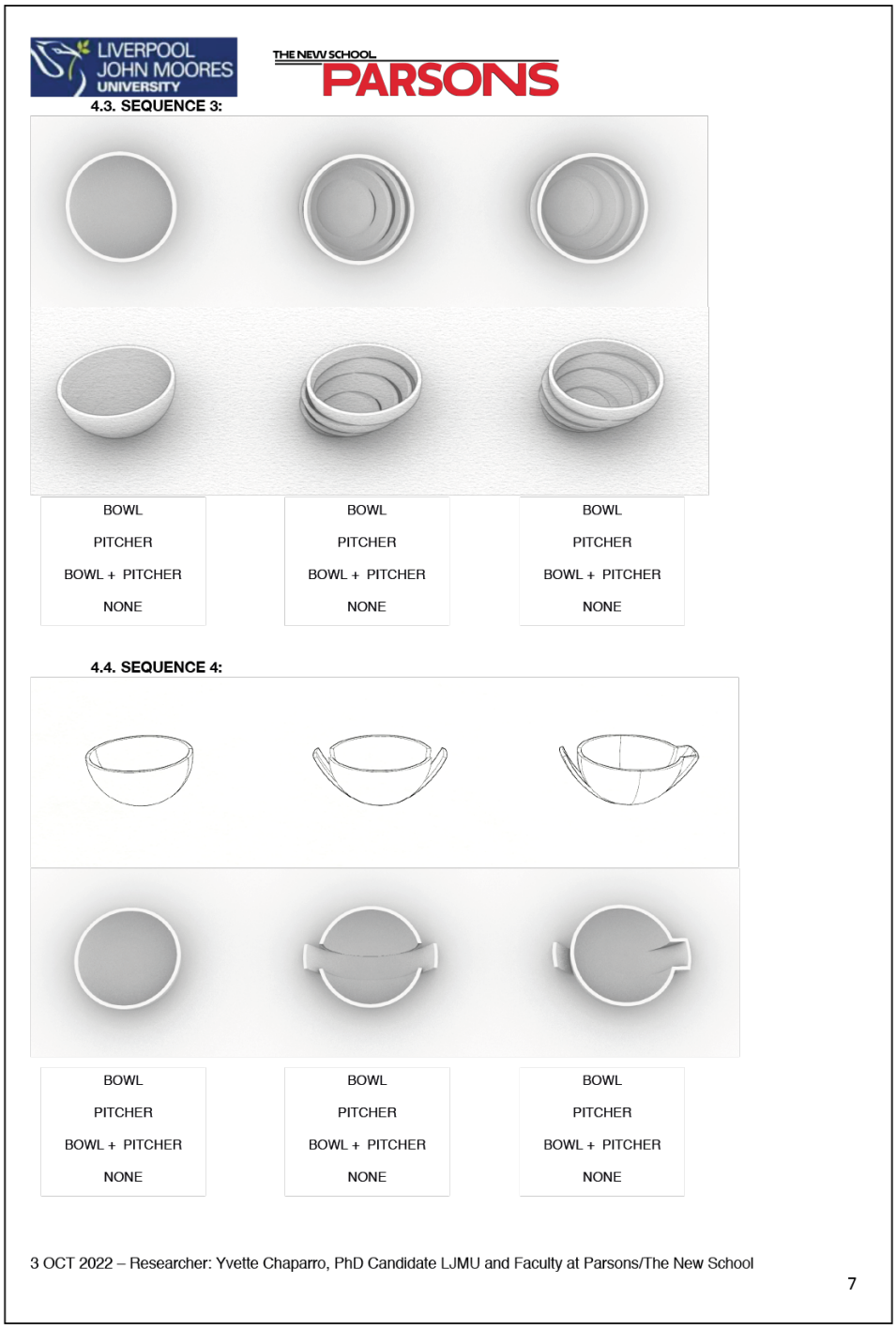


| | | |
|---|---|---|
| BOWL | BOWL | BOWL |
| PITCHER | PITCHER | PITCHER |
| BOWL + PITCHER | BOWL + PITCHER | BOWL + PITCHER |
| NONE | NONE | NONE |

3 OCT 2022 – Researcher: Yvette Chaparro, PhD Candidate LJMU and Faculty at Parsons/The New School

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Figure_Apx. 60:
Chaparro, Y. (2022) Questionnaire Form for Participants. Page 6 [document]



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**4.3. SEQUENCE 3:**

| | | |
|---|---|---|
| BOWL | BOWL | BOWL |
| PITCHER | PITCHER | PITCHER |
| BOWL + PITCHER | BOWL + PITCHER | BOWL + PITCHER |
| NONE | NONE | NONE |

**4.4. SEQUENCE 4:**

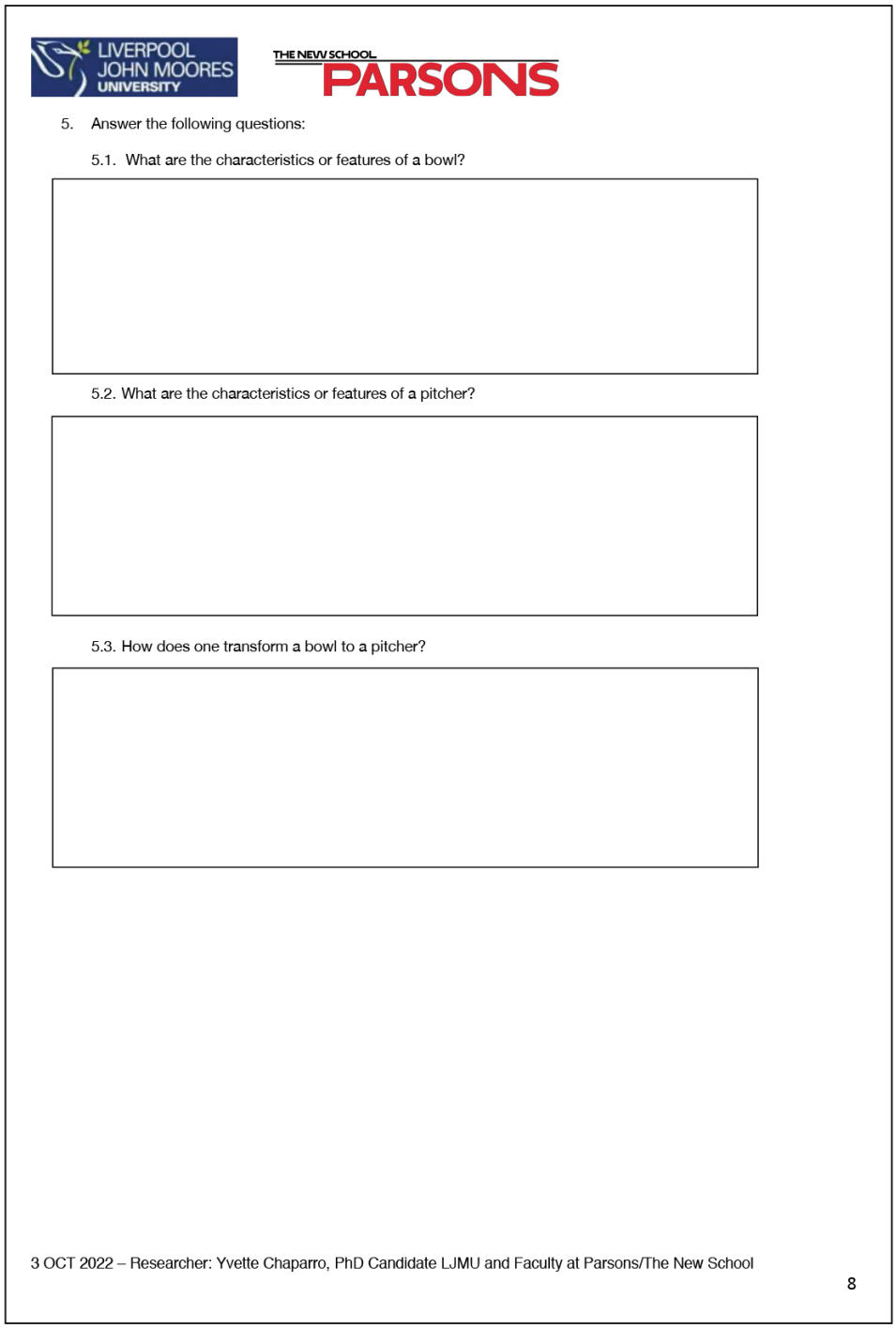
| | | |
|---|---|---|
| BOWL | BOWL | BOWL |
| PITCHER | PITCHER | PITCHER |
| BOWL + PITCHER | BOWL + PITCHER | BOWL + PITCHER |
| NONE | NONE | NONE |

3 OCT 2022 – Researcher: Yvette Chaparro, PhD Candidate LJMU and Faculty at Parsons/The New School

7

Figure_Apx. 61:
Chaparro, Y. (2022) Questionnaire Form for Participants. Page 7 [document]

Questionnaire Forms for participants for workshop. Page 8



LIVERPOOL JOHN MOORES UNIVERSITY

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5. Answer the following questions:

5.1. What are the characteristics or features of a bowl?

5.2. What are the characteristics or features of a pitcher?

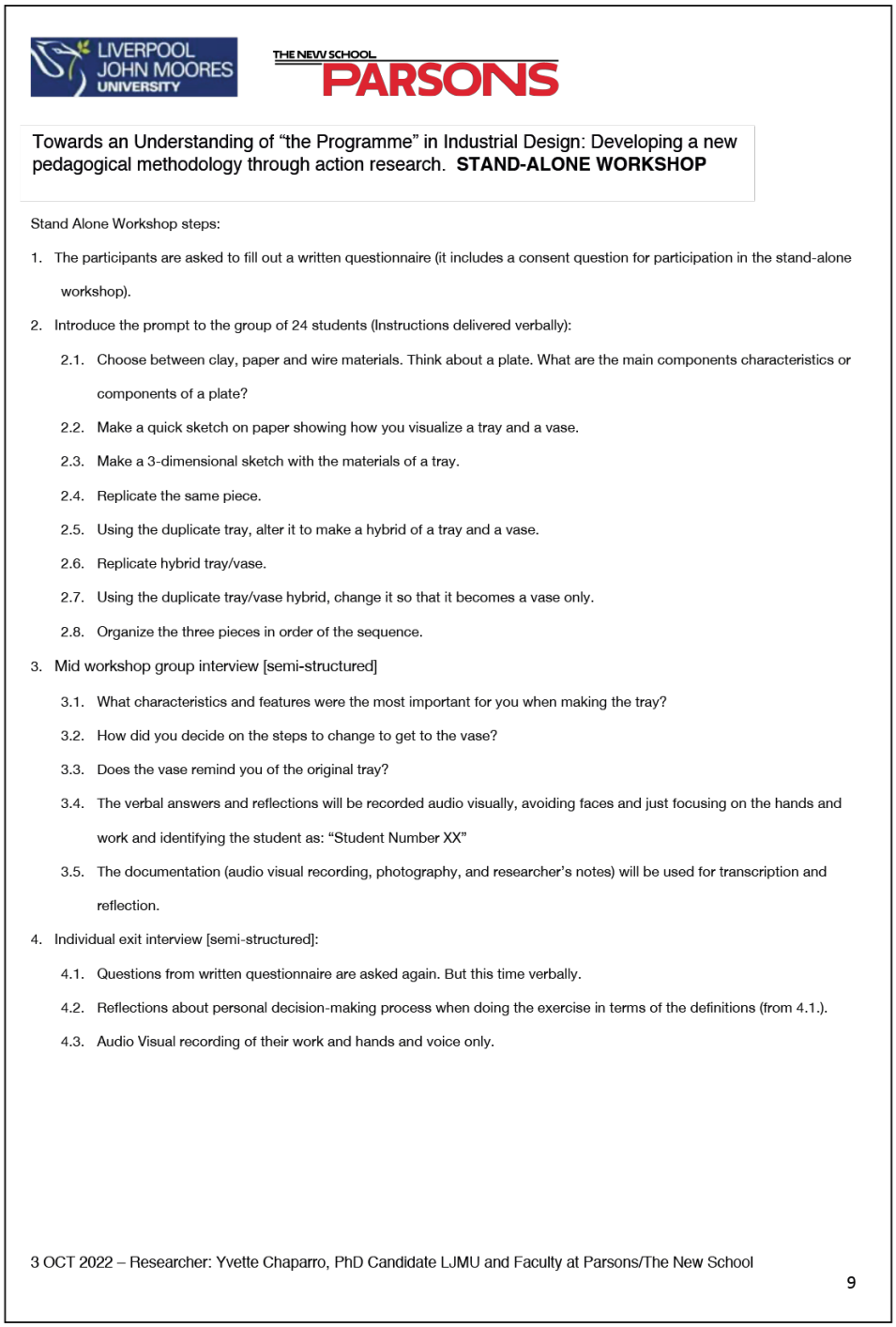
5.3. How does one transform a bowl to a pitcher?

3 OCT 2022 – Researcher: Yvette Chaparro, PhD Candidate LJMU and Faculty at Parsons/The New School

8

Figure_Apx. 62:
Chaparro, Y. (2022) Questionnaire Form for Participants. Page 8 [document]

Questionnaire Forms for student participants for workshop. Page 9



Towards an Understanding of "the Programme" in Industrial Design: Developing a new pedagogical methodology through action research. **STAND-ALONE WORKSHOP**

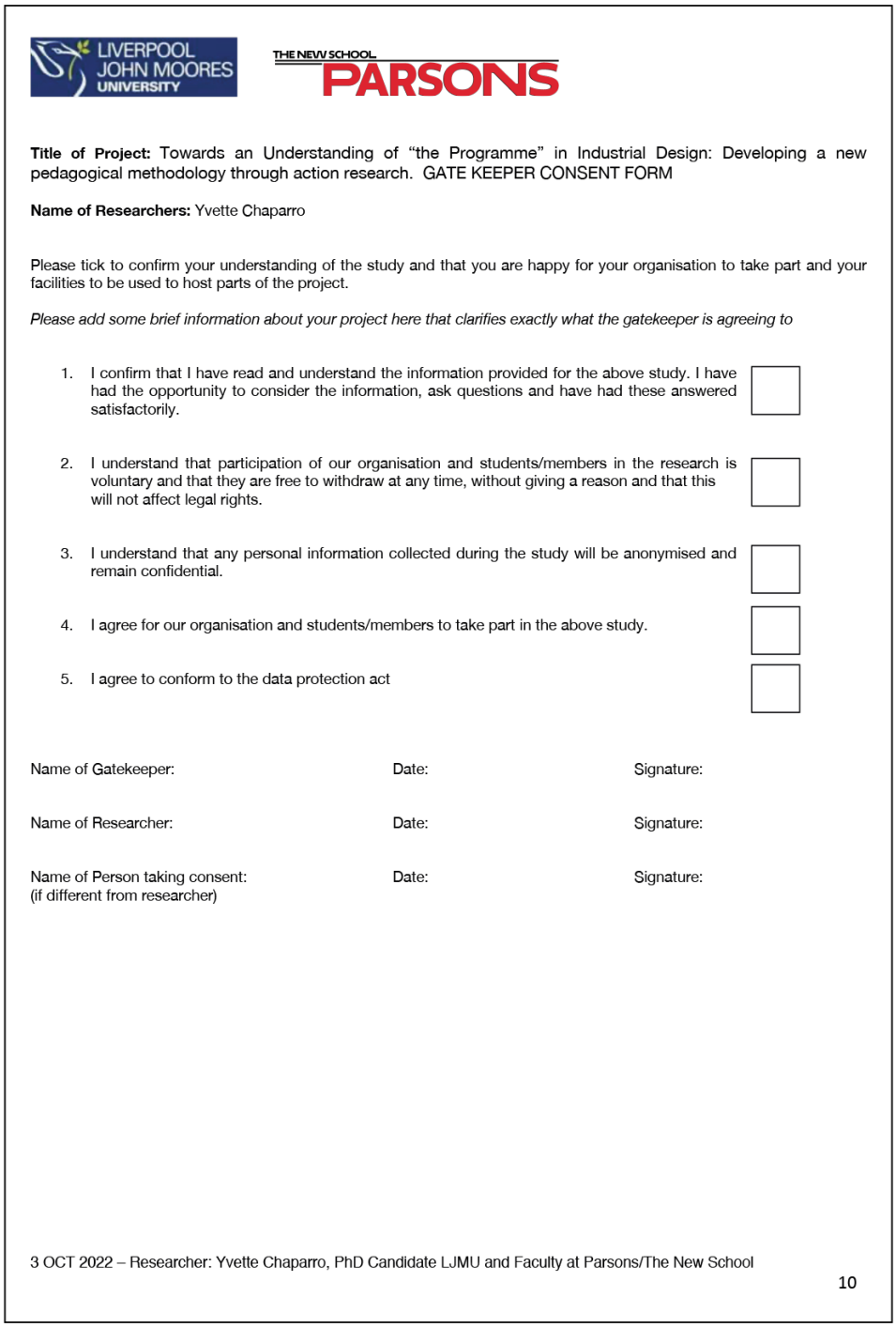
Stand Alone Workshop steps:

1. The participants are asked to fill out a written questionnaire (it includes a consent question for participation in the stand-alone workshop).
2. Introduce the prompt to the group of 24 students (Instructions delivered verbally):
   - 2.1. Choose between clay, paper and wire materials. Think about a plate. What are the main components characteristics or components of a plate?
   - 2.2. Make a quick sketch on paper showing how you visualize a tray and a vase.
   - 2.3. Make a 3-dimensional sketch with the materials of a tray.
   - 2.4. Replicate the same piece.
   - 2.5. Using the duplicate tray, alter it to make a hybrid of a tray and a vase.
   - 2.6. Replicate hybrid tray/vase.
   - 2.7. Using the duplicate tray/vase hybrid, change it so that it becomes a vase only.
   - 2.8. Organize the three pieces in order of the sequence.
3. Mid workshop group interview [semi-structured]
   - 3.1. What characteristics and features were the most important for you when making the tray?
   - 3.2. How did you decide on the steps to change to get to the vase?
   - 3.3. Does the vase remind you of the original tray?
   - 3.4. The verbal answers and reflections will be recorded audio visually, avoiding faces and just focusing on the hands and work and identifying the student as: "Student Number XX"
   - 3.5. The documentation (audio visual recording, photography, and researcher's notes) will be used for transcription and reflection.
4. Individual exit interview [semi-structured]:
   - 4.1. Questions from written questionnaire are asked again. But this time verbally.
   - 4.2. Reflections about personal decision-making process when doing the exercise in terms of the definitions (from 4.1.).
   - 4.3. Audio Visual recording of their work and hands and voice only.

3 OCT 2022 – Researcher: Yvette Chaparro, PhD Candidate LJMU and Faculty at Parsons/The New School

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Figure_Apx. 63:
Chaparro, Y. (2022) Questionnaire Form for Participants. Page 9 [document]



LIVERPOOL JOHN MOORES UNIVERSITY

THE NEW SCHOOL PARSONS

**Title of Project:** Towards an Understanding of "the Programme" in Industrial Design: Developing a new pedagogical methodology through action research. GATE KEEPER CONSENT FORM

**Name of Researchers:** Yvette Chaparro

Please tick to confirm your understanding of the study and that you are happy for your organisation to take part and your facilities to be used to host parts of the project.

*Please add some brief information about your project here that clarifies exactly what the gatekeeper is agreeing to*

1. I confirm that I have read and understand the information provided for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily. ☐
2. I understand that participation of our organisation and students/members in the research is voluntary and that they are free to withdraw at any time, without giving a reason and that this will not affect legal rights. ☐
3. I understand that any personal information collected during the study will be anonymised and remain confidential. ☐
4. I agree for our organisation and students/members to take part in the above study. ☐
5. I agree to conform to the data protection act ☐

| | | |
|---|---|---|
| Name of Gatekeeper: | Date: | Signature: |
| Name of Researcher: | Date: | Signature: |
| Name of Person taking consent: (if different from researcher) | Date: | Signature: |

3 OCT 2022 – Researcher: Yvette Chaparro, PhD Candidate LJMU and Faculty at Parsons/The New School

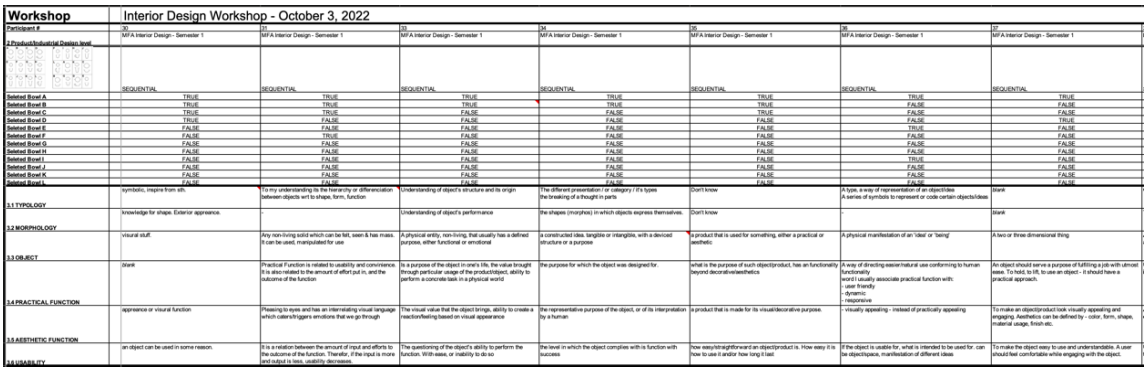
10

Figure_Apx. 64:
Chaparro, Y. (2022) Gatekeeper Form for Consent. Page 10 [document]

## Transcribed Data. Workshop Three.

[The full spreadsheet for Workshop Three can be found here: LINK, this link includes all excerpts from Figure_Apx. 64 to Figure_Apx. 79].

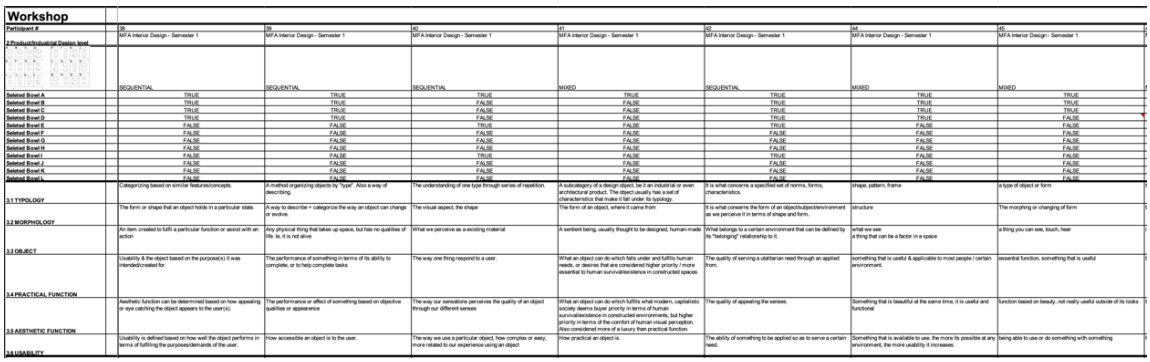
The data was collected and transcribed by the Research Assistant Xusheng Yu. The participants were students in the department I directed, so they needed to be anonymised so that they felt comfortable participating in the study. The data was tabulated into a spreadsheet since it was important to keep all information organized and readily accessible for its review through Thematic Analysis. Selection of bowls from grid and questionnaire. Part 1.



| Workshop | Interior Design Workshop - October 3, 2022 | | | | | | |
|---|---|---|---|---|---|---|---|
| Participant # | 30 | 31 | 33 | 34 | 35 | 36 | 37 |
| 2 Product/Industrial Design level | MFA Interior Design - Semester 1 | MFA Interior Design - Semester 1 | MFA Interior Design - Semester 1 | MFA Interior Design - Semester 1 | MFA Interior Design - Semester 1 | MFA Interior Design - Semester 1 | MFA Interior Design - Semester 1 |
| | SEQUENTIAL | SEQUENTIAL | SEQUENTIAL | SEQUENTIAL | SEQUENTIAL | SEQUENTIAL | SEQUENTIAL |
| Seleted Bowl A | TRUE | TRUE | TRUE | TRUE | TRUE | TRUE | TRUE |
| Seleted Bowl B | TRUE | TRUE | TRUE | TRUE | TRUE | FALSE | FALSE |
| Seleted Bowl C | TRUE | TRUE | FALSE | FALSE | TRUE | FALSE | FALSE |
| Seleted Bowl D | TRUE | FALSE | FALSE | FALSE | FALSE | FALSE | TRUE |
| Seleted Bowl E | FALSE | FALSE | FALSE | FALSE | FALSE | TRUE | FALSE |
| Seleted Bowl F | FALSE | TRUE | FALSE | FALSE | FALSE | FALSE | FALSE |
| Seleted Bowl G | FALSE | FALSE | FALSE | FALSE | FALSE | FALSE | FALSE |
| Seleted Bowl H | FALSE | FALSE | FALSE | FALSE | FALSE | FALSE | FALSE |
| Seleted Bowl I | FALSE | FALSE | FALSE | FALSE | FALSE | TRUE | FALSE |
| Seleted Bowl J | FALSE | FALSE | FALSE | FALSE | FALSE | FALSE | FALSE |
| Seleted Bowl K | FALSE | FALSE | FALSE | FALSE | FALSE | FALSE | FALSE |
| Seleted Bowl L | FALSE | FALSE | FALSE | FALSE | FALSE | FALSE | FALSE |
| 3.1 TYPOLOGY | symbolic, inspire from sth. | To my understanding its the hierarchy or differenciation between objects wrt to shape, form, function | Understanding of object's structure and its origin | The different presentation / or category / it's types The breaking of a thought in parts | Don't know | A type, a way of representation of an object/idea A series of symbols to represent or code certain objects/ideas | blank |
| 3.2 MORPHOLOGY | knowledge for shape. Exterior appreance. | | Understanding of object's performance | the shapes (morphes) in which objects express themselves. | Don't know | | blank |
| 3.3 OBJECT | visural stuff. | Any non-living solid which can be felt, seen & has mass. It can be used, manipulated for use | A physical entity, non-living, that usually has a defined purpose, either functional or emotional | a constructed idea. tangible or intangible, with a devioced structure or a purpose | a product that is used for something, either a practical or aesthetic | A physical manifestation of an 'idea' or 'being' | A two or three dimensional thing |
| 3.4 PRACTICAL FUNCTION | blank | Practical Function is related to usability and convinience. It is also related to the amount of effort put in, and the outcome of the function | Is a purpose of the object in one's life, the value brought through particular usage of the product/object, ability to perform a concrete task in a physical world | the purpose for which the object was designed for. | what is the purpose of such object/product, has an functionality beyond decorative/aesthetics | A way of directing-easier/natural use conforming to human functionality word I usually associate practical function with: - user friendly - dynamic - responsive | An object should serve a purpose of fulfilling a job with utmost ease. To hold, to lift, to use an object - it should have a practical approach. |
| 3.5 AESTHETIC FUNCTION | appreance or visural function | Pleasing to eyes and has an interrelating visual language which caters/triggers emotions that we go through | The visual value that the object brings, ability to create a reaction/feeling based on visual appearance | the representative purpose of the object, or of its interpretation by a human | a product that is made for its visual/decorative purpose. | - visually appealing - instead of practically appealing | To make an object/product look visually appealing and engaging. Aesthetics can be defined by - color, form, shape, material usage, finish etc. |
| 3.6 USABILITY | an object can be used in some reason. | It is a relation between the amount of input and efforts to the outcome of the function. Therefor, if the input is more and output is less, usability decreases. | The questioning of the object's ability to perform the function. With ease, or inability to do so | the level in which the object complies with is function with success | how easy/straightforward an object/product is. How easy it is now to use it and/or how long it last | If the object is usable for, what is intended to be used for. can be object/space, manifestation of different ideas | To make the object easy to use and understandable. A user should feel comfortable while engaging with the object. |

Figure_Apx. 65:
(2022) Transcription of Data from Selection of Bowls from Grid and Questionnaire. Part 1. [spreadsheet]

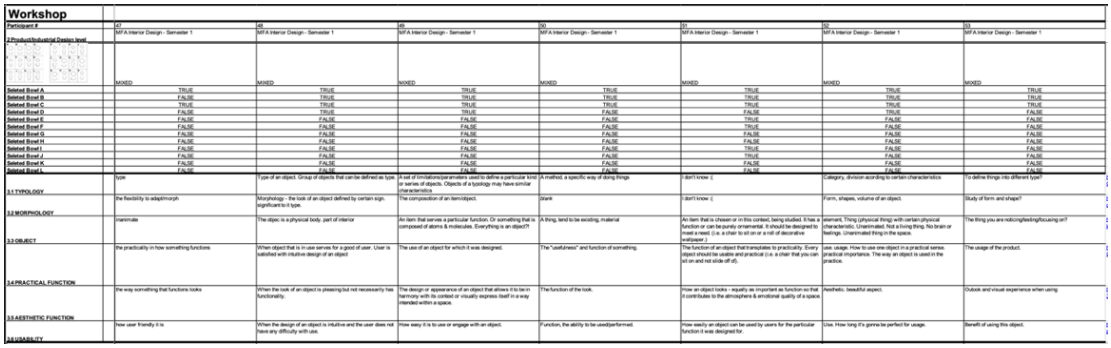
Selection of bowls from grid and questionnaire. Part 2.



| Workshop | | | | | | | |
|---|---|---|---|---|---|---|---|
| Participant # | 38 | 39 | 40 | 41 | 42 | 44 | 45 |
| 2 Product/Industrial Design level | MFA Interior Design - Semester 1 | MFA Interior Design - Semester 1 | MFA Interior Design - Semester 1 | MFA Interior Design - Semester 1 | MFA Interior Design - Semester 1 | MFA Interior Design - Semester 1 | MFA Interior Design - Semester 1 |
| | SEQUENTIAL | SEQUENTIAL | SEQUENTIAL | MIXED | SEQUENTIAL | MIXED | MIXED |
| Seleted Bowl A | TRUE | TRUE | TRUE | TRUE | TRUE | TRUE | TRUE |
| Seleted Bowl B | TRUE | TRUE | FALSE | FALSE | TRUE | TRUE | TRUE |
| Seleted Bowl C | TRUE | TRUE | FALSE | FALSE | TRUE | TRUE | TRUE |
| Seleted Bowl D | TRUE | TRUE | FALSE | FALSE | TRUE | TRUE | FALSE |
| Seleted Bowl E | FALSE | FALSE | TRUE | FALSE | TRUE | FALSE | FALSE |
| Seleted Bowl F | FALSE | FALSE | FALSE | FALSE | FALSE | FALSE | FALSE |
| Seleted Bowl G | FALSE | FALSE | FALSE | FALSE | FALSE | FALSE | FALSE |
| Seleted Bowl H | FALSE | FALSE | FALSE | FALSE | FALSE | FALSE | FALSE |
| Seleted Bowl I | FALSE | FALSE | TRUE | FALSE | TRUE | FALSE | FALSE |
| Seleted Bowl J | FALSE | FALSE | FALSE | FALSE | FALSE | FALSE | FALSE |
| Seleted Bowl K | FALSE | FALSE | FALSE | FALSE | FALSE | FALSE | FALSE |
| Seleted Bowl L | FALSE | FALSE | FALSE | FALSE | FALSE | FALSE | FALSE |
| 3.1 TYPOLOGY | Categorizing based on similar features/concepts. | A method organizing objects by "type". Also a way of describing. | The understanding of one type through series of repetition. | A subcategory of a design object, be it an industrial or even architectural product. The object usually has a set of characteristics that make it fall under its typology. | It is what concerns a specified set of norms, forms, characteristics. | shape, pattern, frame | a type of object or form |
| 3.2 MORPHOLOGY | The form or shape that an object holds in a particular state. | A way to describe + categorize the way an object can change or evolve. | The visual aspect, the shape | The form of an object, where it came from | It is what concerns the form of an object/subject/environment as we perceive it in terms of shape and form. | structure | The morphing or changing of form |
| 3.3 OBJECT | An item created to fulfil a particular function or assist with an action | Any physical thing that takes up space, but has no qualities of life. Ie, it is not alive | What we perceive as a existing material | A sentient being, usually thought to be designed, human-made | What belongs to a certain environment that can be defined by its "belonging" relationship to it. | what we see a thing that can be a factor in a space | a thing you can see, touch, hear |
| 3.4 PRACTICAL FUNCTION | Usability & the object based on the purpose(s) it was intended/created for. | The performance of something in terms of its ability to complete, or to help complete tasks | The way one thing respond to a user. | What an object can do which falls under and fulfills human needs, or desires that are considered higher priority / more essential to human survival/existence in constructed spaces | The quality of serving a utilitarian need through an applied from. | something that is useful & applicable to most people / certain environment. | essential function, something that is useful |
| 3.5 AESTHETIC FUNCTION | Aesthetic function can be determined based on how appealing or eye catching the object appears to the user(s). | The performance or effect of something based on objective qualities or appearance | The way our sensations perceives the quality of an object through our different senses | What an object can do which fulfills what modern, capitalistic society deems buyer priority in terms of human survival/existence in constructed environments, but higher priority in terms of the comfort of human visual perception. Also considered more of a luxury than practical function. | The quality of appealing the senses. | Something that is beautiful at the same time, it is useful and functional | function based on beauty, not really useful outside of its looks |
| 3.6 USABILITY | Usability is defined based on how well the object performs in terms of fulfilling the purposes/demands of the user. | How accessible an object is to the user. | The way we use a particular object, how complex or easy, more related to our experience using an object | How practical an object is. | The ability of something to be applied so as to serve a certain need. | Something that is available to use. the more its possible at any environment, the more usability it increases. | being able to use or do something with something |

Figure_Apx. 66:
(2022) Transcription of Data from Selection of Bowls from Grid and Questionnaire. Part 2 [spreadsheet]

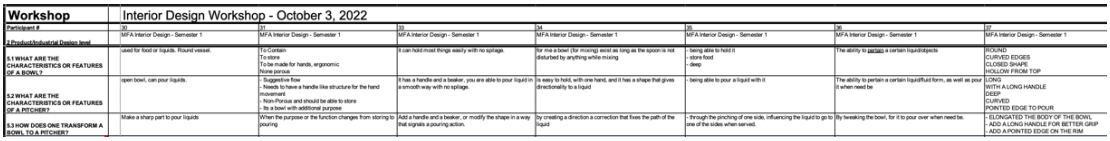
Selection of bowls from grid and questionnaire. Part 3.



| Workshop | | | | | | | |
|---|---|---|---|---|---|---|---|
| Participant # | 47 | 48 | 49 | 50 | 51 | 52 | 53 |
| 2 Product/Industrial Design level | MFA Interior Design - Semester 1 | MFA Interior Design - Semester 1 | MFA Interior Design - Semester 1 | MFA Interior Design - Semester 1 | MFA Interior Design - Semester 1 | MFA Interior Design - Semester 1 | MFA Interior Design - Semester 1 |
| | MIXED | MIXED | MIXED | MIXED | MIXED | MIXED | MIXED |
| Selected Bowl A | TRUE | TRUE | TRUE | TRUE | TRUE | TRUE | TRUE |
| Selected Bowl B | FALSE | TRUE | TRUE | TRUE | TRUE | TRUE | TRUE |
| Selected Bowl C | TRUE | TRUE | TRUE | TRUE | TRUE | TRUE | TRUE |
| Selected Bowl D | FALSE | TRUE | TRUE | FALSE | FALSE | TRUE | FALSE |
| Selected Bowl E | FALSE | FALSE | FALSE | FALSE | TRUE | FALSE | FALSE |
| Selected Bowl F | FALSE | FALSE | FALSE | FALSE | TRUE | FALSE | FALSE |
| Selected Bowl G | FALSE | FALSE | FALSE | FALSE | FALSE | FALSE | FALSE |
| Selected Bowl H | FALSE | FALSE | FALSE | FALSE | FALSE | FALSE | FALSE |
| Selected Bowl I | FALSE | FALSE | FALSE | FALSE | TRUE | FALSE | FALSE |
| Selected Bowl J | FALSE | FALSE | FALSE | FALSE | TRUE | FALSE | FALSE |
| Selected Bowl K | FALSE | FALSE | FALSE | FALSE | FALSE | FALSE | FALSE |
| Selected Bowl L | FALSE | FALSE | FALSE | FALSE | FALSE | FALSE | FALSE |
| 3.1 TYPOLOGY | type | Type of an object. Group of objects that can be defined as type. | A set of limitations/parameters used to define a particular kind or series of objects. Objects of a typology may have similar characteristics | A method, a specific way of doing things | I don't know :( | Category, division according to certain characteristics | To define things into different type? |
| 3.2 MORPHOLOGY | the flexibility to adapt/morph | Morphology - the look of an object defined by certain sign, significant in it type. | The composition of an item/object. | blank | I don't know :( | Form, shapes, volume of an object. | Study of form and shape? |
| 3.3 OBJECT | inanimate | The objec is a physical body. part of interior | An item that serves a particular function. Or something that is composed of atoms & molecules. Everything is an object?! | A thing, tend to be existing, material | An item that is chosen or in this context, being studied. It has a function or can be purely ornamental. It should be designed to meet a need. (i.e. a chair to sit on or a roll of decorative wallpaper ;) | element, Thing (physical thing) with certain physical characteristic. Unanimated. Not a living thing. No brain or feelings. Unanimated thing in the space. | The thing you are noticing/feeling/focusing on? |
| 3.4 PRACTICAL FUNCTION | the practicality in how something functions | When object that is in use serves for a good of user. User is satisfied with intuitive design of an object | The use of an object for which it was designed. | The "usefulness" and function of something. | The function of an object that translates to practicality. Every object should be usable and practical (i.e. a chair that you can sit on and not slide off of). | use, usage. How to use one object in a practical sense. practical importance. The way an object is used in the practice. | The usage of the product. |
| 3.5 AESTHETIC FUNCTION | the way something that functions looks | When the look of an object is pleasing but not necessarily has functionality. | The design or appearance of an object that allows it to be in harmony with its context or visually express itself in a way intended within a space. | The function of the look. | How an object looks - equally as important as function so that it contributes to the atmosphere & emotional quality of a space. | Aesthetic, beautiful aspect. | Outlook and visual experience when using |
| 3.6 USABILITY | how user friendly it is | When the design of an object is intuitive and the user does not have any difficulty with use. | How easy it is to use or engage with an object. | Function, the ability to be used/performed. | How easily an object can be used by users for the particular function it was designed for. | Use. How long it's gonna be perfect for usage. | Benefit of using this object. |

Figure_Apx. 67:
(2022) Transcription of Data from Selection of Bowls from Grid and Questionnaire. Part 3 [spreadsheet]

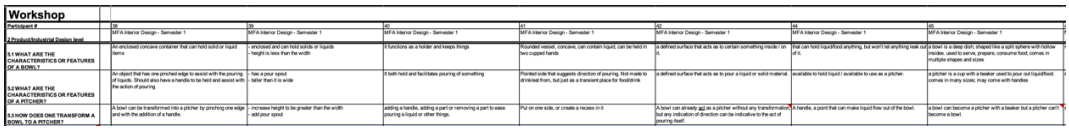
Questionnaire. Part 1.



| Workshop | Interior Design Workshop - October 3, 2022 | | | | | | |
|---|---|---|---|---|---|---|---|
| Participant # | 30 | 31 | 33 | 34 | 35 | 36 | 37 |
| 2 Product/Industrial Design level | MFA Interior Design - Semester 1 | MFA Interior Design - Semester 1 | MFA Interior Design - Semester 1 | MFA Interior Design - Semester 1 | MFA Interior Design - Semester 1 | MFA Interior Design - Semester 1 | MFA Interior Design - Semester 1 |
| 5.1 WHAT ARE THE CHARACTERISTICS OR FEATURES OF A BOWL? | used for food or liquids. Round vessel. | To Contain<br>To store<br>To be made for hands, ergonomic<br>None porous | It can hold most things easily with no spillage. | for me a bowl (for mixing) exist as long as the spoon is not disturbed by anything while mixing | - being able to hold it<br>- store food<br>- deep | The ability to pertain a certain liquid/objects | ROUND<br>CURVED EDGES<br>CLOSED SHAPE<br>HOLLOW FROM TOP |
| 5.2 WHAT ARE THE CHARACTERISTICS OR FEATURES OF A PITCHER? | open bowl, can pour liquids. | - Suggest to flow<br>- Needs to have a handle like structure for the hand movement<br>- Non-Porous and should be able to store<br>- Its a bowl with additional purpose | It has a handle and a beaker, you are able to pour liquid in a smooth way with no spillage. | is easy to hold, with one hand, and it has a shape that gives directionality to a liquid | - being able to pour a liquid with it | The ability to pertain a certain liquid/fluid form, as well as pour it when need be | LONG<br>WITH A LONG HANDLE<br>DEEP<br>CURVED<br>POINTED EDGE TO POUR |
| 5.3 HOW DOES ONE TRANSFORM A BOWL TO A PITCHER? | Make a sharp part to pour liquids | When the purpose or the function changes from storing to pouring | Add a handle and a beaker, or modify the shape in a way that signals a pouring action. | by creating a direction a correction that fixes the path of the liquid | - through the pinching of one side, influencing the liquid to go to one of the sides when served. | By tweaking the bowl, for it to pour over when need be. | - ELONGATED THE BODY OF THE BOWL<br>- ADD A LONG HANDLE FOR BETTER GRIP<br>- ADD A POINTED EDGE ON THE RIM |

Figure_Apx. 68:
(2022) Transcribed Data from Questionnaire. Part 1 [spreadsheet]

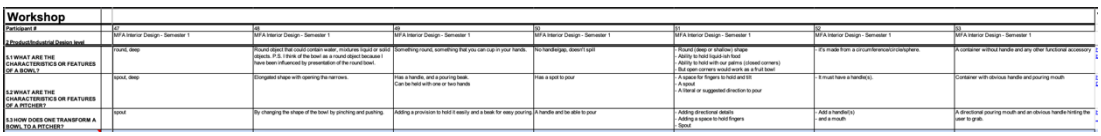
Questionnaire. Part 2.



| Workshop | | | | | | | |
|---|---|---|---|---|---|---|---|
| Participant # | 39 | 39 | 40 | 41 | 42 | 44 | 45 |
| 2 Product/Industrial Design level | MFA Interior Design - Semester 1 | MFA Interior Design - Semester 1 | MFA Interior Design - Semester 1 | MFA Interior Design - Semester 1 | MFA Interior Design - Semester 1 | MFA Interior Design - Semester 1 | MFA Interior Design - Semester 1 |
| 5.1 WHAT ARE THE CHARACTERISTICS OR FEATURES OF A BOWL? | An enclosed concave container that can hold solid or liquid items | - enclosed and can hold solids or liquids<br>- height is less than the width | It functions as a holder and keeps things | Rounded vessel, concave, can contain liquid, can be held in two cupped hands | a defined surface that acts as to certain something inside / on it. | that can hold liquid/food anything, but won't let anything leak out of it. | a bowl is a deep dish, shaped like a split sphere with hollow insides. used to serve, prepare, consume food; comes in multiple shapes and sizes |
| 5.2 WHAT ARE THE CHARACTERISTICS OR FEATURES OF A PITCHER? | An object that has one pinched edge to assist with the pouring of liquids. Should also have a handle to be held and assist with the action of pouring | - has a pour spout<br>- taller than it is wide | It both hold and facilitates pouring of something | Pointed side that suggests direction of pouring. Not made to drink/eat from, but just as a transient place for food/drink | a defined surface that acts as to pour a liquid or solid material. | available to hold liquid / available to use as a pitcher. | a pitcher is a cup with a beaker used to pour out liquid/food. comes in many sizes; may come with handles |
| 5.3 HOW DOES ONE TRANSFORM A BOWL TO A PITCHER? | A bowl can be transformed into a pitcher by pinching one edge and with the addition of a handle. | - increase height to be greater than the width<br>- add pour spout | adding a handle, adding a part or removing a part to ease pouring a liquid or other things. | Put on one side, or create a nocess in it | A bowl can already act as a pitcher without any transformation but any indication of direction can be indicative to the act of pouring itself. | A handle, a point that can make liquid flow out of the bowl. | a bowl can become a pitcher with a beaker but a pitcher can't become a bowl. |

Figure_Apx. 69:
(2022) Transcribed Data from Questionnaire. Part 2 [table]

Questionnaire. Part 3.

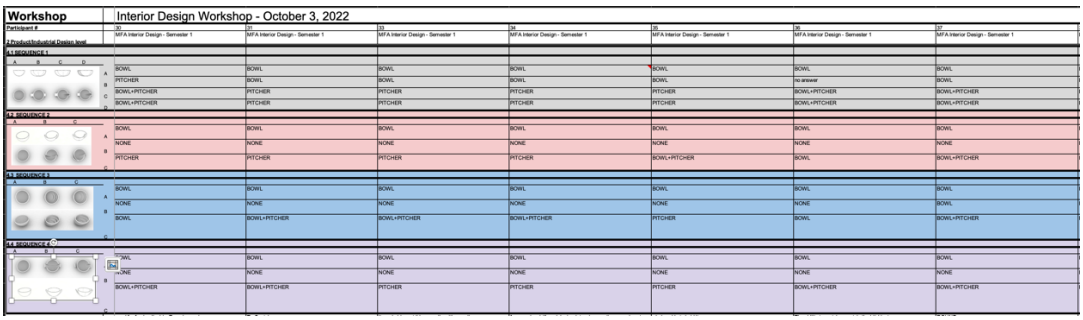


| Workshop | | | | | | | |
|---|---|---|---|---|---|---|---|
| Participant # | 47 | 48 | 49 | 50 | 51 | 52 | 53 |
| 2 Product/Industrial Design level | MFA Interior Design - Semester 1 | MFA Interior Design - Semester 1 | MFA Interior Design - Semester 1 | MFA Interior Design - Semester 1 | MFA Interior Design - Semester 1 | MFA Interior Design - Semester 1 | MFA Interior Design - Semester 1 |
| 5.1 WHAT ARE THE CHARACTERISTICS OR FEATURES OF A BOWL? | round, deep | Round object that could contain water, mixtures liquid or solid objects. P.S. I think of the bowl as a round object because I have been influenced by presentation of the round bowl. | Something round, something that you can cup in your hands. | No handle/gap, doesn't spill | - Round (deep or shallow) shape<br>- Ability to hold liquid-ish food<br>- Ability to hold with our palms (closed corners)<br>- But open corners would work as a fruit bowl | - it's made from a circumference/circle/sphere. | A container without handle and any other functional accessory |
| 5.2 WHAT ARE THE CHARACTERISTICS OR FEATURES OF A PITCHER? | spout, deep | Elongated shape with opening the narrows. | Has a handle, and a pouring beak.<br>Can be held with one or two hands | Has a spot to pour | - A space for fingers to hold and tilt<br>- A spout<br>- A literal or suggested direction to pour | - It must have a handle(s). | Container with obvious handle and pouring mouth |
| 5.3 HOW DOES ONE TRANSFORM A BOWL TO A PITCHER? | spout | By changing the shape of the bowl by pinching and pushing. | Adding a provision to hold it easily and a beak for easy pouring. | A handle and be able to pour | - Adding directional details<br>- Adding a space to hold fingers<br>- Spout | - Add a handle(s)<br>- and a mouth | A directional pouring mouth and an obvious handle hinting the user to grab. |

Figure_Apx. 70:
(2022) Transcribed Data from Questionnaire. Part 3 [spreadsheet]

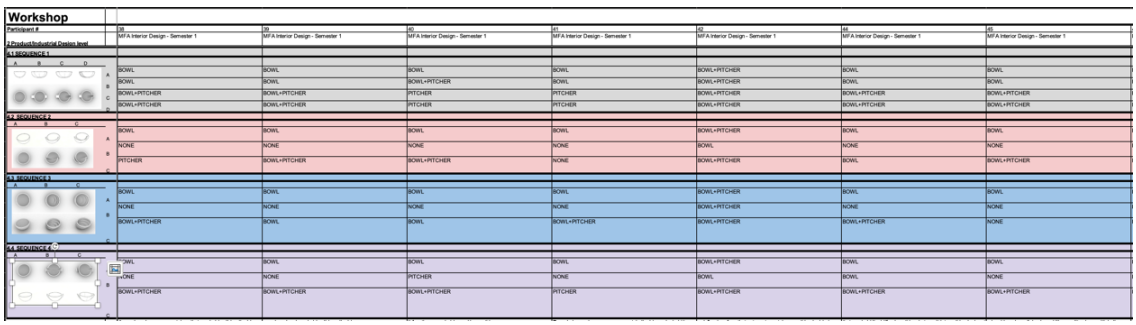
Labelling of artefacts in sequences. Part 1.

Labelling of example sequences by participants. The participants were asked to label each element in the sequences as: bowl, pitcher, both, or none. The research assistant, Michele Levy, tabulated the data into the spreadsheet.




Figure_Apx. 71:
(2022) Transcribed Data from Labelling of Artefacts in Sequences. Part 1 [spreadsheet]

Labelling of artefacts in sequences. Part 2.




Figure_Apx. 72:
(2022) Transcribed Data from Labelling of Artefacts in Sequences. Part 2 [spreadsheet]

Labelling of artefacts in a sequence. Part 3.

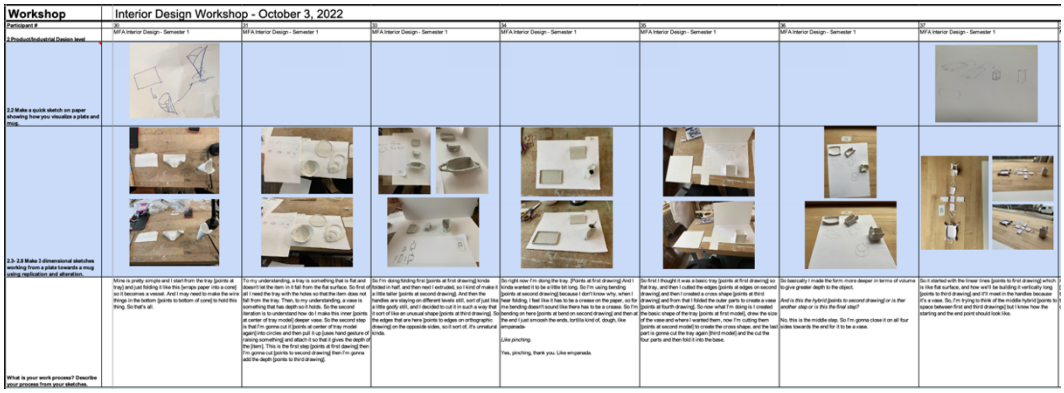


| Workshop | | | | | | | |
|---|---|---|---|---|---|---|---|
| Participant # | 47 | 48 | 49 | 50 | 51 | 52 | 53 |
| 2 Product/Industrial Design level | MFA Interior Design - Semester 1 | MFA Interior Design - Semester 1 | MFA Interior Design - Semester 1 | MFA Interior Design - Semester 1 | MFA Interior Design - Semester 1 | MFA Interior Design - Semester 1 | MFA Interior Design - Semester 1 |
| 4.1 SEQUENCE 1 | | | | | | | |
| | BOWL | BOWL | BOWL | BOWL | BOWL | BOWL | BOWL |
| | BOWL | BOWL | NONE | BOWL | BOWL+PITCHER | BOWL+PITCHER | BOWL |
| | BOWL+PITCHER | BOWL+PITCHER | BOWL+PITCHER | BOWL+PITCHER | PITCHER | BOWL+PITCHER | BOWL+PITCHER |
| | PITCHER | PITCHER | PITCHER | PITCHER | PITCHER | BOWL+PITCHER | PITCHER |
| 4.2 SEQUENCE 2 | | | | | | | |
| | BOWL | BOWL | BOWL | BOWL | BOWL | BOWL | BOWL |
| | BOWL | NONE | NONE | NONE | NONE | NONE | BOWL |
| | PITCHER | BOWL+PITCHER | PITCHER | BOWL+PITCHER | BOWL+PITCHER | BOWL+PITCHER | BOWL+PITCHER |
| 4.3 SEQUENCE 3 | | | | | | | |
| | BOWL | BOWL | BOWL | BOWL | BOWL | BOWL | BOWL |
| | BOWL | NONE | NONE | NONE | BOWL+PITCHER | BOWL | BOWL |
| | BOWL | BOWL | PITCHER | BOWL | BOWL+PITCHER | BOWL | BOWL+PITCHER |
| 4.4 SEQUENCE 4 | | | | | | | |
| | BOWL | BOWL | BOWL | BOWL | BOWL | BOWL | BOWL |
| | BOWL | NONE | NONE | NONE | NONE | NONE | BOWL |
| | PITCHER | BOWL | PITCHER | BOWL+PITCHER | PITCHER | BOWL+PITCHER | PITCHER |

Figure_Apx. 73:
(2022) Transcribed Data from Labelling of Artefacts in Sequences. Part 3 [spreadsheet]

3D sequences descriptions by participants. Part 1.

