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THE UNIVERSAL DESIGNER
A STUDY ON THE EVOLUTION OF DESIGN PROFESSIONALS IN THE DIGITAL AGE

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1. INTRODUCTION

In an era defined by rapid technological advancement and the ever-increasing importance of user-centric design, the roles and expectations of design professionals have evolved significantly. This transformation is particularly evident in the trajectories of individuals with formal educational backgrounds in industrial design and physical product design, who seem to increasingly find themselves gravitating towards roles in User Experience Design (UX), User Interface Design (UI), and Digital Product Design.

The journey from traditional industrial and product design to the digital realm represents a paradigm shift in the design profession, driven by the growing integration of technology into our daily lives and the profound impact it has on user interactions with products and services. Understanding the motivations, challenges, and opportunities that drive this transition is essential not only for professionals making this career shift but also for educational institutions and wider industries seeking to adapt to the evolving needs of the design field.

This master's thesis aims to explore the multifaceted factors that underpin the transition from Industrial and Physical Product design to UX, UI, and Digital Product Design roles. By delving into the personal experiences, educational pathways, and career choices of individuals who have made this shift, this research seeks to shed light on the following key questions:

1. What motivates individuals with formal backgrounds in industrial and product design to transition into roles focused on digital design and user experience?
2. What challenges and opportunities do these professionals encounter during their career transitions and what are the skills that translate from one career path to the other?
3. How do academic institutions' requirements, industry demands, and evolving technologies contribute to this career shift?

The result of this research aim to inform and help in the evolution of the study programs offered at Politecnico di Milano, suggesting alternative course paths that may be more in line with current professional needs.

This investigation will involve a comprehensive exploration of the educational and professional backgrounds of design professionals, their personal aspirations, and their adaptation to the digital age's requirements. It will also consider how their design expertise from traditional disciplines is translated into innovative, user-cantered solutions within digital domains.

Through in-depth interviews and surveys, this thesis seeks to provide valuable insights into the motivations and journeys of these design professionals, ultimately contributing to a deeper understanding of the ever-evolving landscape of design in the digital age. Moreover, the findings may offer guidance to design educators, career advisors, and professionals contemplating a similar transition, enabling them to make informed decisions and maximize their impact in the dynamic and multifaceted field of design.

As we embark on this exploration, it becomes evident that the convergence of design and technology continues to reshape the very essence of design practice, underscoring the need for interdisciplinary knowledge and a commitment to user-centric design. In doing so, we embrace a future where the traditional boundaries of design blur, and creativity knows no bounds, promising innovative and enhanced user experiences for all.

1.1. Focus

This research will primarily focus on students and alumni of Politecnico di Milano, with a particular emphasis on those who have participated in the Design and Engineering Masters Programme. However, it is important to note that the study will also incorporate insights from students and professionals who have pursued similar design programs at other universities, both within and beyond Italy. By considering a wider range of educational backgrounds and experiences, the study aims to provide a more comprehensive analysis of the evolving career pathways within the design profession. This broader perspective will allow us to draw valuable comparisons between different academic institutions and their contributions to the ever-changing design landscape.

Through the inclusion of participants from various universities, this research seeks to highlight both the unique strengths of Politecnico di Milano's educational approach and the broader trends and challenges that design professionals face on a global scale. As the design field knows no geographic boundaries in today's interconnected world, it is crucial to consider a diverse array of experiences to develop a holistic understanding of the factors influencing the transition from traditional design to UX, UI, and digital product design roles.

This comprehensive approach will not only enrich the findings of this study but also provide a well-rounded perspective for design educators, career advisors, and aspiring design professionals from various academic backgrounds, all of whom stand to benefit from the insights and recommendations that emerge from this research.

2. THE ROLES OF THE INDUSTRIAL DESIGNER AND THE DIGITAL PRODUCT DESIGNER.

First, let's define what is the field of Industrial/Physical Product Design - IDSA (Industrial Designers Society of America) defines Industrial Design or ID as the professional discipline dedicated to crafting products, devices, objects, and services used by millions of individuals worldwide in their daily lives. (IDSA, n.d.)

Secondly let's define who are the Industrial/Physical Product Designers - Industrial/Physical Product designers are professionals who specialize in conceiving, designing, and developing a wide range of physical products and objects, focusing on optimizing their form, function, aesthetics, and usability. Their work spans various industries, from consumer goods and electronics to furniture, automotive, and more. In essence, they are responsible for creating tangible solutions that meet user needs and market demands while considering factors like materials, manufacturing processes, technology, and sustainability. (Cooper, 1995)

Industrial/ Physical Product designers often collaborate with cross-disciplinary teams, including engineers, marketers, and manufacturers, to bring their design concepts to fruition, with the aim of enhancing the user experience and achieving business objectives. Their role is not only to design aesthetically pleasing products but also to ensure they are functional, safe, cost-effective, and environmentally responsible. Industrial/ Physical Product design plays a crucial role in shaping the physical world around us, from the products we use daily to the tools that improve our lives.

Every item you encounter regularly in your home, workplace, school, or public spaces is a result of the design process. Throughout this journey, industrial/physical product designers, alongside their teams, make a multitude of decisions geared towards enhancing people's lives through well-executed design.

What are the skills that make an Industrial/Physical Product Designer?

Hard Skills:

- Sketching and Illustration: Proficiency in freehand sketching and digital illustration is a fundamental skill for industrial designers. It allows them to visualize and communicate design concepts quickly and effectively. For instance, an industrial designer sketching a new car concept may use hand-drawn sketches to explore various forms and shapes before moving on to digital illustrations for refinement and presentation. (Cross, 2011)

- 3D Modeling: Industrial designers use 3D modeling software like AutoCAD, SolidWorks, Rhino, or Fusion 360 to create detailed three-dimensional representations of product concepts. This skill helps designers translate their ideas into tangible models, facilitating a comprehensive understanding of product design. For example, when designing a new consumer appliance, an industrial designer may use 3D modeling to create a virtual

prototype, enabling them to assess the product's appearance, functionality, and assembly. (Otto, 2001)

- Prototyping: Industrial designers are adept at building physical or digital prototypes to test and refine their designs. These prototypes can be created through various techniques such as 3D printing, CNC machining, or rapid prototyping. For instance, an industrial designer working on a medical device may utilize 3D printing to produce a physical prototype for usability testing, ensuring that the device's ergonomics and functionality meet user requirements. (Ulrich, 2015)

- CAD Software Proficiency: Mastery of computer-aided design (CAD) software is essential for creating detailed technical drawings and specifications. Industrial designers use CAD to produce precise and standardized design documentation. For instance, when developing a new piece of furniture, an industrial designer employs CAD software to generate technical drawings that specify measurements, materials, and assembly instructions for manufacturing. (Zeid, 2016)

- Materials Knowledge: Understanding the properties of various materials, including plastics, metals, textiles, and composites, is vital for making informed design decisions. For example, when designing a bicycle frame, an industrial designer considers the weight, strength, and durability of materials like carbon fiber, aluminium, or steel to determine the most suitable option for the intended use. (Ashby, 2010)

- Manufacturing Processes: Industrial designers have a comprehensive knowledge of different manufacturing methods, such as injection molding, CNC machining, and assembly processes. This knowledge enables them to design products that can be feasibly manufactured. For instance, when designing a consumer product, an industrial designer considers the choice of materials and manufacturing processes to optimize cost-effectiveness and production efficiency. (Pahl, 2007)

- Graphic Design: Graphic design skills are valuable for creating product labels, packaging, and branding elements that complement the overall product design. For example, an industrial designer working on the packaging for a new line of cosmetics may incorporate graphic design elements to align the product's visual identity with its target audience and market positioning. (Ambrose, 2015)

- Typography: Knowledge of typography is crucial, especially for labels, user interfaces, and packaging. Industrial designers use typography principles to select appropriate fonts and typefaces that effectively convey information and enhance the visual appeal of their designs. For instance, an industrial designer designing the user interface for a smart thermostat ensures that the on-screen text is legible and visually appealing, utilizing suitable fonts and typography practices. (Bringhurst, 2008)

- Model Making: Model making involves the ability to create physical models and prototypes that help in testing and refining design concepts. For example, when designing a new architectural structure, an industrial designer may construct a scale

model to assess the building's aesthetics, spatial layout, and overall impact on the environment. (Roozenburg, 1995)