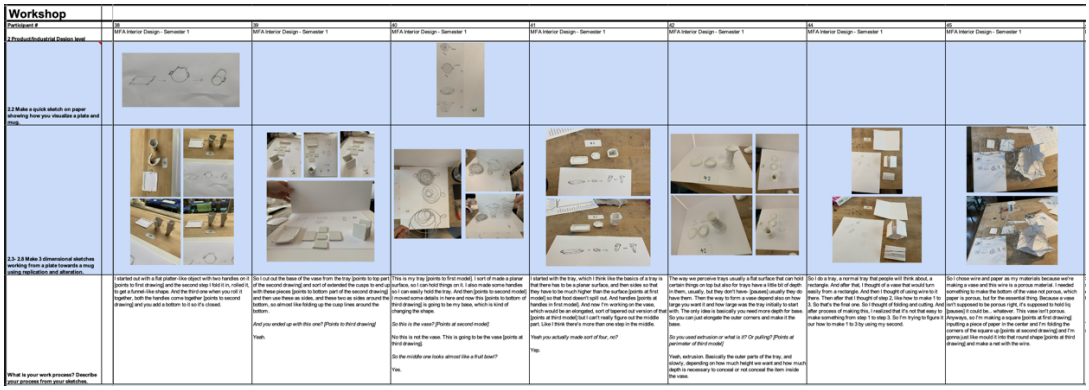
The participants were asked to make a quick 3D sketch sequence using clay, paper, or metal wire. The prompt was for the sequence to show how to go from a tray to a vase with three artefacts. The participants were asked to describe their decisions while making the sequence.



| Workshop | Interior Design Workshop - October 3, 2022 | | | | | | |
|---|---|---|---|---|---|---|---|
| Participant # | 30 | 31 | 33 | 34 | 35 | 36 | 37 |
| 2 Product/Industrial Design level | MFA Interior Design - Semester 1 | MFA Interior Design - Semester 1 | MFA Interior Design - Semester 1 | MFA Interior Design - Semester 1 | MFA Interior Design - Semester 1 | MFA Interior Design - Semester 1 | MFA Interior Design - Semester 1 |
| 2.2 Make a quick sketch on paper showing how you visualize a plate and mug. |  | | | | | |  |
| 2.3- 2.5 Make 3 dimensional sketches working from a plate towards a mug using replication and alteration. |  |  |  |  |  |  |  |
| What is your work process? Describe your process from your sketches. | Mine is pretty simple and I start from the tray [points at tray] and just folding it like this [wraps paper into a cone] so it becomes a vessel. And I may need to make the wire things in the bottom [points to bottom of cone] to hold this thing. So that's all. | To my understanding, a tray is something that is flat and doesn't let the item in it fall from the flat surface. So first of all I need the tray with the holes so that the item does not fall from the tray. Then, to my understanding, a vase is something that has depth so it holds. So the second iteration is to understand how do I make this inner [points at center of tray model] deeper vase. So the second step is that I'm gonna cut it [points at center of tray model again] into circles and then pull it up [uses hand gesture of raising something] and attach it so that it gives the depth of the [item]. This is the first step [points at first dawing] then I'm gonna cut [points to second drawing] then I'm gonna add the depth [points to third drawing]. | So I'm doing folding first [points at first drawing] kinda folded in half, and then next I extruded, so I kind of make it a little taller [points at second drawing]. And then the handles are staying on different levels still, sort of just like a little goofy still, and I decided to cut it in such a way that it sort of like an unusual shape [points at third drawing]. So the edges that are here [points to edges on orthographic drawing] on the opposite sides, so it sort of, it's unnatural kinda. | So right now I'm doing the tray. [Points at first drawing] And I kinda wanted it to be a little bit long. So I'm using bending [points at second drawing] because I don't know why, when I bear folding, I feel like it has to be a crease on the paper, so for me bending doesn't sound like there has to be a crease. So I'm bending on here [points at bend on second drawing] and then at the end I just smooth the ends, tortilla kind of, dough, like empanada.<br><br>*Like pinching.*<br><br>Yes, pinching, thank you. Like empanada. | So first I thought it was a basic tray [points at first drawing] so flat tray, and then I cutted the edges [points at edges on second drawing] and then I created a cross shape [points at third drawing] and from that I folded the outer parts to create a vase [points at fourth drawing]. So now what I'm doing is I created the basic shape of the tray [points at first model], drew the size of the vase and where I wanted them, now I'm cutting them [points at second model] to create the cross shape, and the last part is gonna cut the tray again [third model] and the cut the four parts and then fold it into the base. | So basically I made the form, many deeper in terms of volume to give greater depth to the object.<br><br>*And is this the hybrid [points to second drawing] or is ther another step or is this the final step?*<br><br>No, this is the middle step. So I'm gonna close it on all four sides towards the end for it to be a vase. | So I started with the linear lines [points to first drawing] which is like flat surface, and how we'll be building it vertically long [points to third drawing] and it'll meet in the handles because it's a vase. So, I'm trying to think of the middle hybrid [points to space between first and third drawings] but I know how the starting and the end point should look like. |

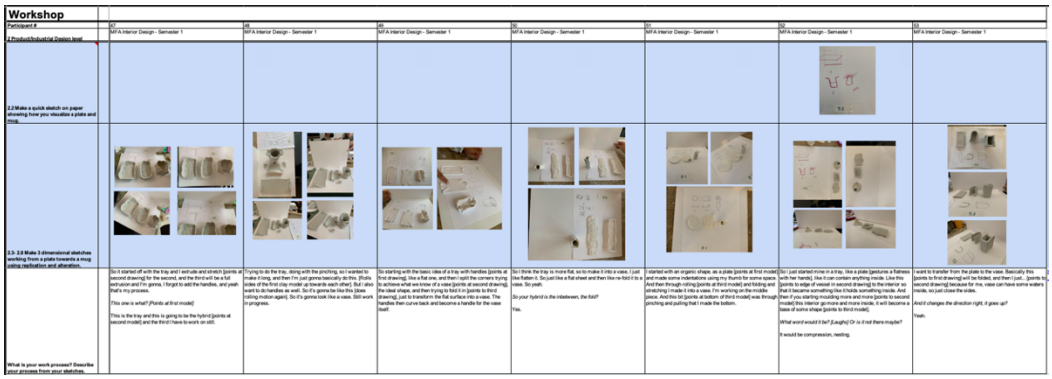
Figure_Apx. 74:
(2022) Transcribed Data from Description of 3D Sequences. Part 1 [spreadsheet]

3D sequences descriptions by participants. Part 2.



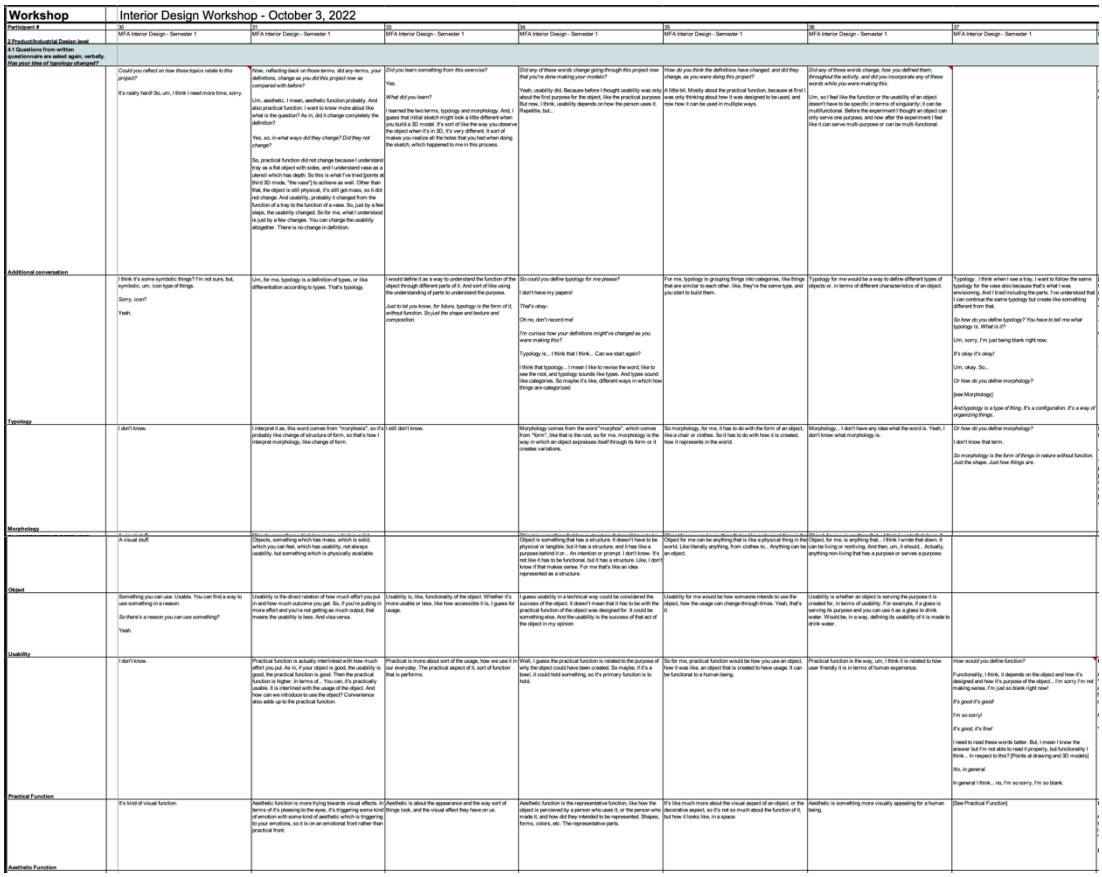

Figure_Apx. 75:
(2022) Transcribed Data from Description of 3D Sequences. Part 2 [spreadsheet]

3D sequences descriptions by participants. Part 3.




Figure_Apx. 76:
(2022) Transcribed Data from Description of 3D Sequences. Part 3 [spreadsheet]

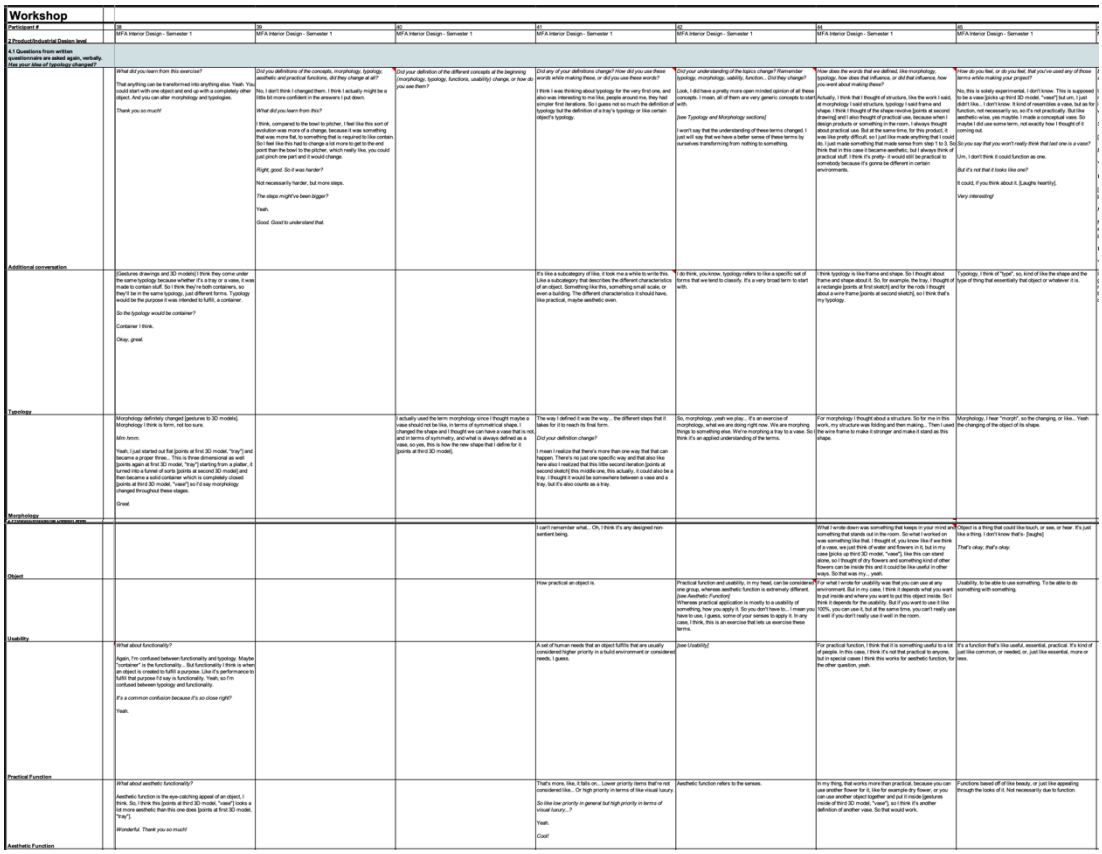
Transcription of oral semi-structured interviews. Part 1.



| Workshop | Interior Design Workshop - October 3, 2022 | | | | | | |
|---|---|---|---|---|---|---|---|
| Participant # | 02 | 03 | 03 | 04 | 05 | 06 | 07 |
| 2 Product/Industrial Design level | MFA Interior Design - Semester 1 | MFA Interior Design - Semester 1 | MFA Interior Design - Semester 1 | MFA Interior Design - Semester 1 | MFA Interior Design - Semester 1 | MFA Interior Design - Semester 1 | MFA Interior Design - Semester 1 |
| 4.1 Questions from written questionnaire are asked again, verbally. *Has your idea of typology changed?* | | | | | | | |
| Additional conversation | *Could you reflect on how these topics relate to this project?*<br><br>It's really hard! So, um, I think I need more time, sorry. | Now, reflecting back on those terms, did any terms, your definitions, change as you did this project now as compared with before?<br><br>Um, aesthetic. I mean, aesthetic function probably. And also practical function. I want to know more about like what is the question? As in, did it change completely the definition?<br><br>*Yes, so, in what ways did they change? Did they not change?*<br><br>So, practical function did not change because I understand tray as a flat object with sides, and I understand vase as a utensil which has depth. So this is what I've tried [points at third 3D mode, "the vase"] to achieve as well. Other than that, the object is still physical, it's still got mass, so it did not change. And usability, probably it changed from the function of a tray to the function of a vase. So, just by a few steps, the usability changed. So for me, what I understood is just by a few changes. You can change the usability altogether. There is no change in definition. | *Did you learn something from this exercise?*<br><br>Yes.<br><br>*What did you learn?*<br><br>I learned the two terms, typology and morphology. And, I guess that initial sketch might look a little different when you build a 3D model. It's sort of like the way you observe the object when it's in 3D, it's very different. It sort of makes you realize all the holes that you had when doing the sketch, which happened to me in this process. | *Did any of these words change going through this project now that you're done making your models?*<br><br>Yeah, usability did. Because before I thought usability was only about the first purpose for the object, like the practical purpose. But now, I think, usability depends on how the person uses it. Repetita, but... | *How do you think the definitions have changed, and did they change, as you were doing this project?*<br><br>A little bit. Mostly about the practical function, because at first I was only thinking about how it was designed to be used, and now how it can be used in multiple ways. | *Did any of these words change, how you defined them, throughout the activity, and did you incorporate any of these words while you were making this.*<br><br>Um, so I feel like the function or the usability of an object doesn't have to be specific in terms of singularity; it can be multifunctional. Before the experiment I thought an object can only serve one purpose, and now after the experiment I feel like it can serve multi-purpose or can be multi-functional. | |
| Typology | I think it's some symbolic things? I'm not sure, but, symbolic, um, icon type of things.<br><br>*Sorry, icon?*<br><br>Yeah. | Um, for me, typology is a definition of types, or like differentiation according to types. That's typology. | I would define it as a way to understand the function of the object through different parts of it. And sort of like using the understanding of parts to understand the purpose.<br><br>*Just to let you know, for future, typology is the form of it, without function. So just the shape and texture and composition.* | *So could you define typology for me please?*<br><br>I don't have my papers!<br><br>*That's okay-*<br><br>*Oh no, don't record me!*<br><br>*I'm curious how your definitions might've changed as you were making this?*<br><br>Typology is... I think that I think... Can we start again?<br><br>I think that typology... I mean I like to revise the word, like to see the root, and typology sounds like types. And types sound like categories. So maybe it's like, different ways in which how things are categorized. | For me, typology is grouping things into categories, like things that are similar to each other. like, they're the same type, and you start to build them. | Typology for me would be a way to define different types of objects or, in terms of different characteristics of an object. | Typology.. I think when I see a tray, I want to follow the same typology for the vase also because that's what I was envisioning. And I tried including the parts. I've understood that I can continue the same typology but create like something different from that.<br><br>*So how do you define typology? You have to tell me what typology is. What is it?*<br><br>Um, sorry, I'm just being blank right now.<br><br>*It's okay it's okay!*<br><br>Um, okay. So...<br><br>*Or how do you define morphology?*<br><br>[see Morphology]<br><br>*And typology is a type of thing. It's a configuration. It's a way of organizing things.* |
| Morphology | I don't know. | I interpret it as, this word comes from "morphosis", so it's probably like change of structure of form, so that's how I interpret morphology, like change of form. | I still don't know. | Morphology comes from the word "morphus", which comes from "form", like that is the root, so for me, morphology is the way in which an object expresses itself through its form or it creates variations. | So morphology, for me, it has to do with the form of an object, like a chair or clothes. So it has to do with how it is created, how it represents in the world. | Morphology... I don't have any idea what the word is. Yeah, I don't know what morphology is. | *Or how do you define morphology?*<br><br>I don't know that term..<br><br>*So morphology is the form of things in nature without function. Just the shape. Just how things are.* |
| Object | A visual stuff. | Objects, something which has mass, which is solid, which you can feel, which has usability, not always usability, but something which is physically available. | | Object is something that has a structure. It doesn't have to be physical or tangible, but it has a structure, and it has like a purpose behind it or... An intention or prompt. I don't know. It's not like it has to be functional, but it has a structure. Like, I don't know if that makes sense. For me that's like an idea represented as a structure. | Object for me can be anything that is like a physical thing in the world. Like literally anything, from clothes to.. Anything can be an object. | Object, for me, is anything that... I think I wrote that down. It can be living or nonliving. And then, um, it should... Actually, anything non-living that has a purpose or serves a purpose. | |
| Usability | Something you can use. Usable. You can find a way to use something in a reason.<br><br>*So there's a reason you can use something?*<br><br>Yeah. | Usability is the direct relation of how much effort you put in and how much outcome you get. So, if you're putting in more effort and you're not getting as much output, that means the usability is less. And vice-versa. | Usability is, like, functionality of the object. Whether it's more usable or less, like how accessible it is, I guess for usage. | I guess usability in a technical way could be considered the success of the object. It doesn't mean that it has to be with the practical function of the object was designed for. It could be something else. And the usability is the success of that act of the object in my opinion. | Usability for me would be how someone intends to use the object, how the usage can change through times. Yeah, that's it. | Usability is whether an object is serving the purpose it is created for, in terms of usability. For example, if a glass is serving its purpose and you can use it as a glass to drink water. Would be, in a way, defining its usability of it is made to drink water. | |
| Practical Function | I don't know. | Practical function is actually interlinked with how much effort you put. As in, if your object is good, the usability is good, the practical function is good. Then the practical function is higher. In terms of... You can, it's practically usable. It is interlined with the usage of the object. And how can we introduce to use the object? Convenience also adds up to the practical function. | Practical is more about sort of the usage, how we use it in our everyday. The practical aspect of it, sort of function that is performs. | Well, I guess the practical function is related to the purpose of why the object could have been created. So maybe, if it's a bowl, it could hold something, so it's primary function is to hold. | So for me, practical function would be how you use an object, how it was like, an object that is created to have usage. It can be functional to a human being. | Practical function is the way, um, I think it is related to how user friendly it is in terms of human experience. | *How would you define function?*<br><br>Functionality, I think, it depends on the object and how it's designed and how it's purpose of the object... I'm sorry I'm not making sense. I'm just so blank right now!<br><br>*It's good it's good!*<br><br>I'm so sorry!<br><br>*It's good, it's fine!*<br><br>I need to read these words better. But, I mean I know the answer but I'm not able to read it properly, but functionality I think... In respect to this? [Points at drawing and 3D models]<br><br>*No, in general.*<br><br>In general I think... no, I'm so sorry, I'm so blank. |
| Aesthetic Function | It's kind of visual function. | Aesthetic function is more trying towards visual effects. In terms of it's pleasing to the eyes, it's triggering some kind of emotion with some kind of aesthetic which is triggering to your emotions, so it is on an emotional front rather than practical front. | Aesthetic is about the appearance and the way sort of things look, and the visual effect they have on us. | Aesthetic function is the representative function, like how the object is perceived by a person who uses it, or the person who made it, and how did they intended to be represented. Shapes, forms, colors, etc. The representative parts. | It's like much more about the visual aspect of an object, or the decorative aspect, so it's not so much about the function of it, but how it looks like, in a space. | Aesthetic is something more visually appealing for a human being. | [See Practical Function] |

Figure_Apx. 77:
(2022) Transcription Data from Oral Semi-Structured Interviews. Part 1 [spreadsheet]

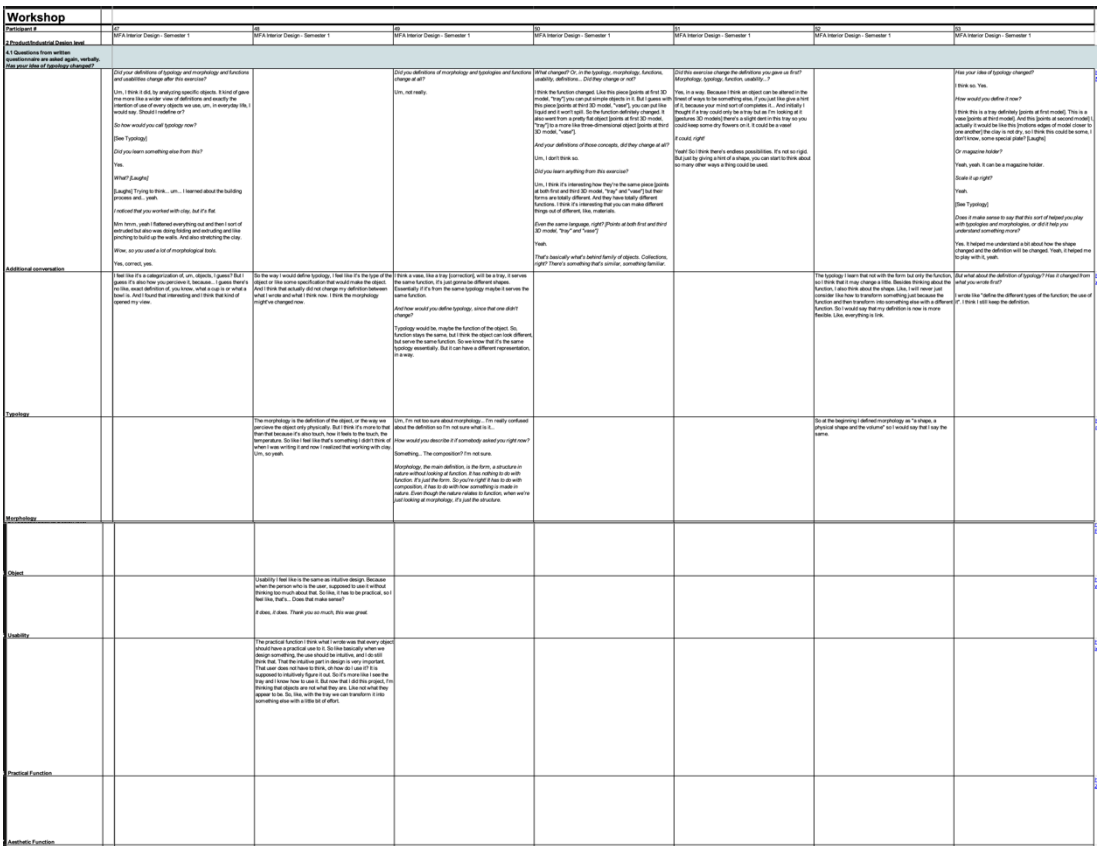
Transcription of oral semi-structured interviews. Part 2.



| Workshop | | | | | | | |
|---|---|---|---|---|---|---|---|
| Participant # | 28 | 39 | 40 | 41 | 42 | 44 | 45 |
| 2 Product/Industrial Design level | MFA Interior Design - Semester 1 | MFA Interior Design - Semester 1 | MFA Interior Design - Semester 1 | MFA Interior Design - Semester 1 | MFA Interior Design - Semester 1 | MFA Interior Design - Semester 1 | MFA Interior Design - Semester 1 |
| 4.1 Questions from written questionnaire are asked again, verbally. *Has your idea of typology changed?* | | | | | | | |
| Additional conversation | *What did you learn from this exercise?*<br><br>That anything can be transformed into anything else. Yeah. You could start with one object and end up with a completely other object. And you can alter morphology and typologies.<br><br>*Thank you so much!* | *Did you definitions of the concepts, morphology, typology, aesthetic and practical functions, did they change at all?*<br><br>No, I don't think I changed them. I think I actually might be a little bit more confident in the answers I put down.<br><br>*What did you learn from this?*<br><br>I think, compared to the bowl to pitcher, I feel like this sort of evolution was more of a change, because it was something that was more flat, to something that is required to like contain. So I feel like this had to change a lot more to get to the end point than the bowl to the pitcher, which really like, you could just pinch one part and it would change.<br><br>*Right, good. So it was harder?*<br><br>Not necessarily harder, but more steps.<br><br>*The steps might've been bigger?*<br><br>Yeah.<br><br>*Good. Good to understand that.* | *Did your definition of the different concepts at the beginning (morphology, typology, functions, usability) change, or how do you see them?* | *Did any of your definitions change? How did you use these words while making these, or did you use these words?*<br><br>I think I was thinking about typology for the very first one, and also was interesting to me like, people around me, they had simpler first iterations. So I guess not so much the definition of typology but the definition of a tray's typology or like certain object's typology. | *Did your understanding of the topics change? Remember typology, morphology, usability, function... Did they change?*<br><br>Look, I did have a pretty more open minded opinion of all these concepts. I mean, all of them are very generic concepts to start with.<br><br>*[see Typology and Morphology sections]*<br><br>I won't say that the understanding of these terms changed. I just will say that we have a better sense of these terms by ourselves transforming from nothing to something. | *How does the words that we defined, like morphology, typology, how does that influence, or did that influence, how you went about making these?*<br><br>Actually, I think that I thought of structure, like the work I said at morphology I said structure, typology I said frame and shape. I think I thought of the shape revolve [points at second drawing] and I also thought of practical use, because when I design products or something in the room, I always thought about practical use. But at the same time, for this product, it was like pretty difficult, so I just like made anything that I could do. I just made something that made sense from step 1 to 3. So I think that in this case it became aesthetic, but I always think of practical stuff. I think it's pretty- it would still be practical to somebody because it's gonna be different in certain environments. | *How do you feel, or do you feel, that you've used any of those terms while making your project?*<br><br>No, this is solely experimental, I don't know. This is supposed to be a vase [picks up third 3D model, "vase"] but um, I just didn't like... I don't know. It kind of resembles a vase, but as for function, not necessarily so, so it's not practically. But like aesthetic-wise, yes maybe. I made a conceptual vase. So maybe I did use some term, not exactly how I thought of it coming out.<br><br>*So you say that you won't really think that last one is a vase?*<br><br>Um, I don't think it could function as one.<br><br>*But it's not that it looks like one?*<br><br>It could, if you think about it. [Laughs heartily].<br><br>*Very interesting!* |
| Typology | [Gestures drawings and 3D models] I think they come under the same typology because whether it's a tray or a vase, it was made to contain stuff. So I think they're both containers, so they'll be in the same typology, just different forms. Typology would be the purpose it was intended to fulfill, a container.<br><br>*So the typology would be container?*<br><br>Container I think.<br><br>Okay, great. | | | It's like a subcategory of like, it took me a while to write this. Like a subcategory that describes the different characteristics of an object. Something like this, something small scale, or even a building. The different characteristics it should have, like practical, maybe aesthetic even. | I do think, you know, typology refers to like a specific set of forms that we tend to classify. It's a very broad term to start with. | I think typology is like frame and shape. So I thought about frame and shape about it. So, for example, the tray. I thought of a rectangle [points at first sketch] and for the rods I thought about a wire frame [points at second sketch], so I think that's my typology. | Typology, I think of "type", so, kind of like the shape and the type of thing that essentially that object or whatever it is. |
| Morphology | Morphology definitely changed [gestures to 3D models]. Morphology I think is form, not too sure.<br><br>*Mm-hmm.*<br><br>Yeah, I just started out flat [points at first 3D model, "tray"] and became a proper three... This is three dimensional as well [points again at first 3D model, "tray"] starting from a platter, it turned into a funnel of sorts [points at second 3D model] and then became a solid container which is completely closed [points at third 3D model, "vase"] so I'd say morphology changed throughout these stages.<br><br>Great. | | I actually used the term morphology since I thought maybe a vase should not be like, in terms of symmetrical shape. I changed the shape and I thought we can have a vase that is not, and in terms of symmetry, and what is always defined as a vase, so yes, this is how the new shape that I define for it [points at third 3D model]. | The way I defined it was the way... the different steps that it takes for it to reach its final form.<br><br>*Did your definition change?*<br><br>I mean I realize that there's more than one way that that can happen. There's no just one specific way and that also like here also I realized that this little second iteration [points at second sketch] this middle one, this actually, it could also be a tray. I thought it would be somewhere between a vase and a tray, but it's also counts as a tray. | So, morphology, yeah we play... It's an exercise of morphology, what we are doing right now. We are morphing things to something else. We're morphing a tray to a vase. So I think it's an applied understanding of the terms. | For morphology I thought about a structure. So for me in this work, my structure was folding and then making... Then I used the wire frame to make it stronger and make it stand as this shape. | Morphology, I hear "morph", so the changing, or like... Yeah the changing of the object of its shape. |
| Object | | | | I can't remember what... Oh, I think it's any designed non-sentient being. | | What I wrote down was something that keeps in your mind as something that stands out in the room. So what I worked on was something like that. I thought of, you know like if we think of a vase, we just think of water and flowers in it, but in my case [picks up third 3D model, "vase"], like this can stand alone, so I thought of dry flowers and something kind of other flowers can be inside this and it could be like useful in other ways. So that was my... yeah. | Object is a thing that could like touch, or see, or hear. It's just like a thing. I don't know that's- [laughs]<br><br>That's okay, that's okay. |
| Usability | | | | How practical an object is. | Practical function and usability, in my head, can be considered one group, whereas aesthetic function is extremely different. *[see Aesthetic Function]*<br>Whereas practical application is mostly to a usability of something, how you apply it. So you don't have to... I mean you have to use, I guess, some of your senses to apply it. In any case, I think, this is an exercise that lets us exercise these terms. | For what I wrote for usability was that you can use at any environment. But in my case, I think it depends what you want to put inside and where you want to put this object inside. So I think it depends for the usability. But if you want to use it like 100%, you can use it, but at the same time, you can't really use it well if you don't really use it well in the room. | Usability, to be able to use something. To be able to do something with something. |
| Practical Function | *What about functionality?*<br><br>Again, I'm confused between functionality and typology. Maybe "container" is the functionality... But functionality I think is when an object is created to fulfill a purpose. Like it's performance to fulfill that purpose I'd say is functionality. Yeah, so I'm confused between typology and functionality.<br><br>*It's a common confusion because it's so close right?*<br><br>Yeah. | | | A set of human needs that an object fulfills that are usually considered higher priority in a build environment or considered needs, I guess. | *[see Usability]* | For practical function, I think that it is something useful to a lot of people. In this case, I think it's not that practical to anyone, but in special cases I think this works for aesthetic function, for the other question, yeah. | It's a function that's like useful, essential, practical. It's kind of just like common, or needed, or, just like essential, more or less. |
| Aesthetic Function | *What about aesthetic functionality?*<br><br>Aesthetic function is the eye-catching appeal of an object, I think. So, I think this [points at third 3D model, "vase"] looks a lot more aesthetic than this one does [points at first 3D model, "tray"].<br><br>*Wonderful. Thank you so much!* | | | That's more, like, it falls on... Lower priority items that're not considered like... Or high priority in terms of like visual luxury.<br><br>*So like low priority in general but high priority in terms of visual luxury...?*<br><br>Yeah.<br><br>Cool! | Aesthetic function refers to the senses. | In my thing, that works more than practical, because you can use another flower for it, like for example dry flower, or you can use another object together and put it inside [gestures inside of third 3D model, "vase"], so I think it's another definition of another vase. So that would work. | Functions based off of like beauty, or just like appealing through the looks of it. Not necessarily due to function. |

Figure_Apx. 78:
(2022) Transcription Data from Oral Semi-Structured Interviews. Part 2 [spreadsheet]

Transcription of oral semi-structured interviews. Part 3.

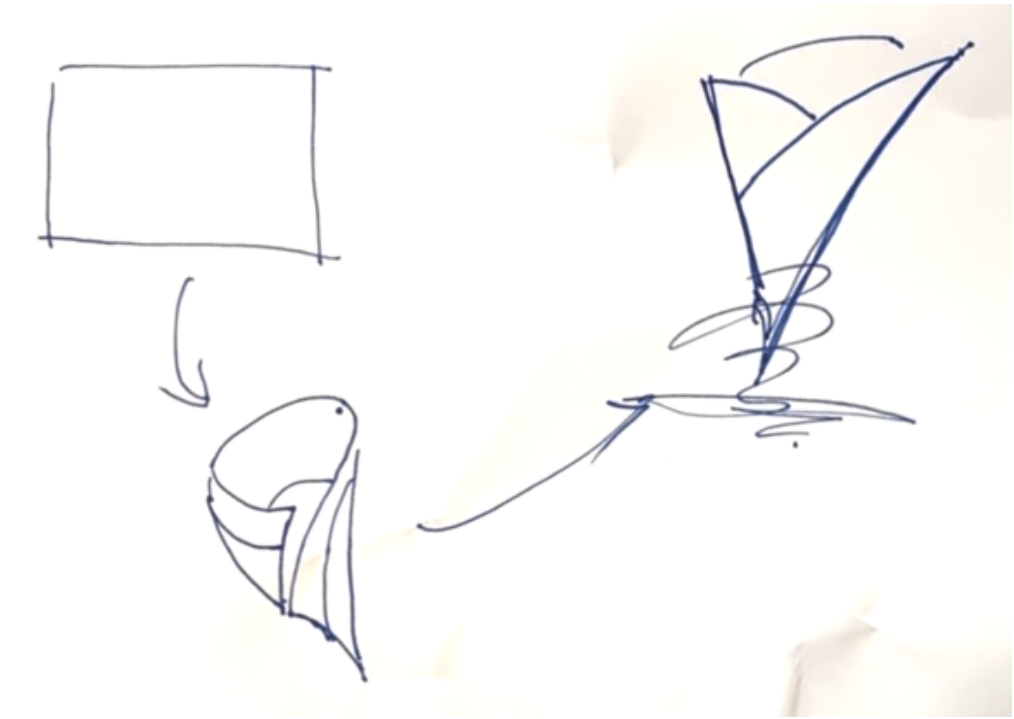


| Workshop | | | | | | | |
|---|---|---|---|---|---|---|---|
| Participant # | a1 | a2 | a3 | b1 | b2 | b3 | b4 |
| 2 Product/Industrial Design level | MFA Interior Design - Semester 1 | MFA Interior Design - Semester 1 | MFA Interior Design - Semester 1 | MFA Interior Design - Semester 1 | MFA Interior Design - Semester 1 | MFA Interior Design - Semester 1 | MFA Interior Design - Semester 1 |
| 4.1 Questions from written questionnaire are asked again, verbally. Has your idea of typology changed? | | | | | | | |
| Additional conversation | *Did your definitions of typology and morphology and functions and usabilities change after this exercise?*<br><br>Um, I think it did, by analyzing specific objects. It kind of gave me more like a wider view of definitions and exactly the intention of use of every objects we use, um, in everyday life, I would say. Should I redefine or?<br><br>*So how would you call typology now?*<br><br>[See Typology]<br><br>*Did you learn something else from this?*<br><br>Yes.<br><br>*What? [Laughs]*<br><br>[Laughs] Trying to think... um... I learned about the building process and... yeah.<br><br>*I noticed that you worked with clay, but it's flat.*<br><br>Mm hmm, yeah I flattened everything out and then I sort of extruded but also was doing folding and extruding and like pinching to build up the walls. And also stretching the clay.<br><br>*Wow, so you used a lot of morphological tools.*<br><br>Yes, correct, yes. | | *Did you definitions of morphology and typologies and functions change at all?*<br><br>Um, not really. | *What changed? Or, in the typology, morphology, functions, usability, definitions... Did they change or not?*<br><br>I think the function changed. Like this piece [points at first 3D model, "tray"] you can put simple objects in it. But I guess with this piece [points at third 3D model, "vase"], you can put like liquid and it won't spill. So the function definitely changed. It also went from a pretty flat object [points at first 3D model, "tray"] to a more like three-dimensional object [points at third 3D model, "vase"]<br><br>*And your definitions of those concepts, did they change at all?*<br><br>Um, I don't think so.<br><br>*Did you learn anything from this exercise?*<br><br>Um, I think it's interesting how they're the same piece [points at both first and third 3D model, "tray" and "vase"] but their forms are totally different. And they have totally different functions. I think it's interesting that you can make different things out of different, like, materials.<br><br>*Even the same language, right? [Points at both first and third 3D model, "tray" and "vase"]*<br><br>Yeah.<br><br>*That's basically what's behind family of objects. Collections, right? There's something that's similar, something familiar.* | *Did this exercise change the definitions you gave us first? Morphology, typology, function, usability...?*<br><br>Yes, in a way. Because I think an object can be altered in the tiniest of ways to be something else, if you just like give a hint of it, because your mind sort of completes it... And initially I thought if a tray could only be a tray but as I'm looking at it [gestures 3D models] there's a slight dent in this tray so you could keep some dry flowers on it. It could be a vase!<br><br>*It could, right!*<br><br>Yeah! So I think there's endless possibilities, it's not so rigid. But just by giving a hint of a shape, you can start to think about so many other ways a thing could be used. | | *Has your idea of typology changed?*<br><br>I think so. Yes.<br><br>*How would you define it now?*<br><br>I think this is a tray definitely [points at first model]. This is a vase [points at third model]. And this [points at second model] I, actually it would be like this [matures edges of model closer to one another] the clay is not dry, so I think this could be some, I don't know, some special plate? [Laughs]<br><br>*Or magazine holder?*<br><br>Yeah, yeah. It can be a magazine holder.<br><br>*Scale it up right?*<br><br>Yeah.<br><br>[See Typology]<br><br>*Does it make sense to say that this sort of helped you play with typologies and morphologies, or did it help you understand something more?*<br><br>Yes, it helped me understand a bit about how the shape changed and the definition will be changed. Yeah, it helped me to play with it, yeah. |
| Typology | I feel like it's a categorization of, um, objects, I guess? But I guess it's also how you perceive it, because... I guess there's no like, exact definition of, you know, what a cup is or what a bowl is. And I found that interesting and I think that kind of opened my view. | So the way I would define typology, I feel like it's the type of the object or like some specification that would make the object. And I think that actually did not change my definition between what I wrote and what I think now. I think the morphology might've changed now. | I think a vase, like a tray [correction], will be a tray, it serves the same function, it's just gonna be different shapes. Essentially if it's from the same typology maybe it serves the same function.<br><br>*And how would you define typology, since that one didn't change?*<br><br>Typology would be, maybe the function of the object. So, function stays the same, but I think the object can look different, but serve the same function. So we know that it's the same typology essentially. But it can have a different representation, in a way. | | | The typology I learn that not with the form but only the function, so I think that it may change a little. Besides thinking about the function, I also think about the shape. Like, I will never just consider like how to transform something just because the function and then transform into something else with a different function. So I would say that my definition is now is more flexible. Like, everything is link. | *But what about the definition of typology? Has it changed from what you wrote first?*<br><br>I wrote like "define the different types of the function, the use of it". I think I still keep the definition. |
| Morphology | | The morphology is the definition of the object, or the way we perceive the object only physically. But I think it's more to that than that because it's also touch, how it feels to the touch, the temperature. So like I feel like that's something I didn't think of when I was writing it and now I realized that working with clay Um, so yeah. | Um, I'm not too sure about morphology... I'm really confused about the definition so I'm not sure what is it...<br><br>*How would you describe it if somebody asked you right now?*<br><br>Something... The composition? I'm not sure.<br><br>*Morphology, the main definition, is the form, a structure in nature without looking at function. It has nothing to do with function. It's just the form. So you're right it has to do with composition, it has to do with how something is made in nature. Even though the nature relates to function, when we're just looking at morphology, it's just the structure.* | | | So at the beginning I defined morphology as "a shape, a physical shape and the volume" so I would say that I say the same. | |
| Object | | | | | | | |
| Usability | | Usability I feel like is the same as intuitive design. Because when the person who is the user, supposed to use it without thinking too much about that. So like, it has to be practical, so I feel like, that's... Does that make sense?<br><br>*It does, it does. Thank you so much, this was great.* | | | | | |
| Practical Function | | The practical function I think what I wrote was that every object should have a practical use to it. So like basically when we design something, the use should be intuitive, and I do still think that. That the intuitive part in design is very important. That user does not have to think, oh how do I use it? It is supposed to intuitively figure it out. So it's more like I see the tray and I know how to use it. But now that I did this project, I'm thinking that objects are not what they are. Like not what they appear to be. So, like, with the tray we can transform it into something else with a little bit of effort. | | | | | |
| Aesthetic Function | | | | | | | |

Figure_Apx. 79:
(2022) Transcription Data from Oral Semi-Structured Interviews. Part 3 [spreadsheet]

Workshop Three participants were prompted to develop a 2D drawn sketch and a 3D sequence from a candle holder to a lamp using sketch materials. Research Assistant Xusheng Yu documented the sequences.

Images of sequence by Participant 30.

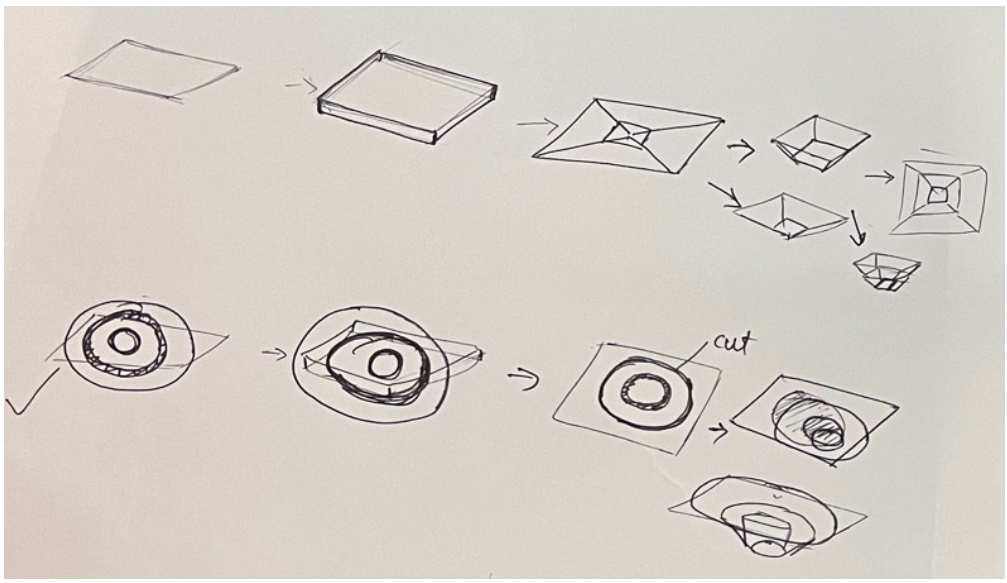


Figure_Apx. 80:
(2022) 2D Sketch of Sequence. Workshop Three– Participant 30.
[photo] Photo credit: Xusheng Yu.



Figure_Apx. 81:
(2022) 3D Sketch of Sequence. Workshop Three – Participant 30. [photo]
Photo credit: Xusheng Yu.

Images of sequence by Participant 31.

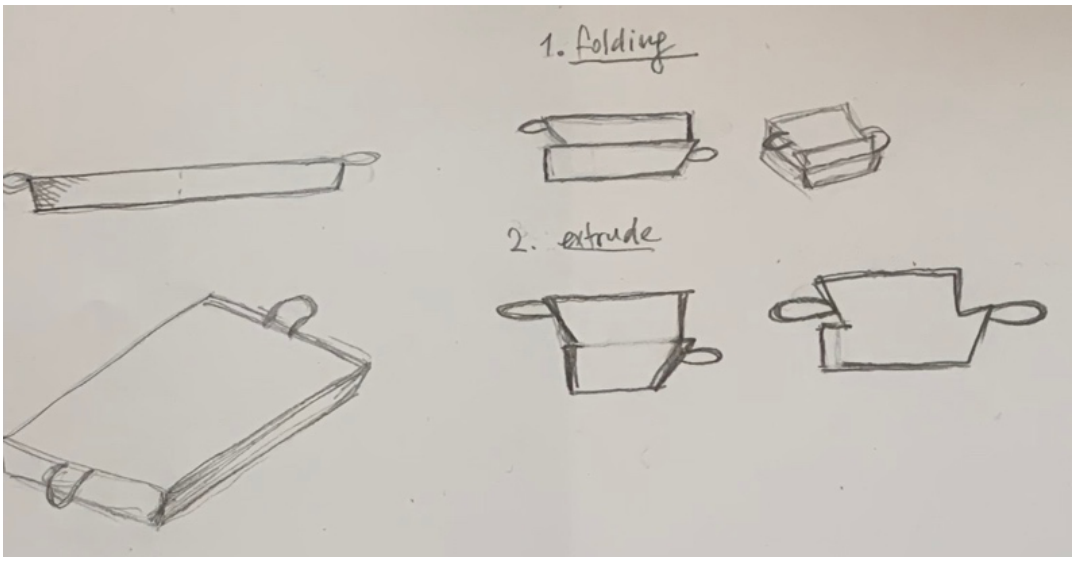



Figure_Apx. 82:
(2022) 2D Sketch of Sequence. Workshop Three – Participant 31. [photo] Photo credit: Xusheng Yu.




Figure_Apx. 83:
(2022) 3D Sketch of Sequence. Workshop Three – Participant 31. [photo] Photo credit: Xusheng Yu.

Images of sequence by Participant 33.

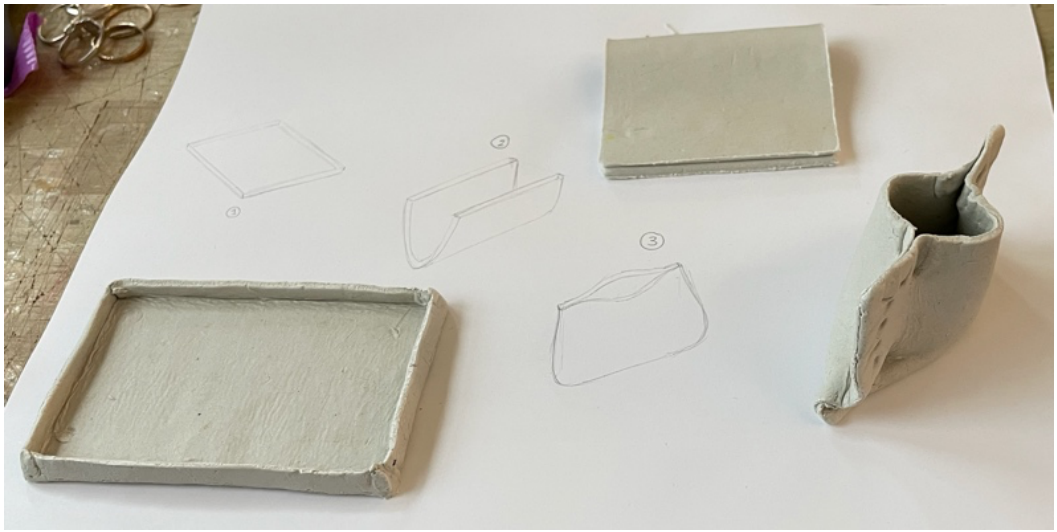



Figure_Apx. 84:
(2022) 2D Sketch of Sequence. Workshop Three – Participant 33. [photo] Photo credit: Xusheng Yu.



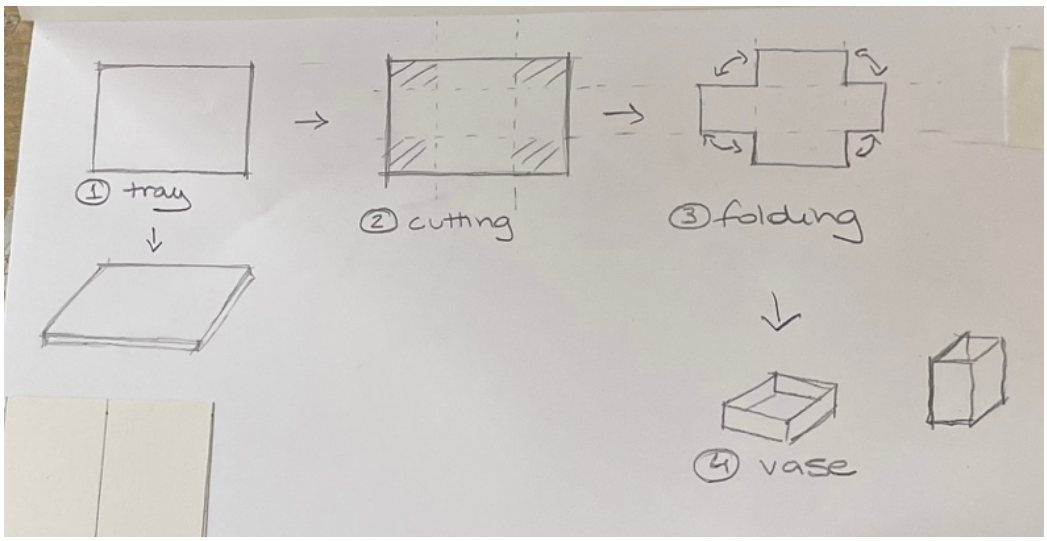
Figure_Apx. 85:
(2022) 3D Sketch of Sequence. Workshop Three – Participant 33. [photo] Photo credit: Xusheng Yu.

Images of sequence by Participant 34.



Figure_Apx. 86:
(2022) 2D and 3D Sketches of Sequence. Workshop Three – Participant 34 [photo] Photo credit: Xusheng Yu.

Images of sequence by Participant 35.

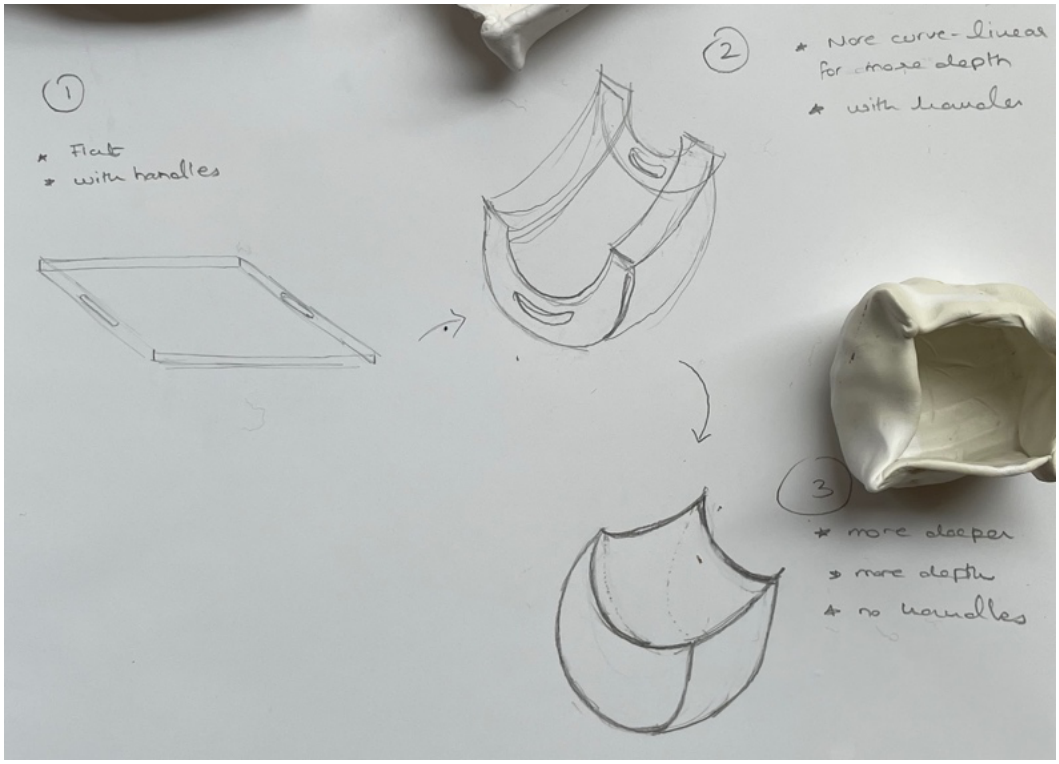



Figure_Apx. 87:
(2022) 2D Sketch of Sequence. Workshop Three – Participant 35 [photo] Photo credit: Xusheng Yu.

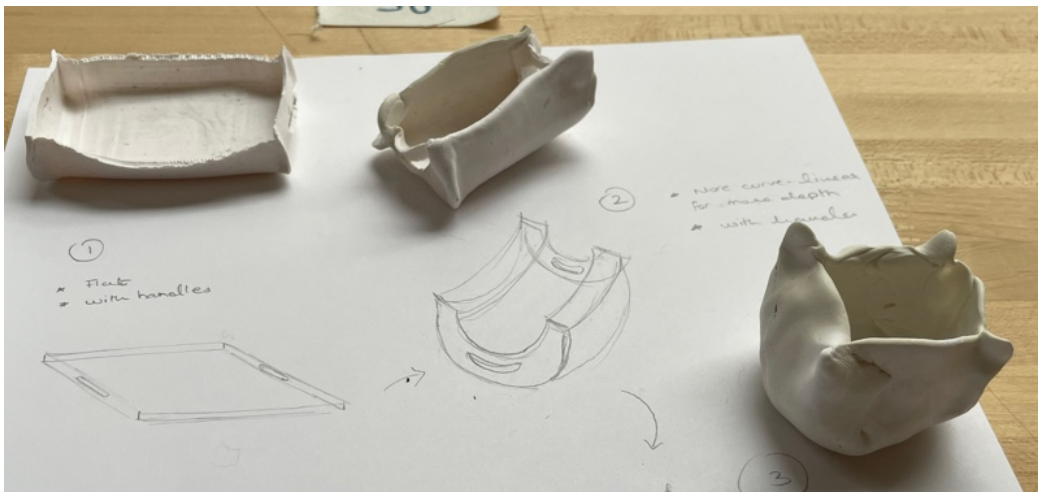


Figure_Apx. 88:
(2022) 3D Sketch of Sequence. Workshop Three – Participant 35 [photo] Photo credit: Xusheng Yu.

Images of sequence by Participant 36.

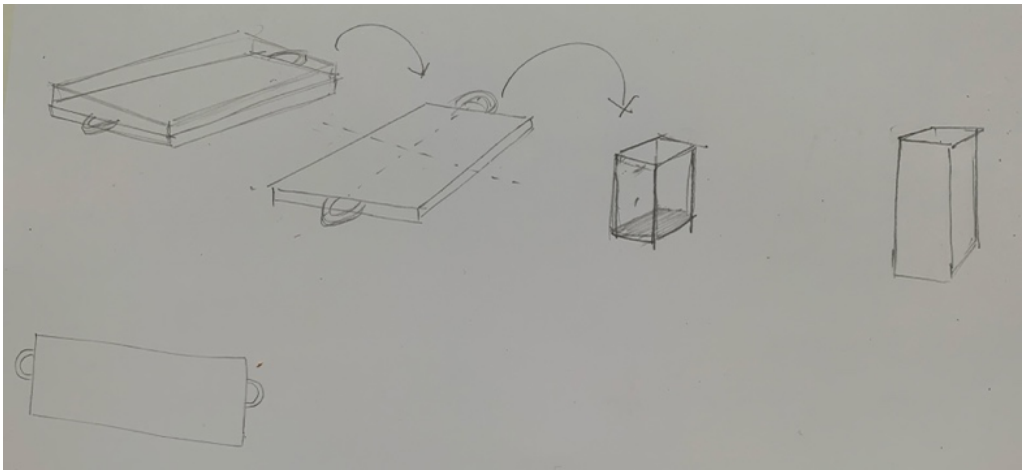



Figure_Apx. 89:
(2022) 2D Sketch of Sequence. Workshop Three – Participant 36 [photo] Photo credit: Xusheng Yu.




Figure_Apx. 90:
(2022) 3D Sketch of Sequence. Workshop Three – Participant 36 [photo] Photo credit: Xusheng Yu.

Images of sequence by Participant 37.

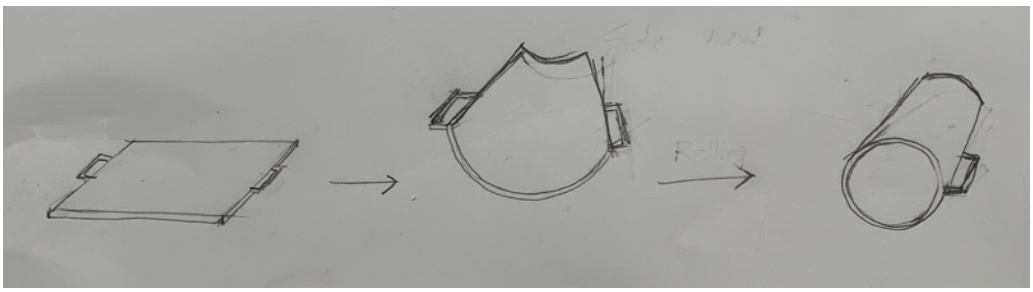


Figure_Apx. 91:
(2022) 2D Sketch of Sequence. Workshop Three – Participant 37 [photo] Photo credit: Xusheng Yu.

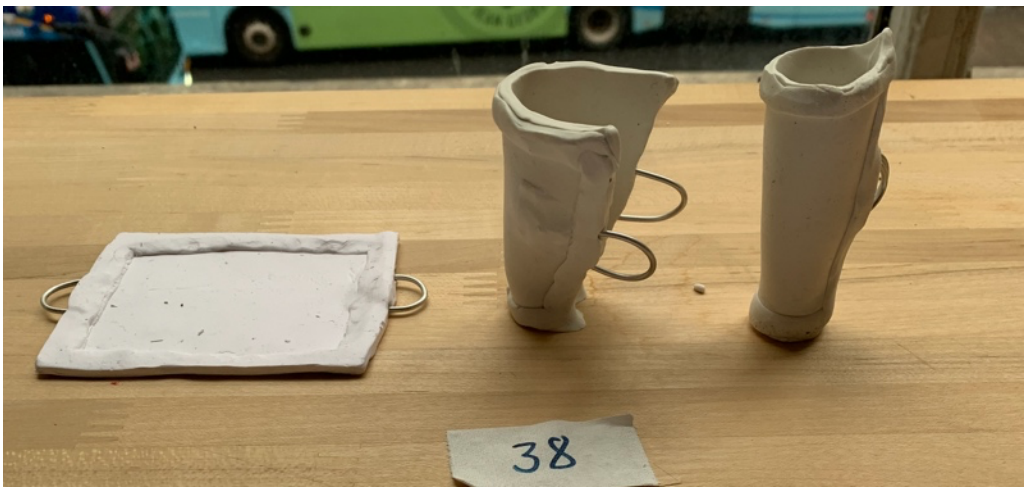



Figure_Apx. 92:
(2022) 3D Sketch of Sequence. Workshop Three – Participant 37 [photo] Photo credit: Xusheng Yu.

Images of sequence by Participant 38.

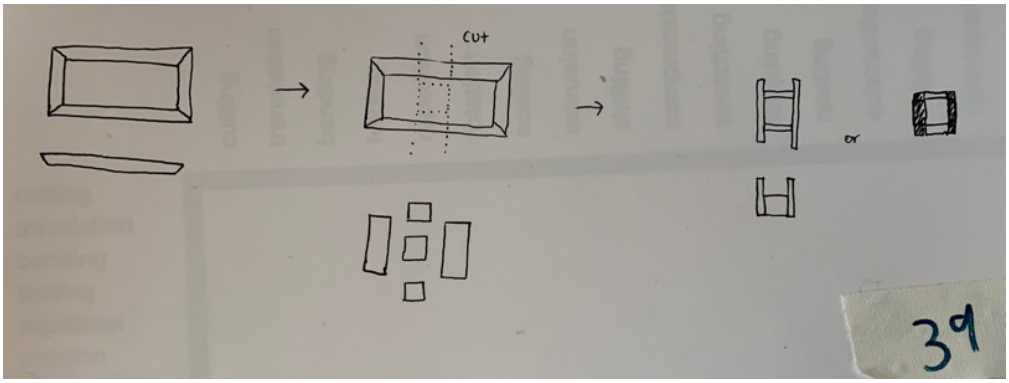


Figure_Apx. 93:
(2022) 2D Sketch of Sequence. Workshop Three – Participant 38 [photo] Photo credit: Xusheng Yu.




Figure_Apx. 94:
(2022) 3D Sketch of Sequence. Workshop Three – Participant 38
[photo] Photo credit: Xusheng Yu.

Images of sequence by Participant 39.

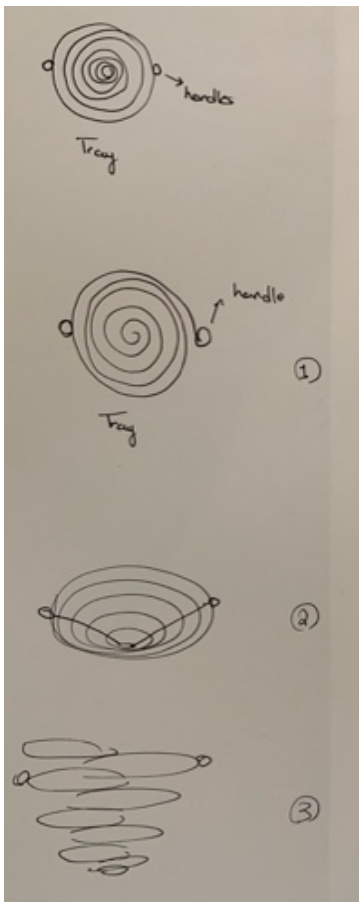



Figure_Apx. 95:
(2022) 2D Sketch of Sequence. Workshop Three – Participant 39
[photo] Photo credit: Xusheng Yu.



Figure_Apx. 96:
(2022) 3D Sketch of Sequence. Workshop Three – Participant 39
[photo] Photo credit: Xusheng Yu.

Images of sequence by Participant 40.

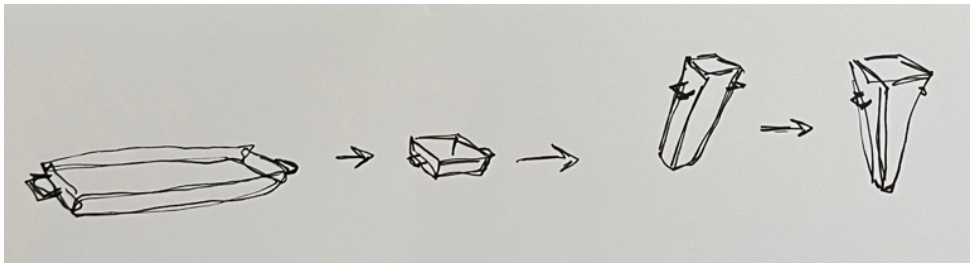



Figure_Apx. 97:
(2022) 2D Sketch of Sequence. Workshop Three – Participant 40 [photo] Photo credit: Xusheng Yu.

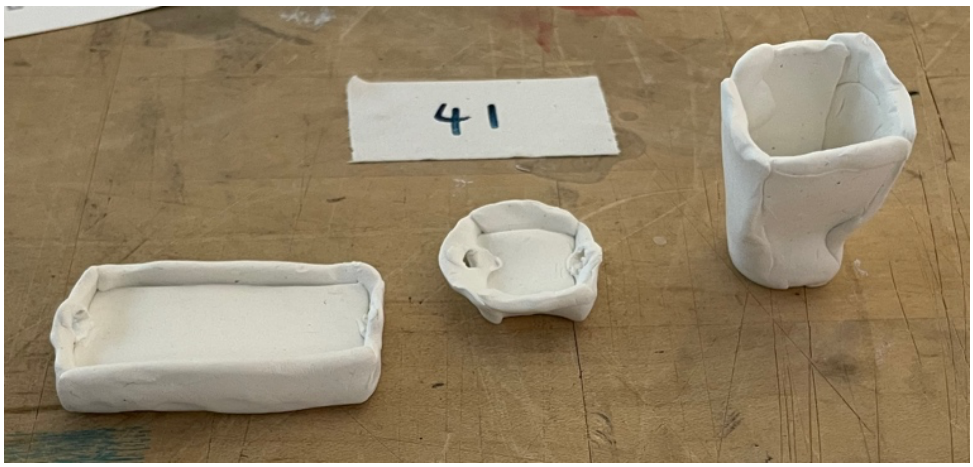


Figure_Apx. 98:
(2022) 3D Sketch of Sequence. Workshop Three – Participant 40 [photo] Photo credit: Xusheng Yu.

Images of sequence by Participant 41.

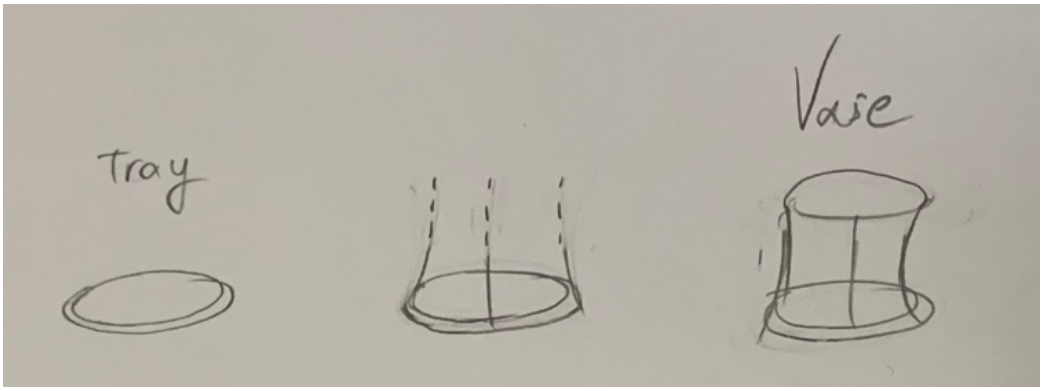


Figure_Apx. 99:
(2022) 2D Sketch of Sequence. Workshop Three – Participant 41 [photo] Photo credit: Xusheng Yu.




Figure_Apx. 100:
(2022) 3D Sketch of Sequence. Workshop Three – Participant 41 [photo] Photo credit: Xusheng Yu.

Images of sequence by Participant 42.

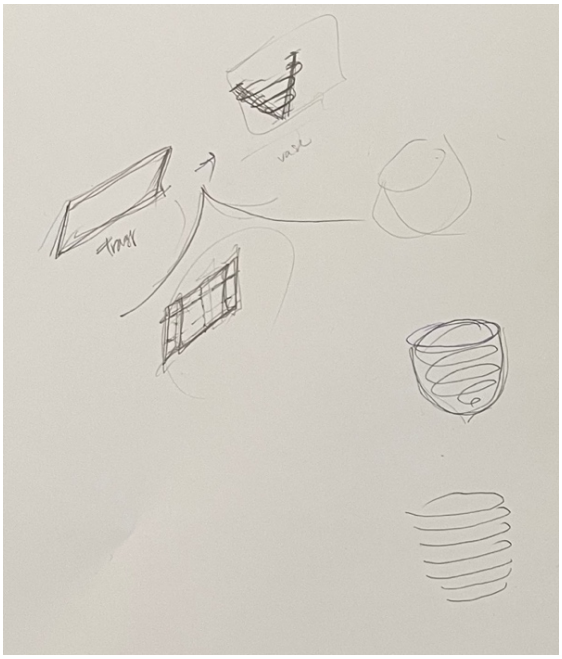



Figure_Apx. 101:
(2022) 2D Sketch of Sequence. Workshop Three – Participant 42 [photo] Photo credit: Xusheng Yu.

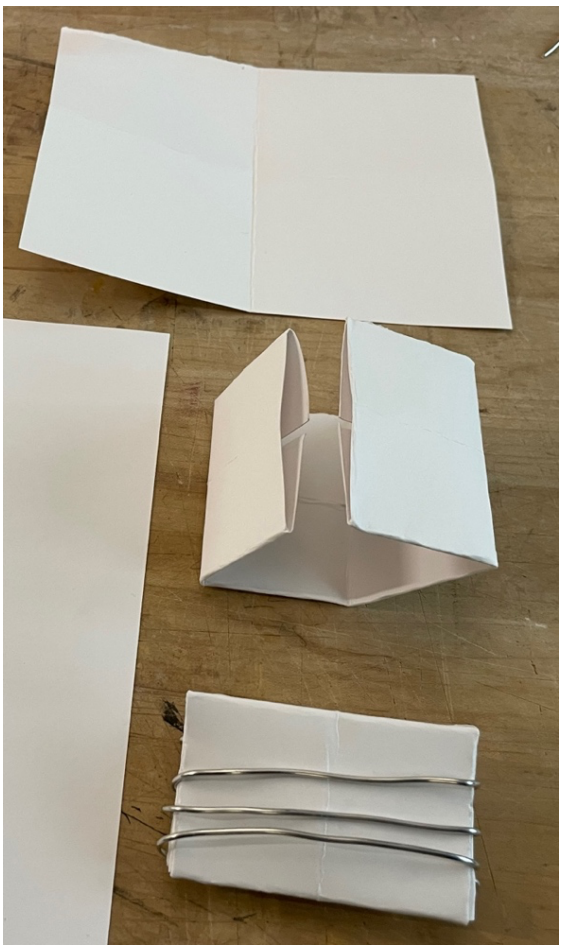



Figure_Apx. 102:
(2022) 3D Sketch of Sequence. Workshop Three – Participant 42 [photo] Photo credit: Xusheng Yu.

Images of sequence by Participant 44.

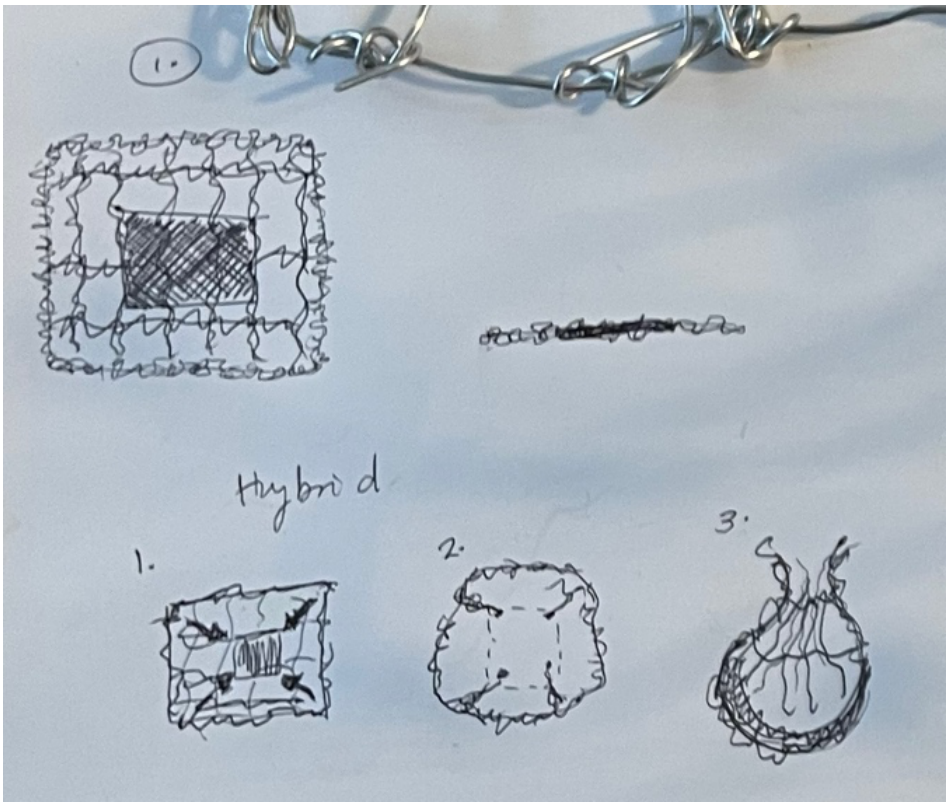


Figure_Apx. 103:
(2022) 2D Sketch of Sequence. Workshop Three – Participant 44 [photo] Photo credit: Xusheng Yu.

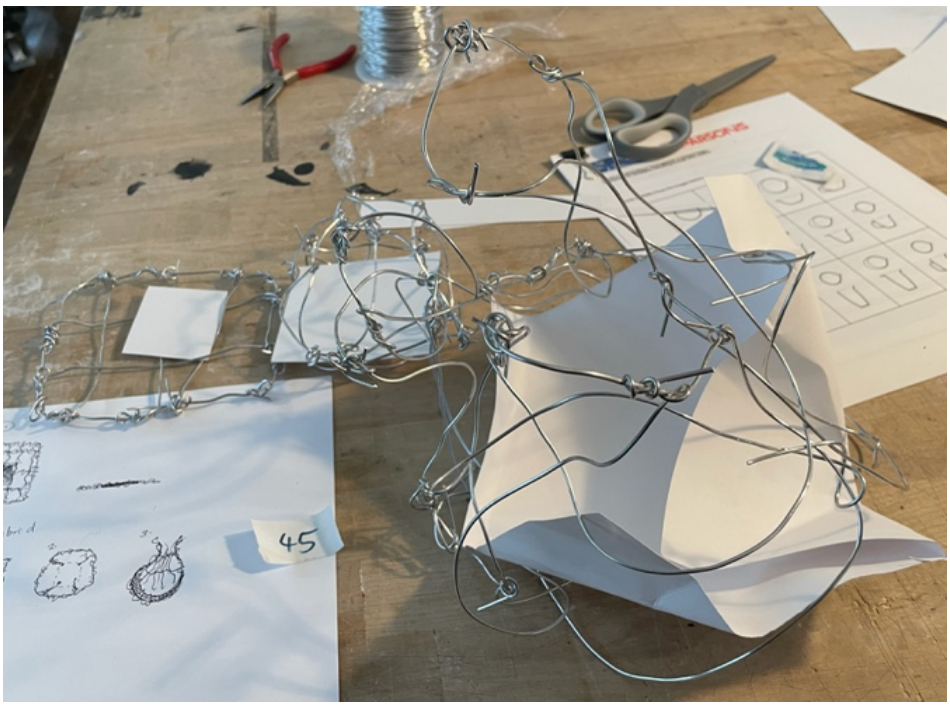


Figure_Apx. 104:
(2022) 3D Sketch of Sequence. Workshop Three – Participant 44 [photo] Photo credit: Xusheng Yu.

Images of sequence by Participant 45.

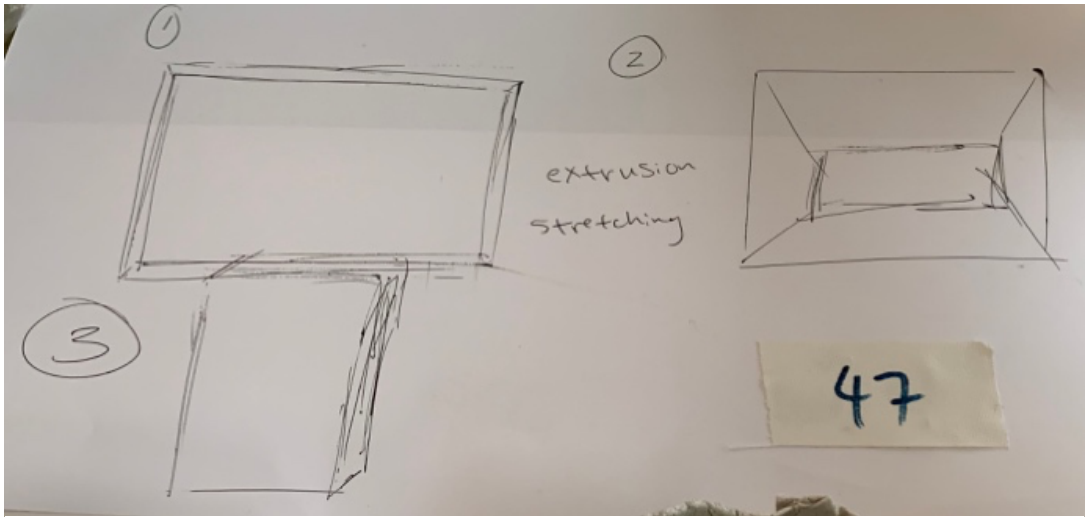



Figure_Apx. 105:
(2022) 2D Sketch of Sequence. Workshop Three – Participant 45 [photo] Photo credit: Xusheng Yu.




Figure_Apx. 106:
(2022) 3D Sketch of Sequence. Workshop Three – Participant 45 [photo] Photo credit: Xusheng Yu.

Images of sequence by Participant 47.

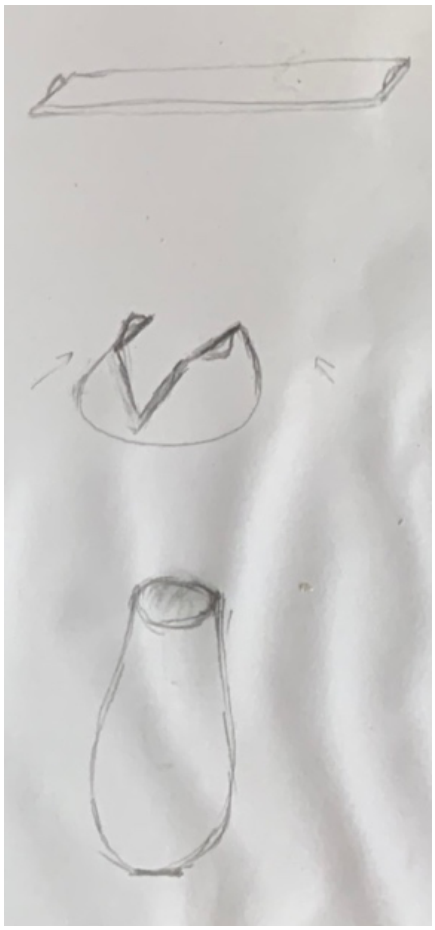



Figure_Apx. 107:
(2022) 2D Sketch of Sequence. Workshop Three – Participant 47 [photo] Photo credit: Xusheng Yu.




Figure_Apx. 108:
(2022) 3D Sketch of Sequence. Workshop Three – Participant 47 [photo] Photo credit: Xusheng Yu.

Images of sequence by Participant 48.

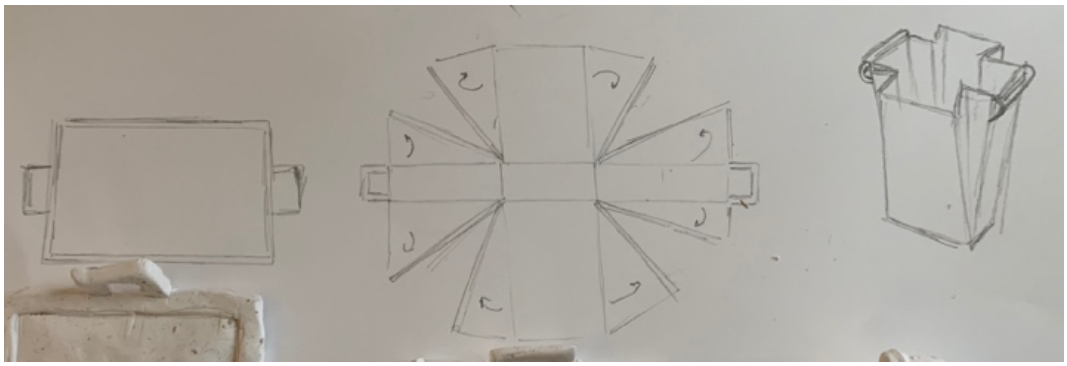


Figure_Apx. 109:
(2022) 2D Sketch of Sequence. Workshop Three – Participant 48 [photo] Photo credit: Xusheng Yu.

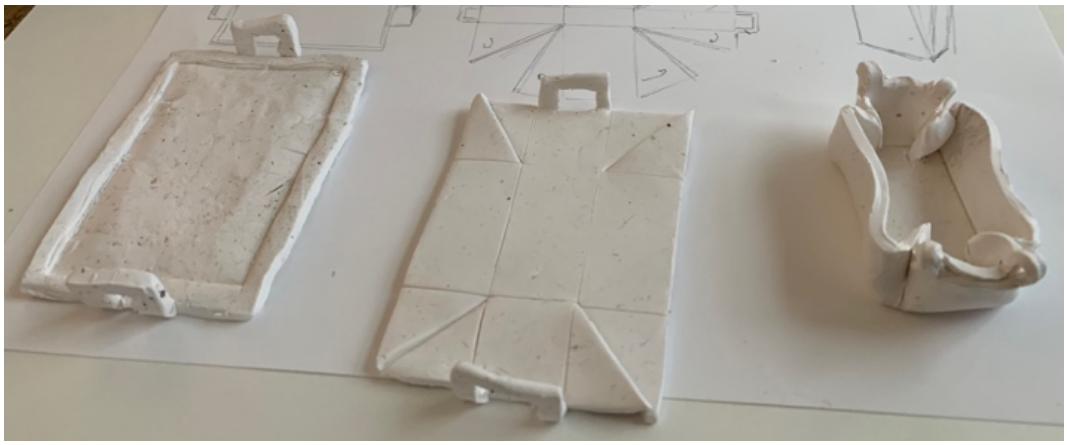


Figure_Apx. 110:
(2022) 3D Sketch of Sequence. Workshop Three – Participant 48 [photo] Photo credit: Xusheng Yu.

Images of sequence by Participant 49.

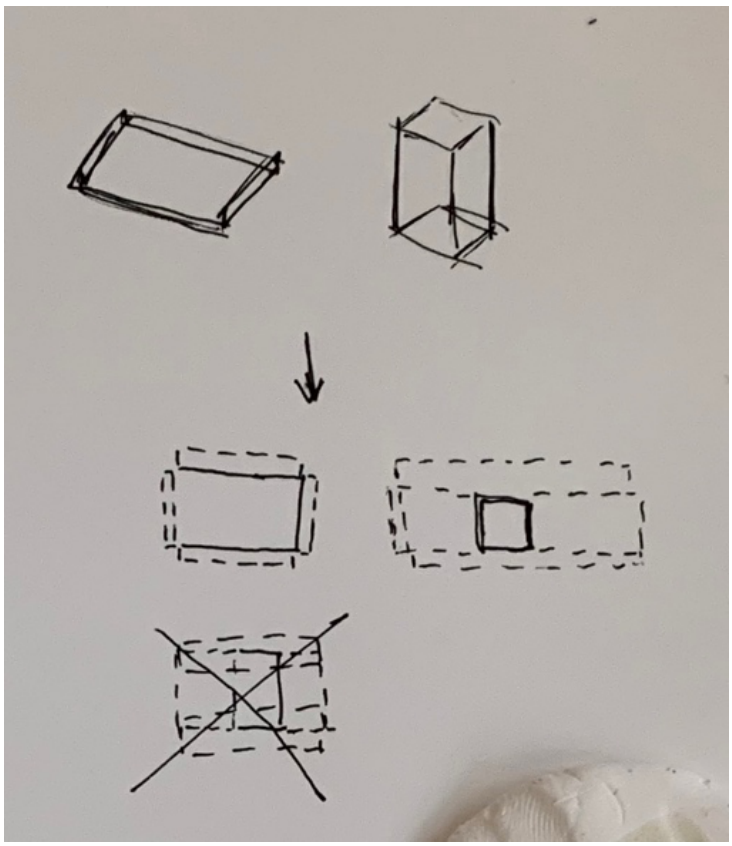


Figure_Apx. 111:
(2022) 2D Sketch of Sequence. Workshop Three – Participant 49 [photo] Photo credit: Xusheng Yu.



Figure_Apx. 112:
(2022) 3D Sketch of Sequence. Workshop Three – Participant 49 [photo] Photo credit: Xusheng Yu.

Images of sequence by Participant 50.

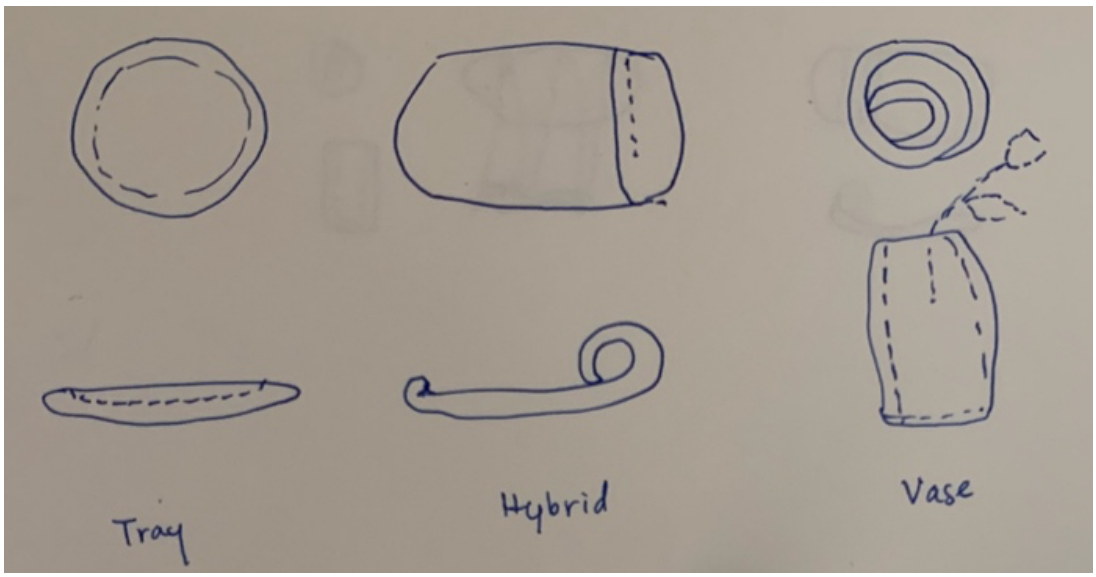


Figure_Apx. 113:
(2022) 2D Sketch of Sequence. Workshop Three – Participant 50 [photo] Photo credit: Xusheng Yu.

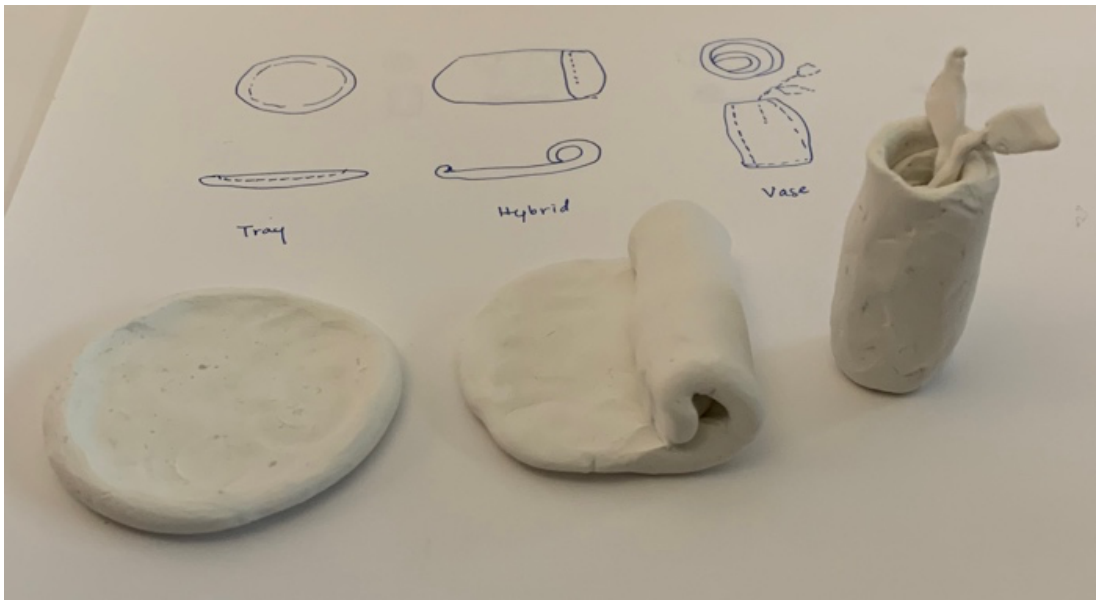


Figure_Apx. 114:
(2022) 3D Sketch of Sequence. Workshop Three – Participant 50 [photo] Photo credit: Xusheng Yu.

Images of sequence by Participant 51.

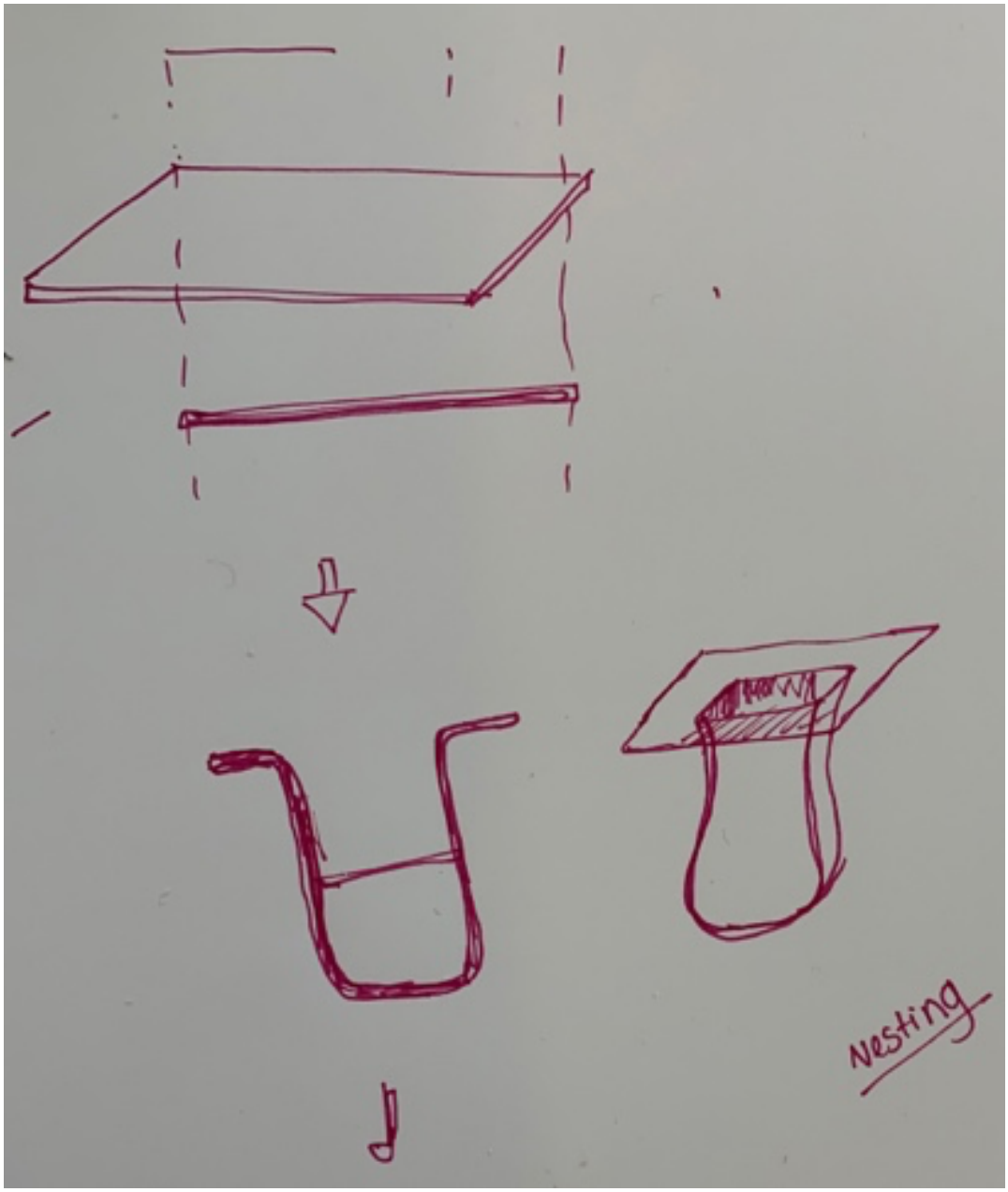



Figure_Apx. 115:
(2022) 2D Sketch of Sequence. Workshop Three – Participant 51 [photo] Photo credit: Xusheng Yu.




Figure_Apx. 116:
(2022) 3D Sketch of Sequence. Workshop Three – Participant 51 [photo] Photo credit: Xusheng Yu.

Images of sequence by Participant 52.

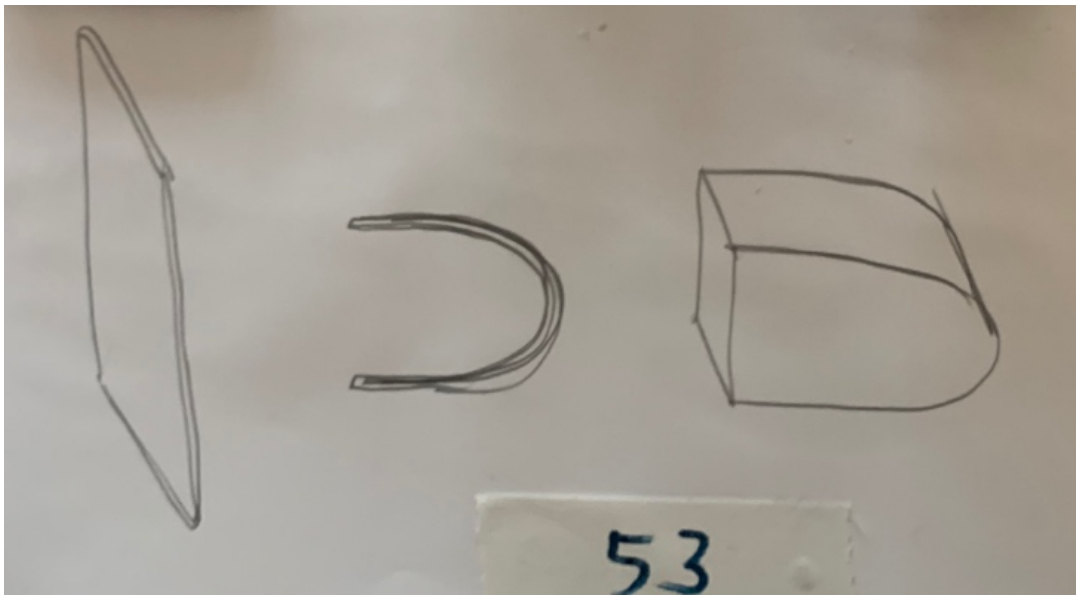



Figure_Apx. 117:
(2022) 2D Sketch of Sequence. Workshop Three – Participant 52 [photo] Photo credit: Xusheng Yu.

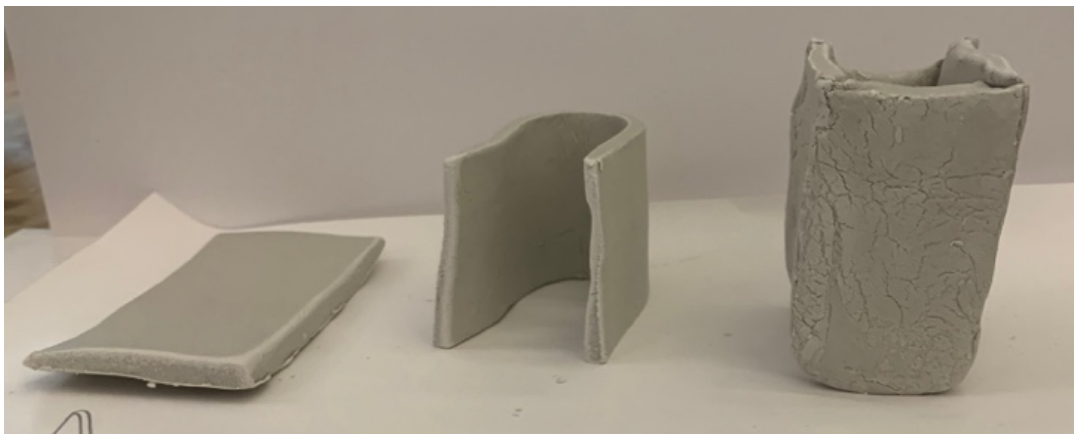


Figure_Apx. 118:
(2022) 3D Sketch of Sequence. Workshop Three – Participant 52 [photo] Photo credit: Xusheng Yu.

Images of sequence by Participant 53.




Figure_Apx. 119:
(2022) 2D Sketch of Sequence. Workshop Three – Participant 53 [photo] Photo credit: Xusheng Yu.



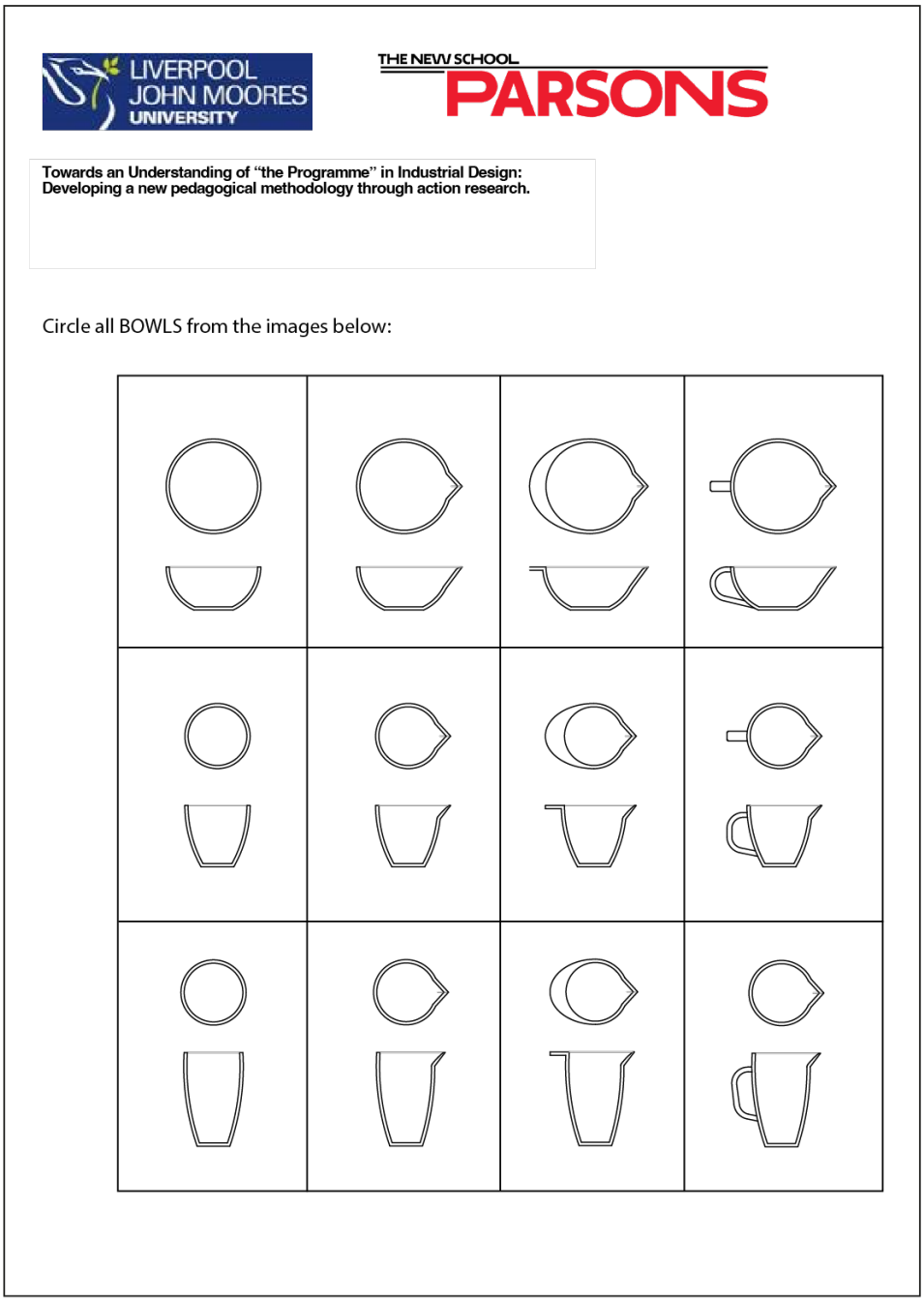
Figure_Apx. 120:
(2022) 3D Sketch of Sequence. Workshop Three – Participant 53 [photo] Photo credit: Xusheng Yu.

## Workshop Four

[17 November 2022]

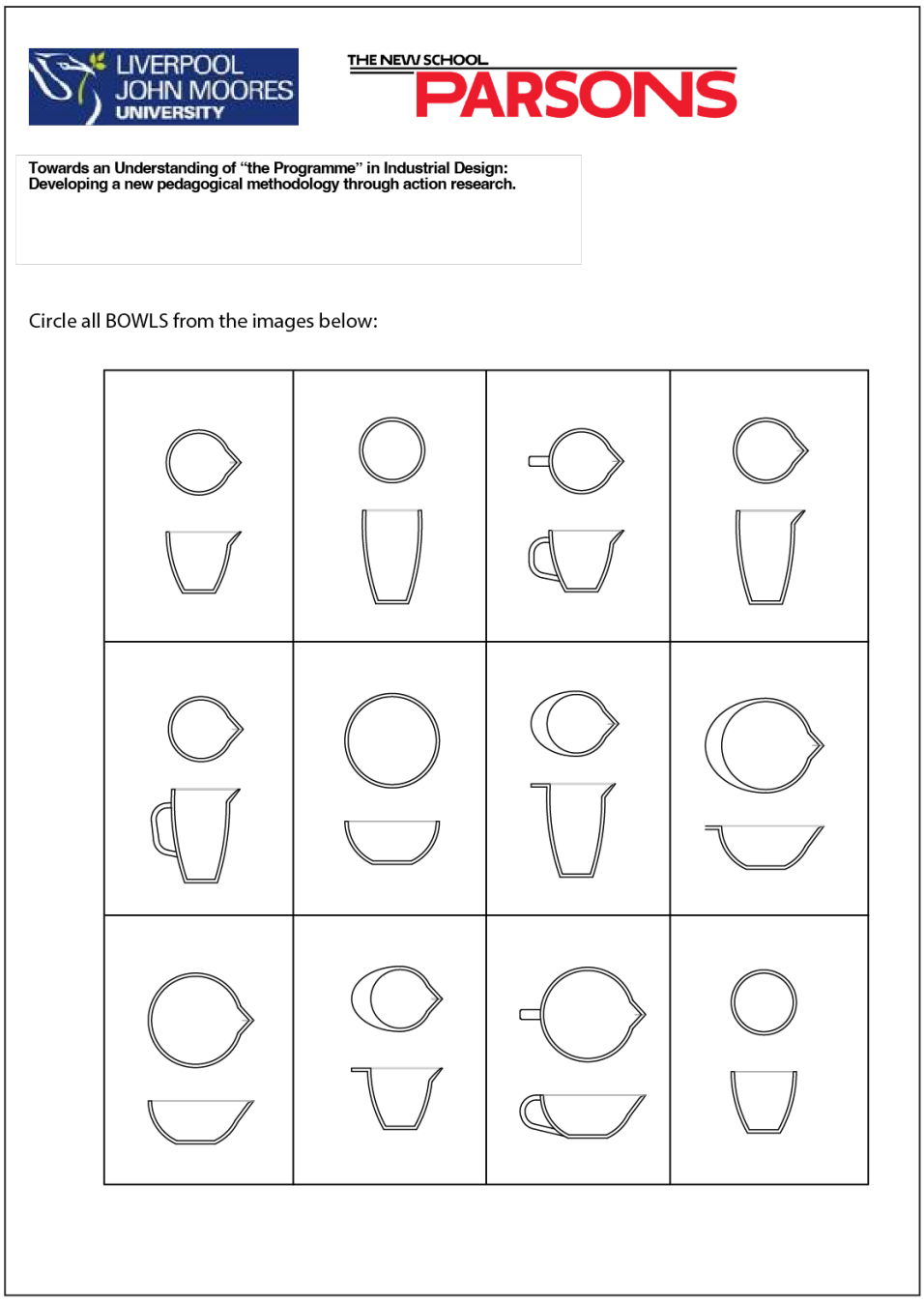
### Documentation given to participants. Workshop Four.

Participants were asked to select bowls out of a grid with sequences going from a bowl to a pitcher.




Figure_Apx. 121:
Chaparro, Y. (2022) Grid for Selection of Bowls. Organized Sequences [document]

Bowl selection Forms for student participants in workshop.




Figure_Apx. 122:
Chaparro, Y. (2022) Grid for Selection of Bowls. Disorganized Sequences [document]

**Towards an Understanding of "the Programme" in Industrial Design: Developing a new pedagogical methodology through action research. STAND-ALONE WORKSHOP.**

**Principal Investigator**: Yvette Chaparro
**School/Faculty within LJMU**: PhD programme Art&Design **Collaborating Institutions**: Parsons / The New School

**Introduction** You are being invited to take part in a research study. Before you decide it is important for you to understand why the study us being done and what participation will involve. Please take time to read the following information carefully and discuss it with others if you wish. Ask us if there is anything that is not clear or if you would like more information. Take time to decide whether or not you wish to take part. Thank you for taking the time to read this.

**What is the purpose of the study?** This project aims to study the significance of the concepts around typology and morphology and how they can help students learn the process of Industrial/Product/3D design.

**Why have I been invited to participate?** You have been invited because you are an Design student, so you are already familiar with the basic language of design. The exclusion criteria includes students that have already had two or more years of Industrial/Product Design studies. You were identified through the BFA Parsons Product Design and MFA Industrial Design programmes at SCE.

**Do I have to take part?** No. It is up to you to decide whether or not to take part. If you do decide to take part you will be given this information sheet to keep and be asked to sign a consent form. You can withdraw at any time by informing the investigators without giving a reason and without it affecting your rights/any future treatment/service you receive.

**What will happen to me if I take part?**

- We will talk you through the study procedures and give you the chance to ask any questions.
- You will be given a written questionnaire on paper [if the workshop is face-to-face], or online [if the workshop is virtual]. The questionnaire will include questions about your knowledge of 3D concepts to complete. The questionnaire will include a number to replace your name in all documentation of work and shared comments as to ensure confidentiality [approx. 5minutes]
- You will be given a prompt to use basic materials and make 3-Dimensional sketch models. [30mins approx..]. After the workshop photographs will be taken of the work and you will be able to take the work away with you.
- Your process will be recorded audio visually focusing on your. working hands, for the researcher to transcribe and reflect on the activity.
- You will be interviewed as a group during the making activity, and recorded audio visually asking questions about the process (only your voice, hands, and work will be recorded).
- You will then have an exit interview with a couple more questions. (recorded audio visually showing the outcome of the activity). [5-10mins approx..]
- You will be given transportation money and a card for snacks / coffee.

**Will I be recorded and how will the recorded media be used?** Yes, the activity and exit interview will be audio visually recorded for the researcher to transcribe and reflect on the process and outcomes.
The audio and/or video recordings of your activities made during this study will be used only for analysis. No other use will be made of them without your written permission. The audio-visual recording will be stored in a password protected device. The creative output, reflections, and comments will be used as part of the investigator's thesis work and subsequent publication of the work will always remain confidential. Your name will not be attached to the creative output, it will be code-linked so only the researchers will be able to trace it back to you.

**Are there any possible disadvantages or risks from taking part?** It is highly unlikely that you would become distressed as the workshops/ exercises are normal teaching and learning activities. If you were to become stressed during the workshop or exercise you are free to leave the session at any time and there is also on campus support through Student services if any medical issue were to arise plus first aid access.

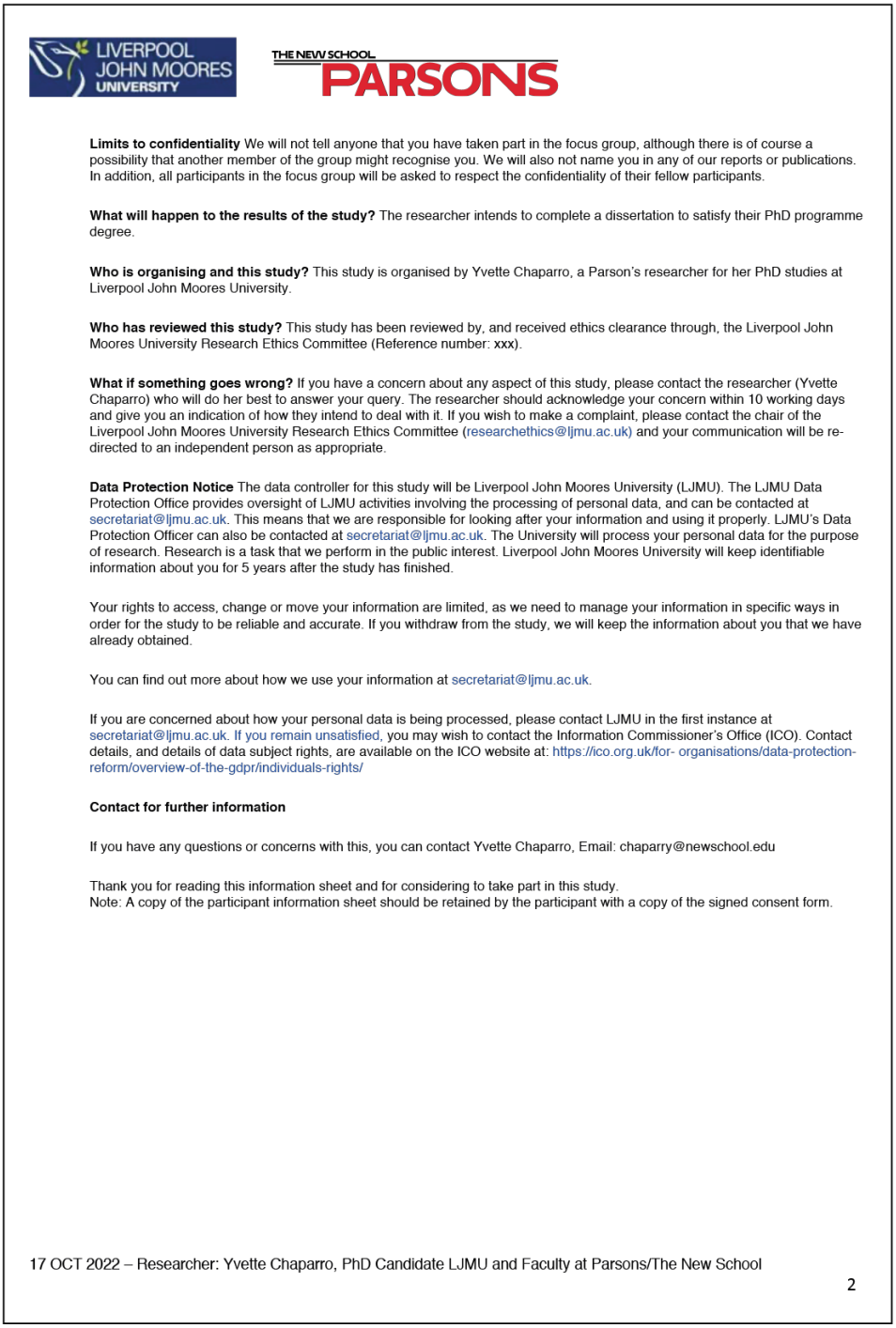
**What are the possible benefits of taking part?** Participation in the in-class research as case studies will provide an opportunity to share reflections and insights, as well as potentially developing an understanding of research processes.

**What will happen to the data provided and how will my taking part in this project be kept confidential?** The information you provide as part of the study is the study data. Any study data from which you can be identified (e.g. from identifiers such as your name, date of birth, audio recording etc.), is known as personal data. Personal data collected from you will be recorded using a linked-code. The link from the code to your identity will be stored securely and separately from the coded data on a password protected device. You will not be identifiable in any ensuing reports or publications.

17 OCT 2022 – Researcher: Yvette Chaparro, PhD Candidate LJMU and Faculty at Parsons/The New School

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Figure_Apx. 123:
Chaparro, Y. (2022) Consent Forms for Participants. Page 1 [document]



**Limits to confidentiality** We will not tell anyone that you have taken part in the focus group, although there is of course a possibility that another member of the group might recognise you. We will also not name you in any of our reports or publications. In addition, all participants in the focus group will be asked to respect the confidentiality of their fellow participants.

**What will happen to the results of the study?** The researcher intends to complete a dissertation to satisfy their PhD programme degree.

**Who is organising and this study?** This study is organised by Yvette Chaparro, a Parson's researcher for her PhD studies at Liverpool John Moores University.

**Who has reviewed this study?** This study has been reviewed by, and received ethics clearance through, the Liverpool John Moores University Research Ethics Committee (Reference number: xxx).

**What if something goes wrong?** If you have a concern about any aspect of this study, please contact the researcher (Yvette Chaparro) who will do her best to answer your query. The researcher should acknowledge your concern within 10 working days and give you an indication of how they intend to deal with it. If you wish to make a complaint, please contact the chair of the Liverpool John Moores University Research Ethics Committee (researchethics@ljmu.ac.uk) and your communication will be re-directed to an independent person as appropriate.

**Data Protection Notice** The data controller for this study will be Liverpool John Moores University (LJMU). The LJMU Data Protection Office provides oversight of LJMU activities involving the processing of personal data, and can be contacted at secretariat@ljmu.ac.uk. This means that we are responsible for looking after your information and using it properly. LJMU's Data Protection Officer can also be contacted at secretariat@ljmu.ac.uk. The University will process your personal data for the purpose of research. Research is a task that we perform in the public interest. Liverpool John Moores University will keep identifiable information about you for 5 years after the study has finished.