Soft Skills:

- Design Thinking: Industrial designers employ design thinking, a human-centred approach that emphasizes understanding user needs and empathizing with their experiences. For example, when designing a user-friendly kitchen appliance, an industrial designer begins by conducting user research to understand the cooking habits and pain points of potential users, leading to a design that simplifies meal preparation. (Brown, 2008)

- Creativity: Creativity is at the core of industrial design, allowing designers to generate innovative and novel solutions to design challenges. When creating a new line of eco-friendly home products, an industrial designer may develop creative concepts that incorporate sustainable materials and manufacturing processes, resulting in unique and environmentally friendly designs. (Sternberg, 2003)

- Communication Skills: Strong written and verbal communication skills are essential for industrial designers to convey design ideas and concepts effectively. For instance, an industrial designer may write design briefs, reports, and documentation to communicate design intent and requirements to cross-functional teams and clients. (Petroski, 2016)

- Collaboration: Collaboration is key to successful product development. Industrial designers collaborate with engineers, marketers, and other professionals to bring products to market. For example, when designing a new consumer electronics device, collaboration with engineers is critical to ensure that the design aligns with technical requirements and constraints while achieving the desired user experience. (Lockwood, 2009)

- Problem Solving: Industrial designers rely on creative problem-solving skills to address design challenges and optimize functionality. For example, when tasked with designing a space-saving furniture piece for small apartments, an industrial designer uses problem-solving skills to maximize functionality and user comfort within the limited space available. (Norman, 2013)

- Project Management: Project management skills are crucial for efficiently managing multiple projects, budgets, and timelines. For instance, an industrial designer overseeing the design and development of a new line of office furniture must manage project timelines, allocate resources, and ensure that design objectives are met within budget constraints. (Schwalbe, 2013)

- Adaptability and Learning: Industrial designers are adaptable and open to learning new design tools, technologies, and methodologies as the field evolves. For example, as 3D printing technology advances, an industrial designer may embrace new software tools and techniques to optimize the design and prototyping process. (Kelley, 2013)

- Critical Thinking: Critical thinking allows industrial designers to objectively evaluate and critique design choices, both their own and others'. For instance, when reviewing design proposals for a public transportation seating system, an industrial designer employs critical thinking to assess factors like ergonomics, durability, and passenger comfort. (Brookfield, 2011)

- Empathy: The ability to understand and connect with end-users' needs and preferences is central to industrial design. For example, when developing a user-centric healthcare device, an industrial designer empathizes with patients to design a device that addresses their concerns and enhances their quality of life. (Davis, 2017)

- Time Management: Efficiently allocating time and resources is vital for meeting project deadlines and maintaining productivity. For instance, an industrial designer creating a new line of consumer electronics must manage time effectively to ensure that designs are completed on schedule and ready for manufacturing. (Lakein, 2013)

- Aesthetic Sensibility: Industrial designers possess a keen eye for aesthetics, including a sense of proportion, balance, and visual harmony. For example, when designing a high-end wristwatch, an industrial designer pays meticulous attention to details such as the placement of watch hands, the design of the watch face, and the choice of materials to create a visually appealing and luxurious timepiece. (Lauer, 2019)

- Presentation Skills: The ability to present design concepts and ideas clearly and persuasively is vital for industrial designers. For instance, when pitching a new product design to potential investors, an industrial designer delivers a compelling presentation that highlights the product's innovation, market potential, and design excellence. (Duarte, 2010)

- Design History and Theory: Knowledge of design history and theory informs and inspires new design concepts. For instance, an industrial designer researching mid-century modern design may draw inspiration from iconic designers like Charles and Ray Eames to create contemporary furniture pieces with a timeless aesthetic. (Meggs, 2016)

- Sustainability: Awareness of sustainable design practices is crucial in an era of environmental consciousness. An industrial designer working on a line of eco-friendly products considers factors such as the use of recyclable materials, energy-efficient manufacturing processes, and product longevity to ensure sustainability and reduce the environmental footprint. (Walker, 2006)

- Ethical Considerations: Understanding ethical responsibilities in design is paramount. For instance, when designing a health-related device, an industrial designer ensures that the product complies with ethical standards regarding patient data privacy and safety. (Buchanan, 2001)

- Market Awareness: Keeping up with industry trends, market research, and consumer preferences is essential for creating designs that meet market demands. For example, an industrial designer developing a line of outdoor recreational equipment stays informed about emerging outdoor trends and the specific needs and preferences of the target market. (Kotler, 2010)

- Negotiation Skills: The ability to negotiate with stakeholders and suppliers is critical for achieving project goals and cost-effectiveness. For example, an industrial designer negotiating with suppliers to produce a new line of fashion accessories seeks favourable terms and pricing while maintaining quality standards. (Fisher, 2011)

These hard and soft skills are the building blocks that empower industrial designers to create innovative, functional, and aesthetically pleasing products while effectively communicating and collaborating with multidisciplinary teams and clients.

Now let's define what is Digital Product Design:

Digital Product Design is consisting of two separate disciplines that work in symbiosis:
- User Experience Design
- User Interface Design

The Interaction Design Foundation defines the two disciples as:

1. User Experience Design

User Experience (UX) design is the method employed by design teams to develop products that offer users experiences that are both meaningful and pertinent. The scope of UX design encompasses the comprehensive process of acquiring and integrating a product, which includes considerations of branding, aesthetics, usability, and functionality. (Interaction Design Foundation, n.d.)

Designing an experience extends beyond simplifying software usability; it also encompasses the design of other interactions linked to the product, such as marketing campaigns, packaging, and post-purchase support. Above all, UX design is fundamentally concerned with delivering solutions that effectively address user pain points and needs. In the end, a product without a clear purpose is unlikely to find acceptance among users.

Who is a User Experience Designer?

A User Experience (UX) Designer is a professional who specializes in crafting digital interfaces and experiences with a primary focus on enhancing usability, accessibility, and overall user satisfaction. UX Designers work to ensure that digital products, such as websites, apps, or software, are user-friendly and intuitive, aiming to create a seamless and enjoyable experience for the end user. They utilize a combination of user research, information architecture, interaction design, and usability testing to create designs that align with user needs and business goals.

2. User Interface Design

User Interface (UI) design is the methodology employed by designers to construct interfaces within software or computerized devices, with a primary emphasis on the visual aesthetics and style. The objective for designers is to craft interfaces that offer users a user-friendly and enjoyable experience. UI design encompasses graphical user interfaces and various other formats, including interfaces controlled through voice commands. (Interaction Design Foundation, n.d.)

Who is a User Interface Designer?

A User Interface (UI) Designer is a professional who specializes in designing the visual elements and layout of digital interfaces, such as websites, mobile apps, and software applications. Their primary focus is on creating aesthetically pleasing and user-friendly designs that enhance the overall user experience. UI Designers work on aspects like typography, colour schemes, iconography, and the placement of interactive elements to ensure that the interface is not only visually appealing but also intuitive and easy to navigate.

What are the skills that make a Digital Product Designer?