Your rights to access, change or move your information are limited, as we need to manage your information in specific ways in order for the study to be reliable and accurate. If you withdraw from the study, we will keep the information about you that we have already obtained.

You can find out more about how we use your information at secretariat@ljmu.ac.uk.

If you are concerned about how your personal data is being processed, please contact LJMU in the first instance at secretariat@ljmu.ac.uk. If you remain unsatisfied, you may wish to contact the Information Commissioner's Office (ICO). Contact details, and details of data subject rights, are available on the ICO website at: https://ico.org.uk/for- organisations/data-protection-reform/overview-of-the-gdpr/individuals-rights/

**Contact for further information**

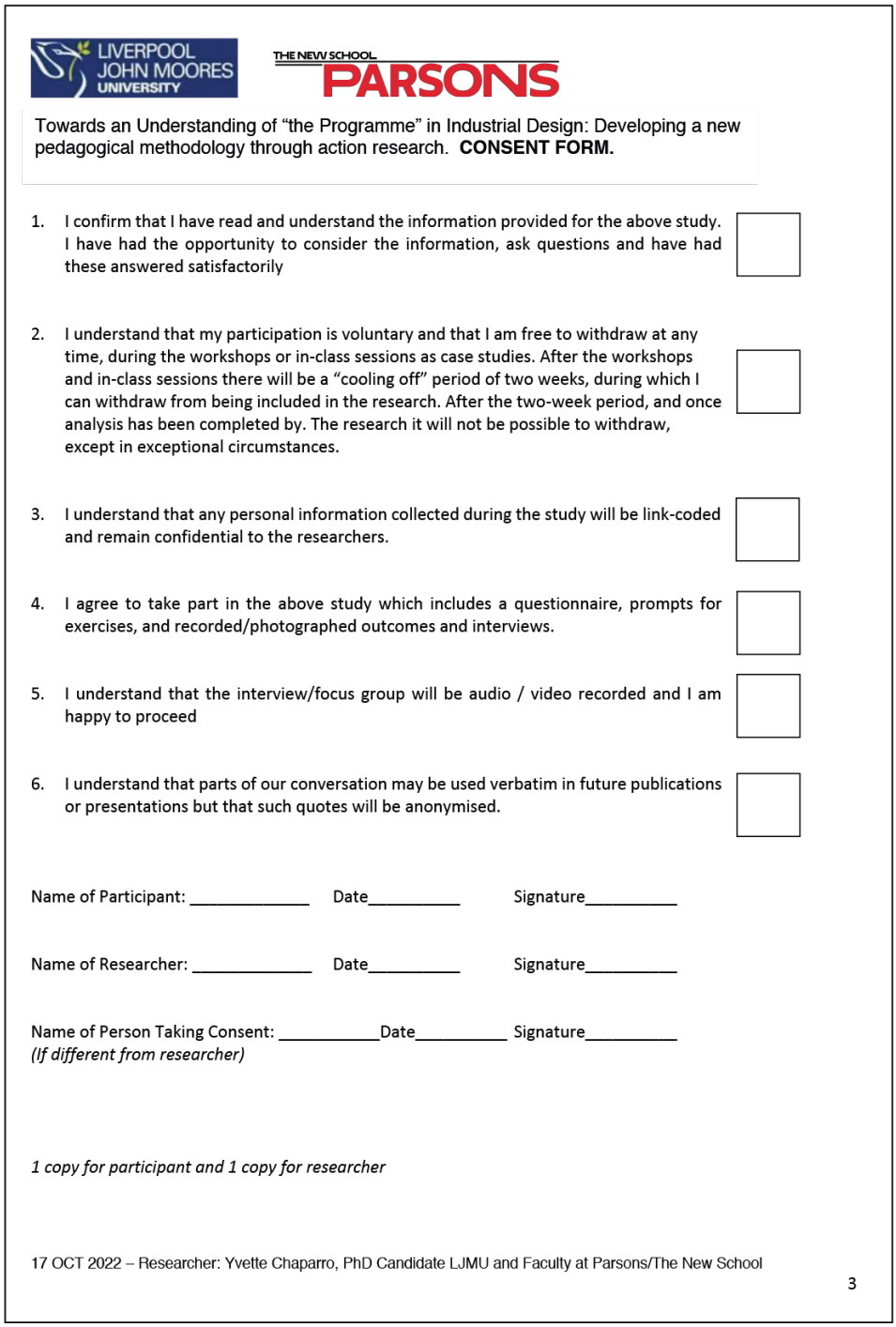
If you have any questions or concerns with this, you can contact Yvette Chaparro, Email: chaparry@newschool.edu

Thank you for reading this information sheet and for considering to take part in this study.
Note: A copy of the participant information sheet should be retained by the participant with a copy of the signed consent form.

17 OCT 2022 – Researcher: Yvette Chaparro, PhD Candidate LJMU and Faculty at Parsons/The New School

2

Figure_Apx. 124:
Chaparro, Y. (2022) Consent Forms for Participants. Page 2 [document]



LIVERPOOL JOHN MOORES UNIVERSITY

THE NEW SCHOOL PARSONS

Towards an Understanding of "the Programme" in Industrial Design: Developing a new pedagogical methodology through action research. **CONSENT FORM.**

1. I confirm that I have read and understand the information provided for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily ☐

2. I understand that my participation is voluntary and that I am free to withdraw at any time, during the workshops or in-class sessions as case studies. After the workshops and in-class sessions there will be a "cooling off" period of two weeks, during which I can withdraw from being included in the research. After the two-week period, and once analysis has been completed by. The research it will not be possible to withdraw, except in exceptional circumstances. ☐

3. I understand that any personal information collected during the study will be link-coded and remain confidential to the researchers. ☐

4. I agree to take part in the above study which includes a questionnaire, prompts for exercises, and recorded/photographed outcomes and interviews. ☐

5. I understand that the interview/focus group will be audio / video recorded and I am happy to proceed ☐

6. I understand that parts of our conversation may be used verbatim in future publications or presentations but that such quotes will be anonymised. ☐

Name of Participant: _____ Date_____ Signature_____

Name of Researcher: _____ Date_____ Signature_____

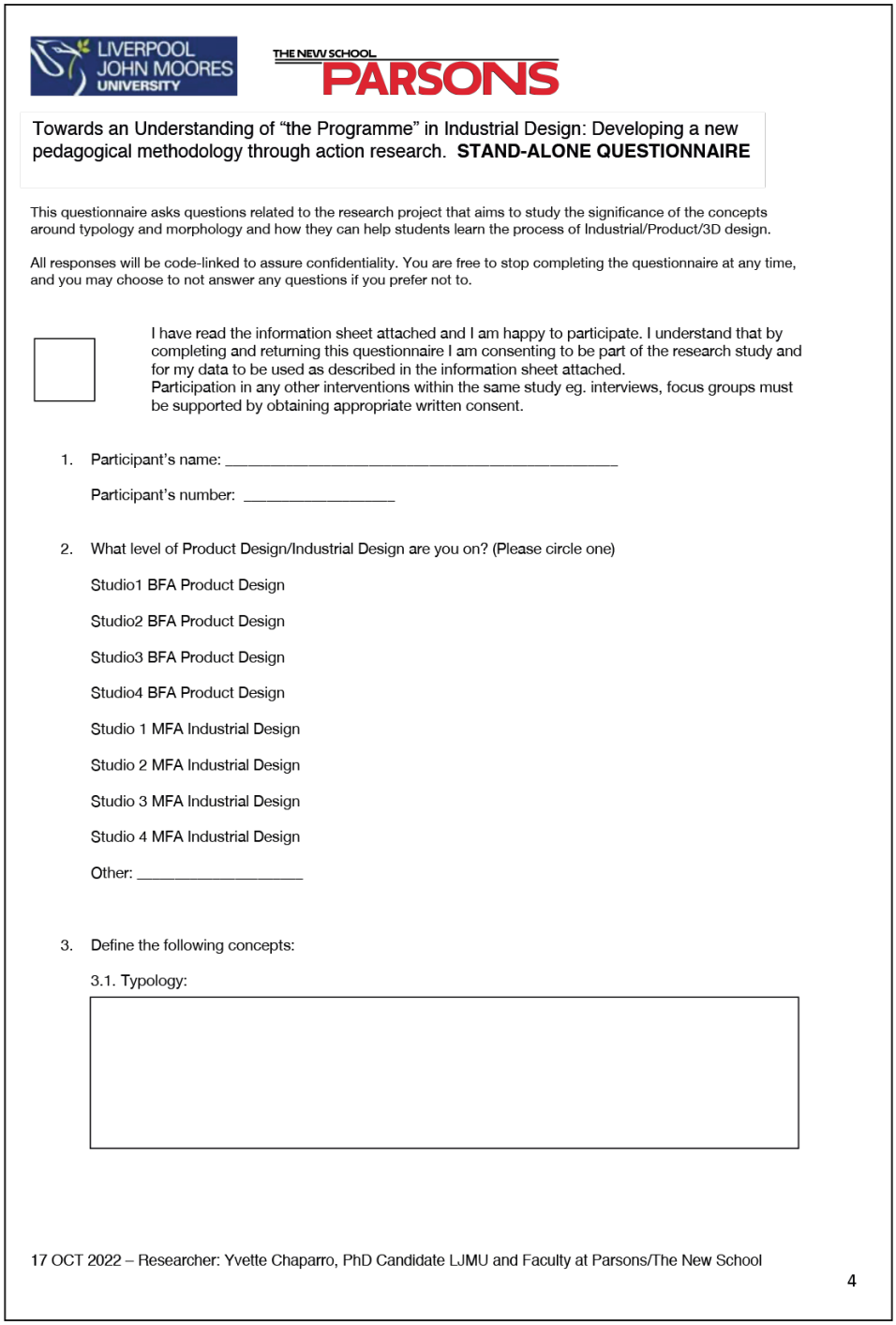
Name of Person Taking Consent: _____Date_____ Signature_____
*(If different from researcher)*

*1 copy for participant and 1 copy for researcher*

17 OCT 2022 – Researcher: Yvette Chaparro, PhD Candidate LJMU and Faculty at Parsons/The New School

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Figure_Apx. 125:
Chaparro, Y. (2022) Consent Forms for Participants. Page 3 [document]



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THE NEW SCHOOL PARSONS

Towards an Understanding of "the Programme" in Industrial Design: Developing a new pedagogical methodology through action research. **STAND-ALONE QUESTIONNAIRE**

This questionnaire asks questions related to the research project that aims to study the significance of the concepts around typology and morphology and how they can help students learn the process of Industrial/Product/3D design.

All responses will be code-linked to assure confidentiality. You are free to stop completing the questionnaire at any time, and you may choose to not answer any questions if you prefer not to.

☐ I have read the information sheet attached and I am happy to participate. I understand that by completing and returning this questionnaire I am consenting to be part of the research study and for my data to be used as described in the information sheet attached.
Participation in any other interventions within the same study eg. interviews, focus groups must be supported by obtaining appropriate written consent.

1. Participant's name: _____

   Participant's number: _____

2. What level of Product Design/Industrial Design are you on? (Please circle one)

   Studio1 BFA Product Design

   Studio2 BFA Product Design

   Studio3 BFA Product Design

   Studio4 BFA Product Design

   Studio 1 MFA Industrial Design

   Studio 2 MFA Industrial Design

   Studio 3 MFA Industrial Design

   Studio 4 MFA Industrial Design

   Other: _____

3. Define the following concepts:

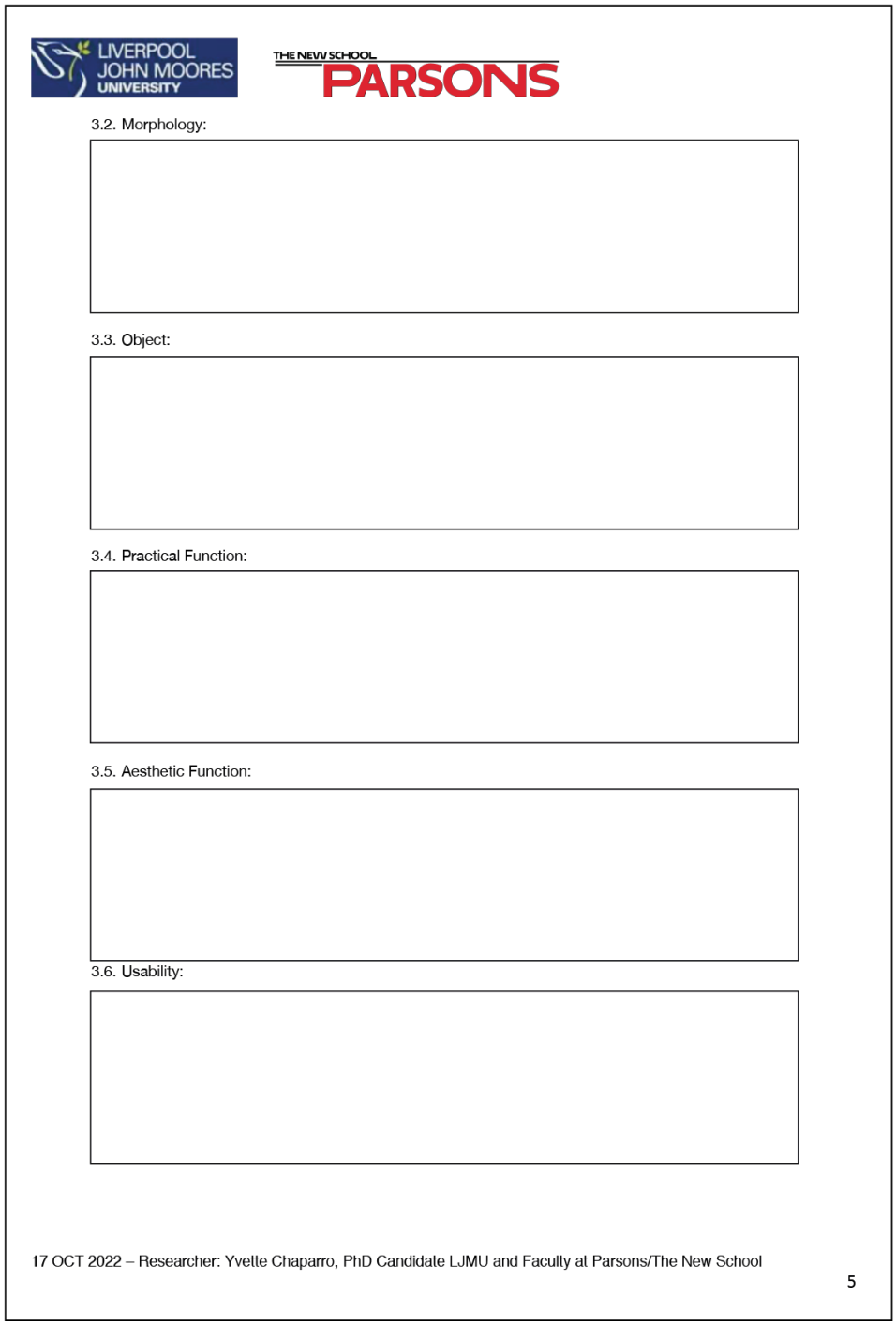
   3.1. Typology:

17 OCT 2022 – Researcher: Yvette Chaparro, PhD Candidate LJMU and Faculty at Parsons/The New School

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Figure_Apx. 126:
Chaparro, Y. (2022) Questionnaire Forms for Participants. Page 4 [document]

Questionnaire Forms for student participants for workshop. Page 5



3.2. Morphology:

3.3. Object:

3.4. Practical Function:

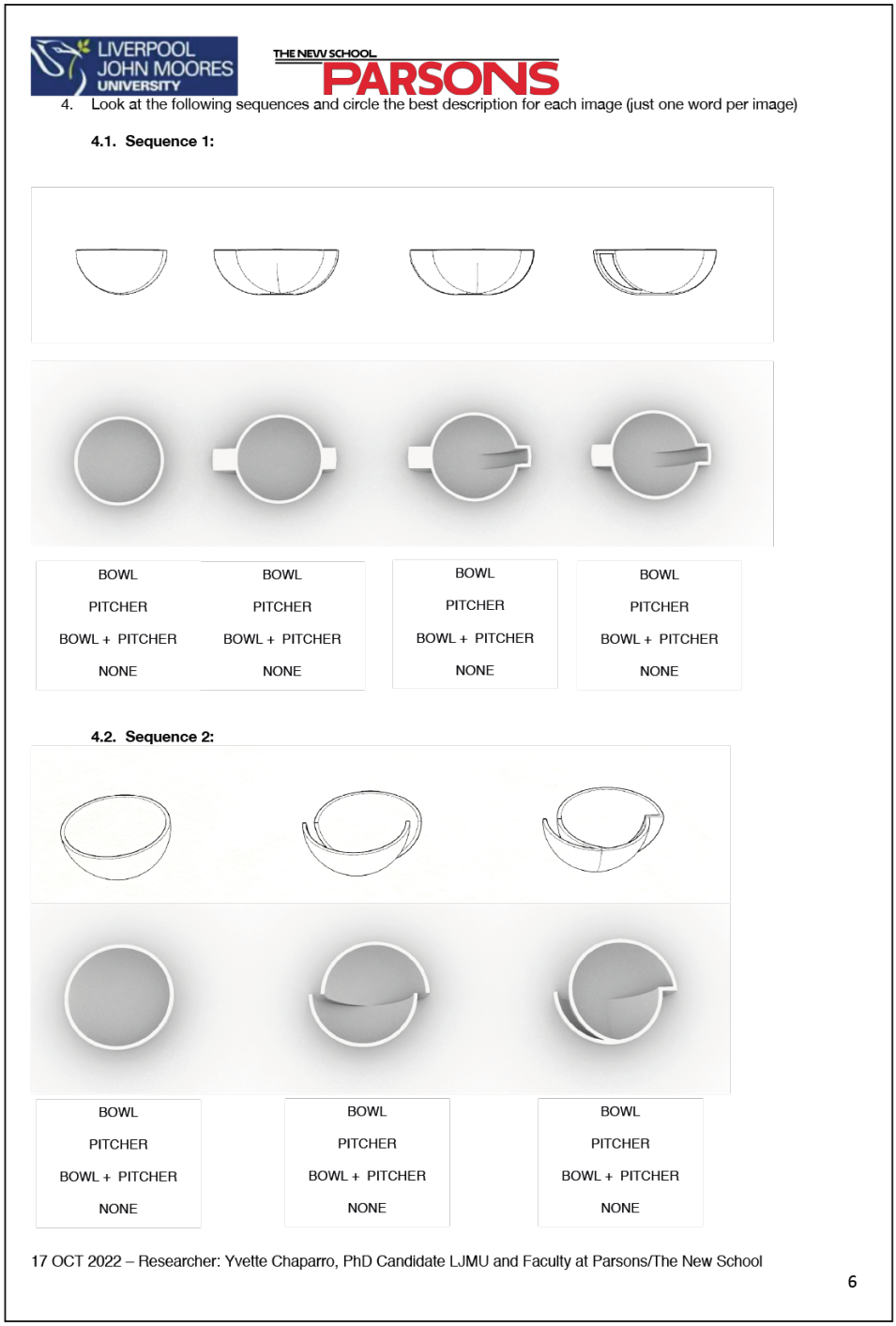
3.5. Aesthetic Function:

3.6. Usability:

17 OCT 2022 – Researcher: Yvette Chaparro, PhD Candidate LJMU and Faculty at Parsons/The New School

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Figure_Apx. 127:
Chaparro, Y. (2022) Questionnaire Forms for Participants. Page 5 [document]



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4. Look at the following sequences and circle the best description for each image (just one word per image)

**4.1. Sequence 1:**

| | | | |
|---|---|---|---|
| BOWL | BOWL | BOWL | BOWL |
| PITCHER | PITCHER | PITCHER | PITCHER |
| BOWL + PITCHER | BOWL + PITCHER | BOWL + PITCHER | BOWL + PITCHER |
| NONE | NONE | NONE | NONE |

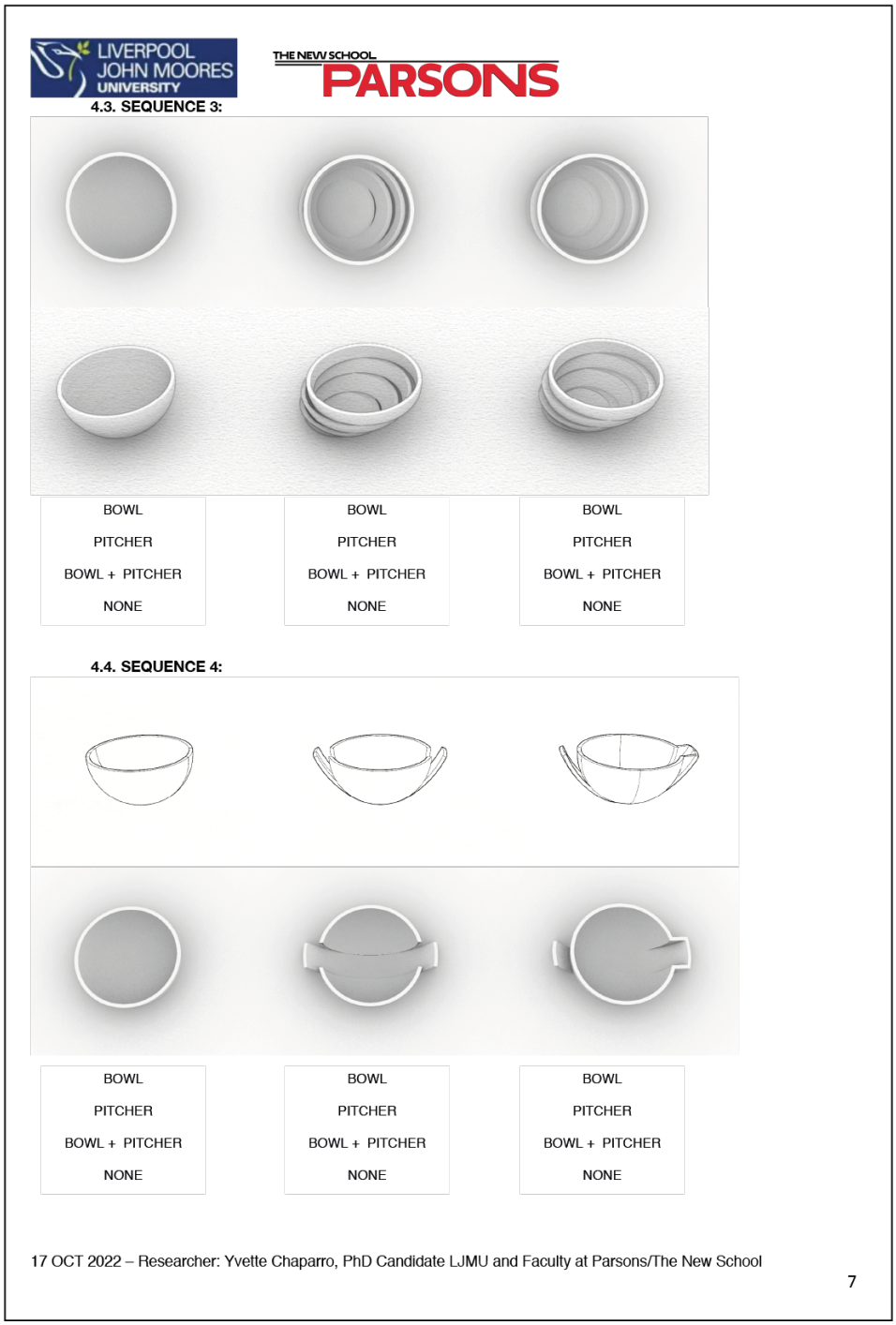
**4.2. Sequence 2:**

| | | |
|---|---|---|
| BOWL | BOWL | BOWL |
| PITCHER | PITCHER | PITCHER |
| BOWL + PITCHER | BOWL + PITCHER | BOWL + PITCHER |
| NONE | NONE | NONE |

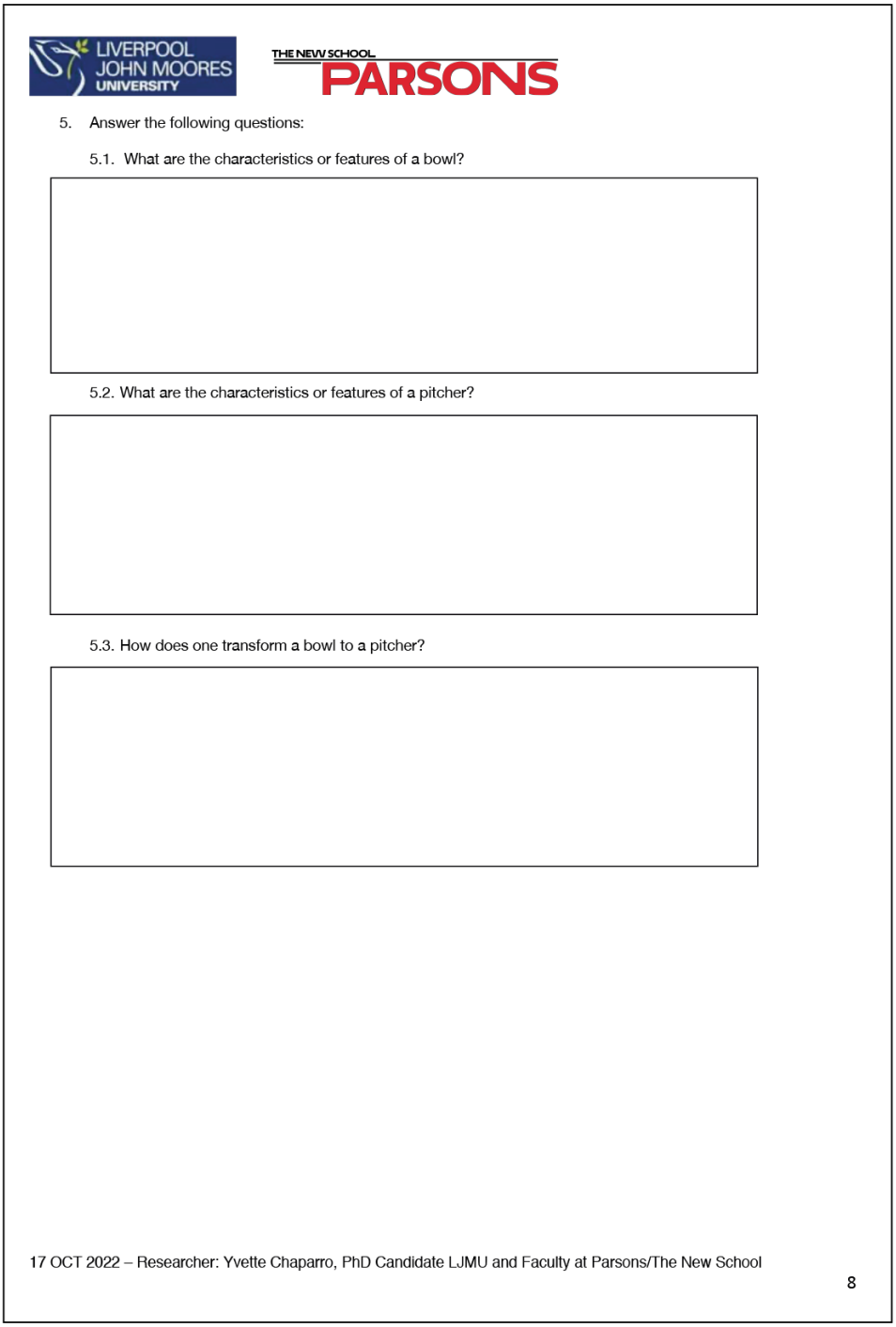
17 OCT 2022 – Researcher: Yvette Chaparro, PhD Candidate LJMU and Faculty at Parsons/The New School

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Figure_Apx. 128:
Chaparro, Y. (2022) Questionnaire Forms for Participants. Page 6 [document]




Figure_Apx. 129:
Chaparro, Y. (2022) Questionnaire Forms for Participants. Page 7 [document]



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5. Answer the following questions:

5.1. What are the characteristics or features of a bowl?

5.2. What are the characteristics or features of a pitcher?

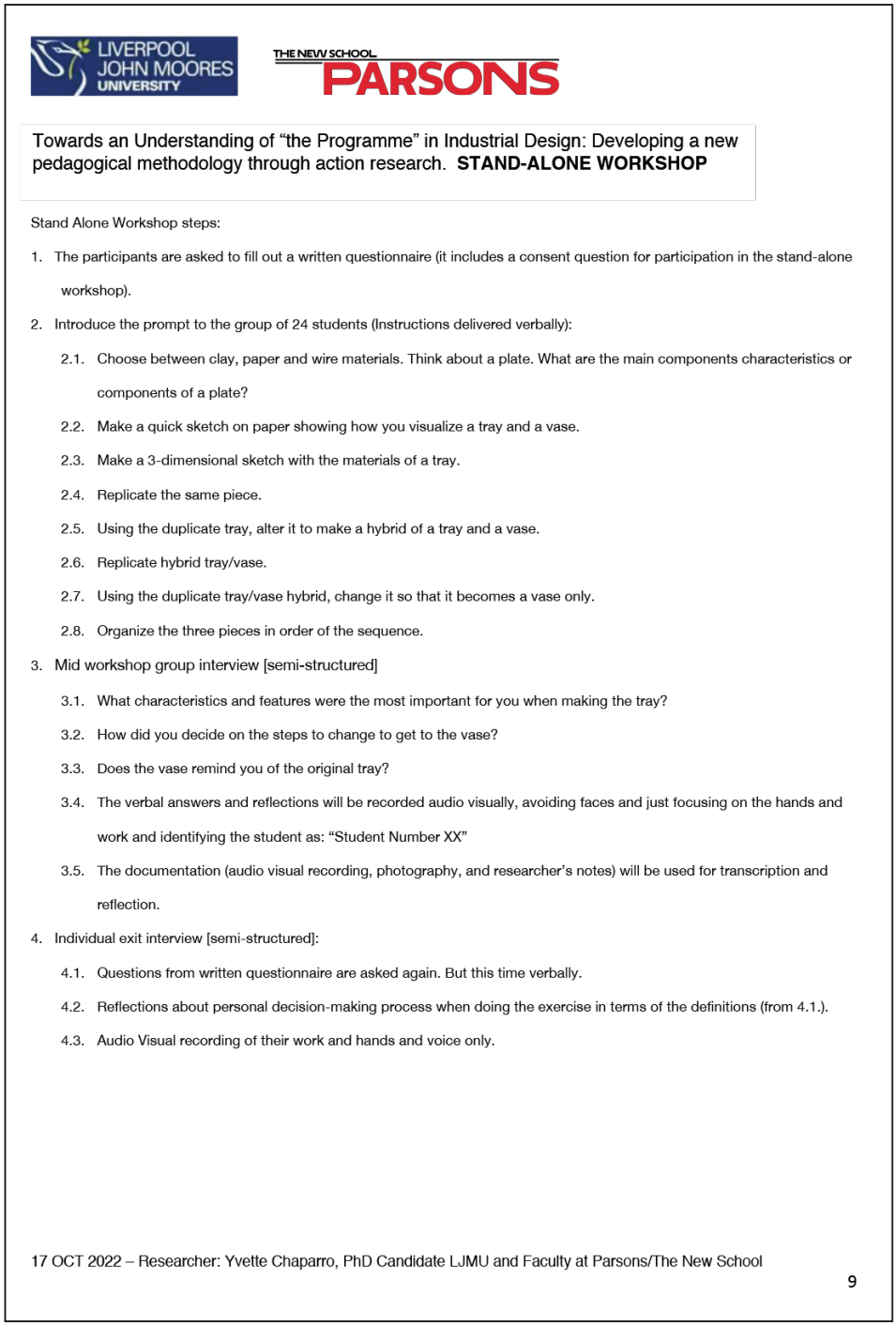
5.3. How does one transform a bowl to a pitcher?

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Figure_Apx. 130:
Chaparro, Y. (2022) Questionnaire Forms for Participants. Page 8 [document]

Instructions for facilitator giving workshop. Page 9



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Towards an Understanding of "the Programme" in Industrial Design: Developing a new pedagogical methodology through action research. **STAND-ALONE WORKSHOP**

Stand Alone Workshop steps:

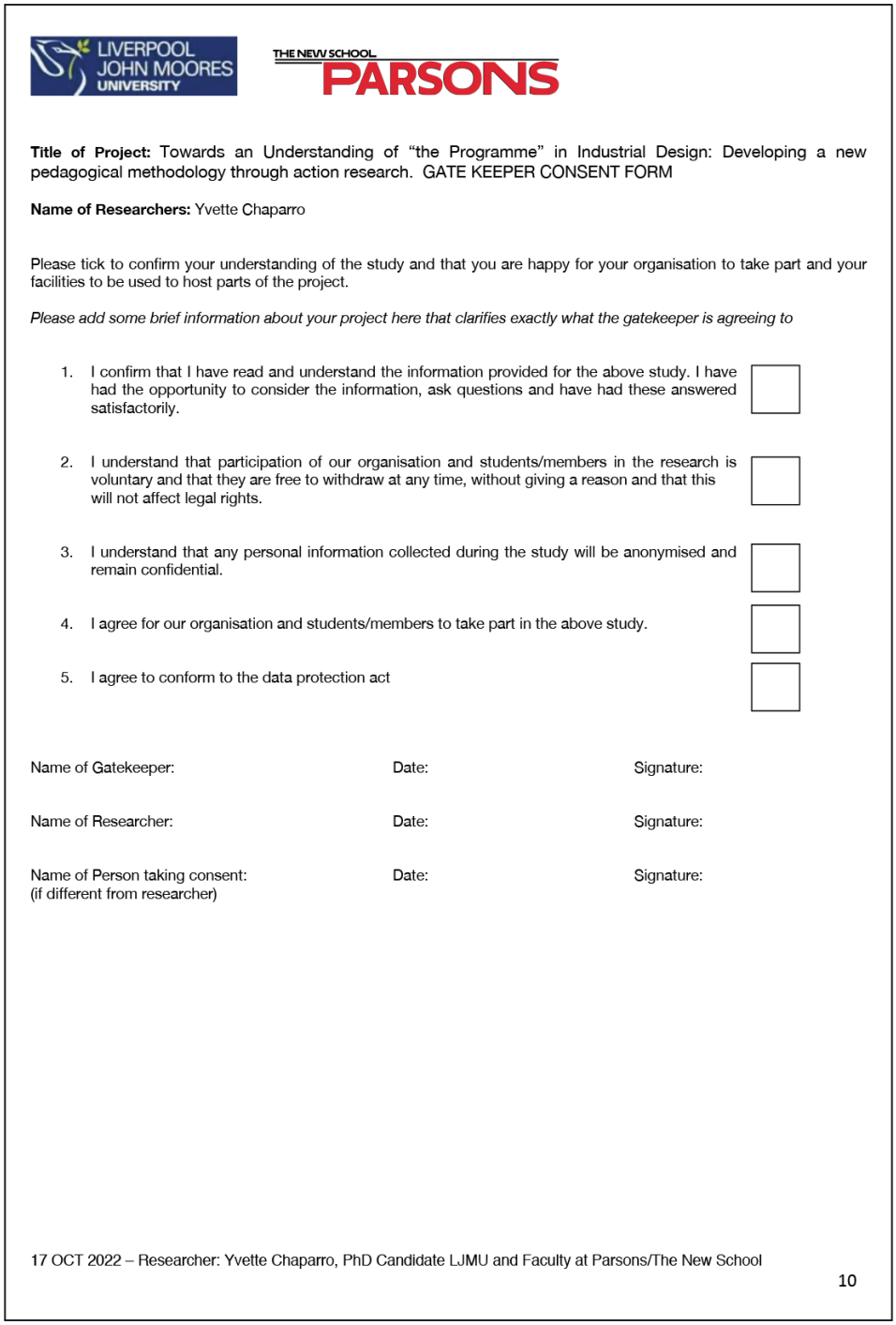
1. The participants are asked to fill out a written questionnaire (it includes a consent question for participation in the stand-alone workshop).
2. Introduce the prompt to the group of 24 students (Instructions delivered verbally):
   - 2.1. Choose between clay, paper and wire materials. Think about a plate. What are the main components characteristics or components of a plate?
   - 2.2. Make a quick sketch on paper showing how you visualize a tray and a vase.
   - 2.3. Make a 3-dimensional sketch with the materials of a tray.
   - 2.4. Replicate the same piece.
   - 2.5. Using the duplicate tray, alter it to make a hybrid of a tray and a vase.
   - 2.6. Replicate hybrid tray/vase.
   - 2.7. Using the duplicate tray/vase hybrid, change it so that it becomes a vase only.
   - 2.8. Organize the three pieces in order of the sequence.
3. Mid workshop group interview [semi-structured]
   - 3.1. What characteristics and features were the most important for you when making the tray?
   - 3.2. How did you decide on the steps to change to get to the vase?
   - 3.3. Does the vase remind you of the original tray?
   - 3.4. The verbal answers and reflections will be recorded audio visually, avoiding faces and just focusing on the hands and work and identifying the student as: "Student Number XX"
   - 3.5. The documentation (audio visual recording, photography, and researcher's notes) will be used for transcription and reflection.
4. Individual exit interview [semi-structured]:
   - 4.1. Questions from written questionnaire are asked again. But this time verbally.
   - 4.2. Reflections about personal decision-making process when doing the exercise in terms of the definitions (from 4.1.).
   - 4.3. Audio Visual recording of their work and hands and voice only.

17 OCT 2022 – Researcher: Yvette Chaparro, PhD Candidate LJMU and Faculty at Parsons/The New School

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Figure_Apx. 131:
Chaparro, Y. (2022) Instructions for Facilitator Giving Workshop to Participants. Page 9 [document]

Gatekeeper consent form. Page 10



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THE NEW SCHOOL PARSONS

**Title of Project:** Towards an Understanding of "the Programme" in Industrial Design: Developing a new pedagogical methodology through action research. GATE KEEPER CONSENT FORM

**Name of Researchers:** Yvette Chaparro

Please tick to confirm your understanding of the study and that you are happy for your organisation to take part and your facilities to be used to host parts of the project.

*Please add some brief information about your project here that clarifies exactly what the gatekeeper is agreeing to*

1. I confirm that I have read and understand the information provided for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily. ☐
2. I understand that participation of our organisation and students/members in the research is voluntary and that they are free to withdraw at any time, without giving a reason and that this will not affect legal rights. ☐
3. I understand that any personal information collected during the study will be anonymised and remain confidential. ☐
4. I agree for our organisation and students/members to take part in the above study. ☐
5. I agree to conform to the data protection act ☐

| | | |
|---|---|---|
| Name of Gatekeeper: | Date: | Signature: |
| Name of Researcher: | Date: | Signature: |
| Name of Person taking consent: (if different from researcher) | Date: | Signature: |

17 OCT 2022 – Researcher: Yvette Chaparro, PhD Candidate LJMU and Faculty at Parsons/The New School

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Figure_Apx. 132:
Chaparro, Y. (2022) Gatekeeper Consent Form. Page 10 [document]

## Transcribed Data. Workshop Four.

[The full spreadsheet for Workshop Four can be found here: LINK, this link includes all excerpts from Figure_Apx. 132 to Figure_Apx. 143]

The data was collected and transcribed by the Research Assistant Xusheng Yu. The participants were students in the department I directed, so they needed to be anonymised so that they felt comfortable participating in the study. The data was tabulated into a spreadsheet since it was important to keep all information organized and readily accessible for its review through Thematic Analysis.

Bowl selection by participants. Part 1.

| **Workshop** | Industrial Design Workshop - November 17, 2022 | | | | |
|---|---|---|---|---|---|
| **Participant #** | 60 | 61 | 62 | 63 | 64 |
| | Studio 1 MFA Industrial Design | Studio 1 MFA Industrial Design | Studio 1 MFA Industrial Design | Studio 1 MFA Industrial Design | Studio 1 MFA Industrial Design |
| **2 Product/Industrial Design level** | | | | | |
| | MIXED | SEQUENTIAL | MIXED | SEQUENTIAL | MIXED |
| **Selected Bowl A** | TRUE | TRUE | TRUE | TRUE | TRUE |
| **Selected Bowl B** | TRUE | FALSE | TRUE | TRUE | TRUE |
| **Selected Bowl C** | TRUE | FALSE | TRUE | FALSE | TRUE |
| **Selected Bowl D** | FALSE | TRUE | FALSE | FALSE | TRUE |
| **Selected Bowl E** | FALSE | TRUE | FALSE | FALSE | TRUE |
| **Selected Bowl F** | FALSE | FALSE | FALSE | FALSE | TRUE |
| **Selected Bowl G** | FALSE | TRUE | FALSE | FALSE | TRUE |
| **Selected Bowl H** | FALSE | FALSE | FALSE | FALSE | TRUE |
| **Selected Bowl I** | FALSE | FALSE | FALSE | FALSE | FALSE |
| **Selected Bowl J** | FALSE | FALSE | FALSE | FALSE | FALSE |
| **Selected Bowl K** | FALSE | FALSE | FALSE | FALSE | FALSE |
| **Selected Bowl L** | FALSE | FALSE | FALSE | FALSE | FALSE |

Figure_Apx. 133:
Chaparro, Y. (2022) Transcription of Data from Selection of Bowls from Grid. Part 1. [spreadsheet]

Bowl selection by participants. Part 2.

| 65 | 66 | 67 | 69 | 70 |
|---|---|---|---|---|
| Studio 1 MFA Industrial Design | Studio 1 MFA Industrial Design | Studio 1 MFA Industrial Design | Studio 1 MFA Industrial Design | Studio 1 MFA Industrial Design |
| SEQUENTIAL | MIXED | SEQUENTIAL | SEQUENTIAL | MIXED |
| TRUE | TRUE | TRUE | TRUE | TRUE |
| TRUE | FALSE | TRUE | TRUE | TRUE |
| TRUE | FALSE | TRUE | TRUE | TRUE |
| FALSE | FALSE | TRUE | FALSE | TRUE |
| FALSE | FALSE | FALSE | TRUE | FALSE |
| FALSE | FALSE | FALSE | FALSE | FALSE |
| TRUE | FALSE | FALSE | FALSE | TRUE |
| FALSE | FALSE | FALSE | FALSE | FALSE |
| FALSE | FALSE | FALSE | FALSE | FALSE |
| FALSE | FALSE | FALSE | FALSE | FALSE |
| FALSE | FALSE | FALSE | FALSE | FALSE |
| FALSE | FALSE | FALSE | FALSE | FALSE |

Figure_Apx. 134:
Chaparro, Y. (2022) Transcription of Data from Selection of Bowls from Grid. Part 2. [spreadsheet]

## Questionnaire. Part 1.

| | | | | | |
|---|---|---|---|---|---|
| **3.1 TYPOLOGY** | A category of an object | Category of product/object we intend to design. | It is the generic classification of objects, based either on their particular form or function. For example, speakers, is a generic typology. Earphones, are a definite typology. | Typology describes the motive on the purpose of a product. How the shape, material, features, textures, size, colours, etc make it that particular product | The category of objects contains same certain main functions in certain behaviors. |
| **3.2 MORPHOLOGY** | blank | Understanding or study of forms desired / found in nature or man-made. | In my understanding, this would be a transition of forms from one to another. 'Morph' basically deals with the physical appearance. | - | A study of the form and shape manifests the meaning, value, or category of the object. |
| **3.3 OBJECT** | a 3D physical thing | A voluminous piece with certain physical properties like weight, speed, color etc. | Usually, a man-made thing, which has a form, or a function or both. Basically, all man-made tangible things can be objects. | A solid form that may or may not have a purpose. | The cluster of materials with certain connections which could be integrated as a whole. |
| **3.4 PRACTICAL FUNCTION** | the use case of something in a way that society has decided is productive. | A method of achieving result with the help of some objects | The purpose of a product to achieve whatever it is intended to perform. In simple terms, the tangible process that an object is capable of doing. For eg, speakers are meant to 'play music'. | Practical function is the purpose of that particular object. If it does the work that it is supposed to do or the purpose that its meant for and how feasible it is. | The qualities of objects could solve certain problems. |
| **3.5 AESTHETIC FUNCTION** | The way an object looks and what that tells the user. | The immediate reaction/understanding of an object after seeing it for the first time. | In my opinion, this correlates with the form. How does an object look and why? If it is able to perform an activity or is it just for visual appeal. For eg, the cavity and shape of a spoon's head, enables it to scoop volume. | [legible] and separate from practical function, aesthetic function is the property that attracts you to the object that may or may not communicate its need and relevance in its environment. | The qualities of objects could make people subjectively feel visual comfort. |
| **3.6 USABILITY** | case that an object is understood and interacted with. Ideally one can pick it up and know what to do with it. | The process of understanding the object, practical function, aesthetic function to perform certain task. | This includes multiple factors, such as the interaction of an object to humans, how nicely does it perform the function, Longevity of the object. The ability of an object to make itself useful. | Usability is the practicality and functional nature of the product. If its easy to use / hard to use. If it is complying with its needs and the purposes its meant for. | The abilities of objects represent the degree of difficulty to operate for human. |

Figure_Apx. 135:
Chaparro, Y. (2022) Transcription of Questionnaire. Part 1. [spreadsheet]

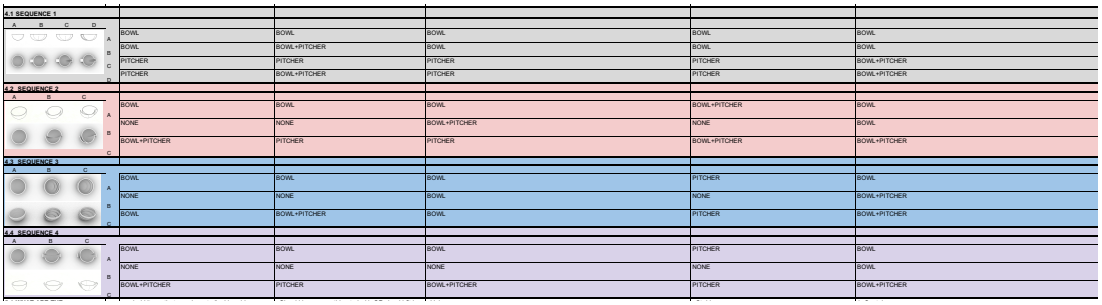
## Questionnaire. Part 2.

| | | | | |
|---|---|---|---|---|
| Typology is divided into two words: type and Logic. | A category in which an object lies, for example, chairs. Within that there is more specific typologies too: office chairs: | Typology is kind of a characteristic. For objects it defines features that helps us to identify and differ one from another. | Type of product | It is a system to divide things and classify them. |
| don't know | The shape an object has and what forces created that shape. For example, pushing and twisting. | Just physical attributes, like form, of an object. | Form of object | It is a science about something's form and structure. |
| The object is research explore and design on products. | A three-dimensional thing or something that is tangible. | A tangible thing people can interact with. | Every existing item that has specific purpose or no. | It is the purpose and aim of someone or something. |
| we generally define a product by its purpose. | Practical function is the ability for an object to complete a task. For example, a can opener's practical function is to open cans. | A feature leads to usefull action. | Function that helps achieve what people want from the product. | The function that actually work and the purpose of this object. |
| conform to one's aesthetic | Aesthetic function is the ability for an object to provide something to the user by the way it looks. For example, a sofa that look in a way that it is pleasant to the user or a can opener that is easy to use because of the shape it has. | A feature which enhances aesthetic with functionality. | Function that is relatively less practical but more for looking good. | The visual aspect and the feeling when people using the item. |
| don't know | Usability is the way a user can interact with an object. With varying degrees of difficulty. The object should complete its task in order to be usable. | An ability to function in a way to achieve the purpose for which it was designed | How easy a product can be used, and how good it functions. | An aspect and response from people who will using this item. |

Figure_Apx. 136:
Chaparro, Y. (2022) Transcription of Questionnaire. Part 2. [spreadsheet]

Labelling of items from sequences. Part 1.