Hard Skills:

- User Interface (UI) Design: UI designers are proficient in creating the visual elements of digital products, striving to make them not only aesthetically pleasing but also intuitive. For example, a UI designer working on a mobile app may meticulously design the app's user interface, including icons, buttons, and the layout to ensure a visually appealing and user-friendly experience. (Tondreau, 2012)

- Interaction Design: Interaction designers focus on creating a seamless user journey by designing interactive elements and defining how users will engage with a digital product. For instance, an interaction designer working on an e-commerce website might design the checkout process, including the steps a user takes from adding items to the cart to completing the purchase. (Cooper, 2007)

- Prototyping: Prototyping is the process of building interactive models of a product to test and validate design concepts. For instance, a UX designer creating a mobile app might use a tool like Figma to build a clickable prototype that allows users to navigate the app and provide feedback before the development phase begins. (Rubin, 2008)

- Information Architecture: Information architects structure content within a product for optimal user navigation and usability. For example, an information architect working on a news website organizes articles into categories, making it easy for users to find relevant content. (Morville, 2006)

- User Research: User researchers gather insights into user needs and behaviour through methods like interviews, surveys, and usability tests. For example, a UX researcher at a software company might conduct interviews with customers to understand their pain points and preferences, informing design decisions. (Rubin, 2008)

- Wireframing: Wireframing involves creating low-fidelity sketches or layouts to outline the structure and functionality of digital products. For instance, a UX designer creating a website may begin by sketching wireframes that define the placement of navigation elements, content, and interactive features. (Snyder, 2003)

- Usability Testing: Usability testing assesses the user-friendliness of a product by gathering feedback from users. For instance, a UX designer may organize usability tests on a mobile app to observe how real users interact with the interface and identify areas for improvement. (Dumas, 1999)

- Front-End Development: A basic knowledge of HTML, CSS, and JavaScript helps designers understand the technical aspects of web and mobile development. For example, a UX designer working on a website might use CSS to define the visual styles and layout of web pages. (Duckett, 2011)

- Mobile App Design: Designing for mobile applications requires understanding the specific design patterns and considerations for iOS and Android platforms. For instance, a mobile app designer tailors the app's user interface to align with the platform's guidelines, creating an app that feels native to the user. (Clark, 2014)

- Responsive Design: Ensuring that designs adapt seamlessly to various screen sizes and devices is crucial. For example, a responsive web designer ensures that a website looks and functions well on desktop computers, tablets, and smartphones without requiring separate designs for each. (Marcotte, 2010)

- Visual Design: Visual designers possess skills in typography, colour theory, and graphic design to create visually appealing and cohesive user interfaces. For example, a visual designer working on a gaming app may choose colour schemes and design game elements like characters, icons, and backgrounds. (Tondreau, 2015)

- Motion Design: Motion designers add animations and transitions to enhance user interactions. For example, a motion designer working on a weather app might incorporate animations that depict changing weather conditions, creating a more engaging and informative user experience. (Haeckel, 2008)

Soft Skills:

- Empathy: Empathy is the ability to understand and relate to users' needs, frustrations, and goals. For example, a UX designer empathizes with travellers by designing a flight

booking app that simplifies the process, reducing the stress associated with travel planning. (Brown, 2008)

- Communication Skills: Strong verbal and written communication skills are vital for conveying design concepts and collaborating effectively. For instance, a UX designer must communicate their design rationale clearly to developers and stakeholders during project meetings and presentations. (Duarte, 2010)

- Collaboration: Collaboration involves working closely with various team members to align on project goals and priorities. For example, a UX designer collaborates with product managers, developers, and marketing teams to ensure a cohesive and successful product launch. (Lockwood, 2009)

- Problem Solving: Creative problem-solving skills help designers identify design challenges and develop innovative solutions. For example, when designing a health and fitness app, a UX designer may devise creative ways to present exercise routines to motivate users to stay active. (Norman, 2013)

- Critical Thinking: Critical thinking involves evaluating and critiquing design choices to make informed decisions. For instance, a UX designer assesses user feedback and analyses user behaviour to make data-driven design decisions that enhance the product. (Brookfield, 2011)

- User-Centred Design: A commitment to putting the user at the centre of the design process. For example, a UX designer advocates for a website's content structure that aligns with users' expectations and preferences rather than internal organizational priorities. (Cooper, 2007)

- Time Management: Efficiently managing time and priorities is essential for meeting project deadlines. For instance, a UX designer adheres to project timelines to ensure the on-time delivery of design assets and prototypes. (Lakein, 2013)

- Adaptability: Being open to learning and adapting to new design tools, technologies, and methodologies. For example, a UX designer stays updated with the latest design trends and tools to remain innovative and relevant in the field. (Kelley, 2013)

- Attention to Detail: Having a keen eye for detail ensures that designs are pixel-perfect and meet high-quality standards. For instance, a UX designer meticulously reviews every screen of a mobile app to ensure consistency and quality. (Lauer, 2019)

- Presentation Skills: The ability to present design concepts and rationale effectively. For example, a UX designer presents wireframes and user flows to stakeholders, explaining design decisions and showcasing the user-centric approach. (Reynolds, 2011)

- Stakeholder Management: Managing expectations and building strong relationships with clients, team members, and other project stakeholders. For example, a UX designer communicates progress updates and manages client expectations during a project to ensure a successful partnership. (Fisher, 2011)

- User Feedback Integration: The capacity to receive and incorporate user feedback into the design process. For example, a UX designer listens to user suggestions and uses feedback to refine the user interface and enhance the overall experience. (Rubin, 2008)

- Ethical Considerations: Considering ethical implications in design decisions, such as data privacy, inclusivity, and social responsibility. For example, a UX designer ensures that user data is handled ethically and that the design is inclusive of diverse user groups. (Buchanan, 2001)

- Cross-Functional Collaboration: Collaborating effectively with team members from various disciplines, such as developers, product managers, marketers, and researchers, to ensure a cohesive and successful product development process. For example, a UX designer collaborates with developers to ensure that the user interface is technically feasible and aligns with the development timeline. (Cooper, 2007)

- These skills collectively empower digital product designers to create user-friendly, visually appealing, and effective digital experiences while fostering collaboration, empathy, and consideration for the end user and the broader ethical implications of their work.

2.1. Overlapping skillsets of Industrial Product Designers and Digital Product Designers

Digital Product Designers and Industrial Product Designers share numerous core skills and competencies, reflecting the multidisciplinary nature of design. The overlap in their skill sets demonstrates that design, whether for digital or physical products, demands a common foundation of principles and abilities. Here's a detailed exploration of the shared skills between these two design disciplines:

- User-Centred Design: Both digital and physical product designers prioritize user-centred design. They aim to understand the needs, preferences, and pain points of end-users, ensuring that the final product effectively addresses these aspects. Whether it's a mobile app or a kitchen appliance, a user's experience and satisfaction are paramount.

- Design Thinking: Design thinking is a fundamental approach for both disciplines. It involves empathizing with users, defining problems, ideating solutions, prototyping, and testing. This iterative process allows designers to innovate and refine their designs based on user feedback.

- Creativity: Creativity is the lifeblood of design, whether digital or physical. Designers in both domains constantly seek innovative and novel solutions to design challenges, pushing the boundaries of what's possible to create unique and impactful products.

- Communication Skills: Strong communication skills are essential. Designers must effectively convey their ideas, rationale, and concepts to various stakeholders. Whether it's presenting a digital user interface design or explaining the form and function of a physical product, clear communication is vital.

- Collaboration: Both digital and physical product designers collaborate closely with cross-functional teams. This collaboration ensures that the designed product aligns with technical, business, and user requirements. Engineers, marketers, and other professionals play crucial roles in the success of a product, and designers must collaborate effectively with them.

- Problem Solving: Designers in both fields employ creative problem-solving skills. Whether it's optimizing the ergonomics of a chair or streamlining the user flow of a mobile app, the ability to identify and resolve design challenges is central to their work.

- Prototyping: The development of prototypes is a shared skill. Digital product designers create interactive prototypes for usability testing, while physical product designers often build physical prototypes or 3D models to test and refine their designs. Prototyping helps in visualizing and validating design concepts.

- Aesthetic Sensibility: A keen eye for aesthetics is crucial for both digital and physical product designers. The visual appeal and overall design harmony significantly influence a user's perception of the product's quality and desirability.

- Attention to Detail: Designers in both domains have a meticulous eye for detail. Whether it's pixel-perfect alignment of elements in a digital interface or the precision of dimensions and materials in a physical product, attention to detail is a hallmark of quality design.

- Ethical Considerations: Ethical responsibilities in design, such as data privacy, safety, and inclusivity, are shared concerns. Both digital and physical product designers must ensure their designs meet ethical standards and do not harm users or the environment.

- Sustainability: Sustainability is a growing focus in both design disciplines. Reducing environmental impact through sustainable materials, energy-efficient manufacturing, and recyclability is a common goal, whether in digital or physical product design.

- Market Awareness: Staying informed about industry trends, market research, and consumer preferences is essential for both types of designers. Understanding the market landscape helps them create products that meet the demands of their target audience.

- User Feedback Integration: Both digital and physical product designers should be adept at receiving and incorporating user feedback into the design process. This iterative approach ensures that the final product aligns with user expectations and needs.

- Adaptability and Learning: Design, as a field, evolves rapidly. Both digital and physical product designers must be open to learning new design tools, technologies, and methodologies to remain innovative and relevant in their respective industries.

- The significant overlap in skills between Digital Product Designers and Industrial Product Designers showcases the interconnectedness of design principles. The fundamental understanding of user needs, problem-solving, creativity, and ethical considerations applies universally, whether in the digital realm or the physical world. In an increasingly interdisciplinary design landscape, professionals in both fields benefit from the cross-pollination of ideas and skills, ultimately contributing to the creation of more effective and user-friendly products, whether digital or physical.

3. RESEARCH METHODS

Research methods are a vital component of the scientific process, enabling researchers to systematically investigate, analyse, and comprehend various phenomena and issues. These methods provide a structured framework for gathering data, drawing conclusions, and contributing to the body of knowledge within a given field of study. Research methods can be broadly categorized into two main types: qualitative and quantitative, each serving distinct purposes and offering unique tools for data collection and analysis. (Creswell, 2014)

3.1. Qualitative Research Methods

Qualitative research methods are primarily concerned with exploring and understanding the underlying meanings, motivations, and experiences associated with a particular subject. This approach delves into the richness and complexity of human behaviour, aiming to unearth deeper insights and context-specific information. Qualitative research is commonly employed in fields like social sciences, psychology, anthropology, and humanities. (Trochim, 2007) (Creswell, 2014)

Common Techniques: Qualitative research relies on a variety of techniques, including in-depth interviews, focus groups, participant observation, content analysis, case studies, and thematic analysis. These methods enable researchers to gather data that is descriptive, narrative, and non-numeric in nature.

Purpose: The overarching goal of qualitative research is to uncover patterns, themes, and the social or cultural context that shapes a given phenomenon. It focuses on interpreting the meaning behind actions, events, or behaviours, rather than quantifying them. Qualitative research is particularly useful for investigating complex and multifaceted issues, as well as exploring the perspectives of individuals and groups.

Qualitative research methods are characterized by their emphasis on exploring and interpreting the underlying meanings, motivations, and social contexts related to a research topic. This approach involves a range of techniques designed to collect data that is descriptive, narrative, and non-numeric in nature. Qualitative research is guided by the following principles:

1. Exploration: Qualitative researchers seek to explore the subject of study, uncovering the intricacies and nuances that may not be readily apparent through quantitative approaches.

2. Understanding: The primary goal is to understand the perspectives, experiences, and behaviours of individuals or groups within their social and cultural contexts.

3. Contextualization: Qualitative research emphasizes the importance of studying phenomena within their broader contexts. Researchers often examine the sociocultural, historical, and environmental factors that shape the subject of study.

4. Flexibility: Researchers adapt their methods and approaches as they progress, often guided by emergent themes and insights from the data.

5. Holistic Perspective: Qualitative research seeks to provide a holistic perspective on the research topic, considering the multiple dimensions and interrelationships involved.

Examples of Common Techniques:

- In-Depth Interviews: Researchers conduct one-on-one interviews with participants, often using open-ended questions to encourage detailed responses. For example, a qualitative study on the experiences of cancer survivors may involve in-depth interviews to uncover their emotional journeys and coping mechanisms.

- Focus Groups: Focus groups bring together a small group of participants to engage in discussions about a specific topic. These group interactions help researchers understand shared beliefs, attitudes, and group dynamics. For instance, a focus group may be used to explore public perceptions of a new healthcare policy.

- Participant Observation: Researchers immerse themselves in the context of the study, observing and interacting with participants in their natural settings. This method is often used in ethnographic research to understand cultural practices and behaviours. For example, an anthropologist might live with a remote tribe to study their customs and traditions.

- Content Analysis: Content analysis involves examining and coding textual, visual, or audio content, such as documents, media, or online discussions, to identify themes and patterns. Researchers may use content analysis to explore public sentiment in online forums or analyse historical documents to understand a particular period in history.

- Case Studies: Case studies involve an in-depth examination of a single case or a small number of cases. Researchers analyse detailed information about these cases to draw broader insights. For instance, a case study could investigate the success of a specific company in a highly competitive market.

- Thematic Analysis: Thematic analysis is a method of identifying, analysing, and reporting patterns (themes) within qualitative data. Researchers identify recurring themes within the data to gain a deeper understanding of the subject. This technique is often used in psychological and sociological research.

- Narrative Analysis: Narrative analysis focuses on the stories and narratives people tell. Researchers examine the structure, content, and meaning of these narratives to uncover underlying themes. For example, a study may analyse personal narratives of individuals dealing with addiction to understand their experiences.

- Grounded Theory: Grounded theory is a systematic approach for developing theories from qualitative data. Researchers collect data and generate theories based on the patterns and themes that emerge during analysis. It is often used to explore complex social phenomena.

- Visual Ethnography: Visual ethnography combines visual data (such as photographs or videos) with ethnographic research techniques to gain insights into cultural practices and visual communication. Researchers might use this method to study visual representations in art, media, or urban spaces.

3.2. Quantitative Research Methods

Quantitative research methods involve the collection and analysis of numerical data to measure and test relationships, patterns, and trends within a specific research context. This approach is rooted in statistical analysis and is often used in fields such as natural sciences, economics, psychology, and public health. (Neuman, 2014) (Creswell, 2014)

Common Techniques: Quantitative research employs methods like surveys, experiments, observations with numerical data, content analysis, and statistical analysis. Researchers use structured instruments and standardized measures to gather data that can be quantified and subjected to statistical tests.

Purpose: The primary purpose of quantitative research is to measure, quantify, and statistically analyse data. It seeks to establish empirical evidence and generalize findings to larger populations. Quantitative research is ideal for investigating phenomena that can be expressed in numerical terms, making it suitable for hypothesis testing and establishing cause-and-effect relationships.

In-Depth Definition:

Quantitative research methods are characterized by their emphasis on collecting and analysing numerical data to draw statistical inferences and generalize findings to a larger population. This approach is rooted in the following principles:

Measurement: Quantitative research relies on the precise measurement of variables, often using standardized instruments and scales.

Objectivity: Researchers aim for objectivity and strive to minimize bias in data collection and analysis.

Generalizability: The goal is to draw conclusions that can be applied to a broader population, making quantitative research suitable for hypothesis testing and statistical analysis.

Statistical Analysis: Statistical techniques are used to analyse and interpret the data, allowing researchers to determine the strength and significance of relationships and patterns.

Replicability: Quantitative research is designed to be replicable, ensuring that other researchers can repeat the study to validate or build upon the findings.

Examples of Common Techniques:

- Surveys: Surveys involve the collection of data from a sample of individuals using structured questionnaires or interviews. Researchers use surveys to measure attitudes, preferences, behaviours, and demographics. For instance, a survey may be conducted to gauge public opinion on a political issue.
- Experiments: Experiments involve the manipulation of one or more variables to observe their effects on dependent variables. Researchers use experiments to establish cause-and-effect relationships. An example is a clinical trial to assess the efficacy of a new medication.

- Observational Studies: Observational studies involve the systematic observation of individuals or groups in natural settings. Researchers collect data on behaviours, interactions, or events. An example is an observational study of children's play behaviour in a schoolyard.

- Secondary Data Analysis: Researchers analyse existing data, such as datasets from government agencies, organizations, or previous studies, to address research questions. For example, a researcher might analyse existing economic data to study the impact of a new policy.

- Content Analysis: Content analysis is used to quantify and analyse the content of written, visual, or audio material, such as documents, media, or social media posts. Researchers may analyse news articles to assess media bias.

- Regression Analysis: Regression analysis examines relationships between variables and helps predict outcomes. Researchers might use regression analysis to understand the factors influencing sales revenue, for instance.

- Descriptive Statistics: Descriptive statistics summarize and present data in a clear and interpretable manner. Techniques like mean, median, and standard deviation are used to describe central tendencies and variability in data.

- Longitudinal Studies: Longitudinal studies follow the same individuals or groups over an extended period to examine changes and developments. An example is a longitudinal study tracking the career progression of a cohort of professionals over several decades.

- Cohort Studies: Cohort studies focus on specific groups with shared characteristics and track them over time to examine outcomes. Researchers might conduct a cohort study to analyse the health outcomes of individuals with a common exposure, such as smoking.

- Meta-Analysis: Meta-analysis combines and analyses the results of multiple studies on the same topic to draw more robust conclusions. Researchers use meta-analysis to synthesize findings from various clinical trials or experiments.