Labelling of example sequences by participants. The participants were asked to label each element in the sequences as: bowl, pitcher, both, or none. The research assistant, Xusheng Yu, tabulated the data into the spreadsheet.



| | | | | | |
|---|---|---|---|---|---|
| 4.1 SEQUENCE 1 | | | | | |
| A B C D | | | | | |
| A | BOWL | BOWL | BOWL | BOWL | BOWL |
| B | BOWL | BOWL+PITCHER | BOWL | BOWL | BOWL |
| C | PITCHER | PITCHER | PITCHER | PITCHER | BOWL+PITCHER |
| D | PITCHER | BOWL+PITCHER | PITCHER | PITCHER | BOWL+PITCHER |
| 4.2 SEQUENCE 2 | | | | | |
| A B C | | | | | |
| A | BOWL | BOWL | BOWL | BOWL+PITCHER | BOWL |
| B | NONE | NONE | BOWL+PITCHER | NONE | BOWL |
| C | BOWL+PITCHER | PITCHER | PITCHER | BOWL+PITCHER | BOWL+PITCHER |
| 4.3 SEQUENCE 3 | | | | | |
| A B C | | | | | |
| A | BOWL | BOWL | BOWL | PITCHER | BOWL |
| B | NONE | NONE | BOWL | NONE | BOWL+PITCHER |
| C | BOWL | BOWL+PITCHER | BOWL | PITCHER | BOWL+PITCHER |
| 4.4 SEQUENCE 4 | | | | | |
| A B C | | | | | |
| A | BOWL | BOWL | BOWL | PITCHER | BOWL |
| B | NONE | NONE | NONE | NONE | BOWL |
| C | BOWL+PITCHER | PITCHER | BOWL+PITCHER | PITCHER | BOWL+PITCHER |

Figure_Apx. 137:
Chaparro, Y. (2022) Transcription of Artefact Labelling. Part 1. [spreadsheet]

Labelling of items from sequences. Part 2.

| | | | | |
|---|---|---|---|---|
| | | | | |
| BOWL+PITCHER | BOWL | BOWL | BOWL | BOWL |
| BOWL | PITCHER | BOWL | BOWL | BOWL+PITCHER |
| PITCHER | PITCHER | PITCHER | PITCHER | BOWL+PITCHER |
| PITCHER | PITCHER | PITCHER | PITCHER | BOWL+PITCHER |
| | | | | |
| BOWL | BOWL | BOWL | BOWL | BOWL |
| BOWL | NONE | NONE | NONE | NONE |
| BOWL+PITCHER | BOWL | BOWL+PITCHER | PITCHER | BOWL |
| | | | | |
| BOWL+PITCHER | BOWL | BOWL | BOWL | BOWL |
| BOWL | NONE | NONE | NONE | NONE |
| BOWL+PITCHER | BOWL | BOWL | BOWL | BOWL |
| | | | | |
| BOWL+PITCHER | BOWL | BOWL | BOWL | BOWL |
| BOWL | NONE | NONE | NONE | BOWL |
| PITCHER | PITCHER | PITCHER | PITCHER | BOWL+PITCHER |

Figure_Apx. 138:
Chaparro, Y. (2022) Transcription of Artefact Labelling. Part 2. [spreadsheet]

Semi-structured interviews. Part 1.

| | | | | | |
|---|---|---|---|---|---|
| **5.1 WHAT ARE THE CHARACTERISTICS OR FEATURES OF A BOWL?** | | can hold items that are closer to liquid and is open on the top for access. | - Should have something to hold. OR should fit in palm of our hand.<br>- Should have an small protrusion or marking which conveys area to drink liquid. OR have a large free area after holding the bowl. | - Volume<br>- Space<br>- ability to store | - Stable<br>- Can hold the materials<br>- Standard size<br>- does not have handles |
| **5.2 WHAT ARE THE CHARACTERISTICS OR FEATURES OF A PITCHER?** | | provides ease of pouring substances closer to liquid form. Ideally there should be some kind of spout and handle for usability. | - Should have a handle<br>- Should have protrusion to pour liquid. | - Volume<br>- Space<br>- ability to store<br>- ability to pour/remove<br>- nozzle<br>- handle | - a nozzle or contour for the liquid<br>- may or may not have a handle<br>- can be easily use to scoop too<br>- can or cannot be stable |
| **5.3 HOW DOES ONE TRANSFORM A BOWL TO A PITCHER?** | | add some kind of handle form whether it is simple traction on the lip or closer to a traditional handle and add some kind of spout form that doesn't allow the substance to pour uncontrollably | - Increase the protrusion to indicate that this is a pitcher.<br>- Increase the height of bowl. | - Adding a nozzle to remove contents of the bowl from a certain part.<br>- having a grip to hold, to better complete the intended action | - adding a handle.<br>- adding space for liquid to pass through.<br>- can have a handle. |

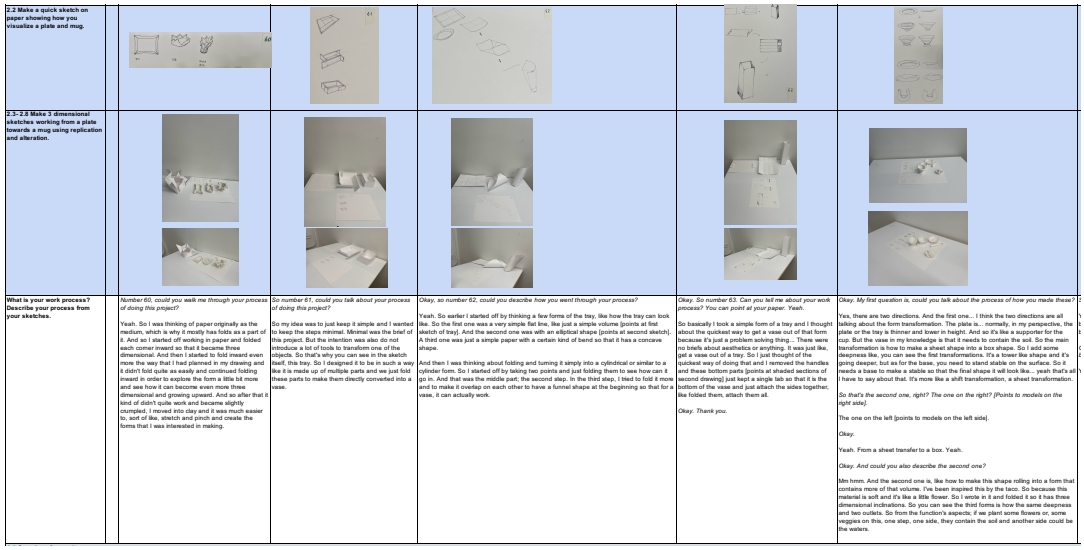
Figure_Apx. 139:
Chaparro, Y. (2022) Transcription of Semi-Structured Interviews of Participants. Part 1. [spreadsheet]

Data from semi-structured interview of participants. Part 2.

| | | | | | |
|---|---|---|---|---|---|
| 1. Container.<br>2. Not too deep. to get the objets inside it. | whether it has the function of a bowl | Must be able to hold liquid in. No handles. Must be relatively short. Wider than it is tall. | Bowl is an object that can hold both liquid and solid things (mostly food related). Sometimes it can have handles however the first shape that comes to my mind is without handles. | Round edge, close surface, no spout | A container with width |
| 1. Container.<br>2. inclination for pouring<br>3. partly closed to contain the liquid.<br>4. character for holding. | Is there water storage | Must be able to hold liquid in. Must have a handle and a spout/mouth. | Pitcher is an object that holds liquid and can be used to pour them. It has handles to do the pouring more gently, and has a something like this tip to not spill the liquid. | With spout, holder (handle), edge doesn't have to be round | A container with depth and ability to hold liquid. |
| 1. Adding inclination<br>2. Partly closed.<br>3. Adding specifically character for holding | Adding indentation<br>partly closed<br>Adding specifically character for holding | Add a handle and make a spout/mouth. Possibly make it taller. | Needs a tip for pouring the liquid and some elements of make the pouring of the liquid easily like a handle. More narrow and taller. | If there're handle and spout, or any open spot that liquid can go through | I guess ability to pour liquid. |

Figure_Apx. 140:
Chaparro, Y. (2022) Transcription of Semi-Structured Interviews of Participants. Part 2. [spreadsheet]

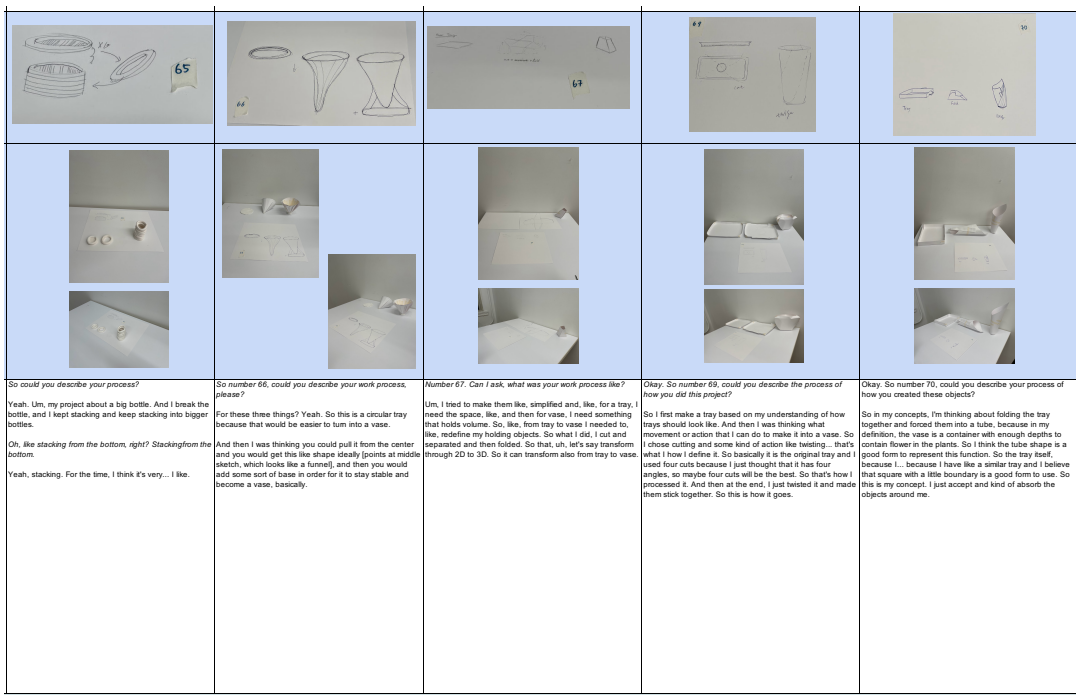
Transcription of semi-structured interview about descriptions of sequences. Part 1.
The participants were asked to make a quick 3D sketch sequence using clay, paper, or metal wire. The prompt was for the sequence to show how to go from a candle holder to a lamp with three artefacts. The participants were asked to describe their decisions while making the sequence.



| 2.2 Make a quick sketch on paper showing how you visualize a plate and mug. | | | | | |
|---|---|---|---|---|---|
| 2.3-2.8 Make 3 dimensional sketches working from a plate towards a mug using replication and alteration. | | | | | |
| What is your work process? Describe your process from your sketches. | *Number 60, could you walk me through your process of doing this project?*<br><br>Yeah. So I was thinking of paper originally as the medium, which is why it mostly has folds as a part of it. And so I started off working in paper and folded each corner inward so that it became three dimensional. And then I started to fold inward even more the way that I had planned in my drawing and it didn't fold quite as easily and continued folding inward in order to explore the form a little bit more and see how it can become even more three dimensional and growing upward. And so after that it kind of didn't quite work and became slightly crumpled, I moved into clay and it was much easier to, sort of like, stretch and pinch and create the forms that I was interested in making. | *So number 61, could you talk about your process of doing this project?*<br><br>So my idea was to just keep it simple and I wanted to keep the steps minimal. Minimal was the brief of this project. But the intention was also do not introduce a lot of tools to transform one of the objects. So that's why you can see in the sketch itself, this tray. So I designed it to be in such a way like it is made up of multiple parts and we just fold these parts to make them directly converted into a vase. | *Okay, so number 62, could you describe how you went through your process?*<br><br>Yeah. So earlier I started off by thinking a few forms of the tray, like how the tray can look like. So the first one was a very simple flat line, like just a simple volume [points at first sketch of tray]. And the second one was with an elliptical shape [points at second sketch]. A third one was just a simple paper with a certain kind of bend so that it has a concave shape.<br><br>And then I was thinking about folding and turning it simply into a cylindrical or similar to a cylinder form. So I started off by taking two points and just folding them to see how can it go in. And that was the middle part; the second step. In the third step, I tried to fold it more and to make it overlap on each other to have a funnel shape at the beginning so that for a vase, it can actually work. | *Okay. So number 63. Can you tell me about your work process? You can point at your paper. Yeah.*<br><br>So basically I took a simple form of a tray and I thought about the quickest way to get a vase out of that form because it's just a problem solving thing... There were no briefs about aesthetics or anything. It was just like, get a vase out of a tray. So I just thought of the quickest way of doing that and I removed the handles and these bottom parts [points at shaded sections of second drawing] just kept a single tab so that it is the bottom of the vase and just attach the sides together, like folded them, attach them all.<br><br>*Okay. Thank you.* | *Okay. My first question is, could you talk about the process of how you made these?*<br><br>Yes, there are two directions. And the first one... I think the two directions are all talking about the form transformation. The plate is... normally, in my perspective, the plate or the tray is thinner and lower in height. And so it's like a supporter for the cup. But the vase in my knowledge is that it needs to contain the soil. So the main transformation is how to make a sheet shape into a box shape. So I add some deepness like, you can see the first transformations. It's a lower like shape and it's going deeper, but as for the base, you need to stand stable on the surface. So it needs a base to make a stable so that the final shape it will look like... yeah that's all I have to say about that. It's more like a shift transformation, a sheet transformation.<br><br>*So that's the second one, right? The one on the right? [Points to models on the right side].*<br><br>The one on the left [points to models on the left side].<br><br>*Okay.*<br><br>Yeah. From a sheet transfer to a box. Yeah.<br><br>*Okay. And could you also describe the second one?*<br><br>Mm hmm. And the second one is, like how to make this shape rolling into a form that contains more of that volume. I've been inspired this by the taco. So because this material is soft and it's like a little flower. So I wrote in it and folded it so it has three dimensional inclinations. So you can see the third forms is how the same deepness and two outlets. So from the function's aspects; if we plant some flowers or, some veggies on this, one step, one side, they contain the soil and another side could be the waters. |

Figure_Apx. 141:
Chaparro, Y.(2022) Transcribed Data from Description of 3D Sequences. Part 1 [spreadsheet]

Transcription of semi-structured interview about descriptions of sequences. Part 2.



| *So could you describe your process?*<br><br>Yeah. Um, my project about a big bottle. And I break the bottle, and I kept stacking and keep stacking into bigger bottles.<br><br>*Oh, like stacking from the bottom, right? Stackingfrom the bottom.*<br><br>Yeah, stacking. For the time, I think it's very... I like. | *So number 66, could you describe your work process, please?*<br><br>For these three things? Yeah. So this is a circular tray because that would be easier to turn into a vase.<br><br>And then I was thinking you could pull it from the center and you would get this like shape ideally [points at middle sketch, which looks like a funnel], and then you would add some sort of base in order for it to stay stable and become a vase, basically. | *Number 67. Can I ask, what was your work process like?*<br><br>Um, I tried to make them like, simplified and, like, for a tray, I need the space, like, and then for vase, I need something that holds volume. So, like, from tray to vase I needed to, like, redefine my holding objects. So what I did, I cut and separated and then folded. So that, uh, let's say transform through 2D to 3D. So it can transform also from tray to vase. | *Okay. So number 69, could you describe the process of how you did this project?*<br><br>So I first make a tray based on my understanding of how trays should look like. And then I was thinking what movement or action that I can do to make it into a vase. So I chose cutting and some kind of action like twisting... that's what I how I define it. So basically it is the original tray and I used four cuts because I just thought that it has four angles, so maybe four cuts will be the best. So that's how I processed it. And then at the end, I just twisted it and made them stick together. So this is how it goes. | Okay. So number 70, could you describe your process of how you created these objects?<br><br>So in my concepts, I'm thinking about folding the tray together and forced them into a tube, because in my definition, the vase is a container with enough depths to contain flower in the plants. So I think the tube shape is a good form to represent this function. So the tray itself, because I... because I have like a similar tray and I believe that square with a little boundary is a good form to use. So this is my concept. I just accept and kind of absorb the objects around me. |
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Figure_Apx. 142:
Chaparro, Y. (2022) Transcribed Data from Description of 3D Sequences. Part 2 [spreadsheet]

Transcription of oral semi-structured interviews. Part 1.

| **4.1 Questions from written questionnaire are asked again, verbally. *Has your idea of typology changed?*** | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Additional conversation** | | *My next question is, did the terms of typology, morphology, did your definitions change as you were going through this project? And also how do they relate to the objects?*<br><br>Um, I don't think that the terms necessarily changed, but I do think that they were helpful in terms of understanding. Like what the typology of a tray like means to me and like what the typology of a vase means to me in order to like create forms that I feel makes sense and very functional. Um, and so like a big part of it is like, you know, lower form versus higher form in terms of dimensionality and height. And so that was sort of a typology concept.<br><br>*Could you describe lower form and higher form?*<br><br>It's sort of like, flatter versus more three dimensional, if that makes sense. So like trays, you sort of associate with being, you know, more flat whereas like a vase or like, some of the tallest forms, in order to be able to hold, like, longer things. Yeah. Functionally.<br><br>*Great. Thank you.* | *And did your definitions of the words, typology, morphology, etc... Did those change as you were making this project?*<br><br>Um, no, I don't think they changed because according to me, like if you know the object category or the product category which you are designing, it can be of any form or any shape until it conveys what exactly the object or product is intended for its use. | *So did your definition of typology, morphology, those terms that you've defined; did those change throughout this process? And also how did they impact or influence your model making?*<br><br>Change as in change from the definitions that I've written?<br><br>*Yeah. Did they change at all?*<br><br>Um. Not really. I would not say that it changed. But again, like, I would say, that all of these definitions can be generic, but then for every object, I think it can vary in a certain manner. So I would say there's a grey area where the meaning of morphology or typology or object can fall into. So according to me, typology is just like a general classification of categorization of products.<br><br>For example, like speakers is a typology. Similarly I would say that tray or container could be a typology, but a tray, it could be a defined typology. And for me, morphology is more towards the exterior or the physical appearance and maybe the transition of a form. That's essentially what I think we did, like transition from one form to another. And so I think that definition is pretty much the same because essentially we are going from form A or object A, to form B or object B.<br><br>*Mm hmm. Yeah, I see. Did you go from here to here [gestures tray sketch to vase sketch] and then back to here [gestures middle sketch]? Or did you go sequentially?*<br><br>No, I went sequentially. Like from here to here and here [gestures tray sketch to middle sketch to vase sketch]. But, as I said, after I made this, I realized that maybe we can go from here to here [gestures tray sketch to vase sketch], and it's not really like you need to have the same exact shape in the middle to reach this [points at vase sketch]. Maybe you can have something else here [gestures middle sketch] to reach here [points to vase sketch] as well. So that diversifies the idea of making concepts. That's what I'm trying to say. | *Next question. Did your definition of the different concepts at the beginning, so morphology, typology, usability, change?*<br><br>Oh, actually, I don't think so, because like based on those meanings, I was able to identify, like, what are the things I need to solve in this? And they kind of guided me through it, like the needs and everything. So I did not change a lot, but like they guided me through the process.<br><br>*Could you talk about how it might have guided you?*<br><br>[See Typology] | *My second question is for so for your definitions of typology, morphology, the definitions that you made in the workbook that those definitions change as you were making this project? And also that those words influence how you meet these?*<br><br>Um, so I didn't change the understanding of the definitions I made, but I actually follow the instructions I made for these words is, is kind of like... how they say, uh, definitions, of how we recognize these objects and how to categorize this object in our understanding.<br><br>So, because they are all containers, they are trying to contain some things, but different size, different height or different shape, they will give us different feelings our towards the functions. So, uh, so yeah, that's my understanding to these words. Yeah. Got it. Thank you. | C<br>m<br><br>I |
| **Typology** | | | | | Yeah. So like typology basically was the first thing that came to my mind. It was the only major thing for like, oh, a tray is just like to hold things, but it cannot hold liquid unless it's in some other product. But like a vase is a container and it can hold liquids, it can hold solids. So the typology had to go from like a flat thing to like a shielded container that would not let out the other stuff. So typology was the main thing that led me through it.<br><br>*Got it. Okay. Now, if you could verbally define what typology is?*<br><br>Okay. So, like, according to me, typology is the purpose and the need of that product. Like, how does shade, color, texture, size and the materials that it's made of make that particular product available for that particular purpose. Like, for example, like a razor. If its typology is sharp, easy to hold, solid, it might or might not be colorful. That depends on like all the gender stereotypes, but like, yeah, that's the meaning of typology for me. | | T<br>a<br>a<br><br>L<br><br>Y |
| **Morphology** | | | | | *Could you define morphology?*<br><br>I'm not sure about morphology. Could I skip that?<br><br>*Sure.* | | |
| **Object** | | | | | *What about object?*<br><br>So object is like a solid form. It might or might not have a purpose or, like a meaning to it. So. Yeah. | | |
| **Usability** | | | | | *And how would you define usability?*<br><br>Okay. So usability is basically the user interaction. So it can be hard, it can be easy, and it defines the, I don't know, the quality of a product. Like how do the usability, the work that the product is doing. And like easier than people prefer it more is like usability is how it is how that particular object is interacting with the user. | | |
| **Practical Function** | | | | | *And what about practical function?*<br><br>So, like, an object is, it can be used because of its practical functionality. So, like, how it caters to its need, how feasible it is, how easy to use it is, all add up to like a practical functionality. | | A<br>p<br>p<br>e<br>n<br>a<br><br>C<br>n<br><br>U<br>s<br><br>S<br>n<br>C |
| **Aesthetic Function** | | | | | *Okay. And what about aesthetic function?*<br><br>So aesthetic function might or might not be there. Like, a product could just be there and may not be aesthetic if it's like function oriented, but like aesthetic value is the face value of that product which like introduces its purpose to the customer. Like, that is the first thing that we look at. So it's pretty important. And like that is what introduces the product to us because it includes semantics as well, like how it communicates to us in terms of color, material, so yeah. | | |
| **4.2 Reflections about personal decision making process when doing the definitions.** | *And did you learn anything from this exercise?*<br><br>Oh, I think like dissecting of what a form really is is interesting and thinking about the process of moving from one thing to another kind of creates a more abstract and artistic form. Um, I think that it makes it harder for it to create functionality. Something I was learning. | *I see. And also, do you think you learned anything doing this exercise?*<br><br>Yeah, I did learn like how to design objects with minimal effort to convert it from one object to another object. | *Okay. I see. And lastly, did you learn anything new from this exercise?*<br><br>Yeah, I would. I would say that I learned something from this. It is associating two different kinds of objects and activities, through a certain process, maybe I can see like.... So for me, my learning would be like, the first step and the last step are defined. But the step in between is whatever, as you said, an undefined area.<br><br>So it's interesting for me to see that from here to here [gestures from sketch of tray to sketch of vase], I can not only go with this step in the middle, but three different or ten different steps in the middle. So that's my learning from this, that maybe while I'm iterating for other projects, maybe I can follow the same process, but look at the transition of the object and maybe this area of the middle step seems more important to me because that defines your last step.<br><br>So the relationship between all the three steps are yet linear, but again you have this space to iterate [gestures middle step of sketch]. And so that gives me more feedback about how to go about it. | *Great. And my last question to you is, what did you learn from this exercise or did you learn anything from this exercise?*<br><br>I mean, like basically I would say more of like the focus on typology and how all of these factors like aesthetic value or functionality and how they play an important role in like transforming things. Because we made a vase out of a tray, but it could have just been out of wood and metal sheets and like understanding what qualities are already in there and using them to our advantage to build a new product that is also usable and like not rubbish. So that's what I learned. [Laughs] | *My last question for this project is, did you learn anything from making this?*<br><br>Learn anything... Yeah, I feel I feel more clear about what the object is and is really actually this the categories we made before, like the glasses, cup or bowl, this is is not that much... clearer. Actually, it's vague concept but, uh, but how we present present it to the users. It is the best way, it's important way we need to consider about because even if it's looked like a place in our explanations, but if we killed the audience, this is a bowl and they use like this.<br><br>So the audience, we all get them new meanings of the bowl. So yeah, that's my point. So it's like how we introduced this object, not the the traditional understanding of this. Yeah. So that's my point. Oh, that's very interesting. Thank you. | C<br><br>I<br>[c<br>u<br><br>a<br>a<br><br>Y<br><br>Y |

Figure_Apx. 143:
Chaparro, Y. (2022) Transcribed Data from Semi-Structured Interview with Participants. Part 1 [spreadsheet]

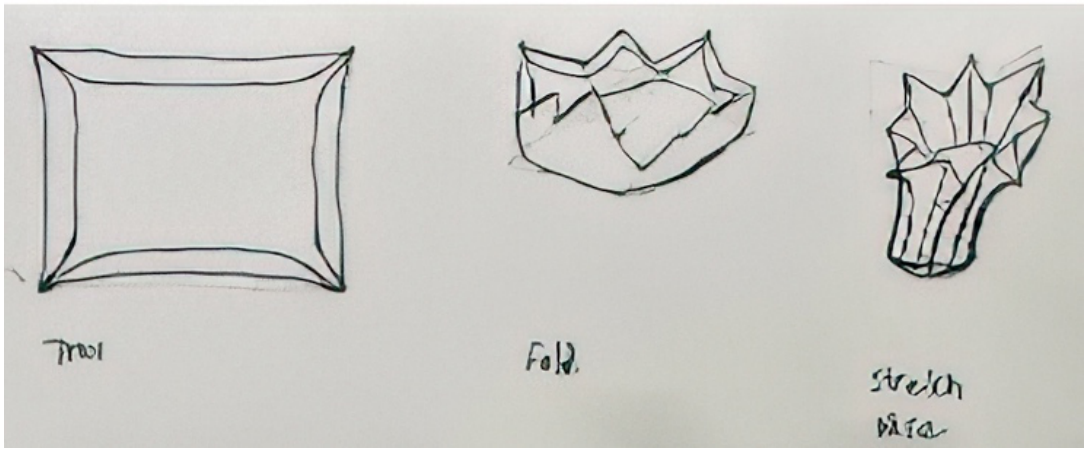
Transcription of oral semi-structured interviews. Part 2.

| | | | | |
|---|---|---|---|---|
| *Okay, so you did your definitions of typology, morphology, etc., change as you were doing this project.*<br><br>I think... I'm not sure. | *Okay, great. And throughout the process of this, did your definition of tupology, mophology, change, and also did that inspire or influence how you made these models?*<br><br>For my definition, I think I was really strict with what I considered, for example, in the examples, what I consider the bowl and what I consider the pitcher. So I tried to maintain that same strictness into what I was doing. So I wouldn't say it changed much of my idea about thinking of it because I went into it with that idea.<br><br>*Okay, so you would say that you went into it kind of like with the strict guidelines and pretty much followed through. Do you think there was part of it that didn't work?*<br><br>Well, I was hoping that the clay would be easier to pull down, kind of like my drawing... But I soon realized that I would need a huge piece of clay [laughs], in order for it to maintain the wall thickness and you could actually pull it down. Yeah. So I had a problem there, but I didn't want to compromise with my idea. So what I did is I used a planar material and then I cut a circle and I just cut around that. And that way I was able to simulate that basically. | *I'm just wondering for the words that you said you wrote down: typology, mophology. Did any of those definitions change while you were making this? And how did those words play a part in how you made this?* | *Great. Thank you. So the terms that you defined (mophology, typology, etc...) has those changed throughout the process? And also that does play a part in how you made these objects.*<br><br>Do you mean that these words change...?<br><br>*Their definition. Like did your definition of those words change throughout the process?*<br><br>[Answers continue below]<br><br>*Yes. Okay. And as you went from your tray to your vase, did you think of the tray, the vase and then the middle, or did you go from one, two and three? How do you think?*<br><br>Yeah. So I go from the original and I thought about what I should do with that. So then the second [points to middle model] and this then the end [points to final vase model]. But what's different is the outcome. I thought it would look like this [points at sketch] but it actually looked like this [points to final vase model]. I didn't think about it that much, but I think it works. | *Okay. So did any of the terms that you defined; so typology, mophology... did those terms change as you were making these?*<br><br>Yes, definitely. I believe the typologies changed a little bit, but I'm not really sure in the aspect of the morphology, because in my perspective, these two objects, even though they are the similar function, they contain stuff-<br><br>*[Interrupting] I mean, the definition how you define those words? So the words that you wrote in your booklet, do you think that definition of typology changed after you made this?*<br><br>No, I don't think so.<br><br>*Okay. Did those inspire you in any way in in making these?*<br><br>Um, yes, it's hard to describe in a formal sentence, but I believe the definition really helps me. |
| I think typology is like two kind of meanings. It's a type and -pology. I think it's... how do I say it. It can... It's a separate. Separate?<br><br>*Like separate them?*<br><br>Yes, separate them. Yeah. | | Like, I think for typology, like I can define tray's features different than vase. So like in order to make my form to apply to those typologies like it needed some adjustments. | After I made this, I think for typology, I think no. For me, I feel that typology just a type of product. So for example, [points at tray model] that is a tray, and [points at vase model] this is definitely not a tray. And I would consider it a vase or whatever container. So they are definitely two different typologies. | |
| | | And for mophology, I think because it changes form, I think it also change with the process. | And for morphology, I think what I understand of morphology is just the form of an object or a product. | |
| | | | | |
| | | | | |
| And I also think, uh, about a project's function as a one project. I think a project's function... an important point is the designer's means. The designers' minds is very important. And so you can, you can design projects, but maybe she'll look like... it's different. The full function maybe it's either look like a, uh, maybe it's a part, but so function is in the part.<br><br>*Okay, so what the designer intends might be different than what the function is. Is that what you mean?*<br><br>Uh... [in foreign language] A product's actual use function may be different than what you imagined.<br><br>*So the function that the product has might be different than the one that you intended to have. Okay, I see. Okay. Thank you.* | | | | |
| | | | | |
| *Did you learn anything doing this project?*<br><br>I think... I think this was a group project that improved [our understanding of] function and form and how we use.<br><br>*Improve function and form... So you improved how you were able to design your object to have a better function and the form.*<br><br>Yeah.<br><br>*Yeah, I see. Okay. Thank you.* | *And did you learn anything, this exercise?*<br><br>Uh, I like model thinking [laughs]. Um, yeah, uh, not really... I guess. Like what I learned from the exercise? Well, that planar material is the best, I would say. Prototyping. [Laughs]. | *Thanks. My next question for you is, did you learn anything new in the process?*<br><br>Like, I think I have a chance to like re-think to define objects or like re-use in terms of typologies. Maybe like use a few words to describe them; how it can be done. Like I have a chance to... yes. Rethink the process of defining and, um, let's say purpose. | *Okay. And did you learn something from this project?*<br><br>I think it's really interesting because I didn't think I can actually do something with tray and make it into a vase just through two actions. So I think that's how I learn, like, oh, I can actually make stuff, make something out of another product, just through one or more than one actions. | *And final question is, did you learn anything from this exercise?*<br><br>Yeah, definitely. Because this reminds me how objects transform into another object and it's kind of a really strong inspiration practice in my future study. And I believe this is really nice way to do it. |

Figure_Apx. 144:
Chaparro, Y. (2022) Transcribed Data from Semi-Structured Interview with Participants. Part 2 [spreadsheet]

Workshop Four participants were prompted to develop a 3D sequence going from a candle holder to a lamp by utilising sketch materials. Research Assistant Xusheng Yu documented the sequences.

Images of sequence by Participant 60.




Figure_Apx. 145:
(2022) 2D Sketch of Sequence. Workshop Four – Participant 60 [photo] Photo credit: Xusheng Yu.

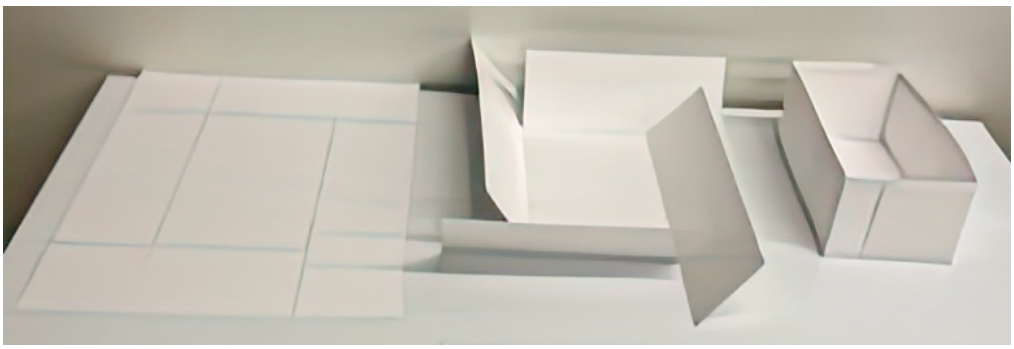


Figure_Apx. 146:
(2022) 3D Sketch of Sequence. Workshop Four – Participant 60 [photo] Photo credit: Xusheng Yu.

Images of sequence by Participant 61.

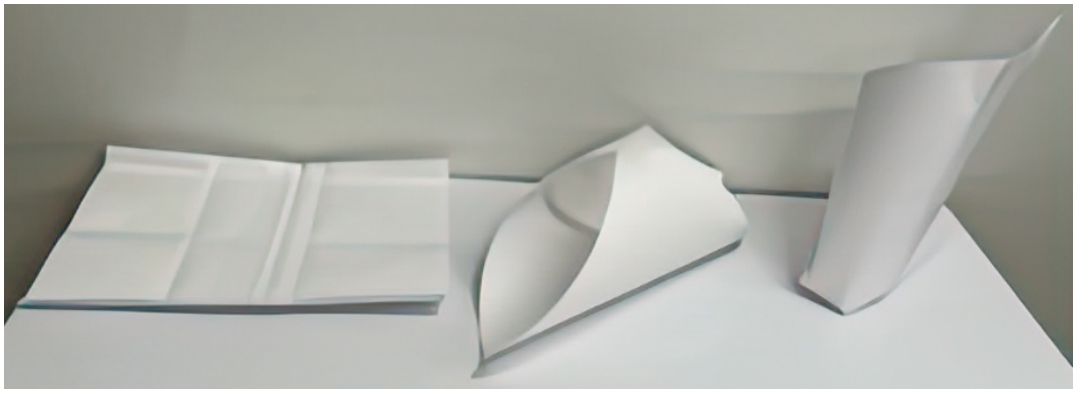


Figure_Apx. 147:
Yu, X. (2022) 2D Sketch of Sequence. Workshop Four – Participant 61 [photo] Photo credit: Xusheng Yu.

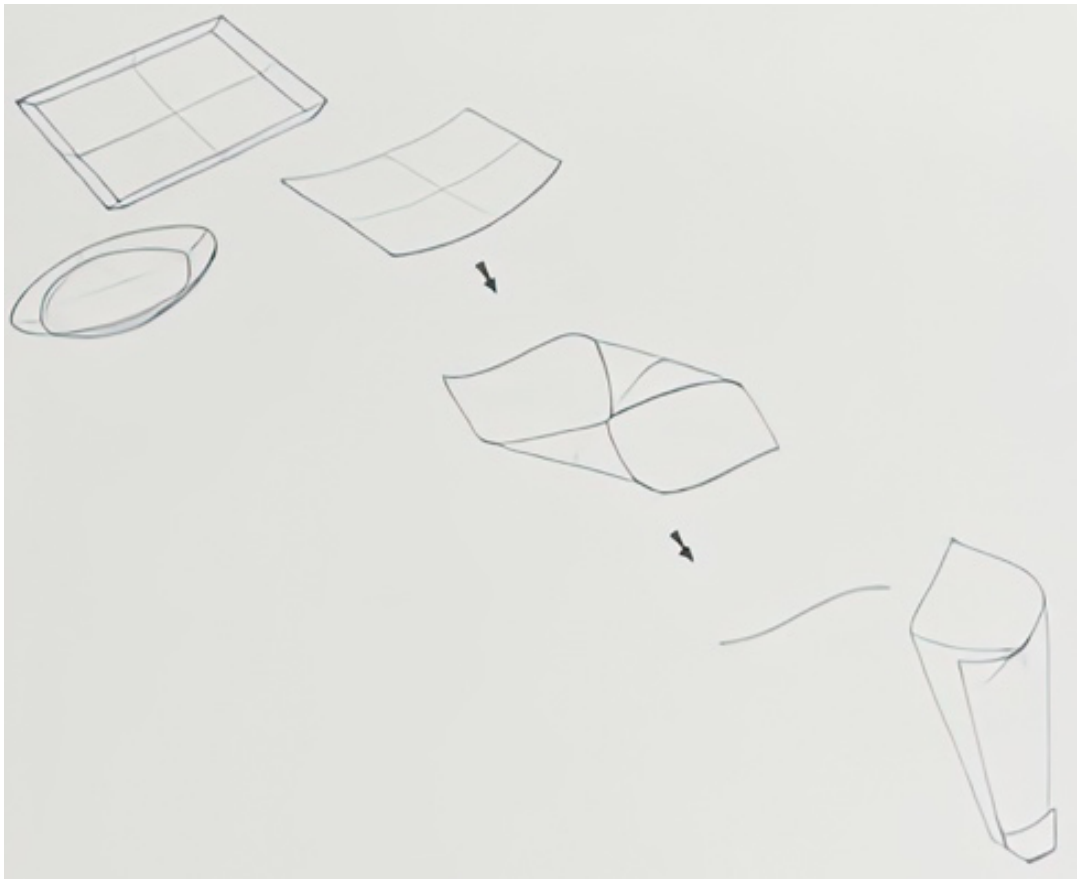


Figure_Apx. 148:
(2022) 3D Sketch of Sequence. Workshop Four – Participant 61 [photo] Photo credit: Xusheng Yu.

Images of sequence by Participant 62.

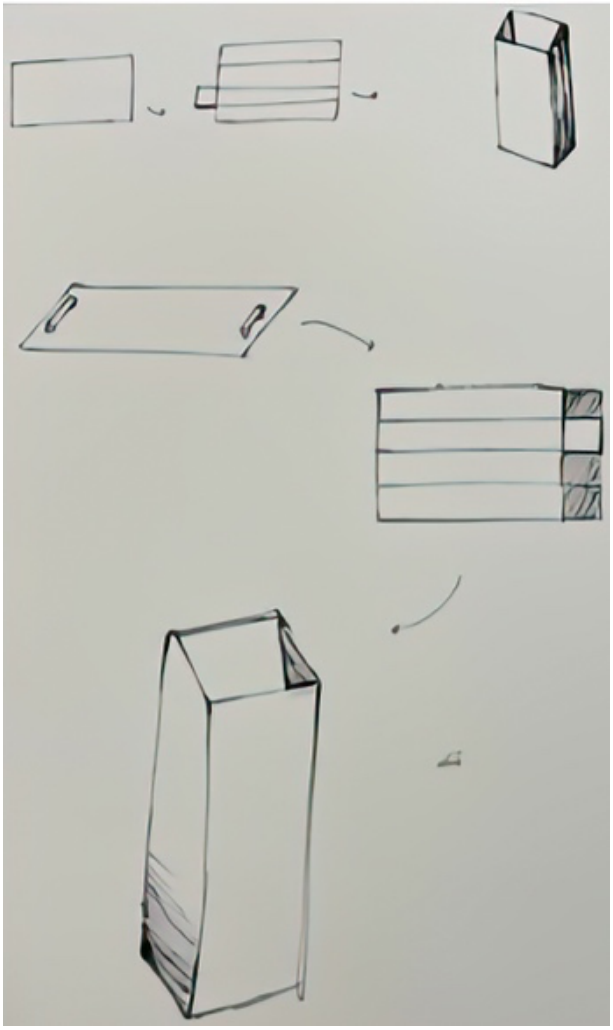


Figure_Apx. 149:
(2022) 3D Sketch of Sequence. Workshop Four – Participant 62 [photo]
Photo credit: Xusheng Yu.

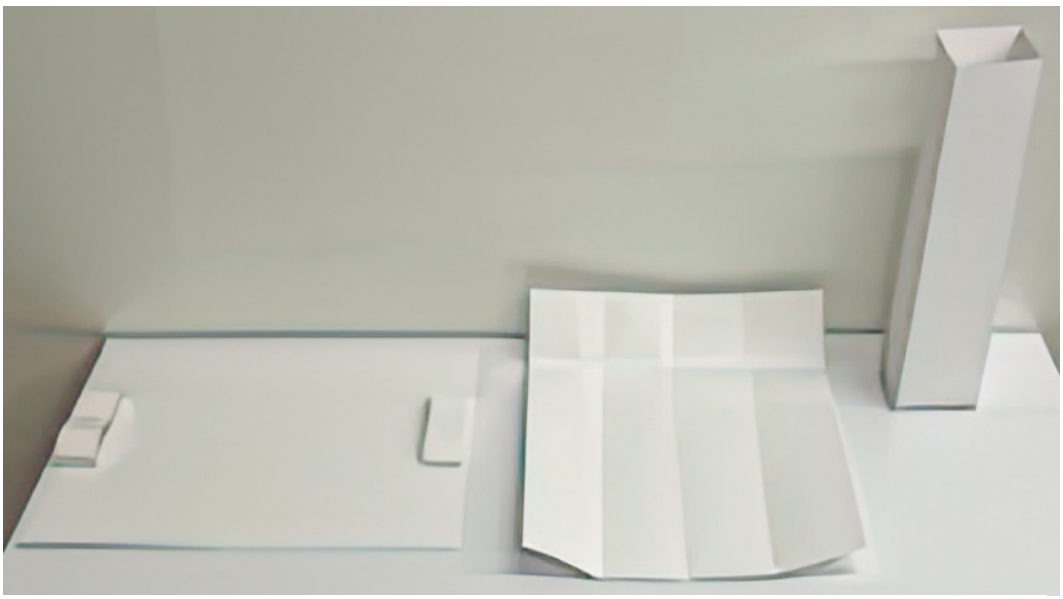


Figure_Apx. 150:
(2022) 2D Sketch of Sequence. Workshop Four – Participant 62 [photo]
Photo credit: Xusheng Yu.

Images of sequence by Participant 63.

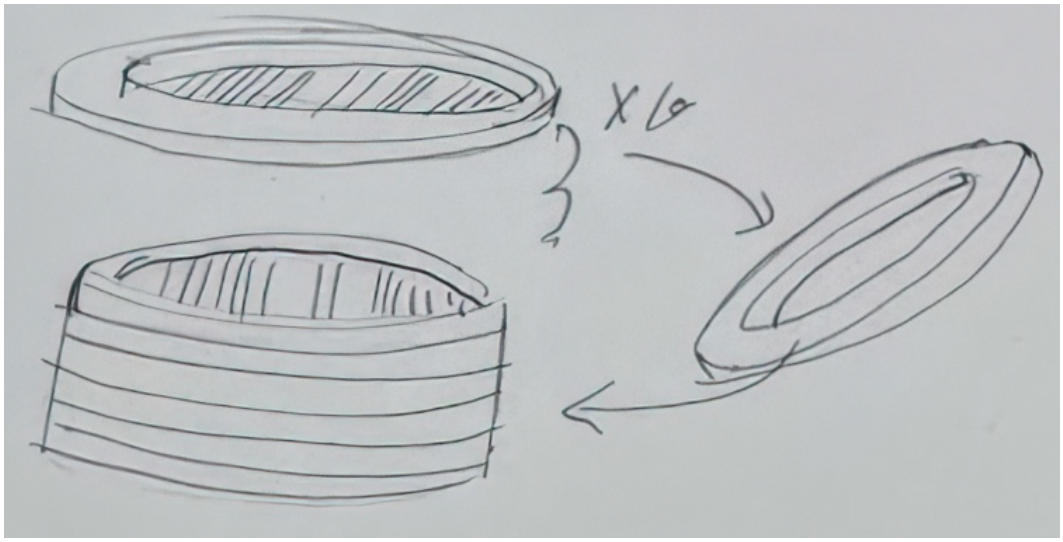


Figure_Apx. 151:
(2022) 2D Sketch of Sequence. Workshop Four – Participant 63 [photo] Photo credit: Xusheng Yu.



Figure_Apx. 152:
(2022) 3D Sketch of Sequence. Workshop Four – Participant 63 [photo] Photo credit: Xusheng Yu.

Images of sequence by Participant 64.

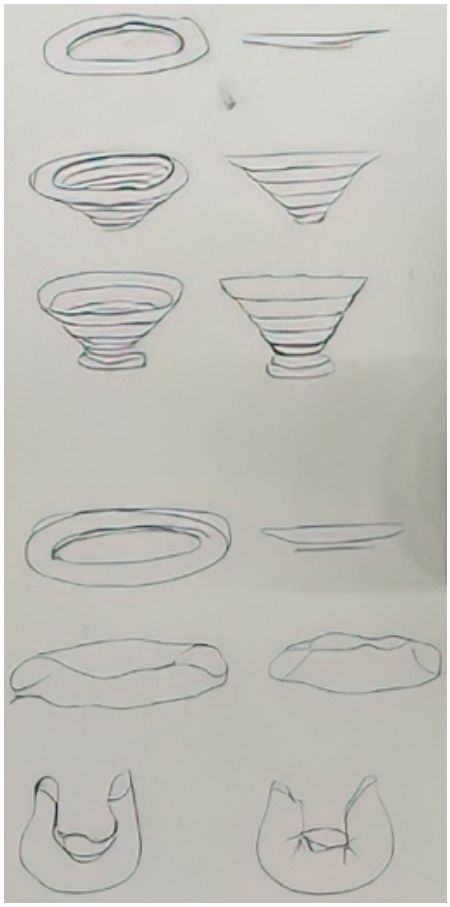



Figure_Apx. 153:
(2022) 2D Sketch of Sequence. Workshop Four – Participant 64 [photo] Photo credit: Xusheng Yu.



Figure_Apx. 154:
(2022) 3D Sketch of Sequence. Workshop Four – Participant 64 [photo] Photo credit: Xusheng Yu.

Images of sequence by Participant 65.

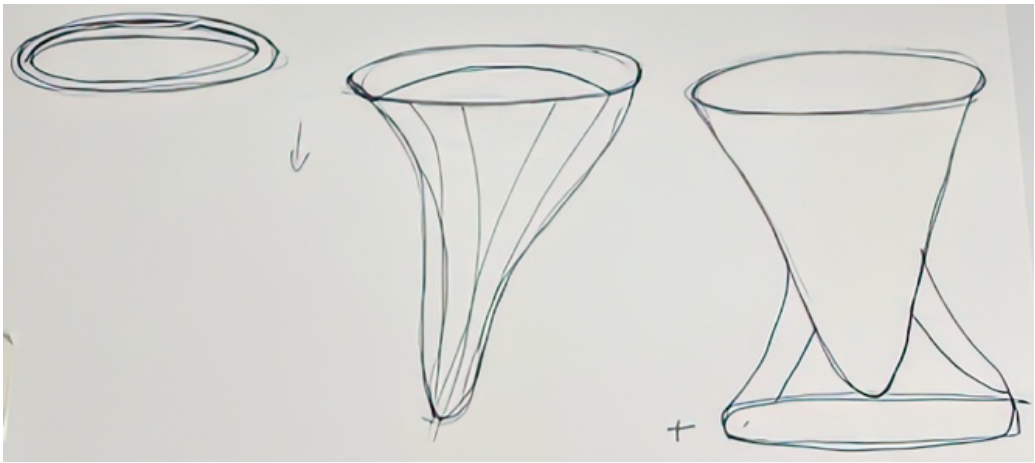


Figure_Apx. 155:
(2022) 2D Sketch of Sequence. Workshop Four – Participant 65 [photo] Photo credit: Xusheng Yu.

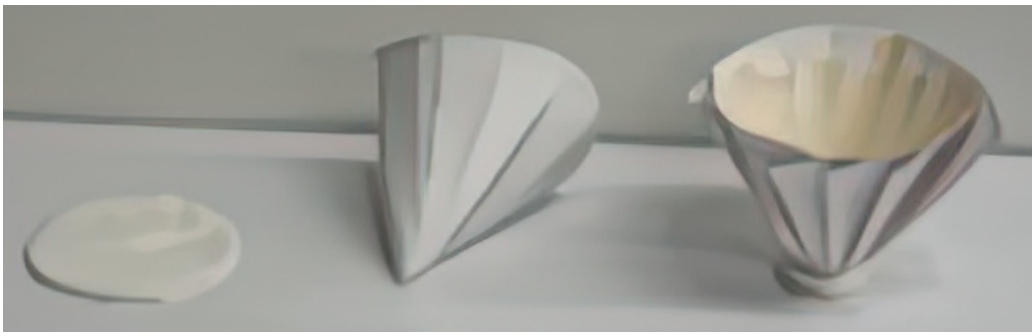


Figure_Apx. 156:
(2022) 3D Sketch of Sequence. Workshop Four – Participant 65 [photo] Photo credit: Xusheng Yu.

Images of sequence by Participant 66.

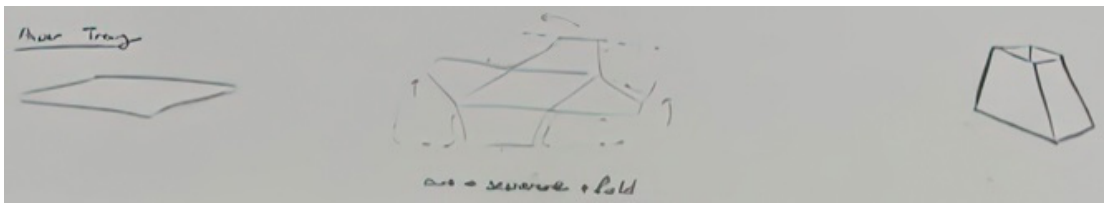


Figure_Apx. 157:
(2022) 2D Sketch of Sequence. Workshop Four – Participant 66 [photo] Photo credit: Xusheng Yu.



Figure_Apx. 158:
(2022) 3D Sketch of Sequence. Workshop Four – Participant 66 [photo] Photo credit: Xusheng Yu.

Images of sequence by Participant 67.

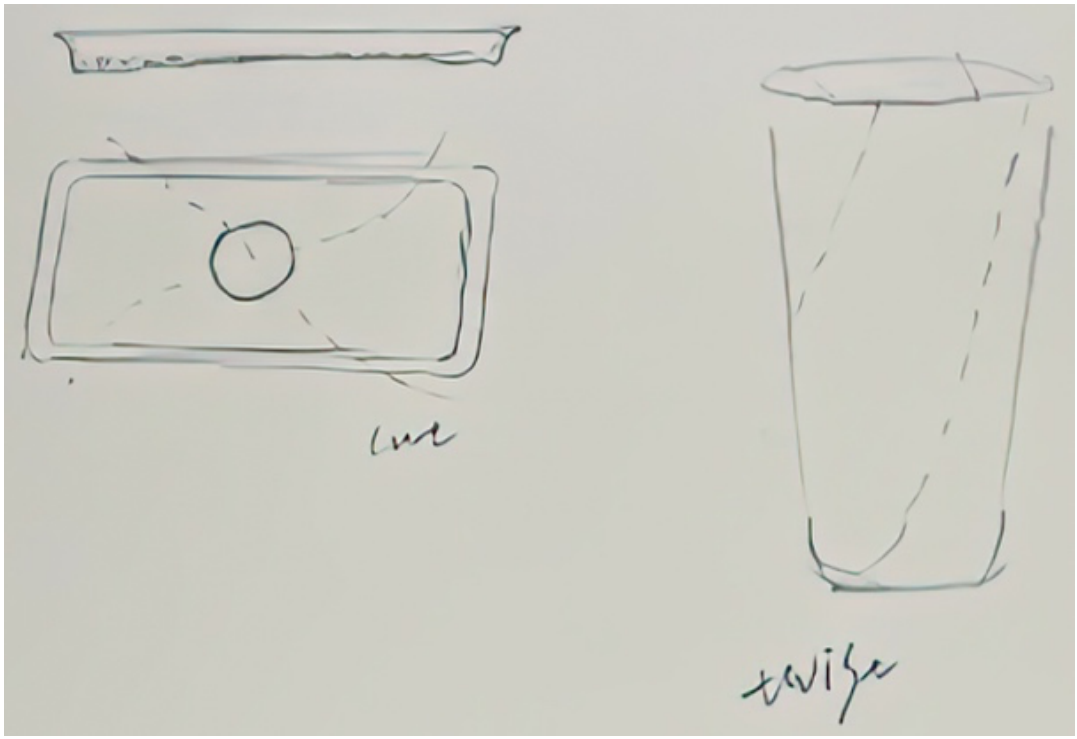


Figure_Apx. 159:
(2022) 2D Sketch of Sequence. Workshop Four – Participant 67 [photo] Photo credit: Xusheng Yu.



Figure_Apx. 160:
(2022) 3D Sketch of Sequence. Workshop Four – Participant 67 [photo] Photo credit: Xusheng Yu.

Images of sequence by Participant 69.

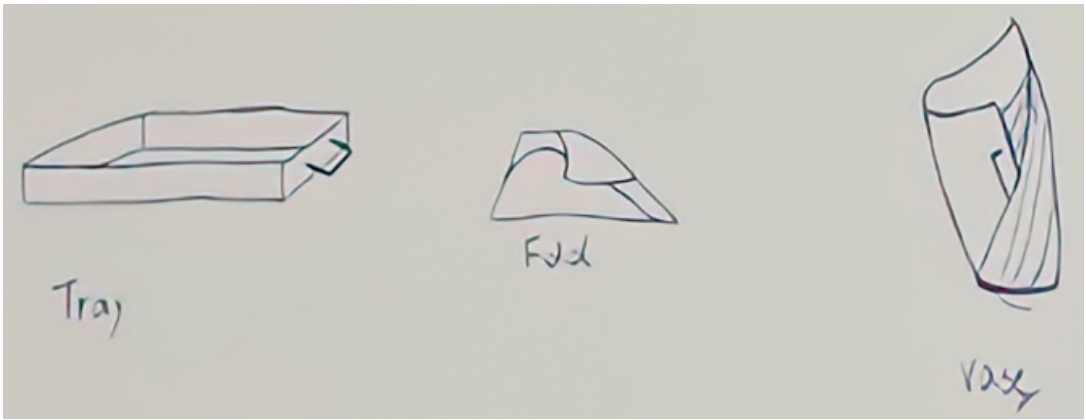


Figure_Apx. 161:
(2022) 2D Sketch of Sequence. Workshop Four – Participant 69 [photo] Photo credit: Xusheng Yu.

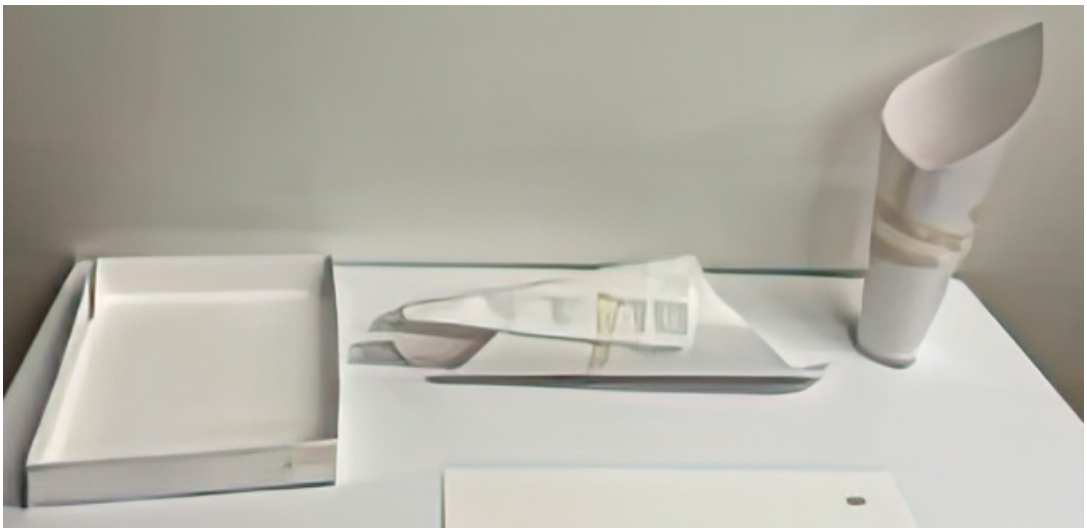


Figure_Apx. 162:
(2022) 3D Sketch of Sequence. Workshop Four – Participant 69 [photo] Photo credit: Xusheng Yu.

Images of sequence by Participant 70.




Figure_Apx. 163:
(2022) 2D Sketch of Sequence. Workshop Four – Participant 70 [photo] Photo credit: Xusheng Yu.



Figure_Apx. 164:
(2022) 3D Sketch of Sequence. Workshop Four – Participant 70 [photo] Photo credit: Xusheng Yu.

## Workshop Five

[25 April 2023]

### Documentation given to participants. Workshop Five.

Consent Forms for student participants for workshop. Page 1

**Towards an Understanding of "the Programme" in Industrial Design: Developing a new pedagogical methodology through action research. STAND-ALONE WORKSHOP.**

**Principal Investigator**: Yvette Chaparro
**School/Faculty within LJMU**: PhD programme Art&Design **Collaborating Institutions**: Parsons / The New School

**Introduction** You are being invited to take part in a research study. Before you decide it is important for you to understand why the study us being done and what participation will involve. Please take time to read the following information carefully and discuss it with others if you wish. Ask us if there is anything that is not clear or if you would like more information. Take time to decide whether or not you wish to take part. Thank you for taking the time to read this.

**What is the purpose of the study?** This project aims to study the significance of the concepts around typology and morphology and how they can help students learn the process of Industrial/Product/3D design.

**Why have I been invited to participate?** You have been invited because you are an Design student, so you are already familiar with the basic language of design. The exclusion criteria includes students that have already had two or more years of Industrial/Product Design studies. You were identified through the BFA Parsons Product Design and MFA Industrial Design programmes at SCE.

**Do I have to take part?** No. It is up to you to decide whether or not to take part. If you do decide to take part you will be given this information sheet to keep and be asked to sign a consent form. You can withdraw at any time by informing the investigators without giving a reason and without it affecting your rights/any future treatment/service you receive.

**What will happen to me if I take part?**

- We will talk you through the study procedures and give you the chance to ask any questions.
- You will be given a written questionnaire on paper [if the workshop is face-to-face], or online [if the workshop is virtual]. The questionnaire will include questions about your knowledge of 3D concepts to complete. The questionnaire will include a number to replace your name in all documentation of work and shared comments as to ensure confidentiality [approx. 5minutes]
- You will be given a prompt to use basic materials and make 3-Dimensional sketch models. [30mins approx..]. After the workshop photographs will be taken of the work and you will be able to take the work away with you.
- Your process will be recorded audio visually focusing on your. working hands, for the researcher to transcribe and reflect on the activity.
- You will be interviewed as a group during the making activity, and recorded audio visually asking questions about the process (only your voice, hands, and work will be recorded).
- You will then have an exit interview with a couple more questions. (recorded audio visually showing the outcome of the activity). [5-10mins approx..]
- You will be given transportation money and a card for snacks / coffee.

**Will I be recorded and how will the recorded media be used?** Yes, the activity and exit interview will be audio visually recorded for the researcher to transcribe and reflect on the process and outcomes.
The audio and/or video recordings of your activities made during this study will be used only for analysis. No other use will be made of them without your written permission. The audio-visual recording will be stored in a password protected device. The creative output, reflections, and comments will be used as part of the investigator's thesis work and subsequent publication of the work will always remain confidential. Your name will not be attached to the creative output, it will be code-linked so only the researchers will be able to trace it back to you.

**Are there any possible disadvantages or risks from taking part?** It is highly unlikely that you would become distressed as the workshops/ exercises are normal teaching and learning activities. If you were to become stressed during the workshop or exercise you are free to leave the session at any time and there is also on campus support through Student services if any medical issue were to arise plus first aid access.

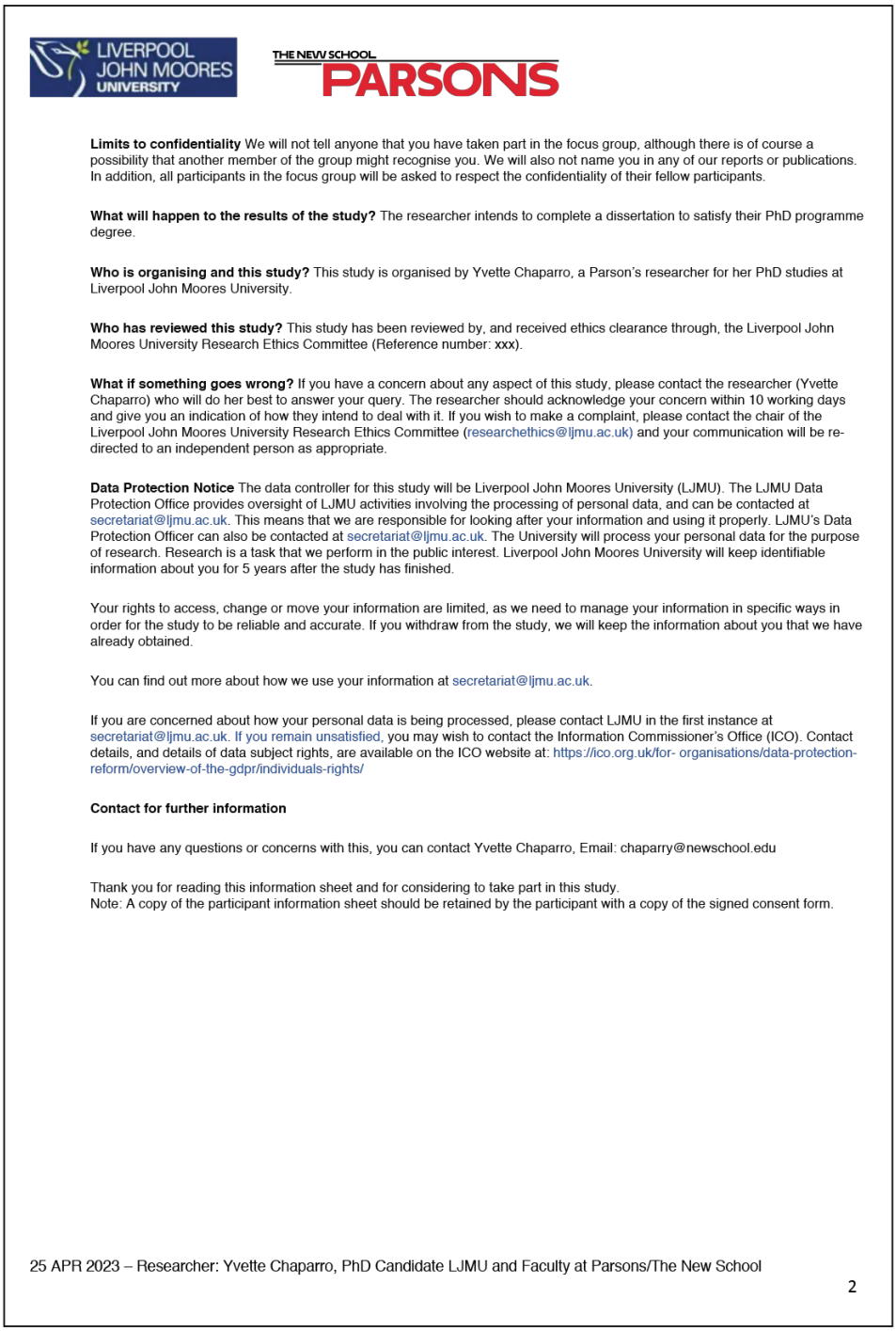
**What are the possible benefits of taking part?** Participation in the in-class research as case studies will provide an opportunity to share reflections and insights, as well as potentially developing an understanding of research processes.