3.3. Mixed Methods

In many research projects, a combination of both qualitative and quantitative methods, known as mixed methods research, is employed to provide a more comprehensive understanding of the research topic. This approach allows researchers to benefit from the strengths of both qualitative and quantitative data, offering a more nuanced and multifaceted view of the subject under investigation. (Creswell, 2017) (Creswell, 2014)

The selection of research methods is a critical decision for researchers and is guided by the research objectives, the specific nature of the research questions, the availability of resources, and the ethical considerations involved. Researchers must also ensure the reliability and validity of their data collection techniques and consider the applicability of their findings to the broader context.

In-Depth Definition:

Mixed research methods, also known as mixed methods research, is an approach that combines both qualitative and quantitative research methods to provide a more comprehensive understanding of a research problem. It allows researchers to draw upon the strengths of each approach to address complex research questions. Key features of mixed methods research include:

Integration: The integration of qualitative and quantitative data is a hallmark of mixed methods research. Researchers aim to connect findings from both methods to gain a deeper insight into the research problem.

Sequential or Concurrent Phases: Mixed methods research can be conducted in sequential phases, where one method follows the other, or in concurrent phases, where both methods are used simultaneously. The choice depends on the research design.

Complementarity: Researchers use one method to complement or enhance the findings of the other method. For example, qualitative data may help explain or provide context for quantitative results.

Triangulation: Triangulation involves comparing findings from different data sources to validate and strengthen research conclusions.

Practical Application: Mixed methods research often seeks to provide actionable insights for real-world applications, such as informing policy decisions or program development.

Examples of Common Techniques:

- Sequential Explanatory Design: In this design, the research begins with qualitative data collection and analysis, followed by quantitative data collection. Qualitative findings help explain or interpret quantitative results. For instance, a study on healthcare accessibility may start with qualitative interviews to understand patient experiences, followed by a quantitative survey to assess overall satisfaction.

- Concurrent Design: In a concurrent design, both qualitative and quantitative data are collected and analysed simultaneously. For example, a study on the effectiveness of a new educational program may involve collecting quantitative data on student performance and qualitative data from teacher interviews to provide a comprehensive evaluation.

- Embedded Design: In an embedded design, one type of data is nested within the other, providing depth and breadth to the study. For example, a survey on job satisfaction may include open-ended qualitative questions, offering insights into the factors influencing satisfaction.
- Data Transformation: Researchers may transform qualitative data into quantitative data through coding or categorization, making it amenable to statistical analysis. This allows for more comprehensive data integration.

- Follow-Up Studies: Researchers may conduct follow-up studies, using the findings from one phase to inform the design of the subsequent phase. For example, qualitative insights from an initial phase may guide the selection of variables to measure quantitatively in a follow-up study.

- Mixed Data Analysis: Data analysis techniques for mixed methods research include merging, comparing, and connecting findings from both qualitative and quantitative data sources. Researchers may use techniques such as constant comparison and matrix analysis to facilitate integration.

- Case Study Approach: In mixed methods research, a case study approach may be employed, where both qualitative and quantitative data are collected within a single or multiple cases. This approach provides a holistic understanding of complex phenomena.

- Triangulation: Triangulation involves comparing findings from both qualitative and quantitative data to validate research conclusions. For example, if quantitative data indicates a positive impact of a social intervention, qualitative data can confirm and explain the reasons behind this impact.

Research methods serve as the foundation for conducting systematic investigations in various academic disciplines. They offer a structured framework for data collection, analysis, and interpretation, with qualitative and quantitative approaches providing complementary tools for exploring and understanding the multifaceted world around us.

4. METHODOLOGY AND RESEARCH DEVELOPMENT - SURVEY

The following study has been conducted using the following limitations and is intended to be used by the manager of the Politecnico di Milano in designing course structures that reflect the industry today.

- Target group, focus on former Politecnico di Milano Students od the Design and Engineering course, students of Industrial Design.
- Mostly European citizens with similar cultural backgrounds
- Reached out to the respondents through my own social connections.

For answering the research questions, I have chosen to use the following research methods.

1. Survey
2. In-depth interview.

The following chapter describes the survey part of the research. There are several compelling reasons why I have chosen a survey as the first research method for my study:

- Broad Data Collection: Surveys are an effective way to collect data from a large and diverse group of participants. They allow you to gather information from a representative sample, providing a broader perspective on the research topic. For my study I wanted to get answers from former students of Politecnico di Milano that live in very different corners of the world as well as former Industrial Design Students from other universities. Considering this input, the online survey was the first option to start this thesis.

- Efficiency: Surveys are a time-efficient method of data collection. They can be administered to a large number of participants simultaneously, making them a practical choice when time constraints are a consideration. The target of this study was the almost 100 students who enrolled in the Design and Engineering course at Politecnico di Milano. The survey was the fastest and most efficient way to reach them.

- Standardization: Surveys offer standardized questions and response options, ensuring consistency in data collection. This standardization is essential for comparing responses and drawing meaningful conclusions.

- Quantitative Data: Surveys are well-suited for collecting quantitative data, which can be analysed statistically. This allows for objective and structured analysis, making it easier to identify patterns, trends, and relationships in the data.

- Objective Insights: Surveys provide a degree of objectivity in data collection, as researchers can minimize their influence on participants' responses. This objectivity is crucial for ensuring the accuracy and reliability of the data.

- Hypothesis Testing: Surveys are useful for hypothesis testing. Researchers can design surveys to test specific hypotheses and theories, allowing for structured investigation of research questions.

- Generalizability: Surveys can provide insights that are generalizable to a larger population. Well-designed surveys with representative samples can offer insights that extend beyond the study participants.

- First Research Step: Surveys are commonly used as the initial research step to gain a broad understanding of a topic. The findings from surveys can inform more in-depth research, such as interviews, focus groups, or experiments.

- Accessibility: With advancements in technology, surveys can be easily administered online, making it accessible to a global audience. This accessibility can enhance the reach and diversity of participants.

- Comparative Analysis: Surveys allow for comparative analysis between different groups, populations, or time periods, providing valuable insights into changes and differences.

These reasons demonstrate why surveys are a popular and valuable research method, particularly as an initial step in a research project. However, it's essential to plan and execute surveys thoughtfully to ensure their effectiveness in addressing your research objectives. (Trochim, 2007)

4.1.1. Methodology for the Survey

To ensure my survey is effective and yields reliable results, it's essential to follow the good practices and adhere to a systematic methodology. Here's a methodology I have followed to conduct it:

Define Research Objectives:
Clearly articulate the research objectives and questions that the survey aims to answer. This will guide all aspects of survey design and execution.

1. What motivates individuals with formal backgrounds in industrial and product design to transition into roles focused on digital design and user experience?
2. What challenges and opportunities do these professionals encounter during their career transitions and what are the skills that translate?
3. How do academic institutions, industry demands, and evolving technologies contribute to this career shift?

Identify Target Audience: Define the specific population or group you want to survey. Consider demographic factors, location, or any other relevant characteristics that will help you select the right sample.

The identified audience is the 100 students that enrolled in the course of Design & Engineering in 2019 at Politecnico di Milano and other student who followed Industrial Design courses at other universities.

Select Survey Type and Method: Choose the type of survey (e.g., online, phone, in-person) that aligns with your research objectives and target audience. Ensure the selected method is feasible and appropriate. The selected survey type is in an online format using the Microsoft Forms platform.

Develop Survey Instrument: Design the survey questions, keeping them clear, concise, and unbiased. Use a mix of question types, including multiple-choice, open-ended, and scaled questions. Pre-test the survey with a small group to identify and address any issues. The survey includes a mix of multiple choice and open-ended questions.

Determine Sample Size and Sampling Method: Calculate the appropriate sample size based on your population and desired level of confidence. Choose a sampling method (e.g., random, stratified, convenience) that ensures a representative sample. For the sample size I have chosen to go with the random sampling methods.

Select Data Collection Tools: Decide how you will collect survey responses. This may involve using survey software, email invitations, phone calls, paper surveys, or in-person interviews. Ensure that your chosen tools support your survey method. The survey was shared through different means: email, WhatsApp, LinkedIn.

Administer the Survey: If conducting an online survey, distribute invitations to participants. If using phone interviews or in-person surveys, schedule appointments. Maintain professionalism and respect when contacting respondents.

Data Collection: Collect responses from survey participants following your chosen data collection method. Ensure the security and privacy of data, especially if sensitive information is collected.

Data Cleaning and Validation: Review and clean the collected data to identify and correct errors, inconsistencies, or missing values. Apply data validation checks as needed. All responses that had missing values have been removed to ensure the validity of data.

Data Analysis: Analyse the survey data using appropriate statistical or qualitative analysis techniques. Ensure that the analysis aligns with your research objectives.

Report Findings: Present the survey results in a clear and organized report or presentation. Use tables, charts, and narratives to communicate the key findings and insights.

Draw Conclusions and Make Recommendations: Based on the survey results, draw meaningful conclusions that address your research objectives. Offer recommendations or implications for further action or research.

Ethical Considerations: Ensure that your survey complies with ethical guidelines and regulations, including informed consent, confidentiality, and data protection. Protect the rights and privacy of survey participants.

Review and Validate: Share the survey findings with colleagues, experts, or peer reviewers to validate your conclusions and ensure the reliability and validity of the research.

Continuous Improvement: Reflect on the survey process and results to identify areas for improvement in future surveys. Learn from the experience to enhance the quality of your research and survey methodology. Expert interviews don't necessarily need a very rigid and defined structure as your target interviewee is an expert of the field or is matching exactly the target audience. When conducting and expert interview you don't need many respondents, the focus is on the experience of the experts and the number of 2 or 3 in-depth expert interviews is sufficient to create valid data.

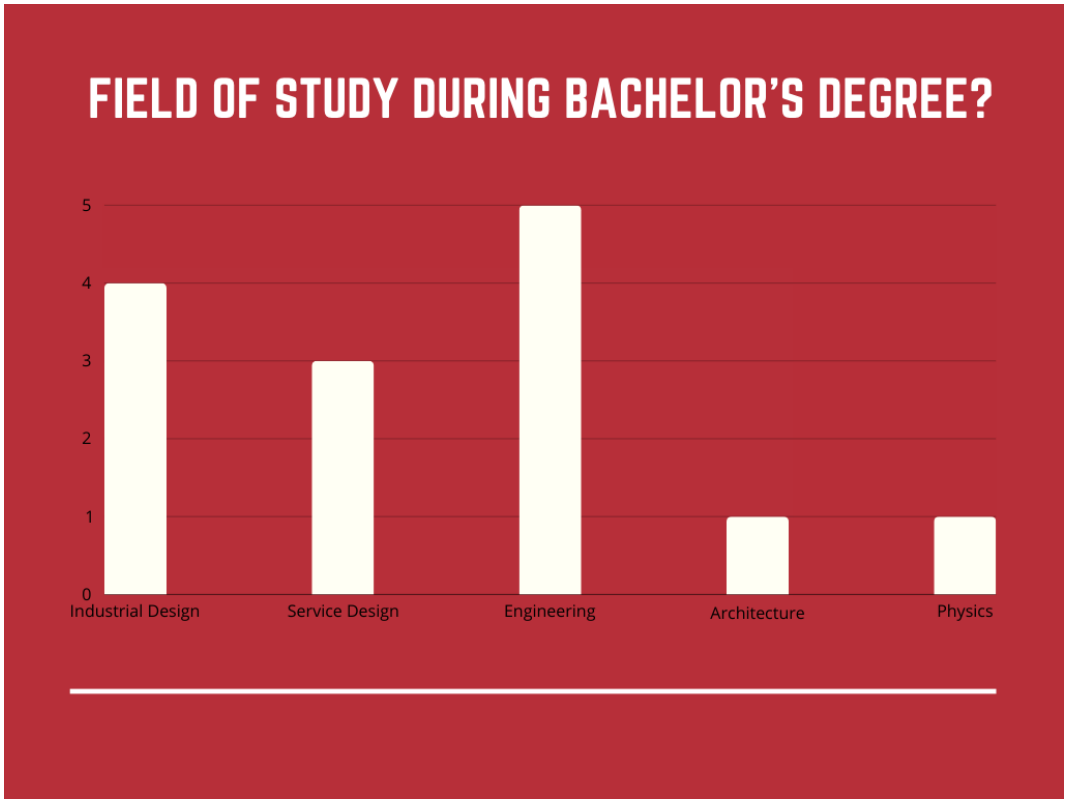
Good survey practices include careful planning, systematic execution, clear communication, and attention to ethical considerations. Following this methodology helped me conduct a survey that provides valuable and trustworthy insights for your research or project.

4.1.2. Conducted Survey

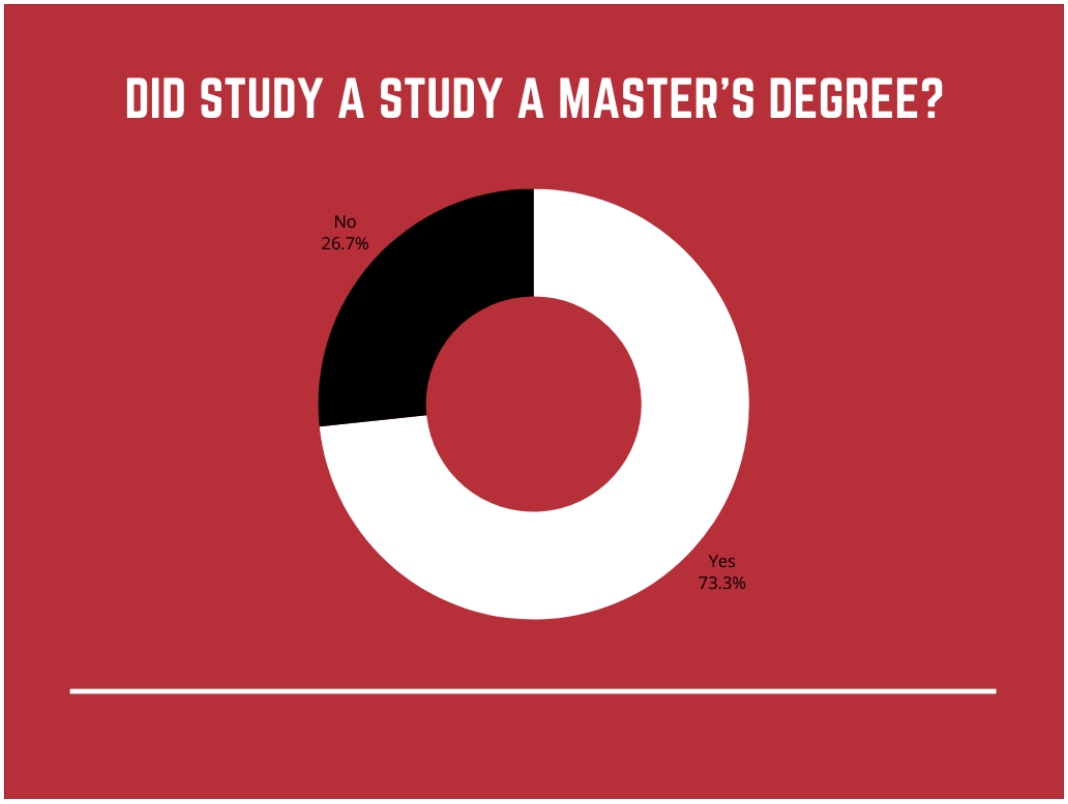
15 people have responded to the survey, the majority with a background in Industrial Design and former students of the Design & Engineering Masters at Politecnico di Milano.

The survey consisted of the following questions, which was answered as illustrated.