**What will happen to the data provided and how will my taking part in this project be kept confidential?** The information you provide as part of the study is the study data. Any study data from which you can be identified (e.g. from identifiers such as your name, date of birth, audio recording etc.), is known as personal data. Personal data collected from you will be recorded using a linked-code. The link from the code to your identity will be stored securely and separately from the coded data on a password protected device. You will not be identifiable in any ensuing reports or publications.

25 APR 2023 – Researcher: Yvette Chaparro, PhD Candidate LJMU and Faculty at Parsons/The New School

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Figure_Apx. 165:
Chaparro, Y. (2023) Consent Forms for Participants. Page 1 [document]



**Limits to confidentiality** We will not tell anyone that you have taken part in the focus group, although there is of course a possibility that another member of the group might recognise you. We will also not name you in any of our reports or publications. In addition, all participants in the focus group will be asked to respect the confidentiality of their fellow participants.

**What will happen to the results of the study?** The researcher intends to complete a dissertation to satisfy their PhD programme degree.

**Who is organising and this study?** This study is organised by Yvette Chaparro, a Parson's researcher for her PhD studies at Liverpool John Moores University.

**Who has reviewed this study?** This study has been reviewed by, and received ethics clearance through, the Liverpool John Moores University Research Ethics Committee (Reference number: xxx).

**What if something goes wrong?** If you have a concern about any aspect of this study, please contact the researcher (Yvette Chaparro) who will do her best to answer your query. The researcher should acknowledge your concern within 10 working days and give you an indication of how they intend to deal with it. If you wish to make a complaint, please contact the chair of the Liverpool John Moores University Research Ethics Committee (researchethics@ljmu.ac.uk) and your communication will be re-directed to an independent person as appropriate.

**Data Protection Notice** The data controller for this study will be Liverpool John Moores University (LJMU). The LJMU Data Protection Office provides oversight of LJMU activities involving the processing of personal data, and can be contacted at secretariat@ljmu.ac.uk. This means that we are responsible for looking after your information and using it properly. LJMU's Data Protection Officer can also be contacted at secretariat@ljmu.ac.uk. The University will process your personal data for the purpose of research. Research is a task that we perform in the public interest. Liverpool John Moores University will keep identifiable information about you for 5 years after the study has finished.

Your rights to access, change or move your information are limited, as we need to manage your information in specific ways in order for the study to be reliable and accurate. If you withdraw from the study, we will keep the information about you that we have already obtained.

You can find out more about how we use your information at secretariat@ljmu.ac.uk.

If you are concerned about how your personal data is being processed, please contact LJMU in the first instance at secretariat@ljmu.ac.uk. If you remain unsatisfied, you may wish to contact the Information Commissioner's Office (ICO). Contact details, and details of data subject rights, are available on the ICO website at: https://ico.org.uk/for- organisations/data-protection-reform/overview-of-the-gdpr/individuals-rights/

**Contact for further information**

If you have any questions or concerns with this, you can contact Yvette Chaparro, Email: chaparry@newschool.edu

Thank you for reading this information sheet and for considering to take part in this study.
Note: A copy of the participant information sheet should be retained by the participant with a copy of the signed consent form.

25 APR 2023 – Researcher: Yvette Chaparro, PhD Candidate LJMU and Faculty at Parsons/The New School

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Figure_Apx. 166:
Chaparro, Y. (2023) Consent Forms for Participants. Page 2 [document]

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Towards an Understanding of "the Programme" in Industrial Design: Developing a new pedagogical methodology through action research. **CONSENT FORM.**

1. I confirm that I have read and understand the information provided for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily ☐

2. I understand that my participation is voluntary and that I am free to withdraw at any time, during the workshops or in-class sessions as case studies. After the workshops and in-class sessions there will be a "cooling off" period of two weeks, during which I can withdraw from being included in the research. After the two-week period, and once analysis has been completed by. The research it will not be possible to withdraw, except in exceptional circumstances. ☐

3. I understand that any personal information collected during the study will be link-coded and remain confidential to the researchers. ☐

4. I agree to take part in the above study which includes a questionnaire, prompts for exercises, and recorded/photographed outcomes and interviews. ☐

5. I understand that the interview/focus group will be audio / video recorded and I am happy to proceed ☐

6. I understand that parts of our conversation may be used verbatim in future publications or presentations but that such quotes will be anonymised. ☐

Name of Participant: _____ Date_____ Signature_____

Name of Researcher: _____ Date_____ Signature_____

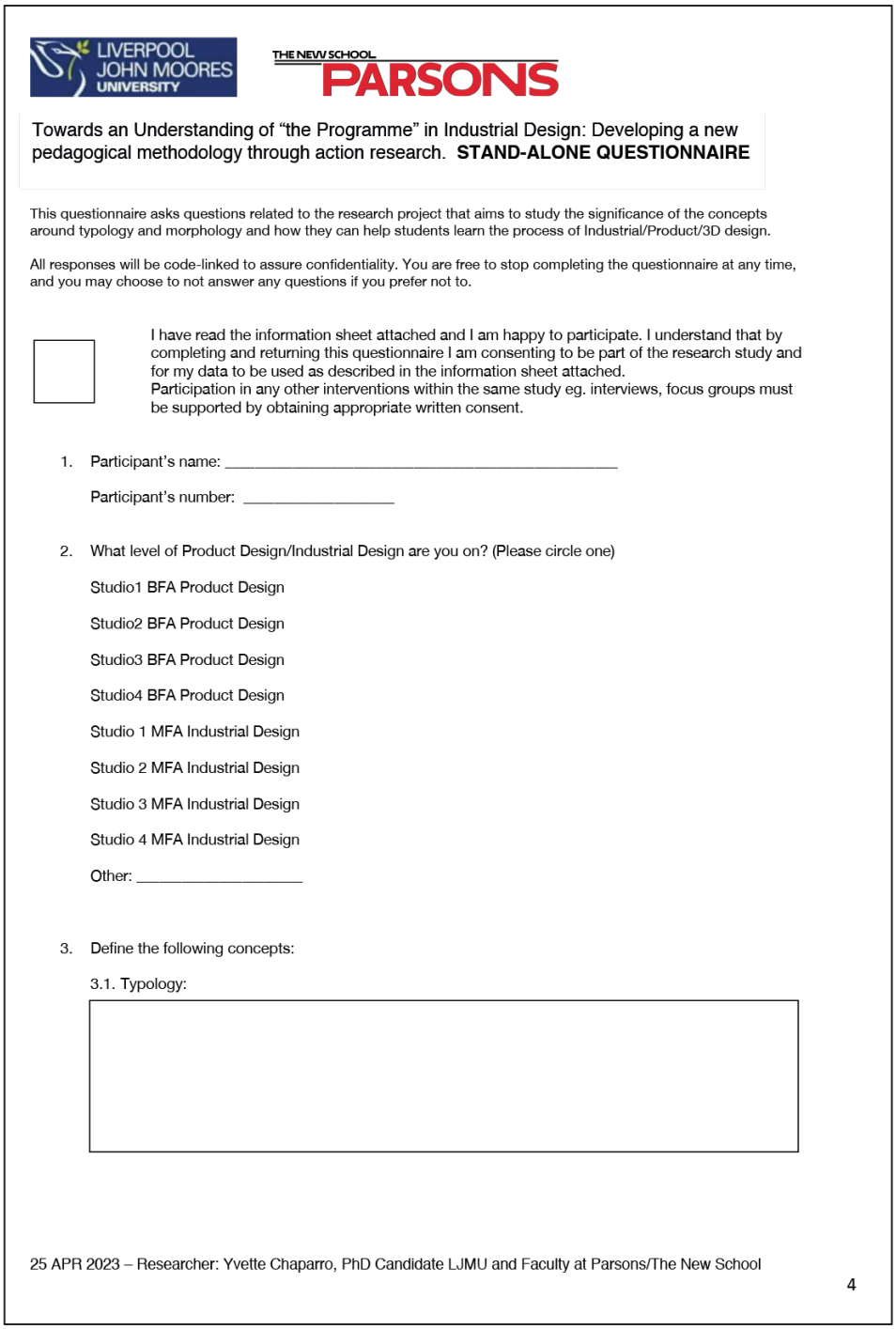
Name of Person Taking Consent: _____Date_____ Signature_____
*(If different from researcher)*

*1 copy for participant and 1 copy for researcher*

25 APR 2023 – Researcher: Yvette Chaparro, PhD Candidate LJMU and Faculty at Parsons/The New School

3

Figure_Apx. 167:
Chaparro, Y. (2023) Consent Forms for Participants. Page 3 [document]



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Towards an Understanding of "the Programme" in Industrial Design: Developing a new pedagogical methodology through action research. **STAND-ALONE QUESTIONNAIRE**

This questionnaire asks questions related to the research project that aims to study the significance of the concepts around typology and morphology and how they can help students learn the process of Industrial/Product/3D design.

All responses will be code-linked to assure confidentiality. You are free to stop completing the questionnaire at any time, and you may choose to not answer any questions if you prefer not to.

☐ I have read the information sheet attached and I am happy to participate. I understand that by completing and returning this questionnaire I am consenting to be part of the research study and for my data to be used as described in the information sheet attached.
Participation in any other interventions within the same study eg. interviews, focus groups must be supported by obtaining appropriate written consent.

1. Participant's name: _____

   Participant's number: _____

2. What level of Product Design/Industrial Design are you on? (Please circle one)

   Studio1 BFA Product Design

   Studio2 BFA Product Design

   Studio3 BFA Product Design

   Studio4 BFA Product Design

   Studio 1 MFA Industrial Design

   Studio 2 MFA Industrial Design

   Studio 3 MFA Industrial Design

   Studio 4 MFA Industrial Design

   Other: _____

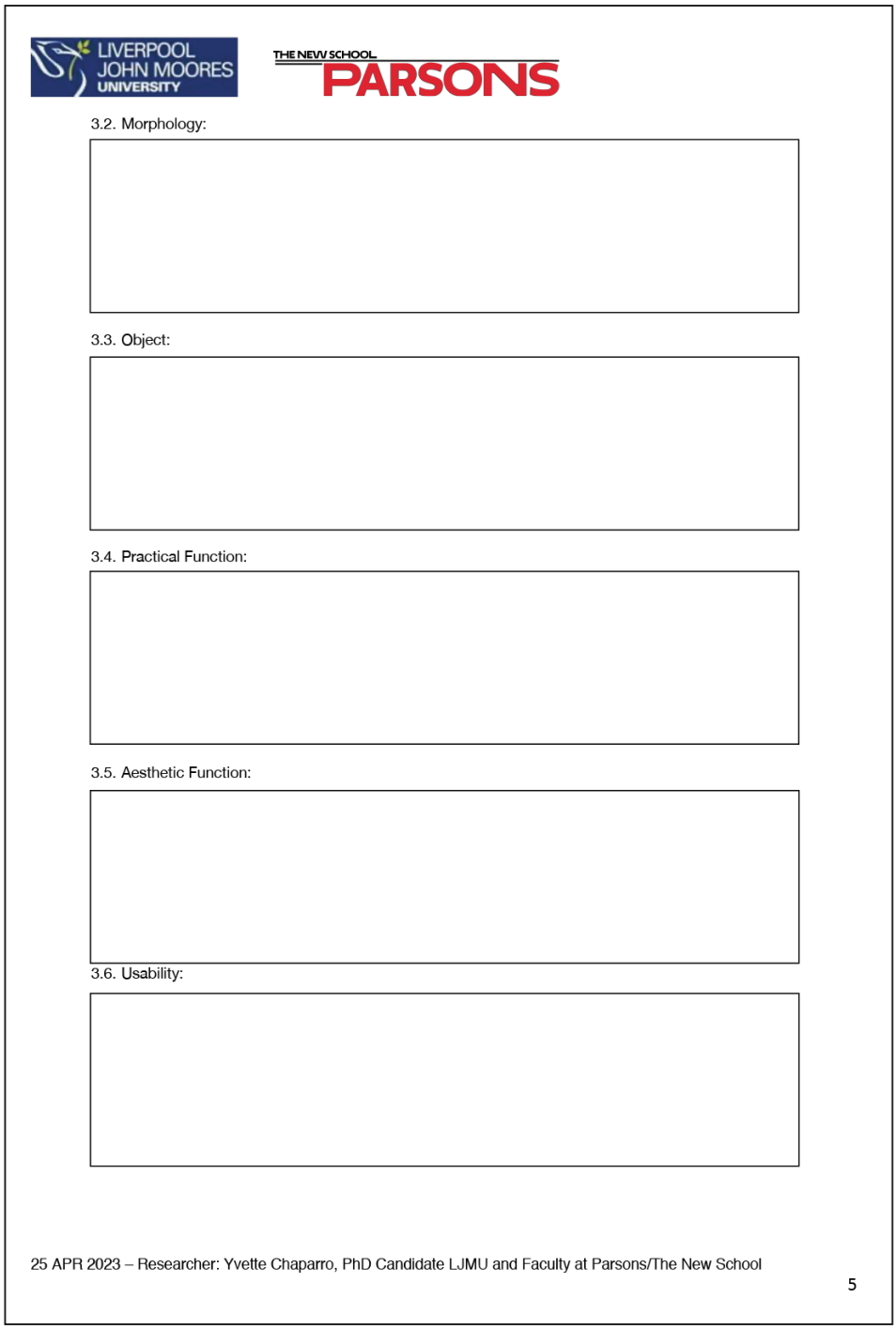
3. Define the following concepts:

   3.1. Typology:

25 APR 2023 – Researcher: Yvette Chaparro, PhD Candidate LJMU and Faculty at Parsons/The New School

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Figure_Apx. 168:
Chaparro, Y. (2023) Questionnaire Forms for Participants. Page 4 [document]



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3.2. Morphology:

3.3. Object:

3.4. Practical Function:

3.5. Aesthetic Function:

3.6. Usability:

25 APR 2023 – Researcher: Yvette Chaparro, PhD Candidate LJMU and Faculty at Parsons/The New School

5

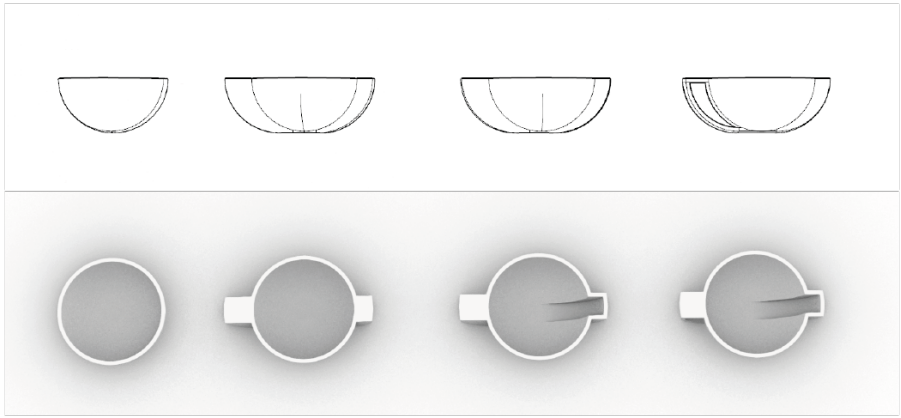
Figure_Apx. 169:
Chaparro, Y. (2023) Questionnaire Forms for Participants. Page 5 [document]

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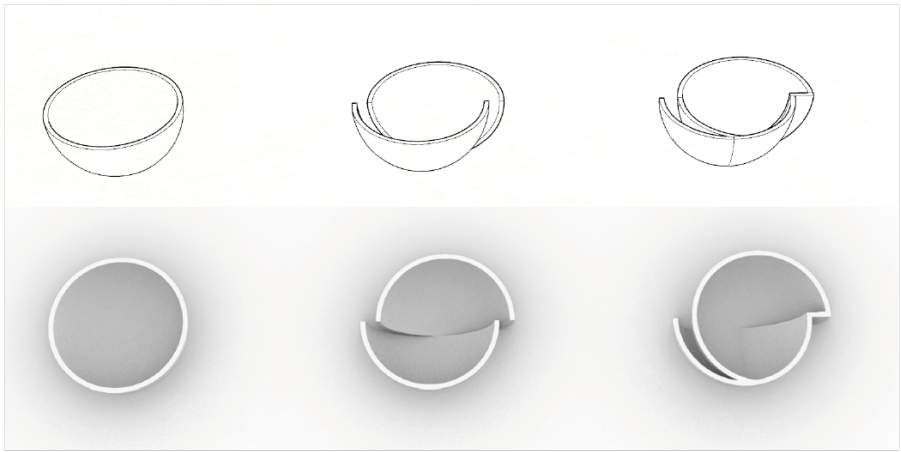
THE NEW SCHOOL PARSONS

4. Look at the following sequences as examples of transformation from a bowl to a pitcher.

**4.1. Sequence 1 [Extrusion of surface towards sides]:**



**4.2. Sequence 2 [Cut and shift- vertical]:**



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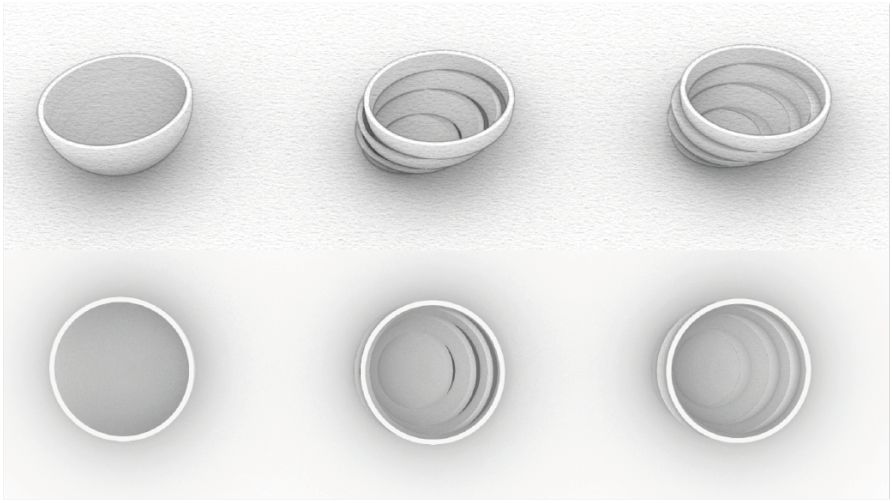
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Figure_Apx. 170:
Chaparro, Y. (2023) Questionnaire Forms for Participants. Page 6 [document]

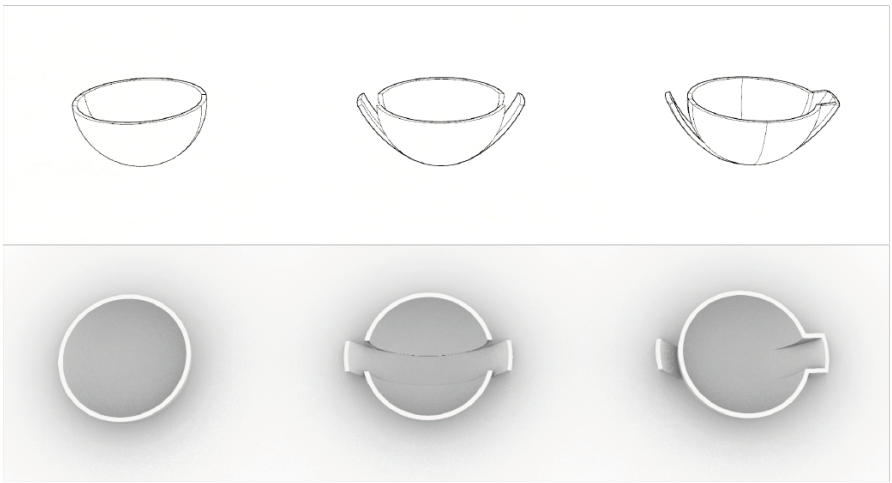
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**4.3. SEQUENCE 3 [Cut and Shift – horizontal]:**



**4.4. SEQUENCE 4 [Peel off surface from sides]:**



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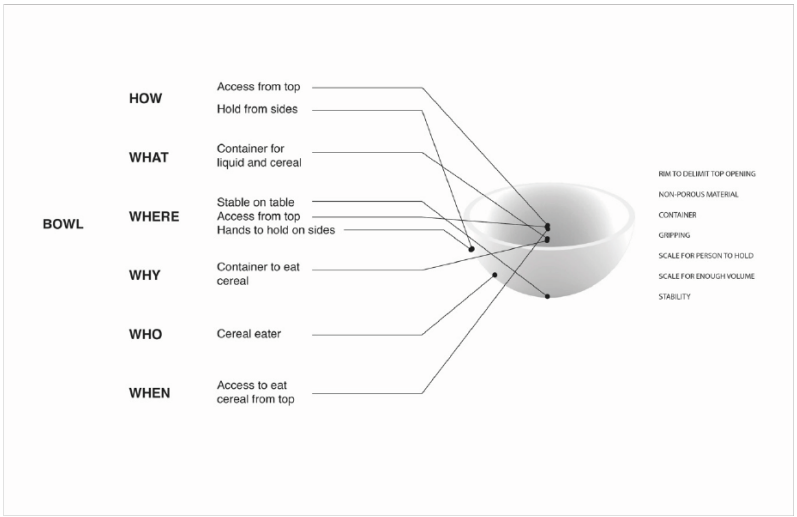
7

Figure_Apx. 171:
Chaparro, Y. (2023) Questionnaire Forms for Participants. Page 7 [document]

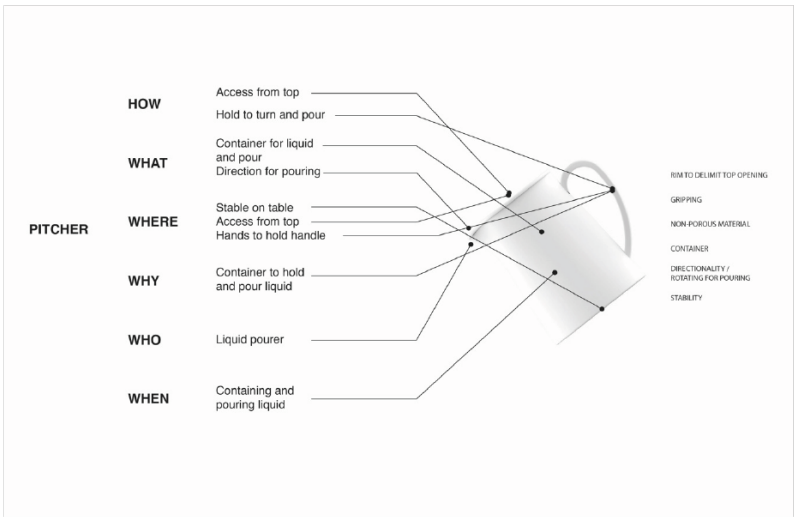
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5. Look at the start of a programme for the BOWL typology:



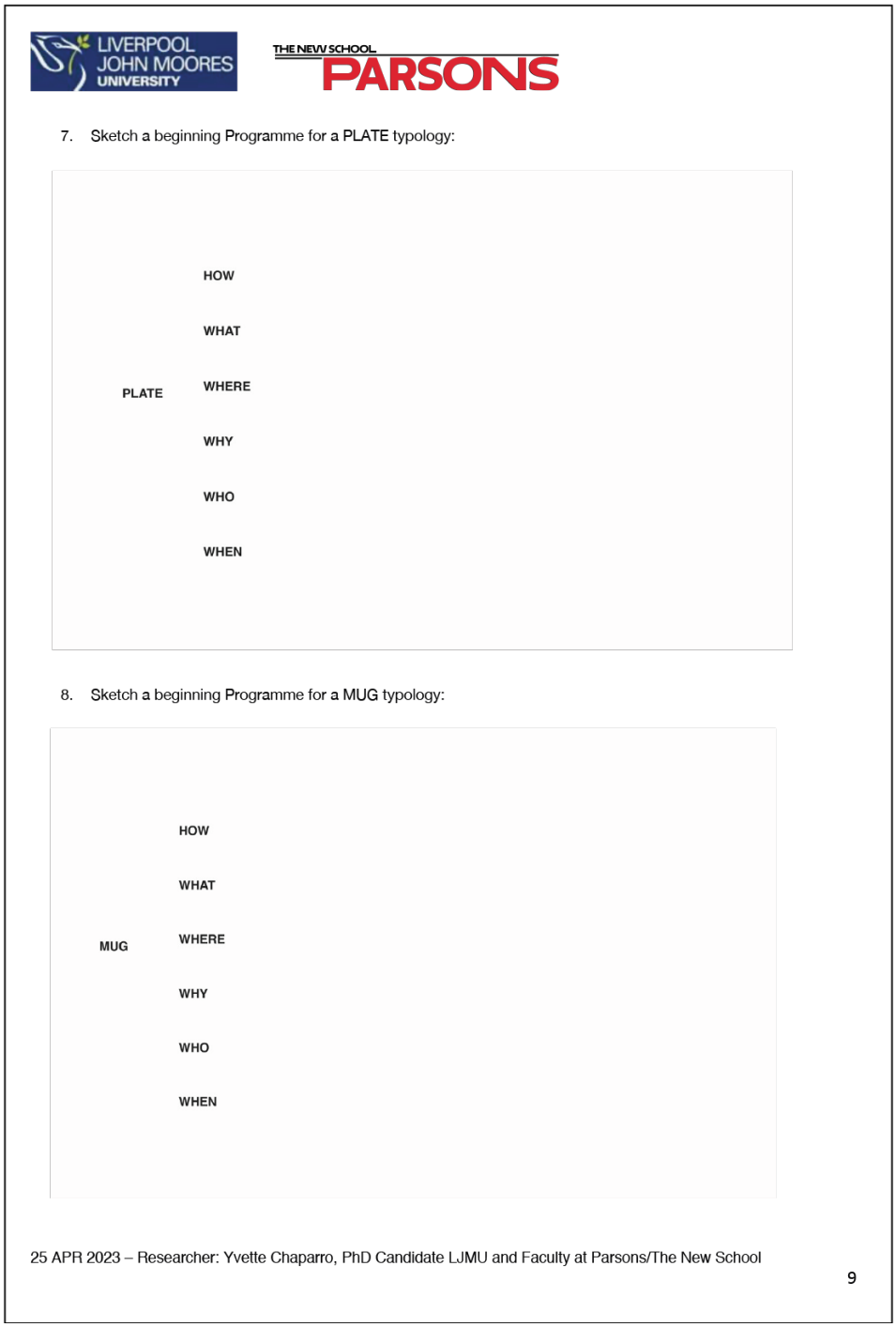

6. Look at the start of a programme for the PITCHER typology:



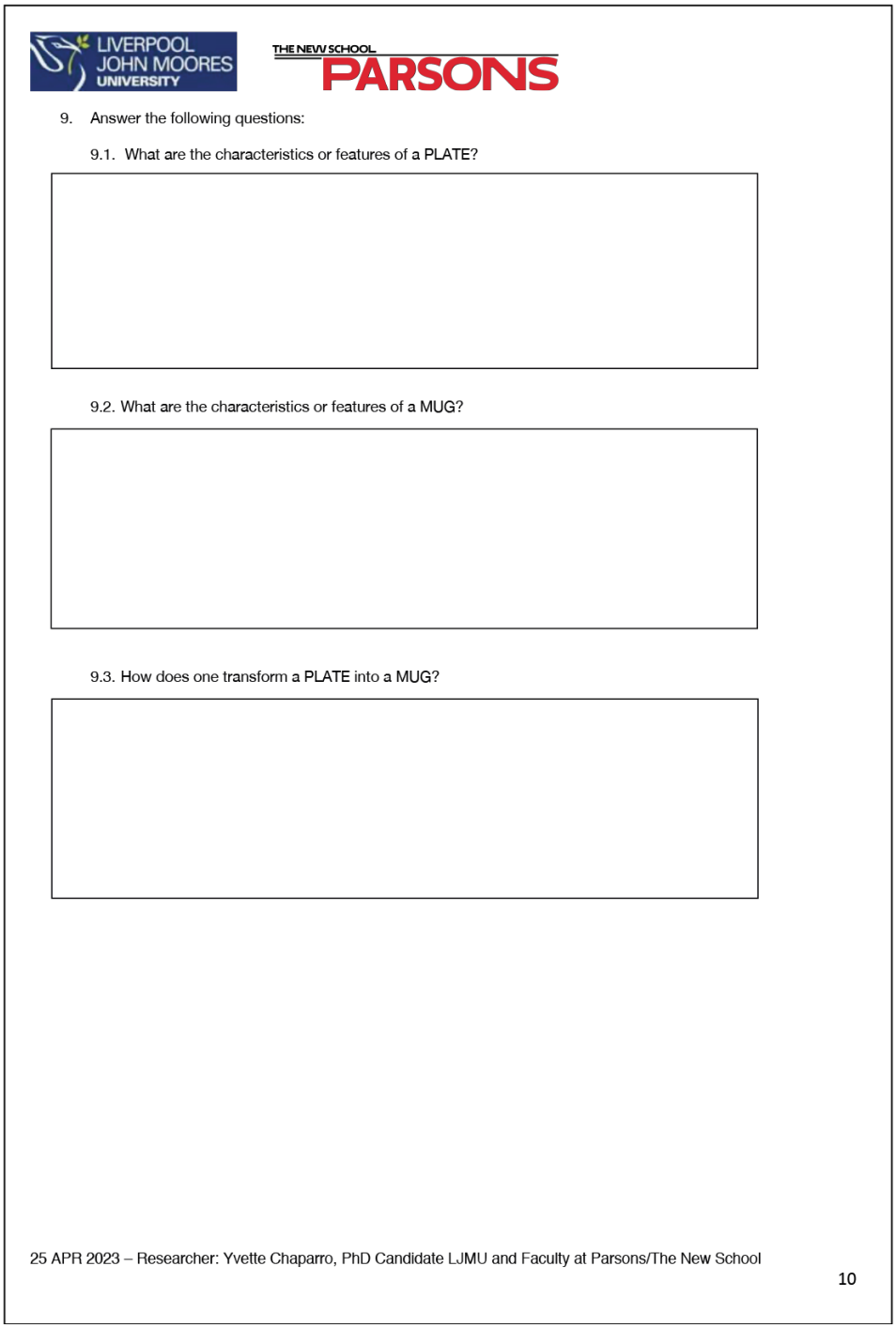

25 APR 2023 – Researcher: Yvette Chaparro, PhD Candidate LJMU and Faculty at Parsons/The New School

8

Figure_Apx. 172:
Chaparro, Y. (2023) Questionnaire Forms for Participants. Page 9 [document]

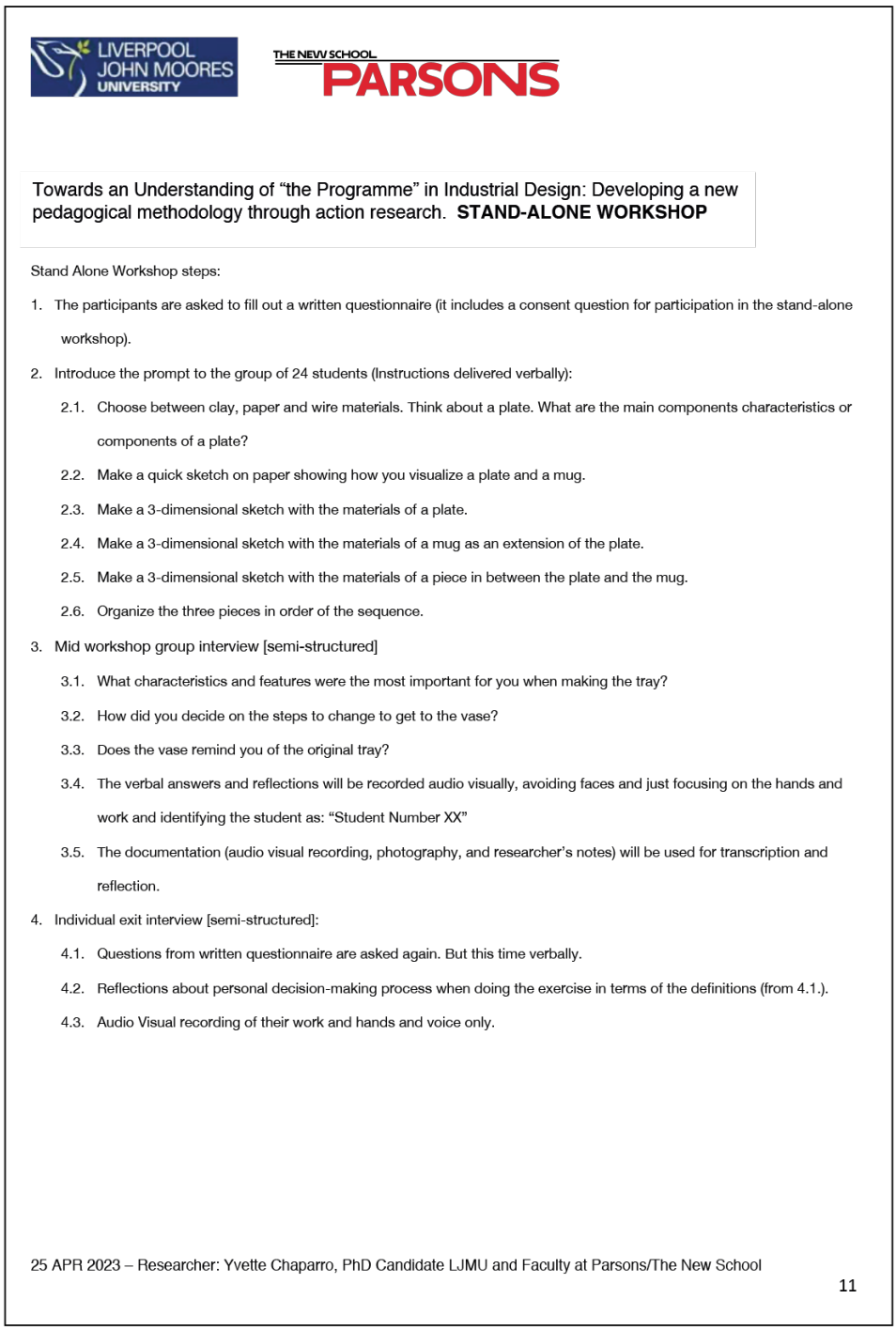



Figure_Apx. 173:
Chaparro, Y. (2023) Questionnaire Forms for Participants. Page 9 [document]




Figure_Apx. 174:
Chaparro, Y. (2023) Questionnaire Forms for Participants. Page 10 [document]

Questionnaire Forms for student participants for workshop. Page 11



Towards an Understanding of "the Programme" in Industrial Design: Developing a new pedagogical methodology through action research. **STAND-ALONE WORKSHOP**

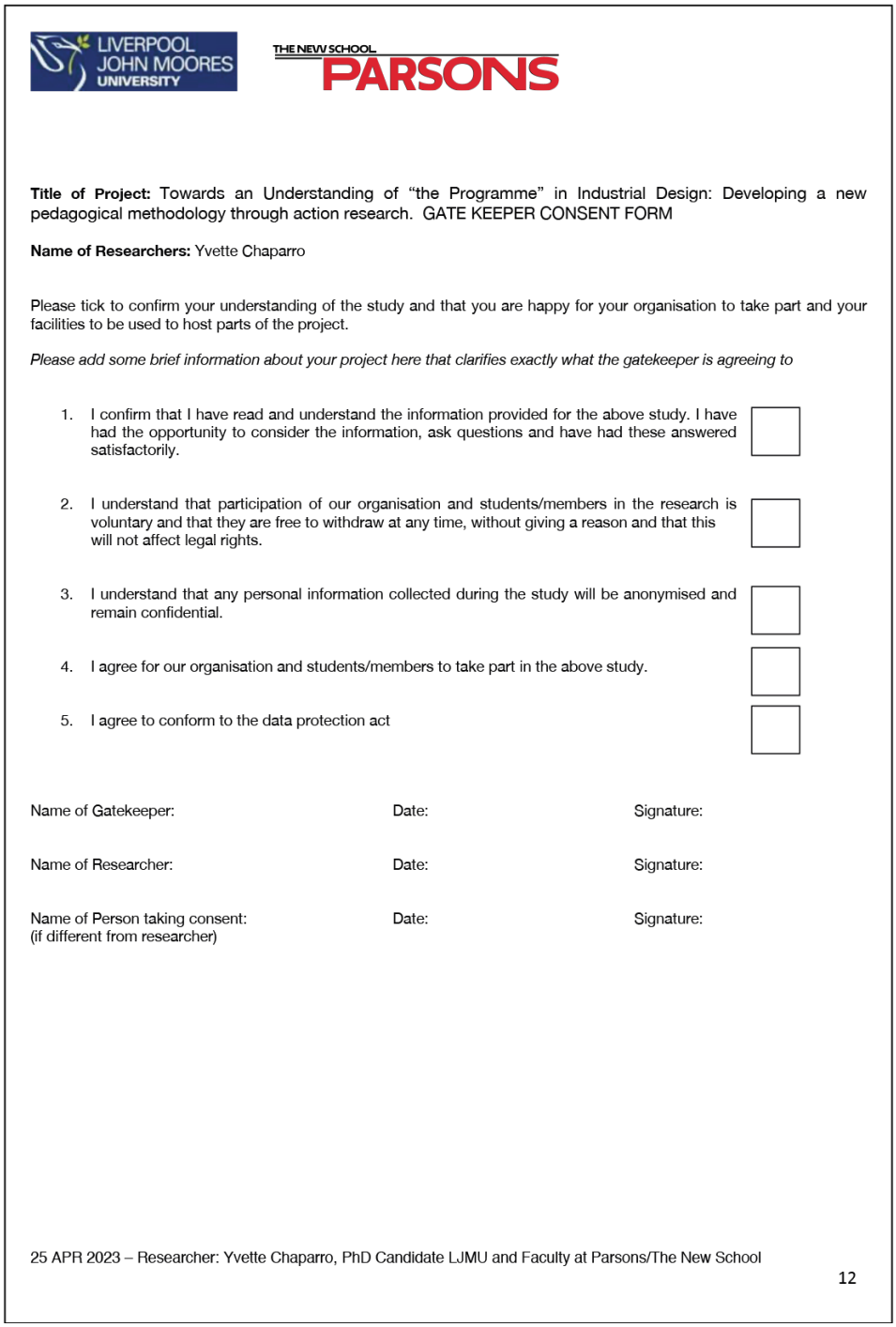
Stand Alone Workshop steps:

1. The participants are asked to fill out a written questionnaire (it includes a consent question for participation in the stand-alone workshop).
2. Introduce the prompt to the group of 24 students (Instructions delivered verbally):
   - 2.1. Choose between clay, paper and wire materials. Think about a plate. What are the main components characteristics or components of a plate?
   - 2.2. Make a quick sketch on paper showing how you visualize a plate and a mug.
   - 2.3. Make a 3-dimensional sketch with the materials of a plate.
   - 2.4. Make a 3-dimensional sketch with the materials of a mug as an extension of the plate.
   - 2.5. Make a 3-dimensional sketch with the materials of a piece in between the plate and the mug.
   - 2.6. Organize the three pieces in order of the sequence.
3. Mid workshop group interview [semi-structured]
   - 3.1. What characteristics and features were the most important for you when making the tray?
   - 3.2. How did you decide on the steps to change to get to the vase?
   - 3.3. Does the vase remind you of the original tray?
   - 3.4. The verbal answers and reflections will be recorded audio visually, avoiding faces and just focusing on the hands and work and identifying the student as: "Student Number XX"
   - 3.5. The documentation (audio visual recording, photography, and researcher's notes) will be used for transcription and reflection.
4. Individual exit interview [semi-structured]:
   - 4.1. Questions from written questionnaire are asked again. But this time verbally.
   - 4.2. Reflections about personal decision-making process when doing the exercise in terms of the definitions (from 4.1.).
   - 4.3. Audio Visual recording of their work and hands and voice only.

25 APR 2023 – Researcher: Yvette Chaparro, PhD Candidate LJMU and Faculty at Parsons/The New School

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Figure_Apx. 175:
Chaparro, Y. (2023) Questionnaire Forms for Participants. Page 11 [document]



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**Title of Project:** Towards an Understanding of "the Programme" in Industrial Design: Developing a new pedagogical methodology through action research. GATE KEEPER CONSENT FORM

**Name of Researchers:** Yvette Chaparro

Please tick to confirm your understanding of the study and that you are happy for your organisation to take part and your facilities to be used to host parts of the project.

*Please add some brief information about your project here that clarifies exactly what the gatekeeper is agreeing to*

1. I confirm that I have read and understand the information provided for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily. ☐
2. I understand that participation of our organisation and students/members in the research is voluntary and that they are free to withdraw at any time, without giving a reason and that this will not affect legal rights. ☐
3. I understand that any personal information collected during the study will be anonymised and remain confidential. ☐
4. I agree for our organisation and students/members to take part in the above study. ☐
5. I agree to conform to the data protection act ☐

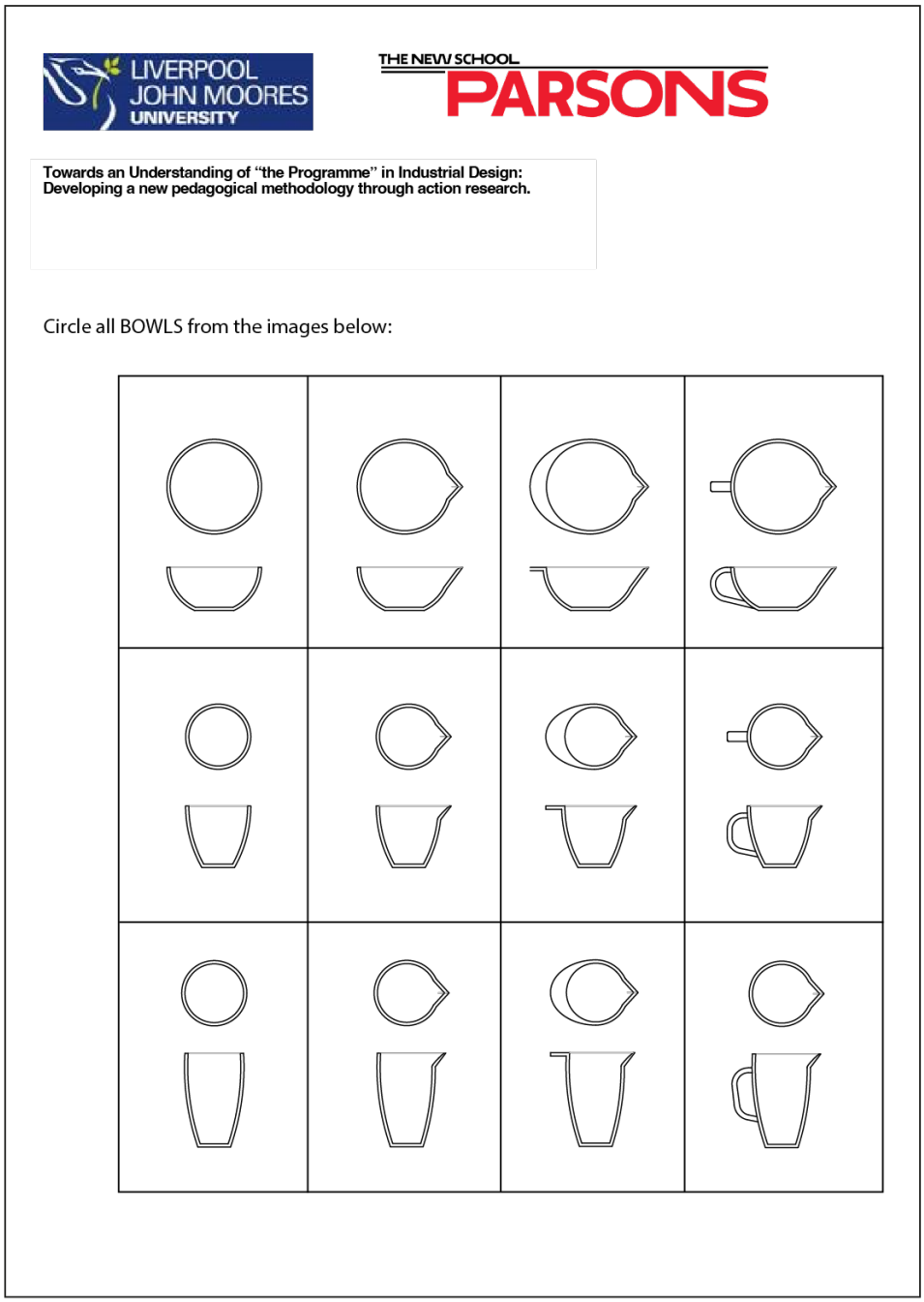
| | | |
|---|---|---|
| Name of Gatekeeper: | Date: | Signature: |
| Name of Researcher: | Date: | Signature: |
| Name of Person taking consent: (if different from researcher) | Date: | Signature: |

25 APR 2023 – Researcher: Yvette Chaparro, PhD Candidate LJMU and Faculty at Parsons/The New School

12

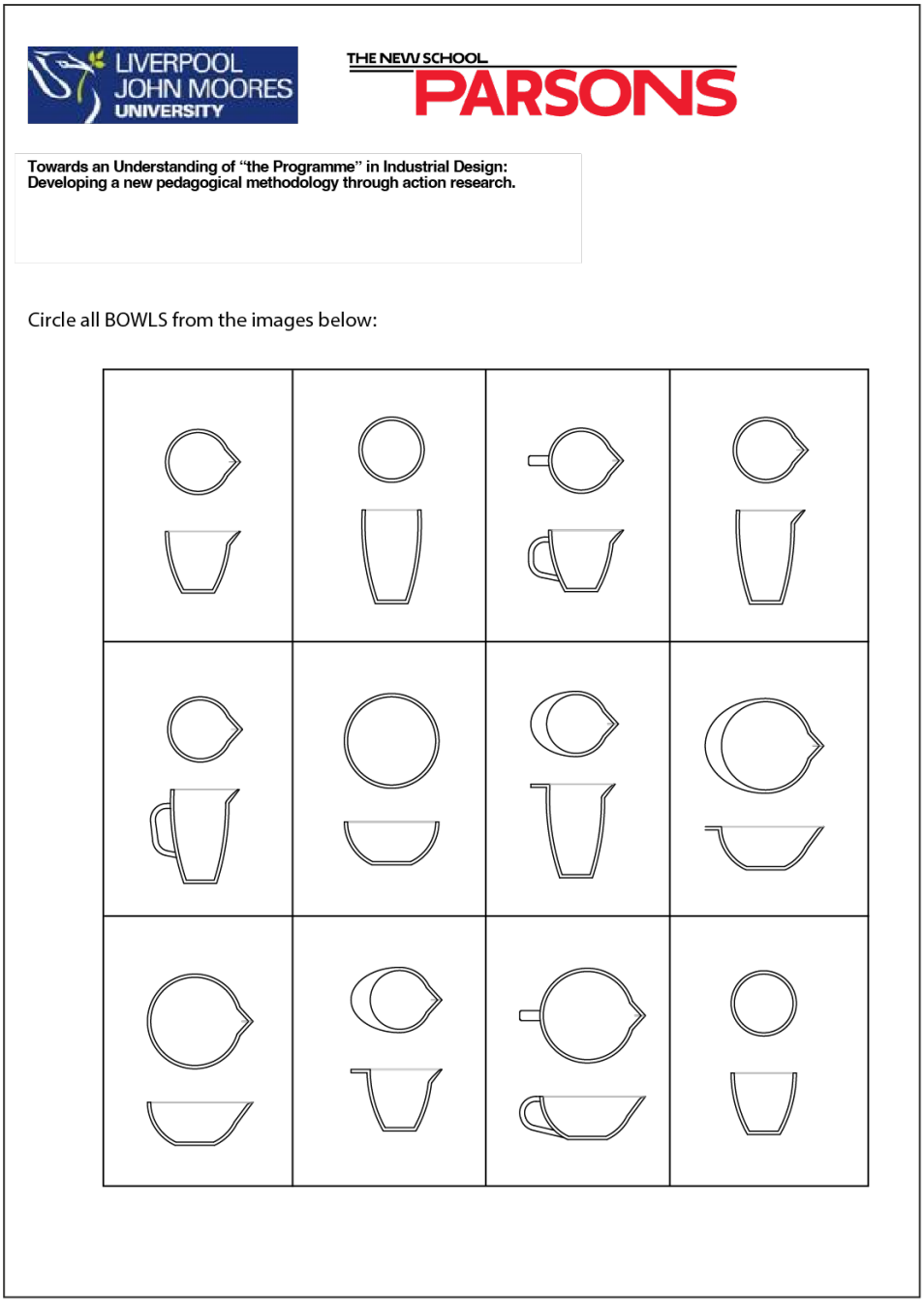
Figure_Apx. 176:
Chaparro, Y. (2023) Gatekeeper Form for Workshop. Page 12 [document]

Grid given to participants to choose bowls from, organized. Workshop Five.




Figure_Apx. 177:
Chaparro, Y. (2023) Bowl Selection From Organized Grid [document]

Grid given to participants to choose bowls from, disorganized. Workshop Five.




Figure_Apx. 178:
Chaparro, Y. (2023) Bowl Selection from Disorganized Grid [document]

## Transcribed Data. Workshop Five.

[The full spreadsheet for Workshop Five can be found here: LINK, this link includes all excertps from Figure_Apx. 178 to Figure_Apx. 183]

The data was collected and transcribed by the Research Assistant Xusheng Yu. The participants were students in the department I directed, so they needed to be anonymised so that they felt comfortable participating in the study. The data was tabulated into a spreadsheet since it was important to keep all information organized and readily accessible for its review through Thematic Analysis.

Transcription of selection of bowls from grid [spreadsheet]

| **Workshop** | | Industrial Design Workshop - April 25, 2023 | | | | |
|---|---|---|---|---|---|---|
| **Participant #** | | 82 | 83 | 84 | 85 | 86 |
| **2 Product/Industrial Design level** | | Studio 2 MFA Industrial Design | Studio 2 MFA Industrial Design | Studio 2 MFA Industrial Design | Studio 2 MFA Industrial Design | Studio 2 MFA Industrial Design |
| | | SEQUENTIAL | MIXED | SEQUENTIAL | MIXED | SEQUENTIAL |
| **Seleted Bowl A** | | TRUE | TRUE | TRUE | TRUE | TRUE |
| **Seleted Bowl B** | | FALSE | FALSE | TRUE | TRUE | FALSE |
| **Seleted Bowl C** | | FALSE | FALSE | FALSE | TRUE | FALSE |
| **Seleted Bowl D** | | FALSE | FALSE | FALSE | FALSE | FALSE |
| **Seleted Bowl E** | | TRUE | FALSE | TRUE | FALSE | FALSE |
| **Seleted Bowl F** | | FALSE | FALSE | FALSE | FALSE | FALSE |
| **Seleted Bowl G** | | FALSE | FALSE | FALSE | FALSE | FALSE |
| **Seleted Bowl H** | | FALSE | FALSE | FALSE | FALSE | FALSE |
| **Seleted Bowl I** | | FALSE | FALSE | FALSE | FALSE | FALSE |
| **Seleted Bowl J** | | FALSE | FALSE | FALSE | FALSE | FALSE |
| **Seleted Bowl K** | | FALSE | FALSE | FALSE | FALSE | FALSE |
| **Seleted Bowl L** | | FALSE | FALSE | FALSE | FALSE | FALSE |

Figure_Apx. 179:
Chaparro, Y. (2023) Transcription of Data from Selection of Bowls from Grid [spreadsheet]

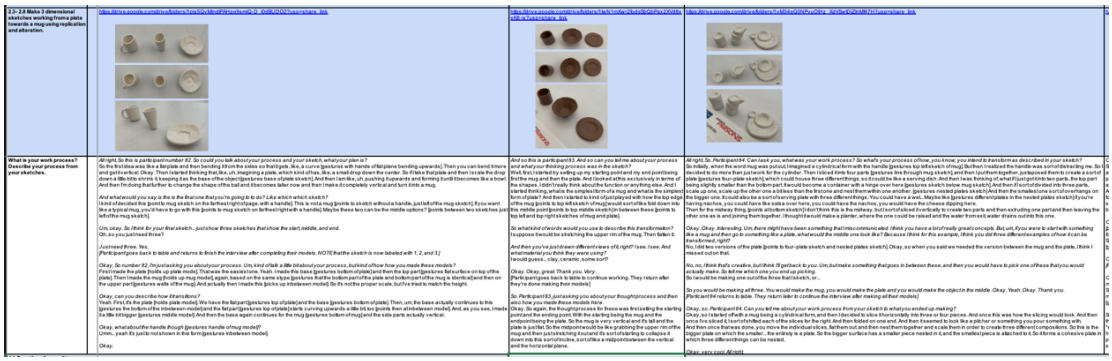
Transcription of questionnaire.

| | | | | | |
|---|---|---|---|---|---|
| **3.1 TYPOLOGY** | Type of product. Helps categorise and define the object | Categorization of an object based on a specific set of characteristics present on said object. | Product Category / Classification | Defines an essential points and methods. | A specific type, category in which a product falls into. |
| **3.2 MORPHOLOGY** | Form of things | The set of features (physical) that define the shape of an object. | How two objects, characteristics, forms merge to give a new meaning, compound form & the attributes change/develop based on application. | Function and mechanism of human/animal. | Being able to change into something else to take on a different form |
| **3.3 OBJECT** | Any material thing that can be classified as a product | Any physically existing entity in three-dimensional space that has clearly defined boundaries. | This could relate to the product itself or the goal/concept the design process is directed towards. | ~~Product.~~<br>Target product. | Something you can see, touch and draw<br>A product |
| **3.4 PRACTICAL FUNCTION** | Working quality of a product. Understanding of how easy or difficult the product is for a user. | The intended task that the object performs as defined by its design. | How it works, mechanism, addresses needs/demands of user, manufacturability, marketibility, user experience and how easily/hard it is for users to interact with it. | Functions which works mostly for practical activity. | The purpose of something, what it is made for, how it is used in its simplest form |
| **3.5 AESTHETIC FUNCTION** | Quality to define the look and feel of an object. | The emotional impact intended by the design | Visual, emotional aspect that drives decision making. | Good looking and beautiful appearance. | How a product looks and feels |
| **3.6 USABILITY** | Comfort and understanding of use of any product. | Criteria by which you define whether or not the object accomplishes its intended task in a satisfactory way. | How one interacts with the product.<br>Way in which it fits into their ecosystem/lifestyle<br>Behavioral changes/adaptation it contributes to. | ~~When user~~<br>User's feeling when user use the product. | function, access |

Figure_Apx. 180:
Chaparro, Y. (2023) Transcription of Data from Questionnaire [spreadsheet]

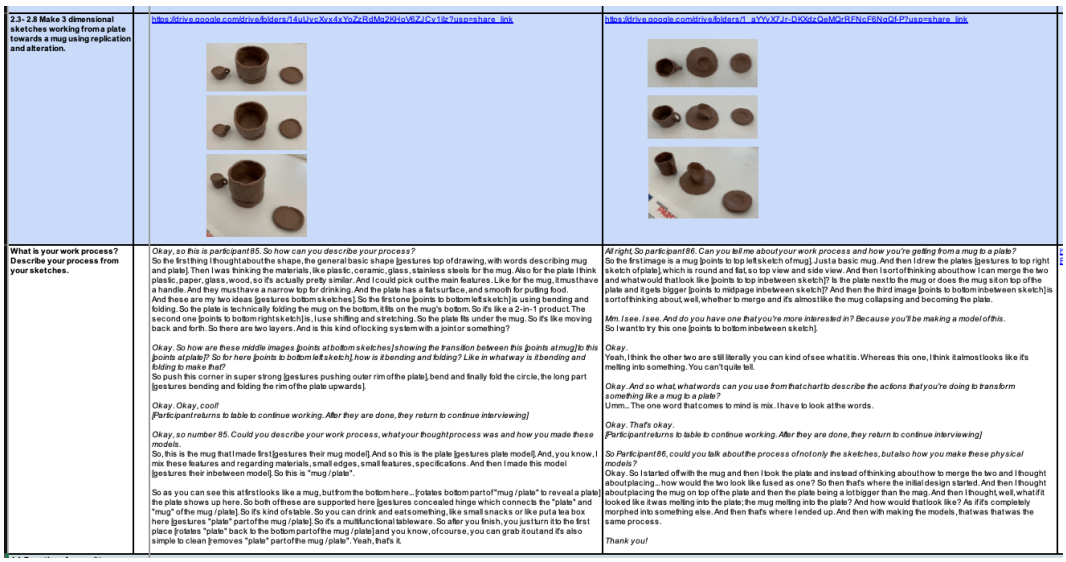
Transcription of sequence development and description. Part 1.