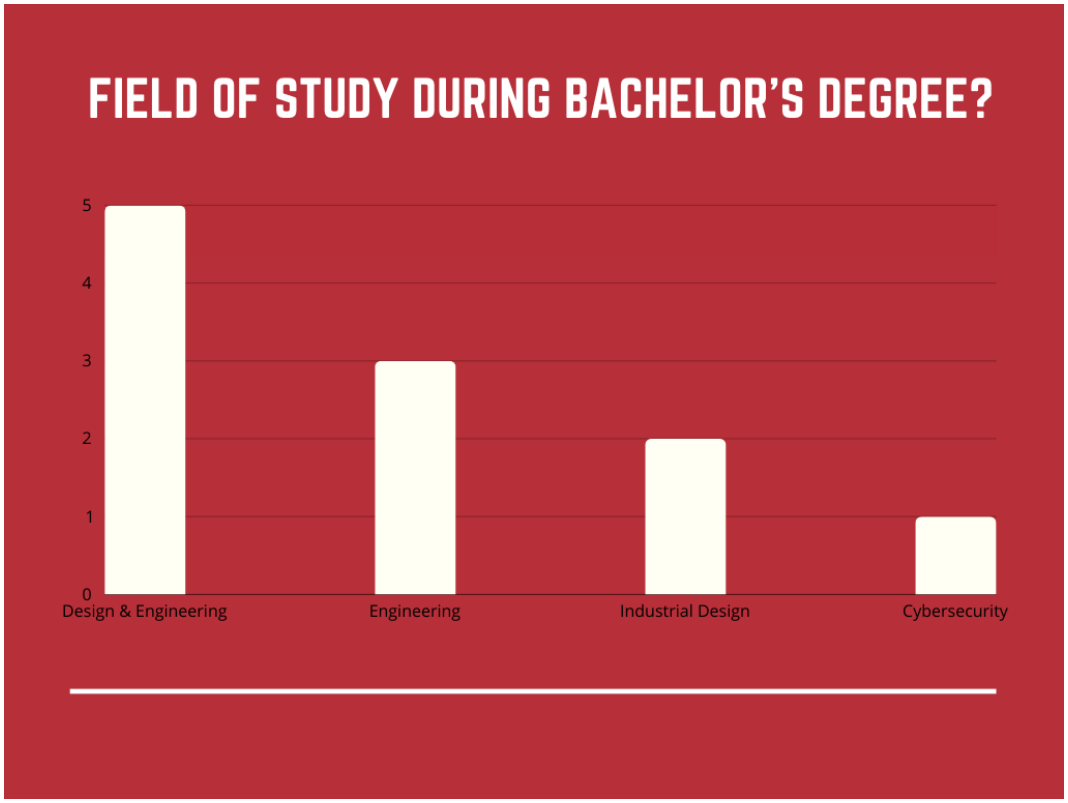
1. What was you field of study during you Bachelor's Degree?



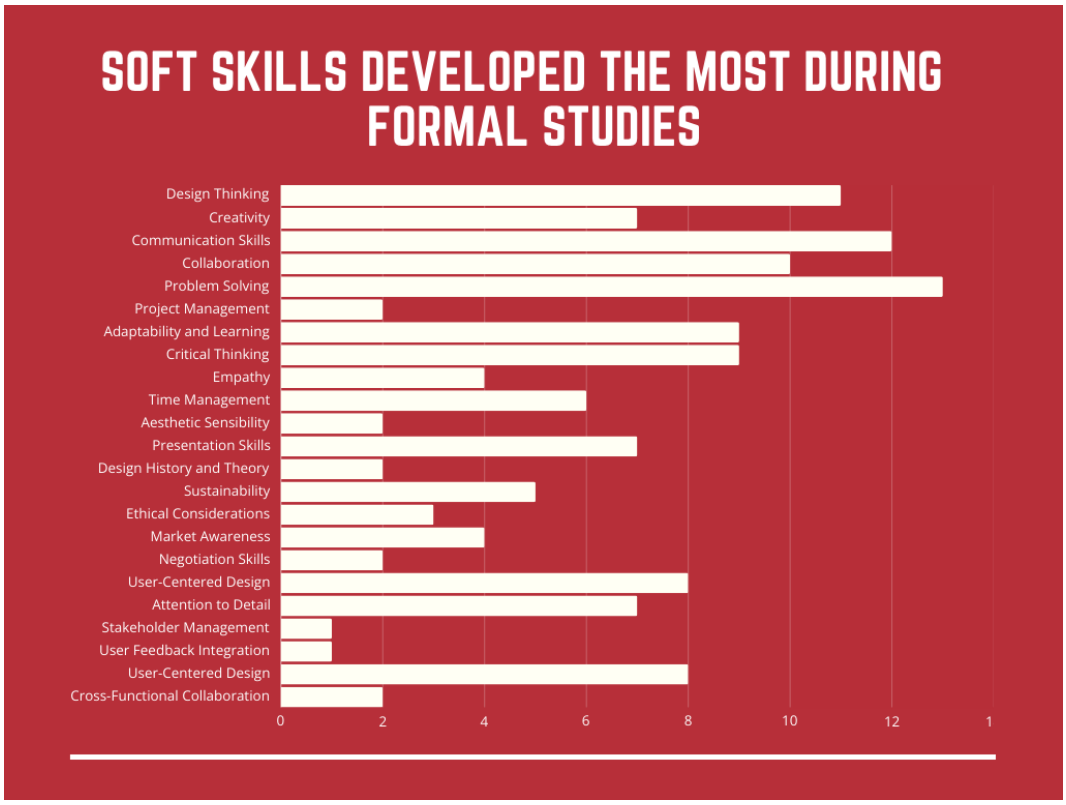
2. Did study a study a Master's Degree?



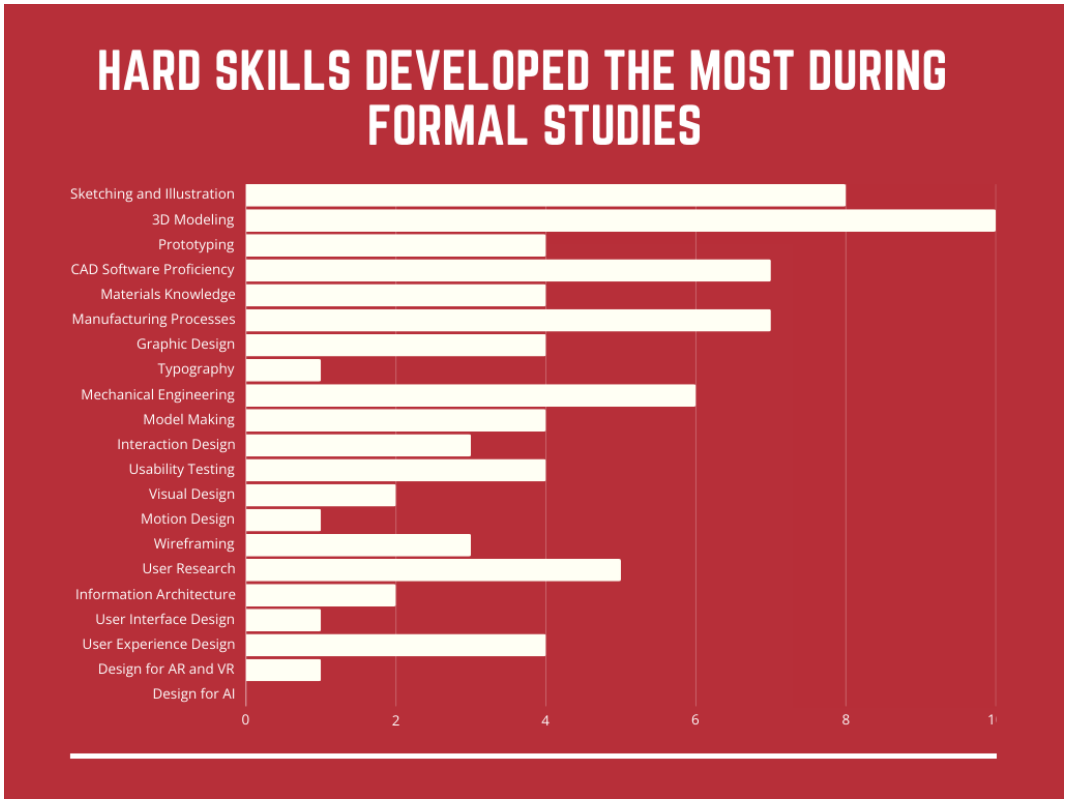
3. What was you field of study during your Master's Degree?