The participants were asked to make a quick 3D sketch sequence using clay, paper, or metal wire. The prompt was for the sequence to show how to go from a plate to a mug with three artefacts. The participants were asked to describe their decisions while making the sequence.



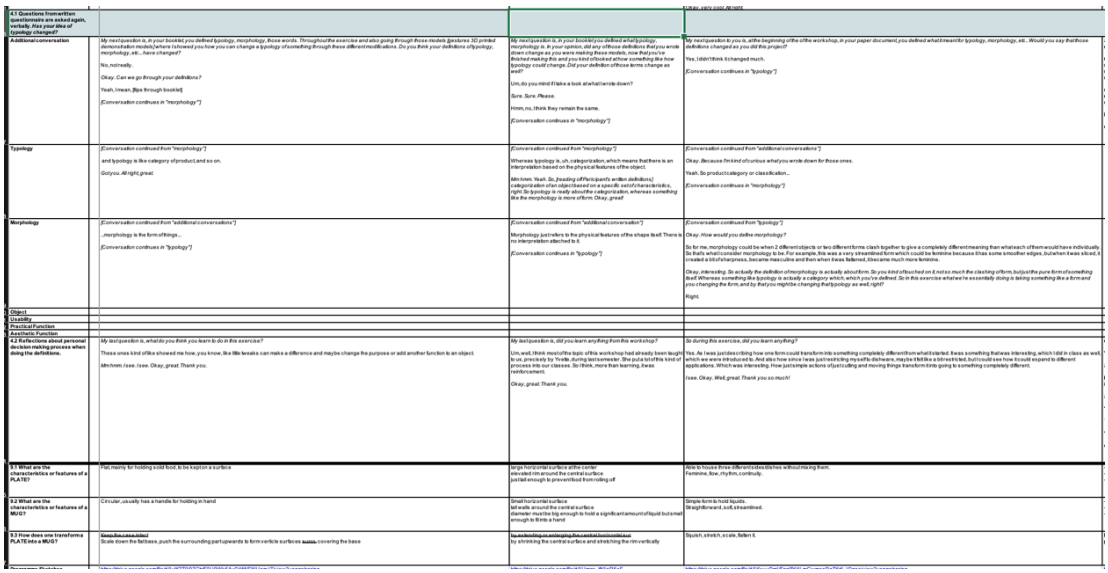
Figure_Apx. 181:
Chaparro, Y. (2023) Transcribed Data from Description of 3D Sequences. Part 1 [spreadsheet]

Transcription of sequence development and description. Part 2.



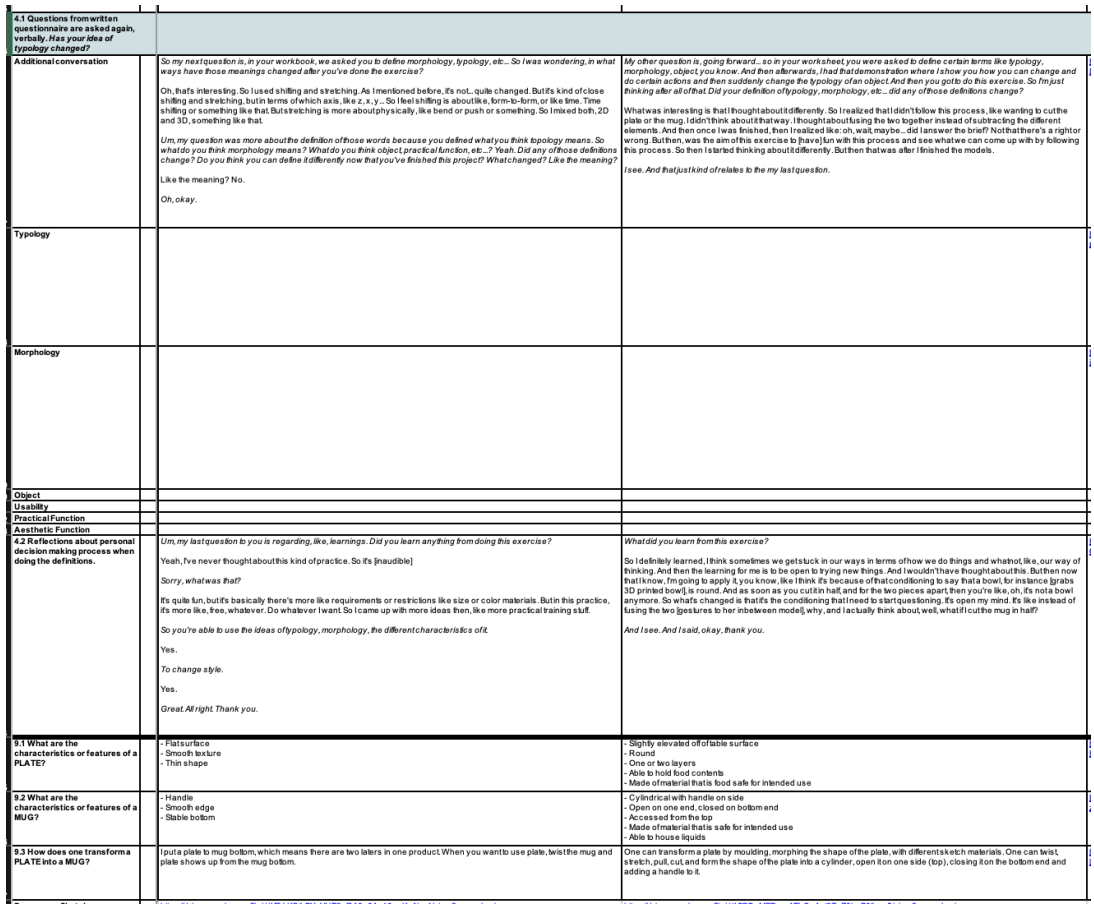
Figure_Apx. 182:
Chaparro, Y. (2023) Transcribed Data from Description of 3D Sequences. Part 2 [spreadsheet]

Transcription of oral semi-structured interview from initial questionnaire. Part 1.



Figure_Apx. 183:
Chaparro, Y. (2023) Transcribed Data from Oral Semi-Structured Interview About Initial Questionnaire. Part 1 [spreadsheet]

Transcription of oral semi-structured interview from initial questionnaire. Part 2.



Figure_Apx. 184:
(2023) Transcribed Data from Oral Semi-Structured Interview About Initial Questionnaire. Part 2 [spreadsheet]

Workshop Five participants were prompted to develop a 3D sequence from a candle holder to a lamp by using sketch materials. Research Assistant Xusheng Yu documented the sequences.

Images of sequence by Participant 82.

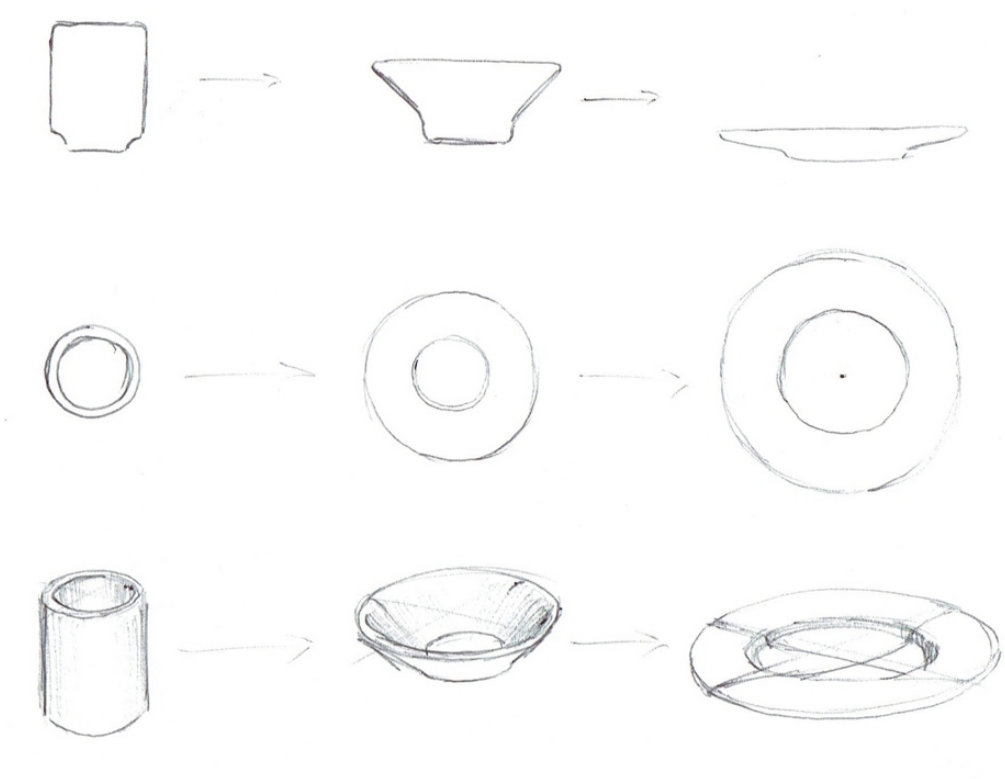



Figure_Apx. 185:
(2022) 2D Sketch of Sequence. Workshop Five – Participant 82 [photo] Photo credit: Xusheng Yu.



Figure_Apx. 186:
(2022) 3D Sketch of Sequence. Workshop Five – Participant 82 [photo] Photo credit: Xusheng Yu.

Images of sequence by Participant 83.

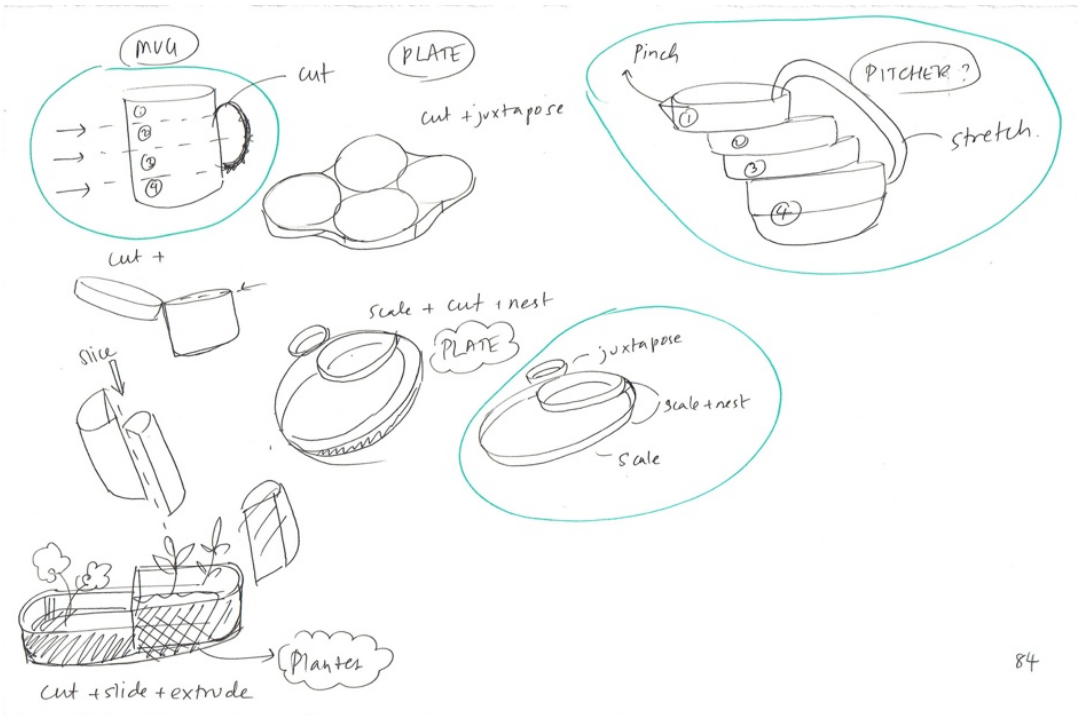


Figure_Apx. 187:
(2022) 2D Sketch of Sequence. Workshop Five – Participant 83 [photo] Photo credit: Xusheng Yu.



Figure_Apx. 188:
(2022) 3D Sketch of Sequence. Workshop Five – Participant 83 [photo] Photo credit: Xusheng Yu.

Images of sequence by Participant 84.

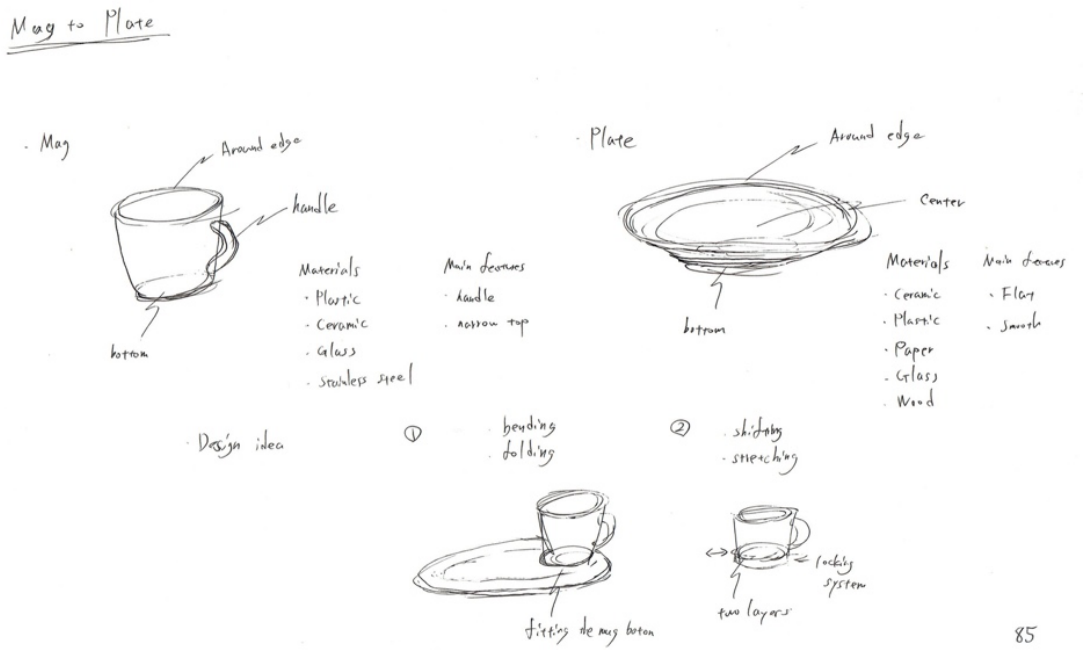



Figure_Apx. 189:
(2022) 2D Sketch of Sequence. Workshop Five – Participant 84 [photo] Photo credit: Xusheng Yu.



Figure_Apx. 190:
(2022) 3D Sketch of Sequence. Workshop Five – Participant 84 [photo] Photo credit: Xusheng Yu.

Images of sequence by Participant 85.

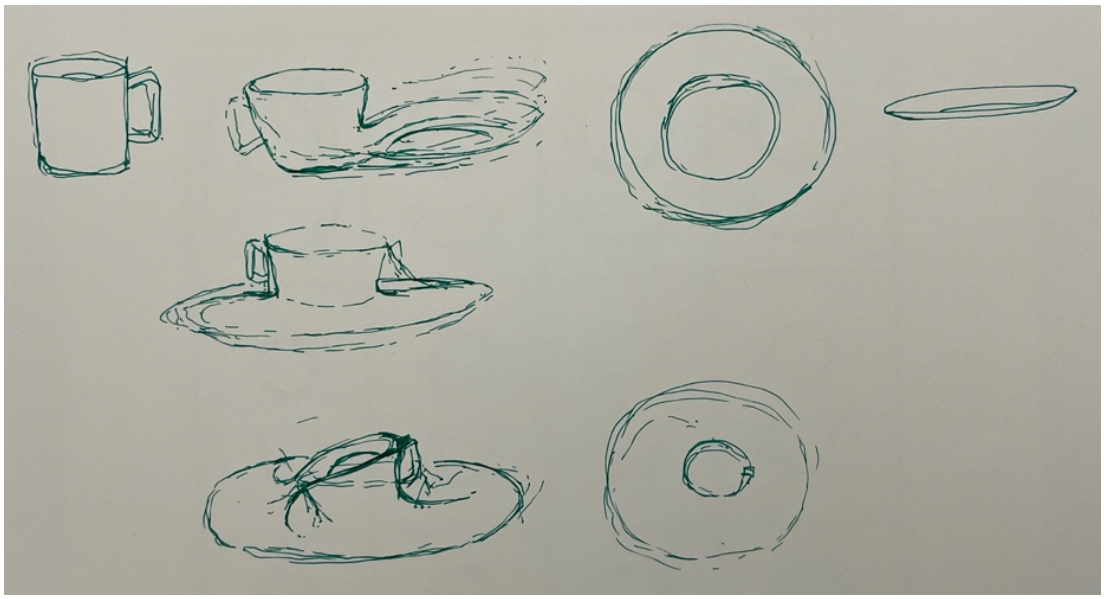



Figure_Apx. 191:
(2022) 2D Sketch of Sequence. Workshop Five – Participant 85 [photo] Photo credit: Xusheng Yu.



Figure_Apx. 192:
(2022) 3D Sketch of Sequence. Workshop Five – Participant 85 [photo] Photo credit: Xusheng Yu.

Images of sequence by Participant 86.



Figure_Apx. 193:
(2022) 2D Sketch of Sequence. Workshop Five – Participant 86 [photo] Photo credit: Xusheng Yu.

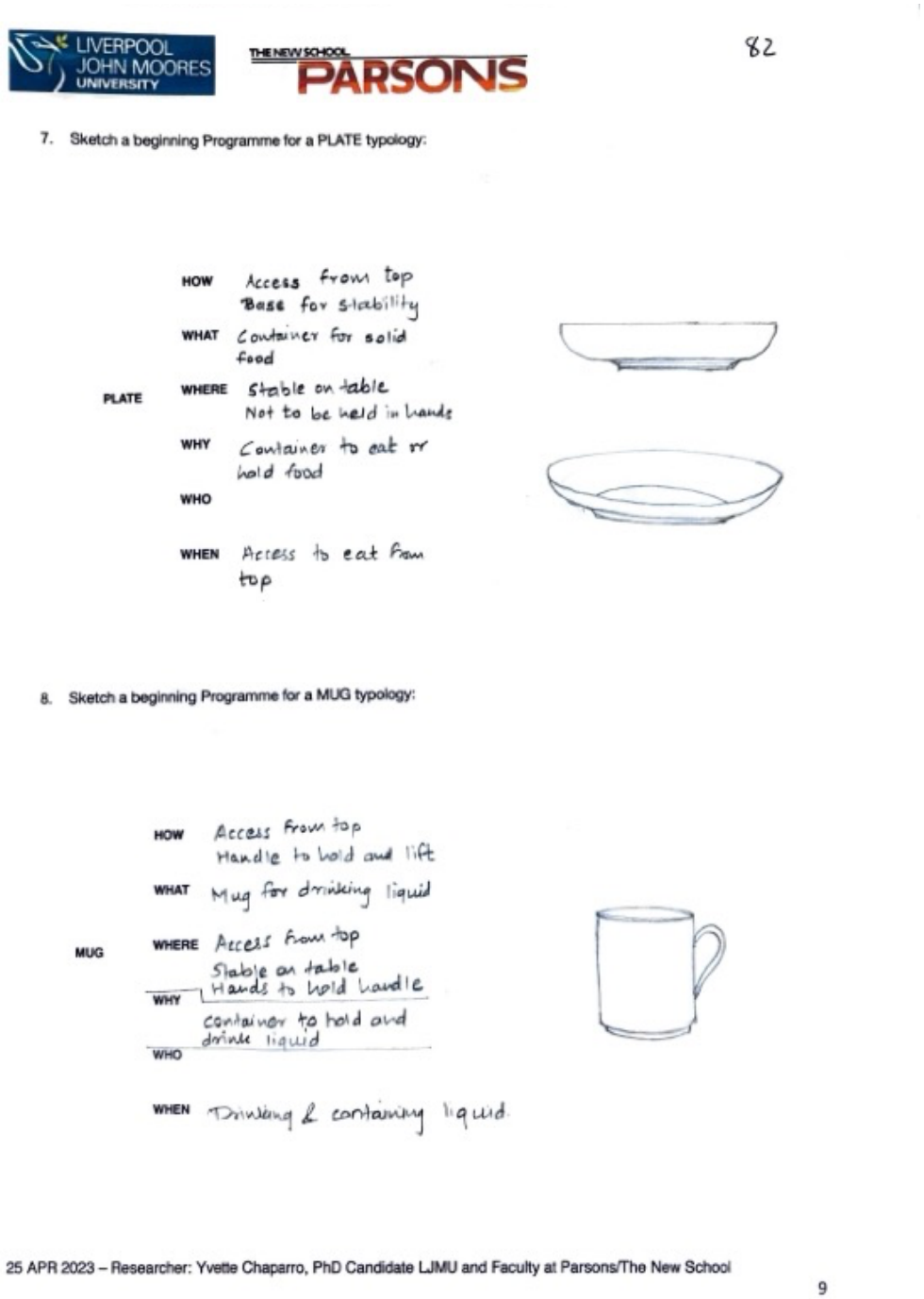



Figure_Apx. 194:
(2022) 3D Sketch of Sequence. Workshop Five – Participant 86 [photo] Photo credit: Xusheng Yu.

**Initiating a *programme* sketch.**

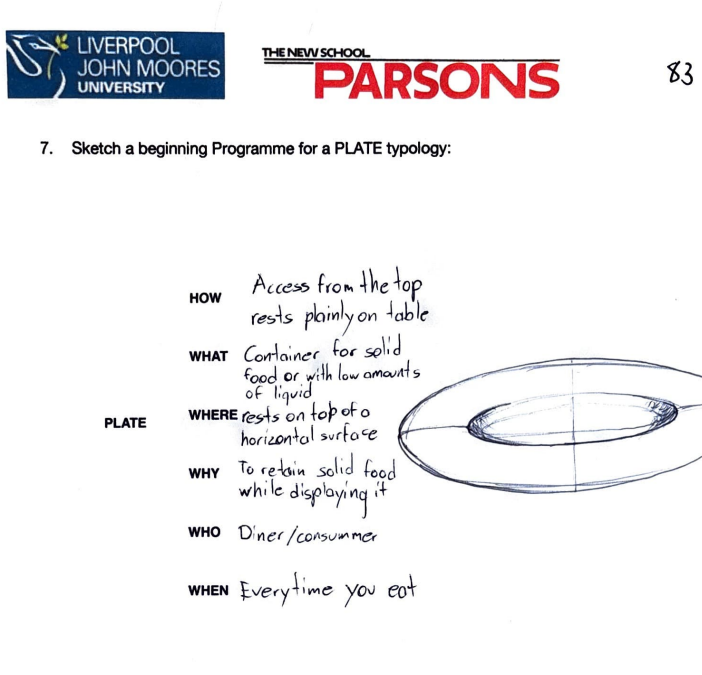
Workshop Five participants were asked to initiate a *programme* by identifying the initial requirements for a plate and a mug, using the journalistic six to build context.

Workshop five. Participant 82.




Figure_Apx. 195:
(2022) Sketch of Initial *Programme*. Workshop Five – Participant 82 [photo] Photo credit: Xusheng Yu.

Initiating a *programme* sketch. Workshop five. Participant 83.


LIVERPOOL JOHN MOORES UNIVERSITY

THE NEW SCHOOL PARSONS

83

7. Sketch a beginning Programme for a PLATE typology:

PLATE

HOW Access from the top rests plainly on table

WHAT Container for solid food or with low amounts of liquid

WHERE rests on top of a horizontal surface

WHY To retain solid food while displaying it

WHO Diner/consummer

WHEN Everytime you eat

8. Sketch a beginning Programme for a MUG typology:

MUG

HOW Access from the top it torns to pour

WHAT It contains and then transfers its contents (liquid)

WHERE Rests on top of a horizontal surface

WHY So the person using it can drink its contents

WHO Drinker

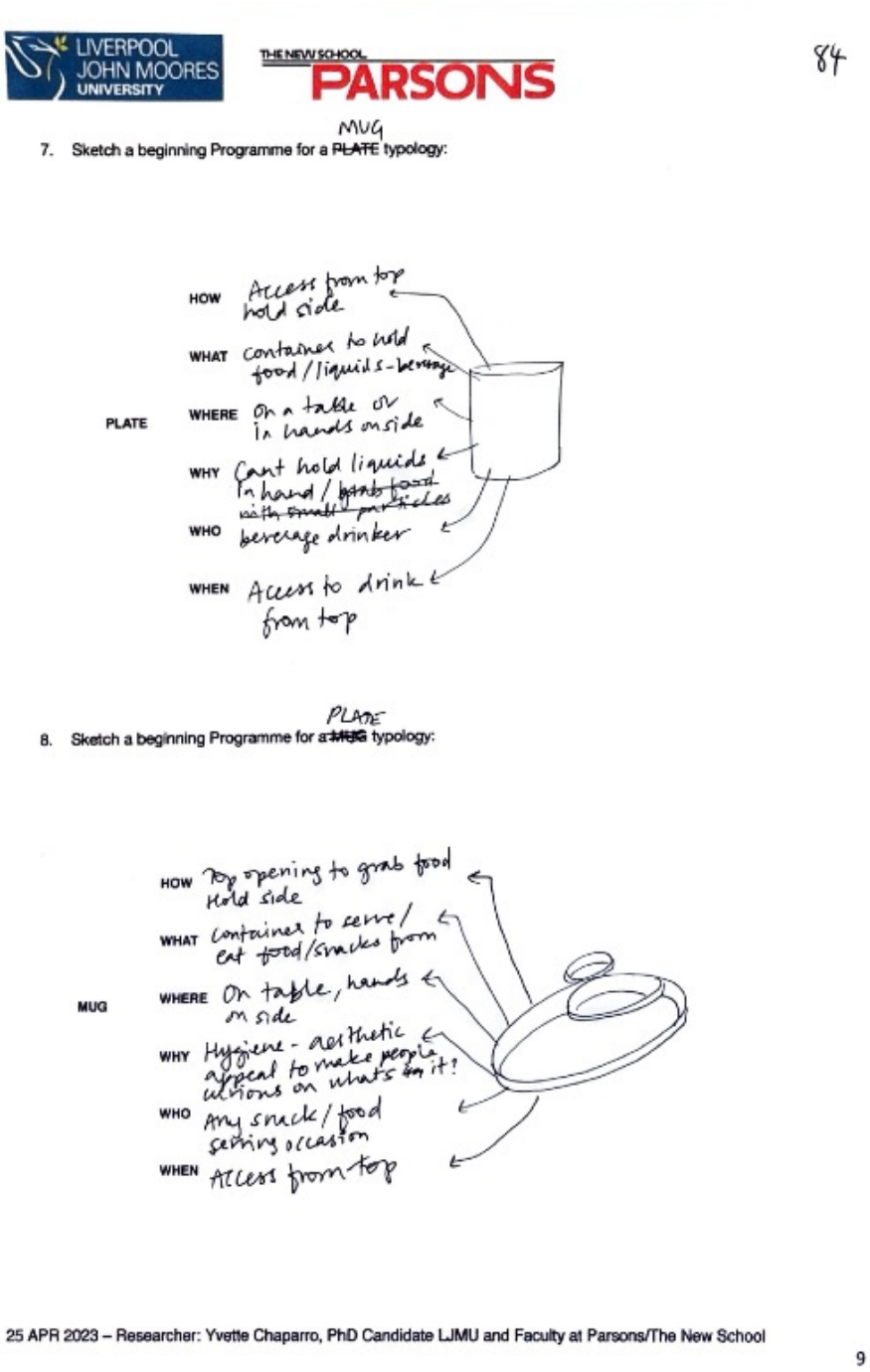
WHEN Containing and pouring its contents

25 APR 2023 – Researcher: Yvette Chaparro, PhD Candidate LJMU and Faculty at Parsons/The New School

9

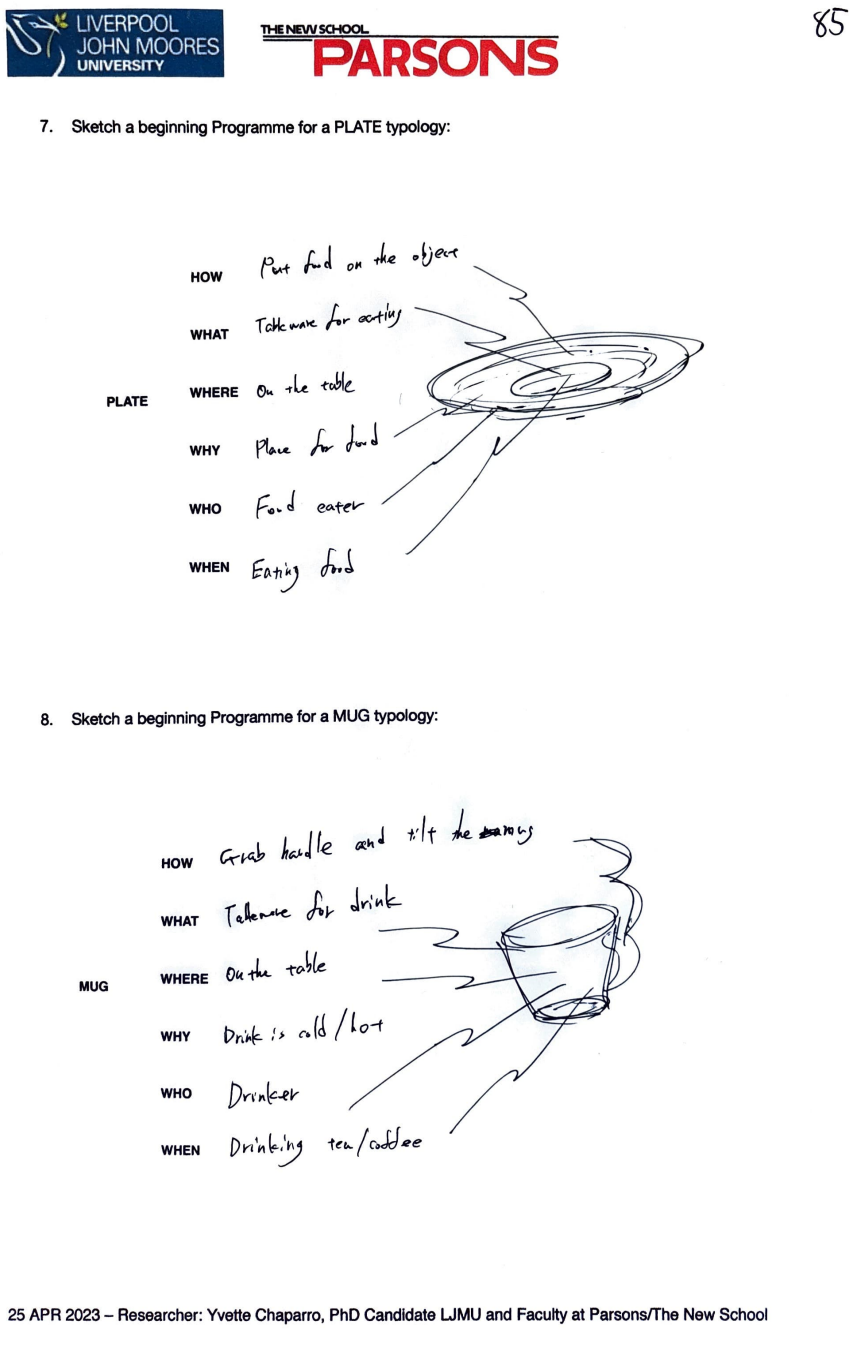
Figure_Apx. 196:
(2022) Sketch of Initial *Programme*. Workshop Five – Participant 83 [photo] Photo credit: Xusheng Yu.

Initiating a *programme* sketch. Workshop five. Participant 84.



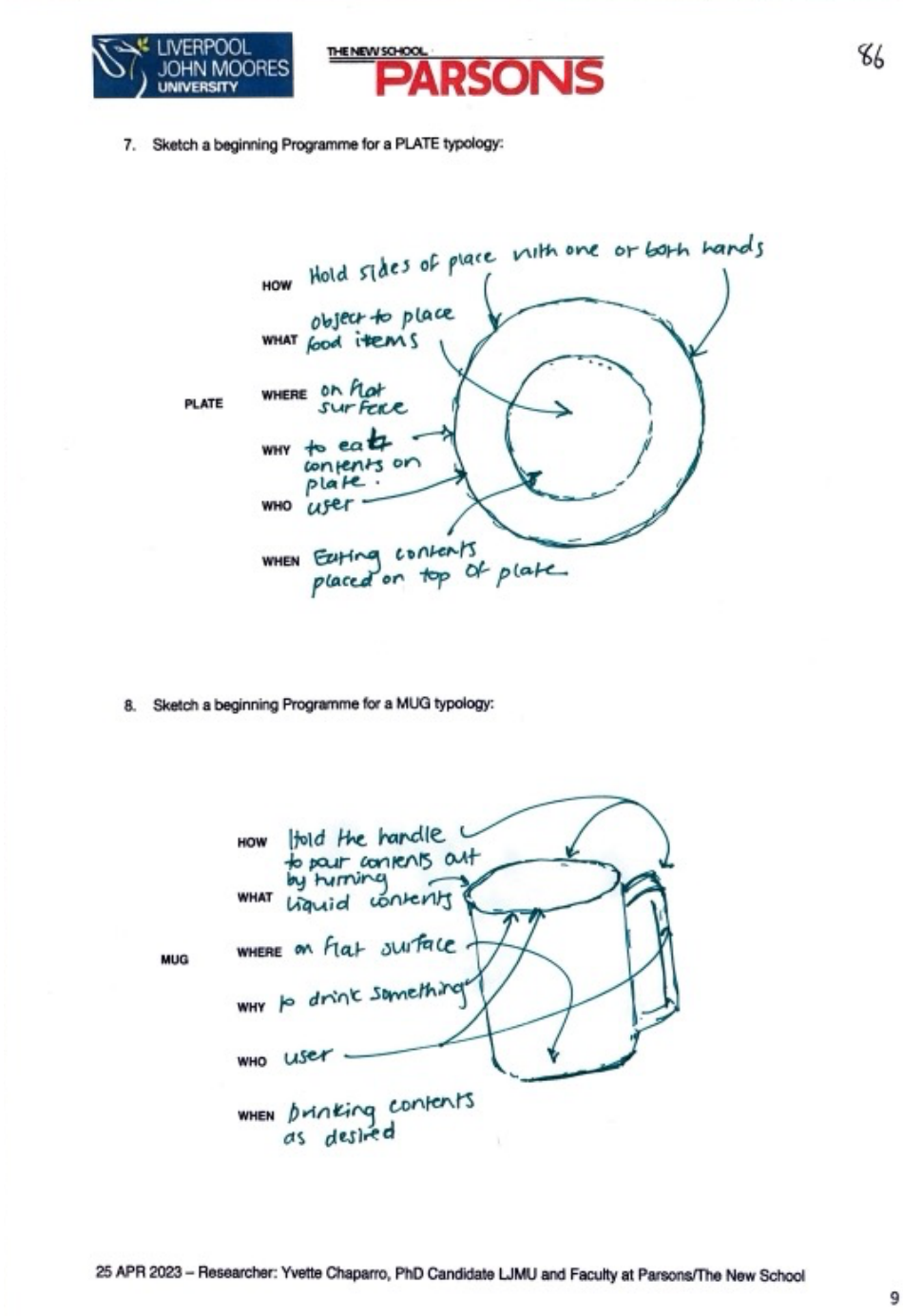

Figure_Apx. 197:
(2022) Sketch of Initial *Programme*. Workshop Five – Participant 84 [photo] Photo credit: Xusheng Yu.

Initiating a *programme* sketch. Workshop five. Participant 85.




Figure_Apx. 198:
(2022) Sketch of Initial *Programme*. Workshop Five – Participant 85 [photo] Photo credit: Xusheng Yu.

Initiating a *programme* sketch. Workshop five. Participant 86.

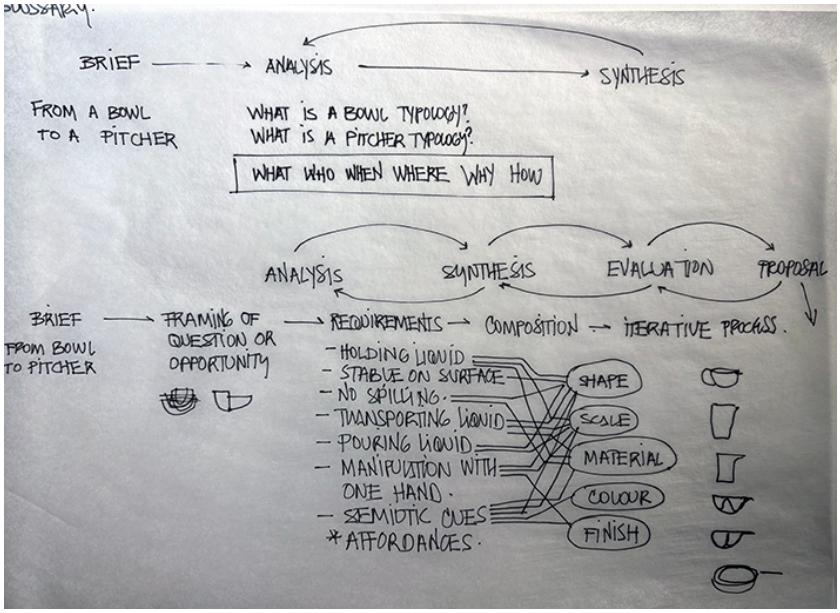



Figure_Apx. 199:
(2022) Sketch of Initial *Programme*. Workshop Five – Participant 86 [photo] Photo credit: Xusheng Yu.

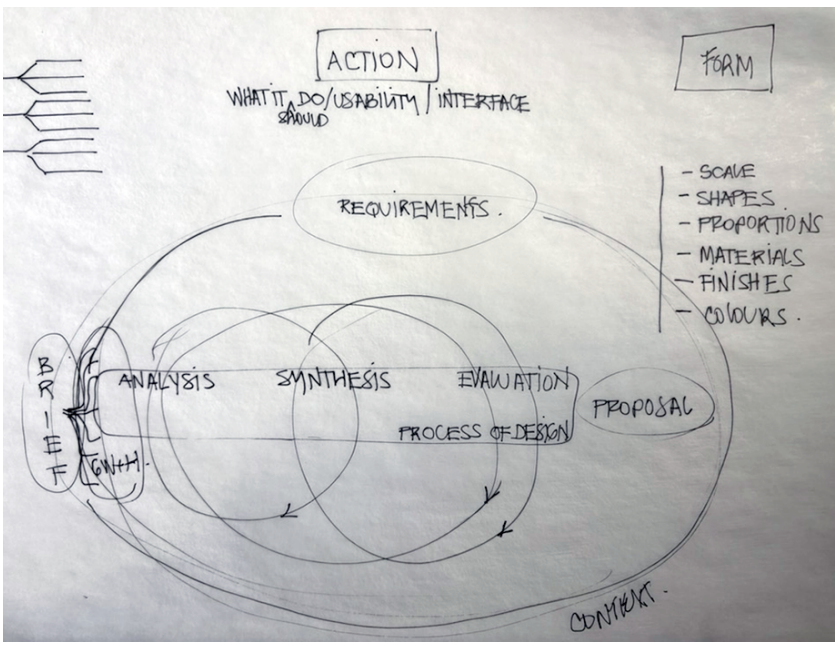
## Appendix 3: Reframing *the programme* as a new pedagogical methodology. Supporting material for Chapter Three.

### Iterative sketch diagrams in the process of developing the new pedagogy.

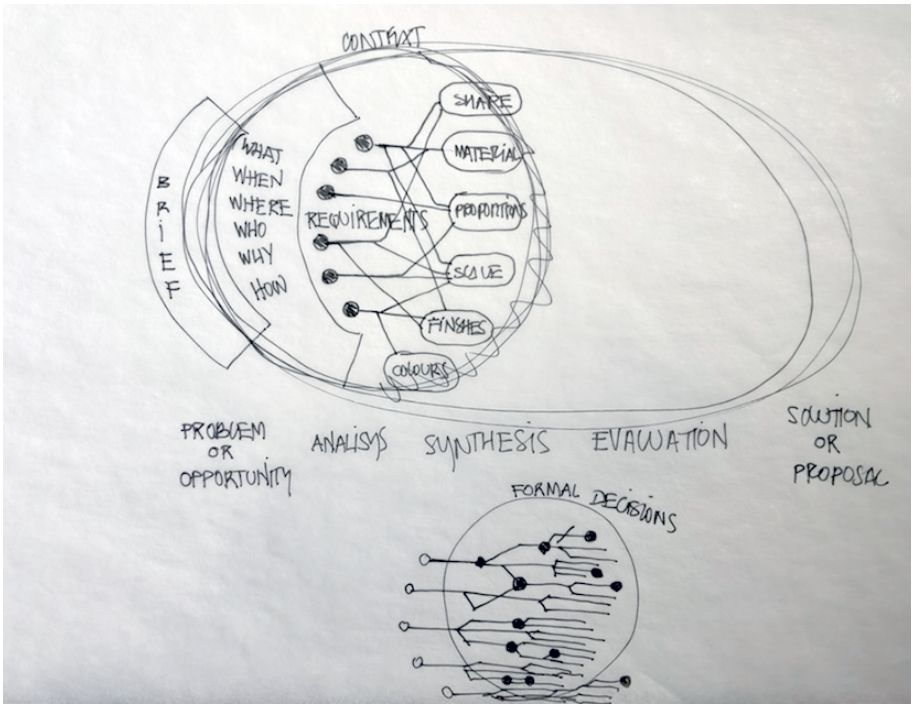
The following sketch diagrams all illustrate my design thinking, and the development of visual images clearly demonstrate the new pedagogy through diagrams.



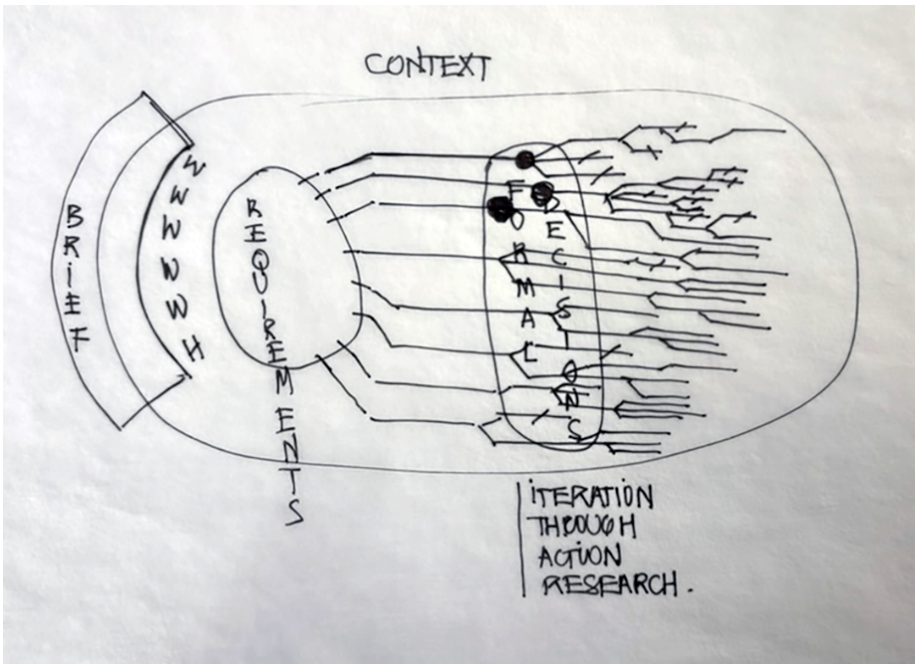

Figure_Apx. 200:
Chaparro, Y.(2024) Iterative Process Sketch of *Programme* [diagram sketch]



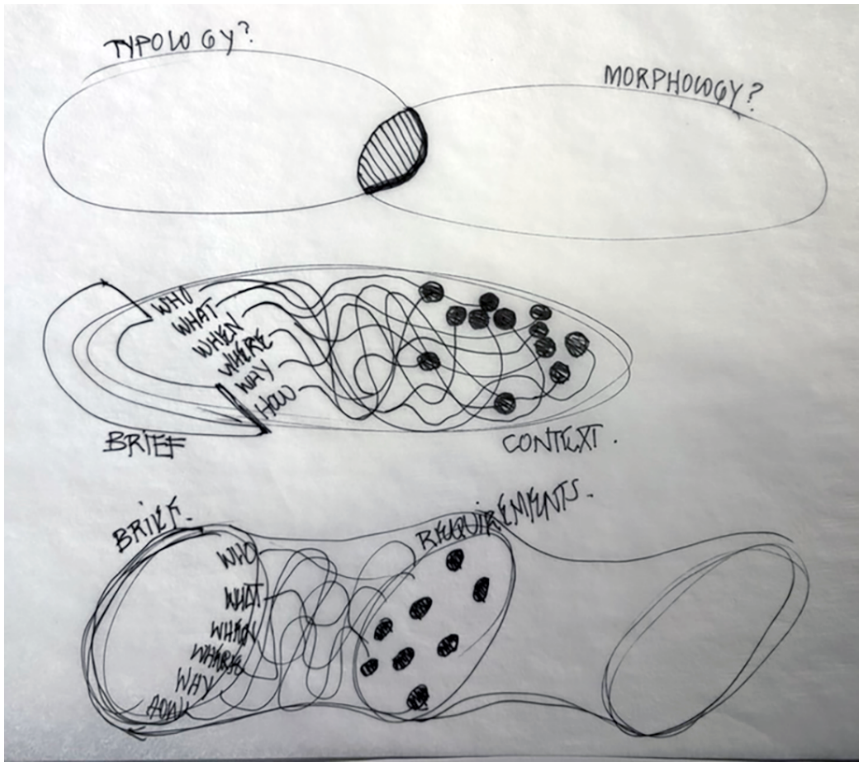

Figure_Apx. 201:
Chaparro, Y.(2024) Iterative Process Sketch *Programme* [diagram sketch]



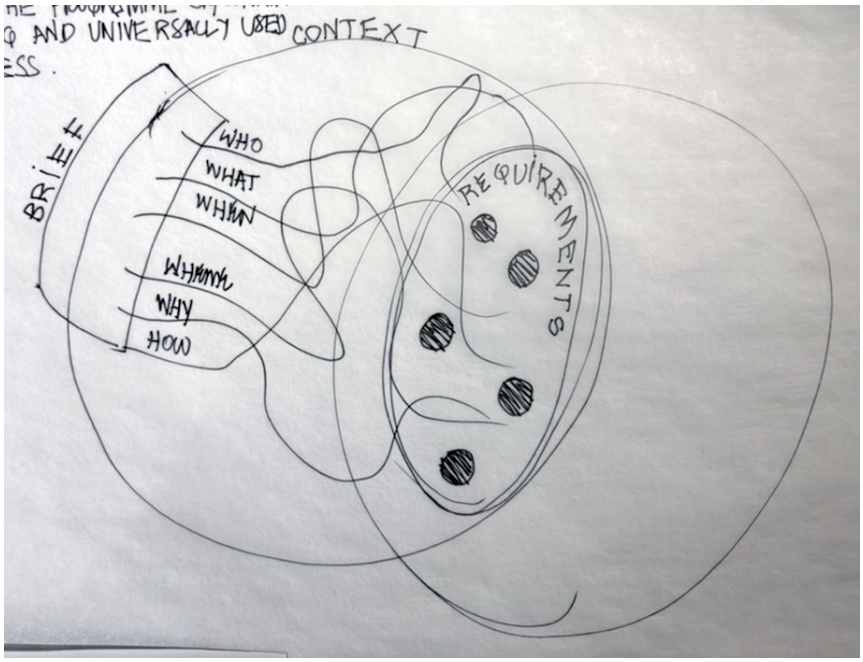

Figure_Apx. 202:
Chaparro, Y.(2024) Iterative Process Sketch *Programme* [diagram sketch]



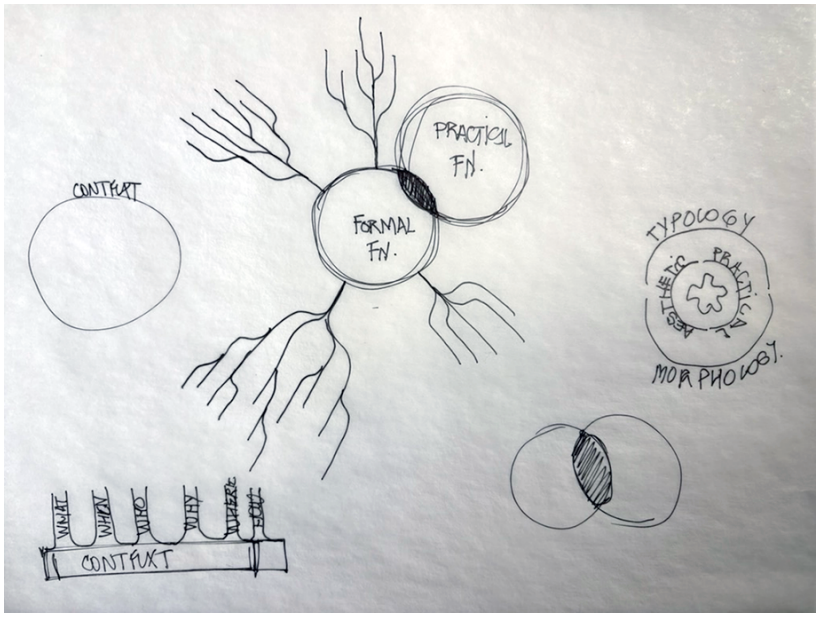

Figure_Apx. 203:
Chaparro, Y.(2024) Iterative Process Sketch of *Programme* [diagram sketch]



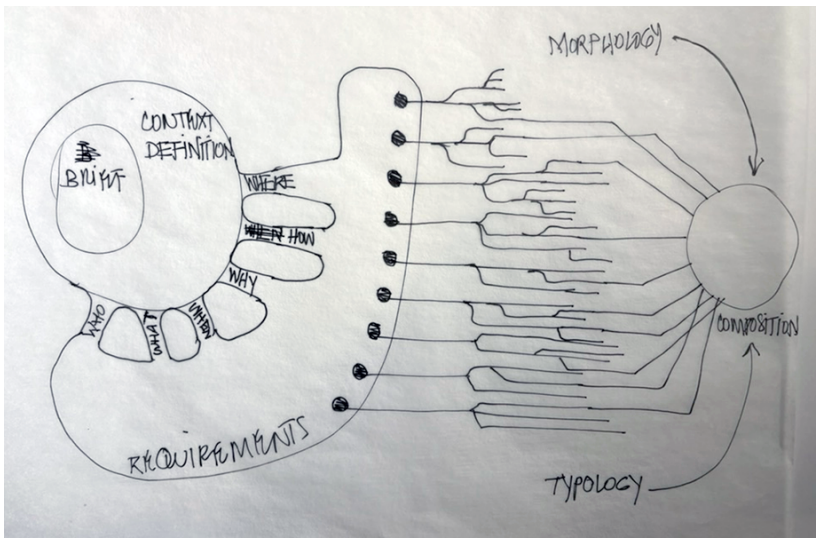

Figure_Apx. 204:
Chaparro, Y.(2024) Iterative Process Sketch of *Programme* [diagram sketch]



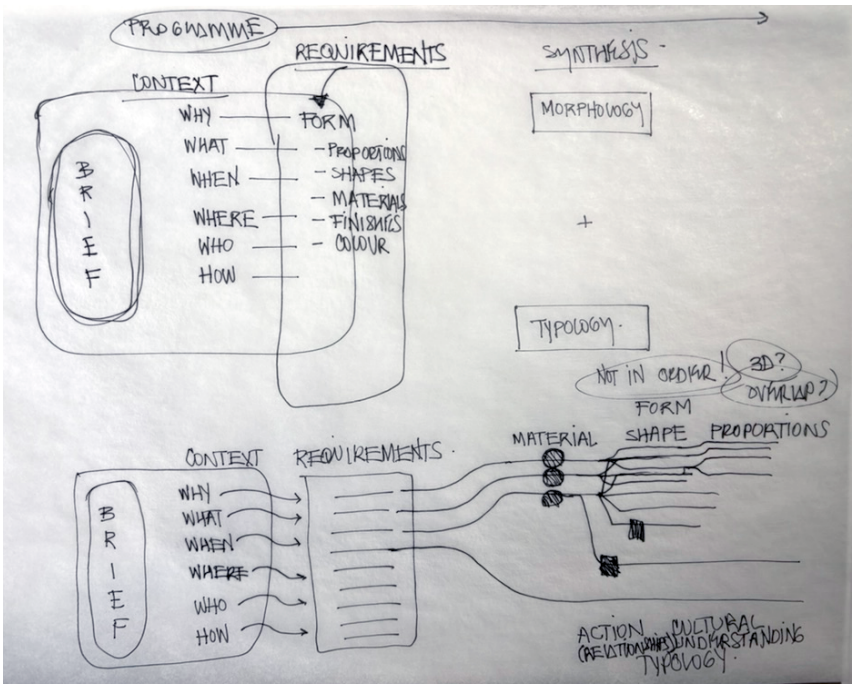

Figure_Apx. 205:
Chaparro, Y.(2024) Iterative Process Sketch of *Programme* [diagram sketch]




Figure_Apx. 206:
Chaparro, Y.(2024) Iterative Process Sketch of *Programme* [diagram sketch]

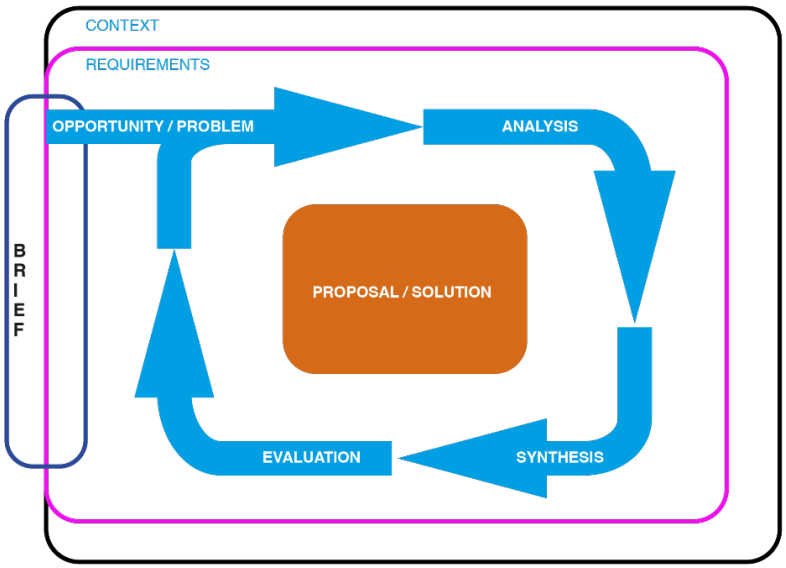



Figure_Apx. 207:
Chaparro, Y.(2024) Iterative Process Sketch of *Programme* [diagram sketch]



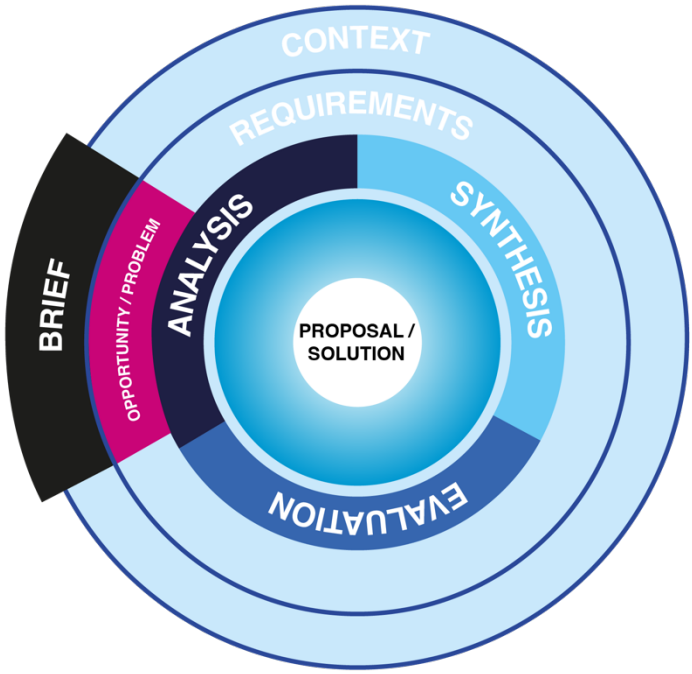

Figure_Apx. 208:
Chaparro, Y.(2024) Iterative Process Sketch of *Programme* [diagram sketch]

Sketch diagram becoming more refined as the elements included the overlap of the process of design and how they come together.



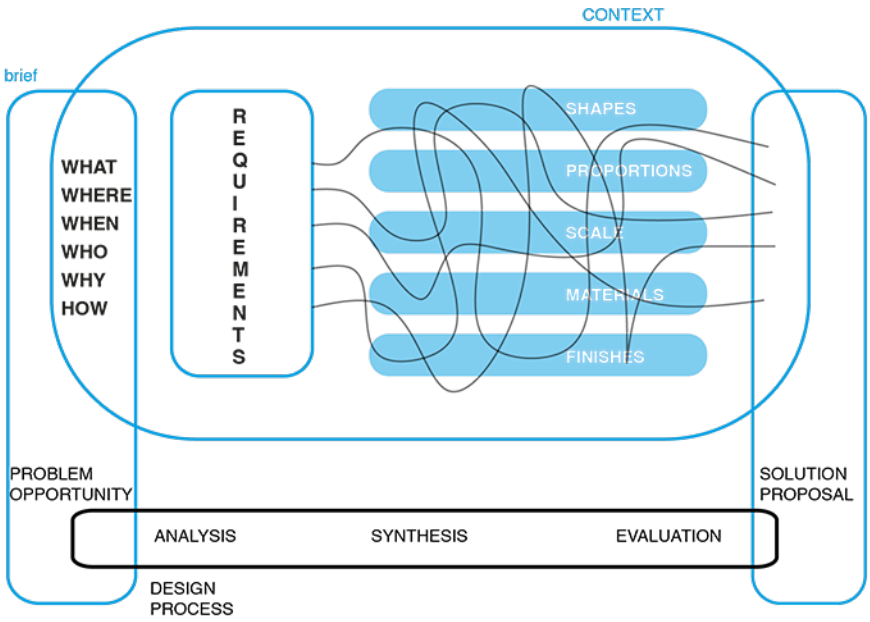

Figure_Apx. 209:
Chaparro, Y.(2024) Iterative Process Sketch of *the Programme* [diagram sketch]

Sketch diagram indicating a more cyclical interaction of the elements composing *the programme* and how they interact with the design process.



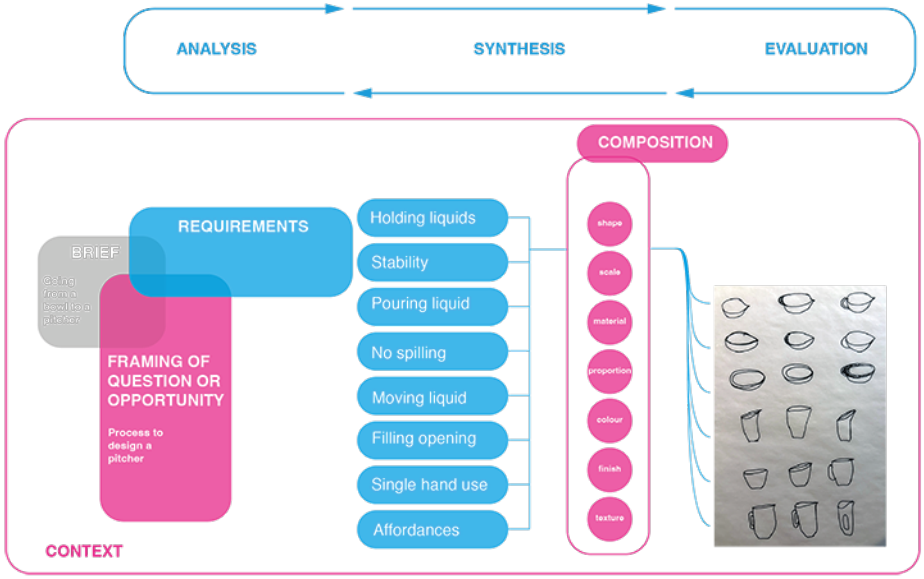

Figure_Apx. 210:
Chaparro, Y.(2024) Iterative Process Sketch of *Programme* [diagram sketch]

Sketch diagram which helps indicate how a designer moves through the elements of *the programme*.




Figure_Apx. 211:
Chaparro, Y.(2024) Iterative Process Sketch of *Programme* [diagram sketch]

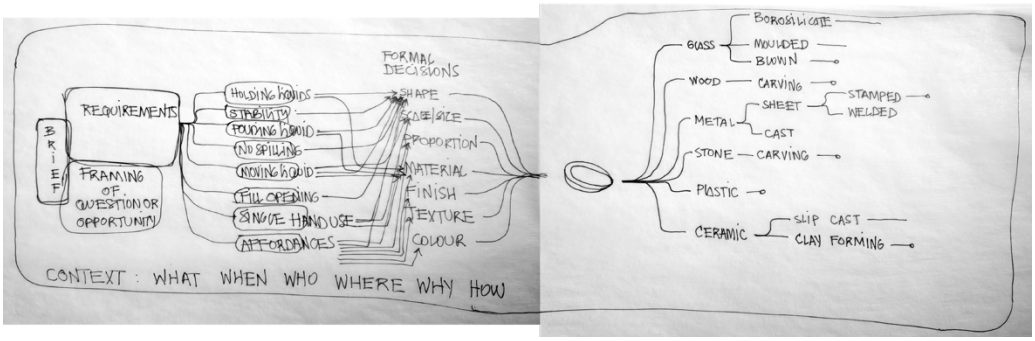
Sketch diagram, which is a step forward from the last sketch diagram shown, helps indicate how a designer moves through the elements of *the programme*, while including the cyclical movement of the process of design. The next version of this sketch diagram became the diagram shown in Chapter Three of Volume 1.




Figure_Apx. 212:
Chaparro, Y.(2024) Iterative Process Sketch of *Programme* [diagram sketch]

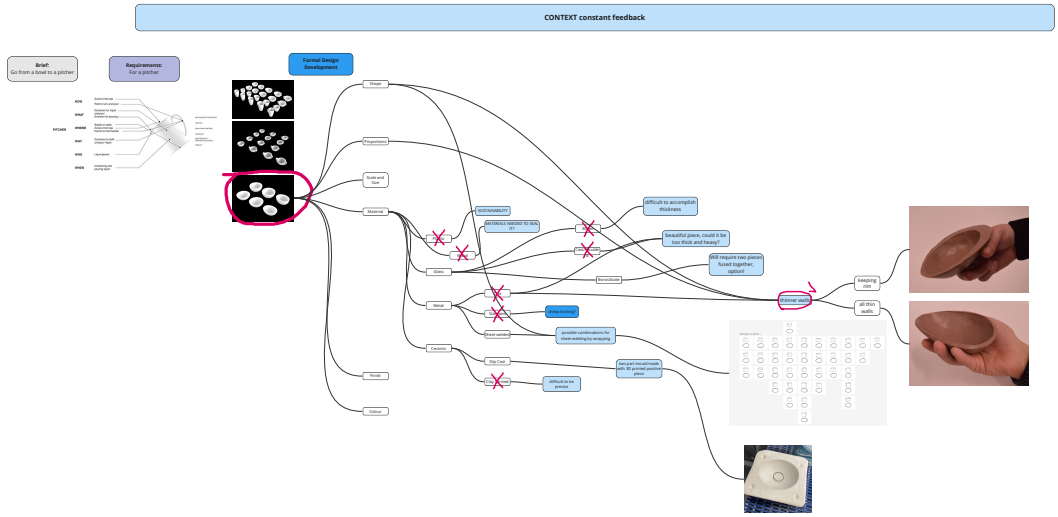
Sketch diagram exemplifying how the working *programme* diagram is used.

[The sketch diagram in a higher resolution can be found here: LINK]




Figure_Apx. 213:
Chaparro, Y. (2024) Example of Start of *Programme* [diagram sketch]

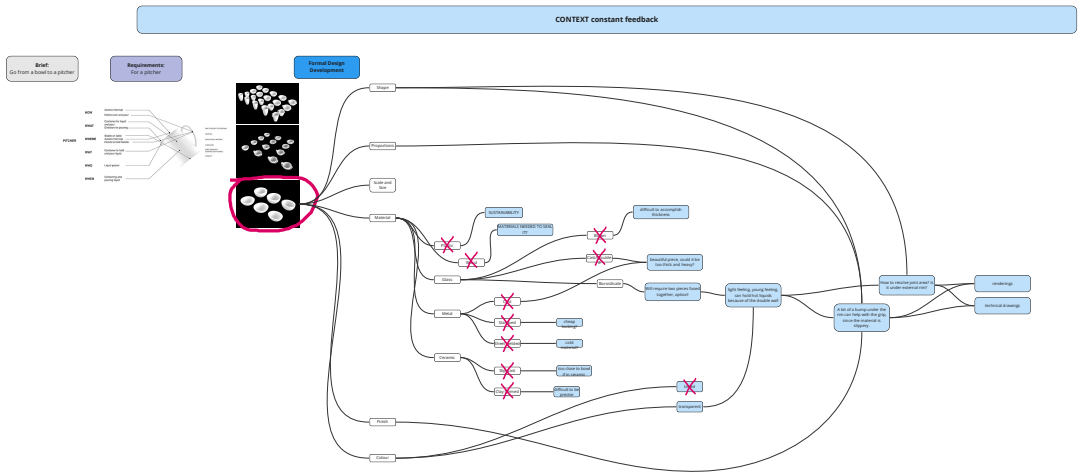
Programme diagram with possible directions and preliminary decisions. Software: Miro. Using this software means the diagram can be changed through the process of design, visualising the decisions made. [The Miro diagram in a higher resolution can be found here: LINK]




Figure_Apx. 214:
Chaparro, Y, (2024) *Programme* Diagram - Example of Initial Possibilities [diagram in Miro]

*Programme* diagram showing possible Borosilicate pathway with decisions. Software: Miro.

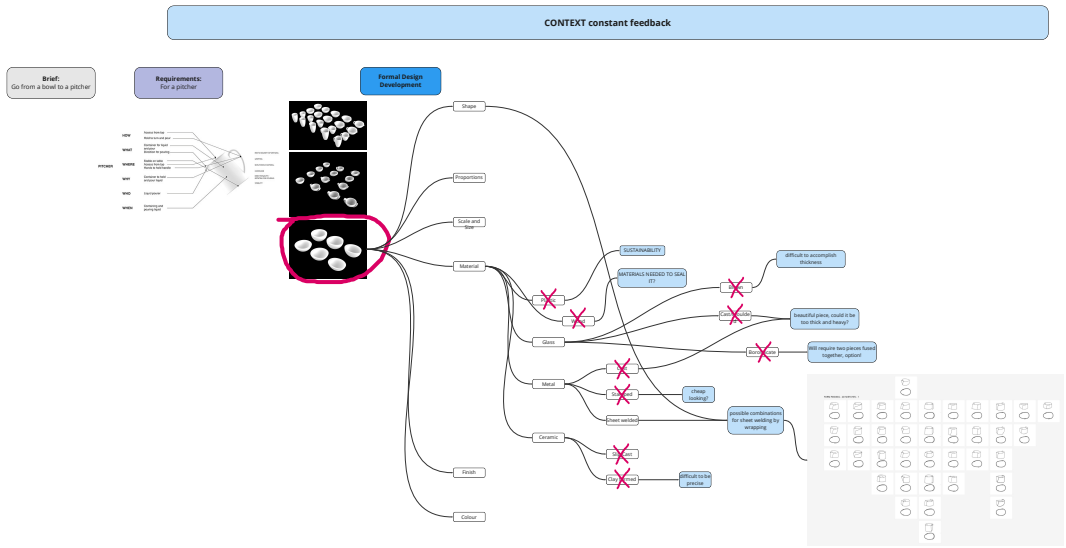
[The Miro diagram in a higher resolution can be found here: LINK]




Figure_Apx. 215:
Chaparro, Y. (2024) Example of *Programme* Diagram - Borosilicate Pathway [diagram in Miro]

Programme diagram showing possible sheet metal pathway with decisions. Software: Miro.

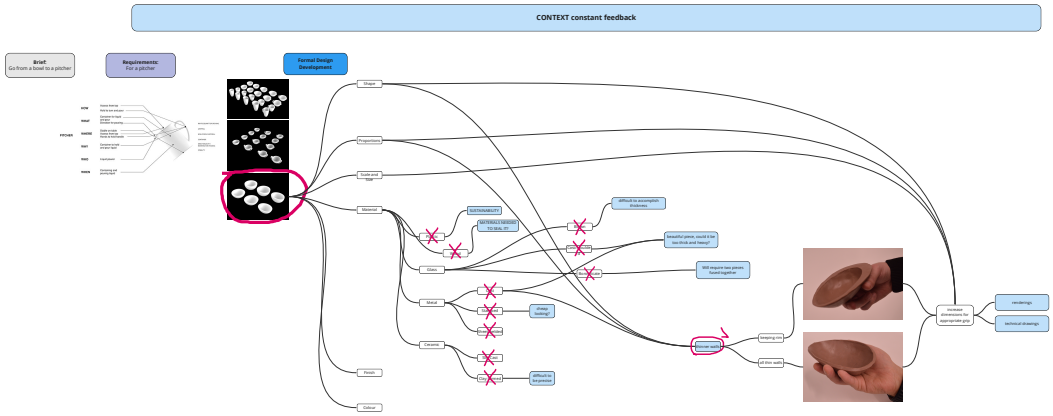
[The Miro in a higher resolution can be found here: LINK]




Figure_Apx. 216:
Chaparro, Y. (2024) Example of *Programme* Diagram - Sheet Metal Pathway [diagram in Miro]

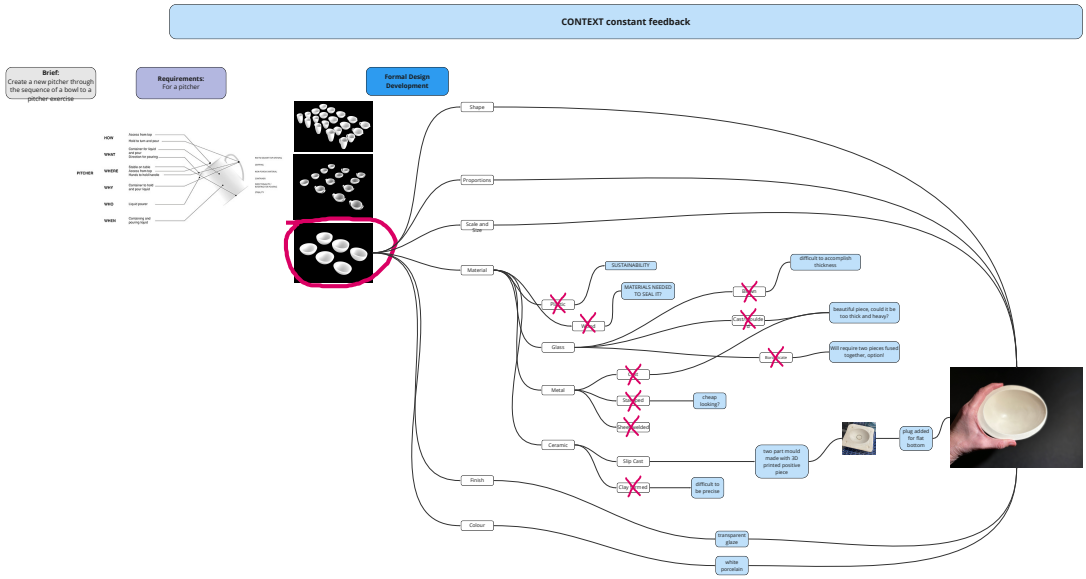
Programme diagram showing possible cast metal pathway with decisions. Software: Miro.

[The Miro in a higher resolution can be found here: LINK]




Figure_Apx. 217:
Example of *Programme* Diagram – Cast Metal Pathway [diagram in Miro]

Programme diagram showing possible slip-cast ceramic pathway with decisions. Software: Miro. [The Miro in a higher resolution can be found here: LINK ]




Figure_Apx. 218:
Chaparro, Y. (2024) Example of *Programme* Diagram Slip-Cast Ceramic Pathway [diagram in Miro]

# Appendix 4: GLOSSARY

## *Programme*

Programme, a term central to the practice of architecture,

> The program is what distinguishes architecture from pure art. The program encompasses project goals; functional requirements, activities, and organisational relationships; client and/or user preferences and aspirations; budgetary factors and limits, construction quality, and schedule; aesthetics and image; response to surrounding context; future needs for expansion, conversion, and phasing capabilities; performance characteristics (i.e., sustainable design features); and all other relevant variables that define clients' and users' needs and preferences. (Pressman, 2012, p.34)

## Typology

Typology, a term used to denote categorizations, "1. study of or analysis or classification based on types or categories" ("Typology." *Merriam-Webster.com Dictionary*, Merriam-Webster, https://www.merriam-webster.com/dictionary/typology. Accessed 14 Apr. 2025.) as Lynn states, "the study of formal configurations as they relate to use and cultural habit." (2008, p.2)

## Morphology

Morphology, is the study of form in nature without consideration of its function.

2.
1844–
Originally and chiefly Science. Shape, form, external structure or arrangement, esp. as an object of study or classification. Also: a particular shape, form, or external structure, esp. of (a part of) an organism, landform, etc.

'morphology' (2025) Oxford English Dictionary. Available at: https://doi.org/10.1093/OED/4302020782. [Accessed: 19 January 2025]

## De-composition

Decomposition, breaking down the whole into its main elements or parts. [Dash included to make it clearer for the reader to not confuse it with organic decomposition or decay].

II.

Allied to decompose v.: with de- prefix 1f.

II.2.

The action or process of decomposing, separation or resolution (of anything) into its constituent elements.

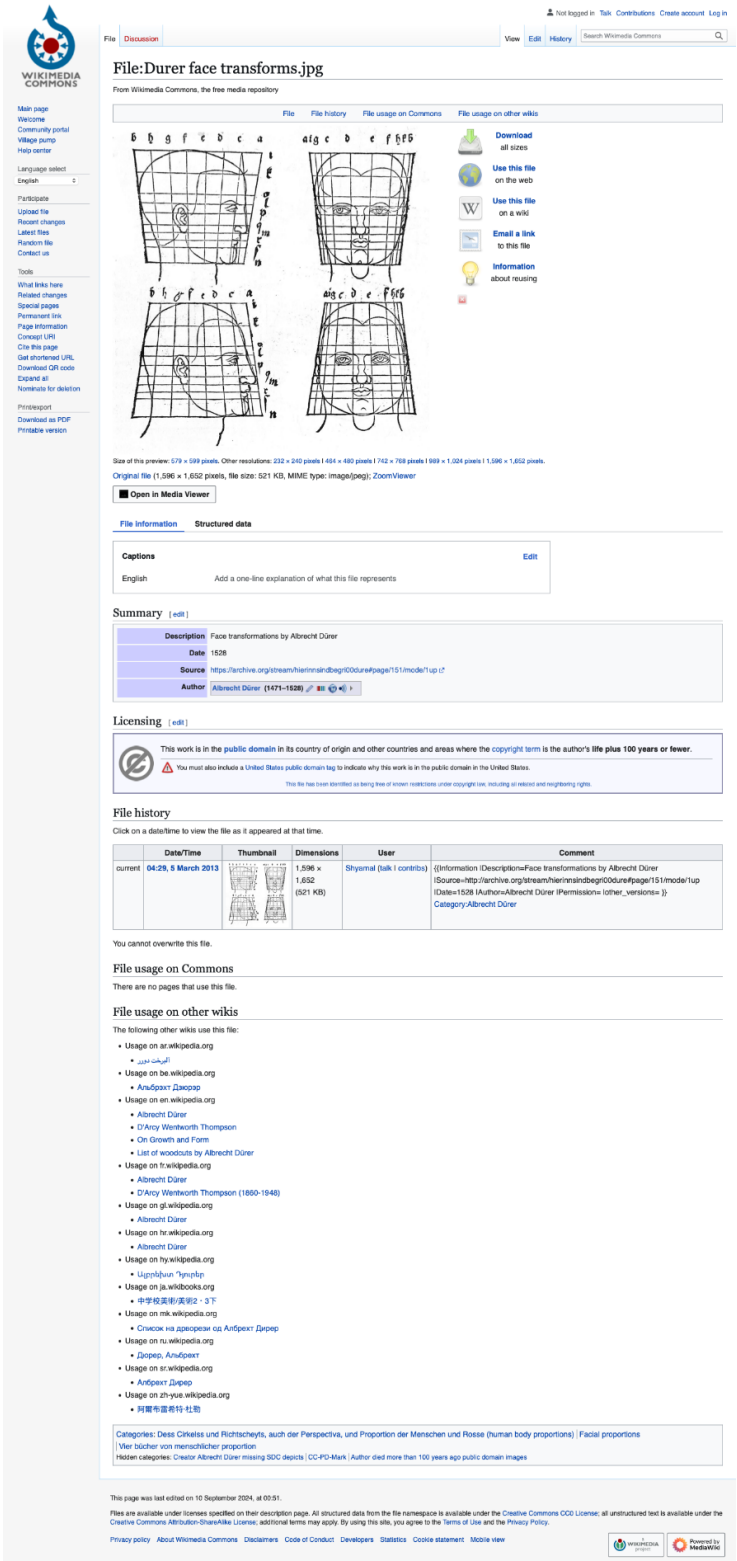
‘decomposition’ (2025) Oxford English Dictionary. Available at: https://doi.org/10.1093/OED/7625795154. [Accessed: 19 January 2025]

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An affordance is the yield of potential yield of actions, meanings, and capabilities of a person or group. (Erlhoff and Marshall (Eds), 2008) An image may have a range of material qualities — the term ‘‘affordance” is often used to refer to these — but it is only when someone uses the image in some way that any of those qualities become activated” (Rose, 2016, p.276). Affordances “… result from the coupling of any feature of the immediate environment (object, space, text) with a receptive subject or subjects.” (Erlhoff and Marshall, 2008, p.20). Rose states, “Any object is always actualised in a specific moment of use, which produces both the object and the sort of person looking at it.” (Rose, 2016, p. 276).

## Appendix 5: Image use approval

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| Source | https://archive.org/stream/hierinnsindbegri00dure#page/151/mode/1up |
| Author | Albrecht Dürer (1471–1528) |

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  - On Growth and Form
  - List of woodcuts by Albrecht Dürer
- Usage on fr.wikipedia.org
  - Albrecht Dürer
  - D'Arcy Wentworth Thompson (1860-1948)
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- Usage on ru.wikipedia.org
  - Дюрер, Альбрехт
- Usage on sr.wikipedia.org
  - Албрехт Дирер
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  - 阿爾布雷希特·杜勒

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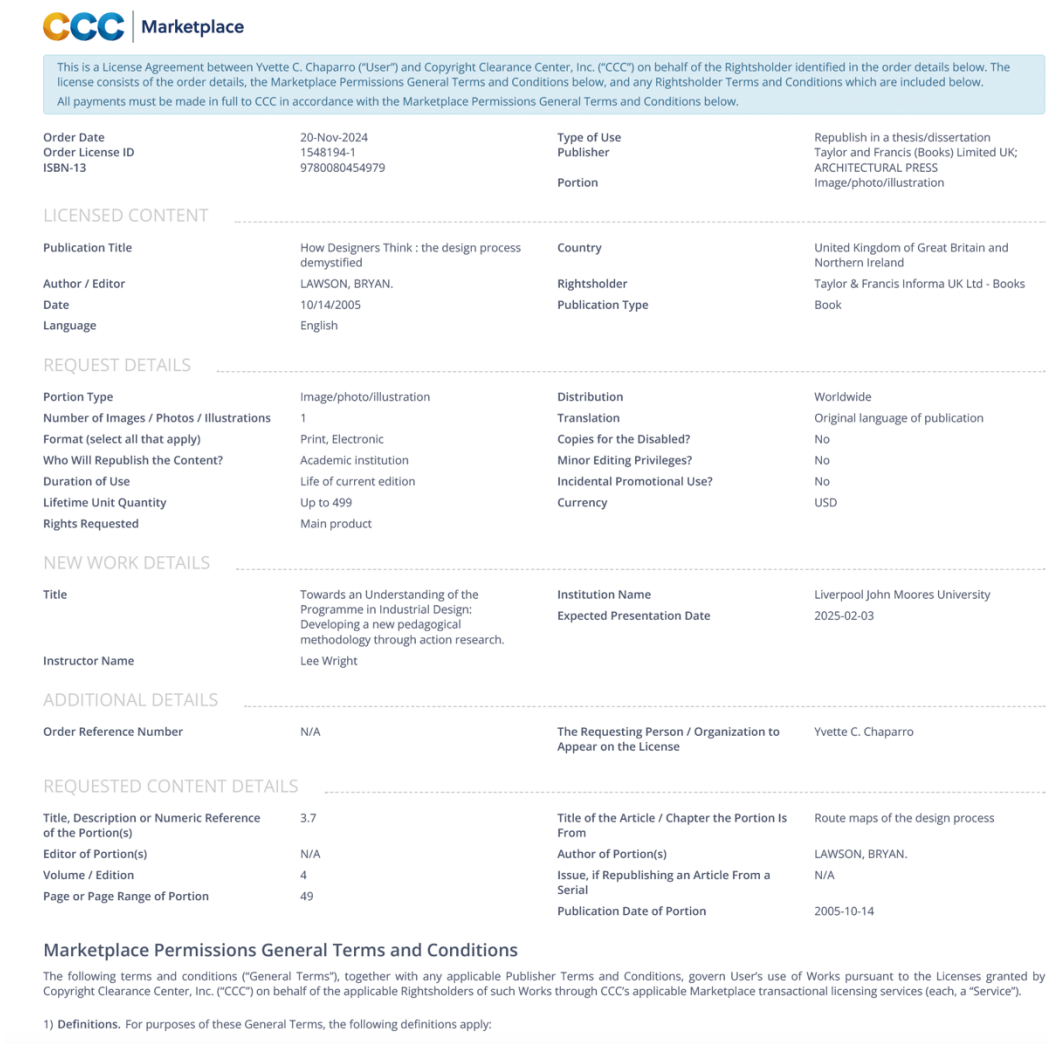
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| Publication Title | How Designers Think : the design process demystified | Country | United Kingdom of Great Britain and Northern Ireland |
| Author / Editor | LAWSON, BRYAN. | Rightsholder | Taylor & Francis Informa UK Ltd - Books |
| Date | 10/14/2005 | Publication Type | Book |
| Language | English | | |

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NEW WORK DETAILS

| | | | |
|---|---|---|---|
| Title | Towards an Understanding of the Programme in Industrial Design: Developing a new pedagogical methodology through action research. | Institution Name | Liverpool John Moores University |
| | | Expected Presentation Date | 2025-02-03 |
| Instructor Name | Lee Wright | | |

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| Editor of Portion(s) | N/A | Author of Portion(s) | LAWSON, BRYAN. |
| Volume / Edition | 4 | Issue, if Republishing an Article From a Serial | N/A |
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1) **Definitions.** For purposes of these General Terms, the following definitions apply:

## Appendix 6: Research Assistant List

| | |
|---|---|
| AY 2024-2025 | Gabriela Kreutzberger |
| AY 2023-2024 | Hector Fierro, Kavvya Krishnan, Madhu Palanivel Rajan, Gabriela Kreutzberger |
| AY 2022-2023 | Xusheng Yu, Hector Fierro |
| AY 2021-2022 | Michelle Levy, Sadaf Farahanifar, Mara Zimmerman |
| AY 2020-2021 | Tirth Engineer, Shayn Jackson, Michelle Levy, Amanda Ho |

Research Assistants aided in facilitating workshops, documenting and transcribing the data; the research assistants contributed with miscellaneous tasks, including 3D digital models, 3D material models, documentation, and diagrams. Their contributions have been referenced throughout the thesis.

## Appendix 7: Curriculum Vitae including research presentations.

# YVETTE CHAPARRO INDUSTRIAL DESIGNER

## EDUCATION

**PHD CANDIDATE**
Liverpool John Moores University / Transart Institute, Liverpool, UK

**MASTER OF INDUSTRIAL DESIGN**
Pratt Institute, Brooklyn, NY
Chaparro, Y. (2009) Families of Objects: Modularity and Morphology in Industrial Design. MID Thesis. Pratt Institute.

**SCANDINAVIAN FURNITURE DESIGN PROGRAMME**
Denmark's International Study Programme/University of Copenhagen, Denmark

**BFA FILM**
Pratt Institute, Brooklyn, NY
Designers on Design (2001) Directed by Yvette Chaparro. [Video Documentary Pilot]. NY: Pratt Institute.

**INDUSTRIAL DESIGN: 5-YEAR PROFESSIONAL DEGREE**
Pontificia Universidad Javeriana, Bogotá, Colombia
Chaparro, Y. (1997) Epochs of Industrial Design: Looking at the contemporary futures to understand our present. Thesis. Pontificia Universidad Javeriana. Bogotá, Colombia.

## LEADERSHIP APPOINTMENTS

**PARSONS / THE NEW SCHOOL**

| | |
|---|---|
| 2020.01 - 2024.06 | Director of MFA programme in Industrial Design |
| 2024.08 - Present | Parsons representative to the University Senate |
| 2023.05 | **Nominated to serve as Associate Dean of SCE |
| 2024.10 | **Nominated to serve as Associate Dean of Curriculum and Learning |

## ACADEMIC APPOINTMENTS

**PARSONS / THE NEW SCHOOL**

| | |
|---|---|
| 2019.07 - Present | Assistant Professor of Product and Industrial Design, [Reappointment, July 2023-June 2026] |
| 2018.07 - 2019.06 | Fixed-Term Assistant Professor of Product and Industrial Design |
| 2015.08 - 2018.07 | Part-time Lecturer of Industrial Design |

**ACADEMY OF ART UNIVERSITY**

| | |
|---|---|
| 2011.01 - 2018.06 | Instructor of Industrial Design |

## PROFESSIONAL PRACTICE

### YVETTE CHAPARRO STUDIO

2010.01 - Present
Industrial Designer
Selected list of clients: RH, Crosswater, Villeroy&Boch, Prym, Kate Spade, West Elm, Ralph Lauren, Corelle, Simplifed.
Products: Tabletop, cookware, bathroom faucets/accessories/fixtures, hardware, decorative elements, lighting, furniture, office systems, tools, signage, and space design.
www.yvettechaparro.com

### GLOBAL BRANDS GROUP - LFUSA

2013.07 - 2014.09
Senior Industrial Designer
Brand-Lead for: Calvin Klein, Tommy Hilfiger, Happy Chic, and, Juicy Couture.
Products: Dinnerware, drinkware, decorative home goods, lighting, and bath accessories.
www.FungGroup.com

### SPRINGS GLOBAL

2011.09 - 2013.07
Senior Industrial Designer
Brand-lead for: Nate Berkus (Target), Genevieve Gorder, and, Diana Vreeland
Products: Dinnerware, drinkware, bathroom accessories, window hardware, decorative home goods, office, lighting, and furniture
www.springs.com

### AFNY

2004.11 - 2009.11
Senior Designer/Project Manager/Curator
2004.01 - 2004.11
Freelance Designer
Clients: AF in-house brand, Elkay, Phylrich, Ottone Meloda, Villeroy&Boch.
Products: Bathroom and kitchen faucets, sinks, tubs, door handles, accessories, lighting, and furniture.
Awards: Adex Gold Prize for Harper Faucet for Phylrich, 2010
www.afnewyork.com

### THE DESIGN COMPENDIUM

2002.10 - 2004.11
Industrial Designer/Researcher/Project Manager
Products: Exhibit, retail fixtures, and special display projects

### TOTEM DESIGN

2000.05 - 2003.05
Director for TotemTV
2000.05 - 2002.04
Creative Assistant/Product Developer/Researcher

## SERVICE TO THE PROFESSION

### PROFESSIONAL ORGANIZATIONS

2021.01 - Present
Board member of the Rowena Reed Kostellow fund, Pratt alumna, January 2021 - Present

## RESEARCH, SCHOLARSHIP, AND CREATIVE PRACTICE [RSCP]

### PUBLICATIONS

2025* forthcoming — Gorman, M., Chaparro, Y., and Gopinath, P. (2025) *A Decolonized & Decarbonized Dinner Party.* V.3. Parsons / The New School. NYC.

2025* forthcoming — Gorman, M., Chaparro, Y., and Gopinath, P. (2025) 'Decolonized Decarbonized Dinner Party' *International Food Design and Food Studies Conference.* Elisava, Barcelona.

2024 — Gorman, M., Chaparro, Y., and Gopinath, P. (2024) *A Decolonized & Decarbonized Dinner Party.* V.2. Parsons / The New School. NYC. ISSUU link

2022 — Gorman, M., Chaparro, Y., and Gopinath, P. (2022) *A Decolonized & Decarbonized Dinner Party.* V.1. Parsons / The New School. NYC. ISSUU link

### PUBLIC PRESENTATIONS

2024 — Chaparro, Y. (2024) 'Overview of PhD research project', *Art and design research at Parsons: peer conversations*. Parsons, NY, 2 December.

Gorman, M., Chaparro, Y., Gopinath, P. (2024) 'A Decolonized Decarbonized Dinner Party', *2024 International Food Design and Food Studies: Design for Education, Sustainability and Social Innovation Conference*. Barcelona, Spain. https://efood24.elisava.net/about/

Chaparro, Y. (2024) Families of Objects [LivePresentation]. MFA Industrial Design students, Parsons, NY, 18 October.

Kirkbride, R. & Chaparro, Y. (2024) Creating Design Solutions for Natural Disasters [LivePresentation]. Taste of Iceland Festival, Designing with Nature. Scandia House. New York, 5 September.

Chaparro, Y. (2024) *Introduction to Families of Objects* [Live Presentation]. Visiting students from Universidad de Monterrey, Mexico. Parsons, NY. 18 May.

2023 — Chaparro, Y. (2023) *Redacted, Mastering Excellence* [Podcast]. 9 December. Available at: https://podcasts.apple.com/us/podcast/redacted/id1602469122?i=1000638015251 (Accessed: 9 December 2023).

Chaparro, Y. (2023) *Typology and Morphology: A walk through research and practice* [Zoom Presentation]. *XIII Feria Internacional*. Universidad de Monterrey, UDEM, Mexico. 18 September.

Chaparro, Y. (2023) *PhD Research in Progress* [Live Presentation]. SCE Public Programmes: Pecha Kucha style. Parsons. 14 September.

Chaparro, Y. (2023) *Action Research Presentation* [Live Presentation]. PhD *Summer Intensive*. Liverpool John Moores University/Transart, Liverpool, UK. 21 July.

2022 — Chaparro, Y. (2022) *PhD in Progress* [Live Presentation]. PhD *Summer Intensive*. Liverpool John Moores University/Transart, Liverpool, UK. 20 July.

2021 Chaparro, Y. (2021) *Pedagogy and Teaching Design* [Zoom Presentation and Conversation]. Architecture and design students. Oslo Met, Norway. 10 December.

Chaparro, Y. (2021) *Introduction to design for California High School Students* [Zoom, Presentation and Q&A], YAM, Youth Arts Movement. 10 November.

2020 Chaparro, Y. (2020) *PhD Research Introduction* [Zoom Presentation] Pecha Kucha style. Transart Institute. 30 October.

2019 Chaparro, Y. (2019) *Talk on Tabletop Design* [Live Presentation and Conversation]. Lucia de Respinis' class, Pratt Institute, Brooklyn. 9 April.

Chaparro, Y. (2019) *Talk on Modularity and Morphology* [Live Presentation]. Design Build Class / M.Arch, Parsons, 12 February.

Chaparro, Y. (2019) *Job Talk for Assistant Professor of Product and Industrial Design* [Live Presentation]. Parsons. 31 January.

2018 Chaparro, Y. (2018) *Lunch-Time Research Presentations* [Live Presentation] SCE, Parsons. 25 October.

2015 Chaparro, Y. (2015) *Job Talk for Assistant Professor of Product and Industrial Design* [Live Presentation]. Parsons, 2 March.

2010 Chaparro, Y. (2010) *Modularity and Morphology in Design Practice* [Live Presentation]. Presentation to the MFA Industrial Design students, Academy of Art University, San Francisco. 17 March.

2009 Chaparro, Y. (2009) *Families of Objects: Modularity and Morphology in Industrial Design* [Live Presentation] MID Thesis. Pratt Institute. 2 May.

2007 Chaparro, Y. (2007) *Snyde stool* [Live Presentation] Project Process. DIS, Copenhagen, Denmark. 10 August.

## SYMPOSIA ORGANIZED / HOSTED

2023 Gorman, M., Chaparro, Y., Gopinath, P., Linares Trelles, M., Aquije Zegarra, G., El Bakry, M., Phiri, C., Boulanger, H. (2023) 'A Decolonized Decarbonized Symposium' [Zoom Symposium]. *Hosted and curated at Parsons School of Design.* 4 April. Link.

2022 Chaparro, Y. [Organizer and Host], Rogers, V. [Moderator], Adeoye, L., Fapohunda, A., & Jackson, S. (2022) *Black Experiences in Product and Industrial Design: A conversation with alumni* [Live Panel Conversation]. Parsons, NY. 10 November.

Gorman, M., Chaparro, Y., Gopinath, P., Tong, S., Yuan, L.Y., Renzy, M., and Ruth, J. (2022) *A Decolonized Decarbonized Symposium.* [zoom] Hosted and curated at Parsons School of Design, 1 March. Link.

## WORKSHOPS AND COLLABORATIONS

2024 Chaparro, Y. (2024) Modular Systems [Workshop] Created and Facilitated. MFA Industrial Design

Students. Parsons, NY. 18 October.

Chaparro, Y. (2024) Sensorial Vessels [Workshop] Created and Facilitated. MFA Interior Design Students. Parsons, NY. 30 September.

Johnson, D., Brown, J., Schaar, R., Arad, S., Forlano, L., Day, Meghan, Pfordresher, J., Chaparro, Y. (2024) *Ethics to Impact, Syllabus Slam* [Workshop Participant], Swimming Hole Foundation, NY. 19-21 July.

Chaparro, Y. (2024) *Introduction to Families of Objects* [Workshop]. Visiting students from Universidad de Monterrey, Mexico. Parsons, NY. 18 May.

2023 Gorman, M., Chaparro, Y., Gopinath, P., and Linares Trelles, M. (2023) *A Decolonized Decarbonized Dinner Party* [Workshop]. Hosted and co-curated at Parsons School of Design, 13 April.

2022 Gorman, M., Chaparro, Y., Gopinath, P., Klinger Nowak, L., McBee, R., Tran, U., Bennett, S., Khew, Y.N., Castro, E., D'Amico, D. (2022) A Decolonized Decarbonized Dinner Party. [Workshop Series]. Hosted and co-curated at Parsons School of Design, 8-29 March.

2020 Chyon, G., and Chaparro, Y. (2020) *Tube Bath Accessories* [Design Project Development]. Parsons, NY. January.

2019 IF Design Foundation (2019) *Designing Design Education: North American Hearing* [Hearing Participant]. Pasadena, CA. 17-19 October.

2009 Chaparro, Y. (2009) *Modularity and Morphology* [Workshop]. With students from Pratt Institute. Pratt Institute, NY. 28 February.

## EXHIBITIONS

2024 Chaparro, Y. (2024) *Rowena Reed Kostellow Digital Archive* [Piece from 2008 included in Archive] Pratt Institutute. https://www.pratt.edu/work/fruit-bowl/ (Accessed: 31 August 2024)

Gorman, M., Chaparro, Y., Gopinath, P., Roth, B. Linares Trelles, M. (2024) *A Decolonized & Decarbonized Dinner Party* [Exhibition]. Hosted and Co-curated at Parsons, The New School, Governor's Island, NY. 20 April.

2023 Gorman, M., Chaparro, Y., Gopinath, P., Roth, B. Linares Trelles, M. (2023) *A Decolonized & Decarbonized Dinner Party* [Exhibition]. Hosted and Co-curated at Parsons, The New School, Governor's Island, NY. 22 April.

2022 Gorman, M., Chaparro, Y., Gopinath, P. (2022) *A Decolonized & Decarbonized Dinner Party* [Exhibition]. Hosted and Co-curated at Parsons, The New School, NY. 22 April.

2019 Chaparro, Y. (2019) '252 DOORKNOB' *Doorknob: Beyond the Everyday* [Group Exchibition]. Wanted Design, Industry City, Brooklyn. 15-20 May.

2018 *Disaster Preparedness in the Constructed Environment* (2018) [Exhbition Curating and Design] Co-Curated and Designed Exhibition with Will McHale, directed by Robert Kirkbride. Aronson Gallery, Parsons. 17 September to 5 October.

2009 Chaparro, Y. (2009) Finalist for Rowena Reed Kostellow Award [Exhibit]. Pratt Institute, NY. 20 May.

Chaparro, Y. (2009) Pratt MID Show [Graduating Exhbit]. Pratt Institute, Manhattan Center. 12-15 May.

2008 Chaparro, Y. (2008) ICFF show [Booth Designer]. AFNY, Javits Center. 17-20 May.

2007 Chaparro, Y. (2007) *My Copenhagen* [Group Exhibit]. DIS Furniture Piece. Pratt Institute, NY. 16-21 October.

Chaparro, Y. (2007) *DIS Furniture Exhibit* [Group Exhibit]. DIS, Copenhagen, Denmark. 15 August.

## PEER REVIEWS

2023 External Reviewer (2023), Adjunct Tenure Faculty position, Pratt Institute. November.

2021 Peer Reviewer (2021) Book Peer Review. Review of *Elegant Design: A Designer's Guide to Harnessing Aesthetics*, by Landoli, L., and Zollo, G. (comment included in backcover of book), February.

## JURY PANELS, CRITIQUES

2024 Jury panelist (2024), *Independent Projects Grant Program* [Asynchronous and Zoom]. The Architectural League and the New York State Council on the Arts (NYSCA). June. https://archleague.org/competition/2024-independent-projects-grant-recipients/

Jury panelist (2024), *Rowena Reed Kostellow Student Award* [Live Presentations and Judging], Pratt Institute. 22 April.

2023 Jury panelist (2023) *Brompton+Parsons for External Partnership Final Presentation* [Live Presentations]. Parsons. 14 December.

Jury (2023), *ICFA - Design Excellence, judging for International Casual Furnishings Association* [asynchronous on-line]. June.

2022 Panelist (2022) *EOOS Sustainability in Bath Fixtures, Round Table Discussion as part of NYCxDesign* [Live Conversation]. AF New York showroom, 18 May.

Jury (2022), *Rowena Reed Kostellow, Student Award* [Zoom], Pratt Institute. 21 April.

Panelist (2022), *Rowena Reed Kostellow Conversation "Young Rowenas"* [Live conversation], HMA2 office. 14 April.

2021 Jury (2021), *Rowena Reed Kostellow, Student Award* [Zoom], Pratt Institute. 8 April.

Brainstorm Workshop (2021), *Rowena Reed Kostellow Archive Design*, Swimming Hole Foundation, NY. 6-8 July.

2010 Thesis Critic (2010) *Final Reviews* [Live Presentations]. Academy of Art University, San

Francisco. 16 December.

## VIDEO

2000 - 2006 Designers on Design. (2000, 2003). Directed by Yvette Chaparro. [Video Documentary]. New York: Totem/IDEAS. www.yvettechaparro.com/Site/designers.html
Shown as part of the Walker Art Center (2003) 'Strangely Familiar' [Exhibition] at: Tribeca Grand, New York (2003); Walker Art Center (2003); Carnegie Museum of Art (2003); Lille European Capital of Culture, France (2004); The Scottsdale Museum of Contemporary Art (2005); Museo de Arte Contemporánea de Vigo, Spain (2005).
Selected to be shown in TAL (2006) [Brazilian Television]
Shown at: AFNY showroom (2003), October

2000 G7 in Milan (2000) Directed by Yvette Chaparro. [Video]. New York. Shown at: ICFF Totem Design Booth, April 2000.

Karim Rashid (2000) Directed by Yvette Chaparro. [Video]. New York. Shown on Totem Design website.

Future of Design (2000) Directed by Yvette Chaparro. [Video]. New York. Shown at: FIT for Totem Design.

Canteen by Marc Newson (2000) Directed by Yvette Chaparro. [Video Pilot]. New York.

1999 - 2019 Notes on Utopia with William Katavolos (1999, 2019) Directed by Yvette Chaparro. [Video]. New York: Yvette Chaparro.

## MEDIA MENTIONS AND AWARDS

2024 Zorzo, D. (2024) 'Parsons professors speak with Blue Lagoon head designers and architects in New York's 'Taste of Iceland' event series', *New School Free Press.* Available at: https://www.newschoolfreepress.com/2024/09/11/parsons-professors-speak-with-blue-lagoon-head-designers-and-architects-in-new-yorks-taste-of-iceland-event-series/ (Accessed: 12 September 2024)

Rubin, J. (2024) 'A Moveable Feast', *Regarding Design re:D,* 2024 Issue. https://issuu.com/newschool/docs/parsons-red-2024

Chaparro, Y. (2024) 'The Steering Committee Speaks', *GRID, The Official NYCxDESIGN Festival Guide*, p.9. https://issuu.com/nycxdesign/docs/grid_digital_singlepages

Transart Institute (2024) *A Decolonized and Decarbonized Volume 2, News web page.* Avaliable at: https://www.transartinstitute.org/news (Accessed: July 2024)

2023 Rubin, J. (2023) *Decentering the Design Canon, Parsons web site* [A Decolonized and Decarbonized Dinner Party project]. Available at: https://www.newschool.edu/parsons/story/decolonized-decarbonized-dinner-party/ (Accessed: July 2024)

2010 ADEX Gold Award (2010), for Phylrich Harper Collection [Faucet Collection], AFNY.

2008 Brue, A. (2008) 'Egg On' [Product Highlight 'Y-Tub'] *Luxury Spa Finder,* April 2008, p.90.

2005 AFNY (2005) 'AFNY News, S21 Design Studio' [Senior Designer Mention] *AFNY Look Book,* Issue 01, p.30.

2004 Lenius, P. (2004) 'Reinventing a Showroom' [Video mention] *Supply House Times,* March 2004, p.50.

AMC (2004) 'Etrange et Familier' [Video, mention] *AMC,* No.47, p.91.

2001 Butenschon, D. (2001) 'I want my dtv?' [Video mention] *Surface, Design supplement.* Issue 29, p.10.

## TEACHING

### PARSONS / THE NEW SCHOOL

AY2024-2025 Decolonized, Decarbonized, Dinner Party - Elective. SCE Graduate [SPRING]

Studio 6: Capstone, BFA Product Design Programme [SPRING]

Studio 1: Form Innovation, MFA of Industrial Design Programme [FALL]

AY2023-2024 Decolonized, Decarbonized, Dinner Party - Elective, co-taught with Barent Roth. SCE Graduate and Undergraduate [SPRING]

Studio 1: Form Innovation, MFA of Industrial Design Programme [FALL]

AY2022-2023 Studio 4: Thesis, MFA of Industrial Design Programme [SPRING]

Independent Study Professional Practices and Entrepreneurship course [SPRING]

Studio 1: Form Innovation, MFA of Industrial Design Programme [FALL]

AY2021-2022 Studio 4: Thesis, MFA of Industrial Design Programme, Midflex component for online student [SPRING]

Studio 4: Thesis, MFA of Industrial Design Programme [SPRING]

Independent Study Professional Practices and Entrepreneurship course [SPRING]

Studio 1: Form Innovation, MFA of Industrial Design Programme [FALL]

AY2020-2021 Disaster Preparation elective, MFA Industrial Design [SPRING]

Studio 4: Thesis, MFA of Industrial Design Programme [SPRING]

Studio 1: Form Innovation, MFA of Industrial Design Programme [FALL]

AY2019-2020 Studio 4: Thesis, MFA of Industrial Design Programme [SPRING]

| | |
|---|---|
| | Studio 1: Form Innovation, MFA of Industrial Design Programme [FALL] |
| AY2018-2019 | Summer Intensive: SCE Industrial Design [SUMMER] |
| | Studio 6: Capstone, BFA Product Design Programme [SPRING] |
| | Professional Practice and Entrepreneurship, MFA Industrial Design Programme [SPRING] |
| | Studio 1: Form Innovation, MFA of Industrial Design Programme [FALL] |
| AY2017-2018 | Product Design for the Home, Continuing Education [SPRING] |
| | Studio 4: Junior Studio, BFA Product Design programme [SPRING] |
| | Studio 1: Form Innovation, MFA of Industrial Design Programme [FALL] |
| | Product Design for the Home, Continuing Education [FALL] |
| AY2016-2017 | Summer Intensive: SCE Industrial Design [SUMMER] |
| | Studio 4: Junior Studio, BFA Product Design programme [SPRING] |
| | Product Design for the Home, Continuing Education [SPRING] |
| | Studio 1: Form Innovation, MFA of Industrial Design Programme [FALL] |
| AY2015-2016 | Product Design for the Home, Continuing Education [SPRING] |
| | Studio 1: Form Innovation, MFA of Industrial Design Programme [FALL] |
| | Product Design for the Home, Continuing Education [FALL] |
| 2020 - 2024 | **Nominated for the Distinguished Teaching Award, December 2024, 2023, 2021, 2020 |

**ACADEMY OF ART UNIVERSITY**

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| 2011 - 2018 | Industrial Design in a Globalized World - MFA, Academy of Art University, San Francisco - on line [SUMMER 2018, 2017, 2016, 2015, 2014, 2013] [SPRING 2018, 2017, 2016, 2015, 2014, 2013, 2012] [FALL 2017, 2016, 2015, 2014, 2013, 2012, 2011] |
| | Furniture - MFA, Academy of Art University, San Francisco - on line [SPRING 2018] [FALL 2017, 2016, 2015, 2014] |
| | Design Processes - MFA, Academy of Art University, San Francisco - on line [FALL 2014] [SUMMER 2014] |
| | Project 3 - MFA, Academy of Art University, San Francisco - on line [SPRING 2013] |
| | Project 1 - MFA, Academy of Art University, San Francisco - on campus [SPRING 2011] |
| 2015 | **On-line Furniture Class build, April - August |

### PRATT INSTITUTE

2009 Teaching Assistant- 3D class by Linda Celentano, BFA ID [SPRING]

## SERVICE TO THE NEW SCHOOL

### ACADEMIC COMMITTEES

2024.11 - Present Participant (2024) *PhD Collective at Parsons.* [Sharing Group]. Parsons.

2024.09 - Present Full Time Faculty Affairs Committee as part of the University Faculty Senate, September 2024 - Present

RSCP Committee as part of the University Faculty Senate, September 2024 - Present

2024.02 - Present SCE Grade Appeal Review committee member, February 2024 - Present

NYCxDesign Steering committee member, February 2024 - Present

2020.09 - 2023.05 Student Group Co-Advisor with Francesca Bastianini, "El Colectivo" LatinX at Parsons

2020.01 - 2022.10 Product/Industrial Design Council Co-Chair with Joel Stoehr

2021.08 - 2022.07 Chair for the Fashion Management Faculty Search Committee

2020.01 - 2021.09 IDSA Faculty Advisor for Parsons Student Chapter

2021.03 - 2021.06 SCE Dean Search committee member

2019.10 - 2020.01 Product/Industrial Design Faculty Search Committee member

2017.06 MFA Industrial Design Assessment Workshop

### PANELS, TALKS, AND SYMPOSIA

2024 Facilitator (2024) *Curriculum Development Day 'Advancing Graduate Community Breakout Session'* [Live Facilitation]. Parsons. 15 August.

2023 Panelist (2023) *Leadership Orientation Panel 'Day in the Life of a director'* [Live Presentations]. Parsons. 15 September.

2021 Portfolio Reviewer (2021) *Admissions Portfolio Event* [Live Portfolio Reviews], Chicago. 20-23 October.

Chaparro, Y., and Stoehr, J. (2021) *Drawing Symposium* [Zoom, Presentations], Co-Organized. Parsons, NY. 25 March.

2020 Chaparro, Y., and Stoehr, J. (2020) 'Modelling Thematic' *SCE Spring Faculty Development*

*Workshop* [Zoom Conversation] Co-Facilitated break out room. 16 December.

Cuba, L., Lehmann, U., and Chaparro, Y. (2020) *'Material and Making Classroom Approaches' Curriculum Development Day* [Zoom Conversation]. Co-Facilitated Conversation. Parsons, NY. 20 May.

Hosted CurveID (2020) as part of the SCE *'Adaptations' Talk Series* [Zoom Presentations and Q&A]. Parsons, NY. 16 April.

## EXHIBITIONS + PROJECTS

2024 *Wanted Exhibition by Parsons MFA Industrial Design* (2024) [Exhibition of *Graduating Group*]. Headed selection of students and appointed Alicia Tam Wei to Coordinate with Students. ICFF, Javits Center, NY. 21-23 May.

*2020* *Disaster Preparedness 2.0 Exhibition as part of the 'Earth Manual Homecoming Exhibition – 25th Anniversary of Hanshin-Awaji Earthquake'* (2020) [Exhibition of pieces sent from Parsons]. Kobe, Japan. January.

*2019* *SCE - End of Year Show* (2019) [Exhibition]. Co-Coordinated with Will McHale, working closely with SCE Directors. Parsons, NY. 14-21 May.

*2018* *Disaster Preparedness in the Constructed Environment* (2018), [Exhibition Packing] Co-Organized and Packed with Libby Goss, Directed by Robert Kirkbride. Sent to Chiba Japan. 17 September to 5 October.

*Disaster Preparedness in the Constructed Environment* (2018) [Exhbition Curating and Design] Co-Curated and Designed Exhibition with Will McHale, directed by Robert Kirkbride. Aronson Gallery, Parsons. 17 September to 5 October.

## INTERVIEWS

2021 Chaparro, Y. (2021) *Portfolio Best Practices for the Parsons admissions website* [Zoom Interview]. Parsons, NY. 26 October.

Chaparro, Y. (2021) *Yellow Brick Product Course* [Zoom Interview]. Collaboration with Parsons, NY. 4 May.

2020 Chaparro, Y. (2020) Summer *College/Adult online design explorations* [Zoom Interview]. Cotter Christian- Interviewer. Parsons, NY. 16 June.