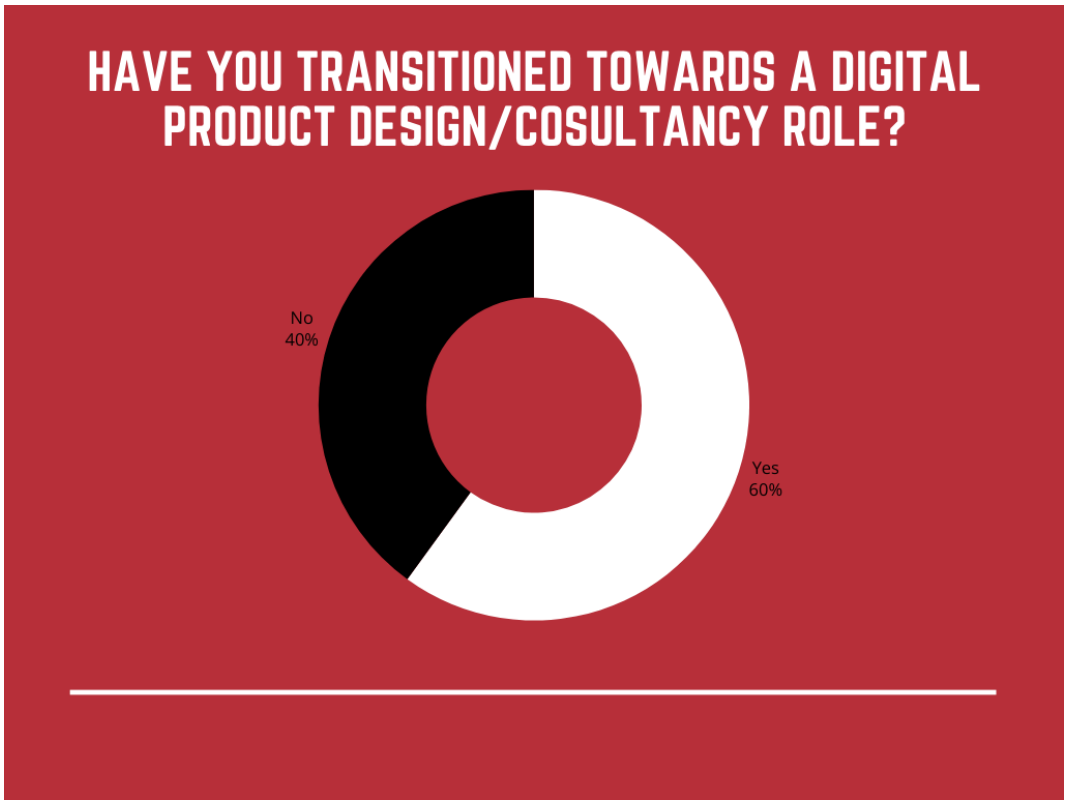
4. Select the soft skills that you feel you have developed the most during your formal studies.



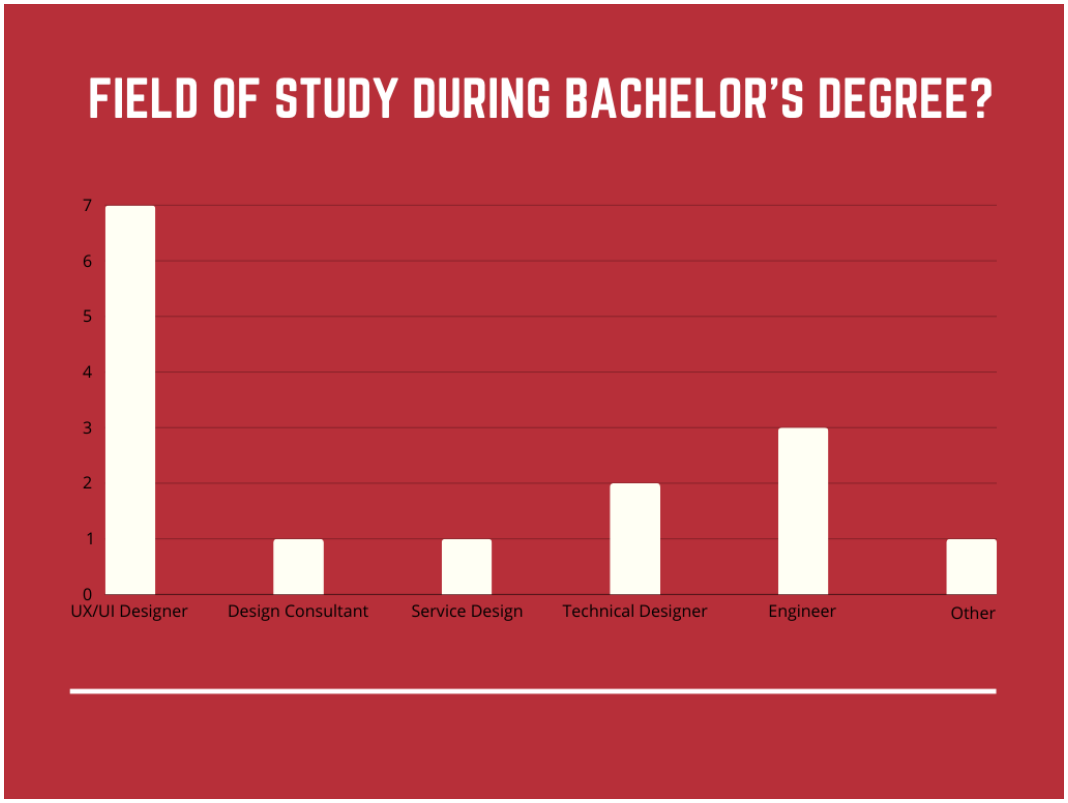
5. Select the hard skills that you feel you have developed the most during your formal studies?



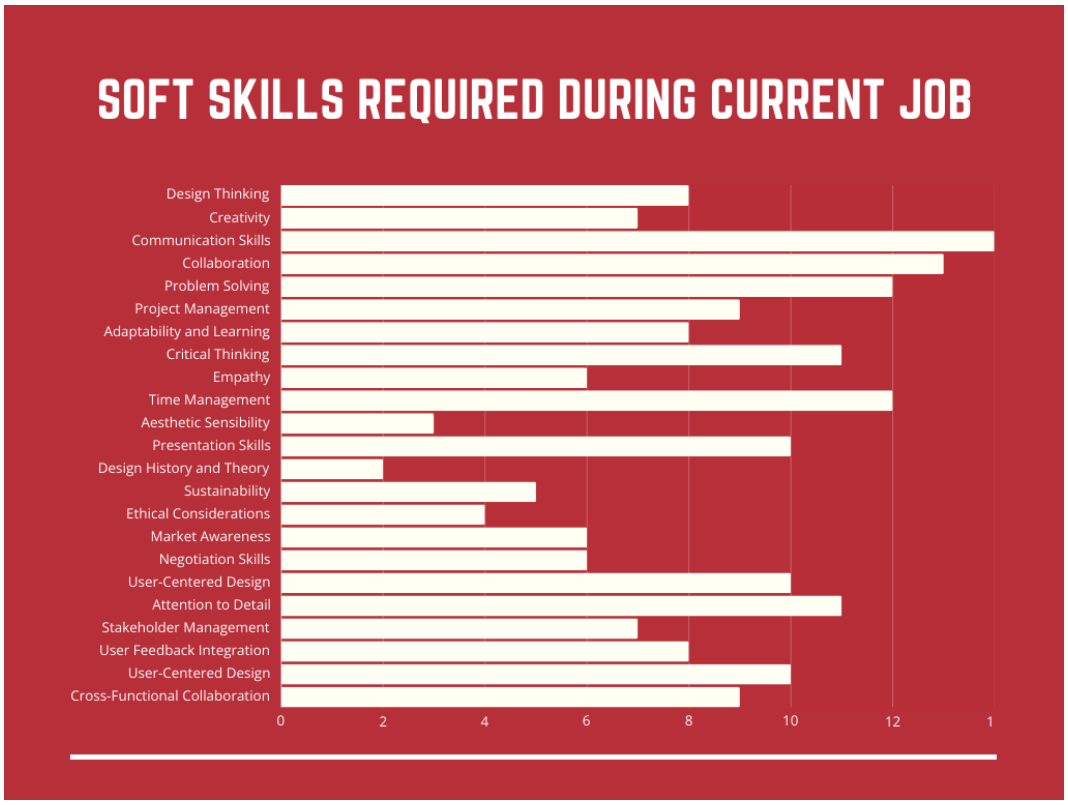
6. Have you transitioned towards a Digital Product Design or Design Consultant role?



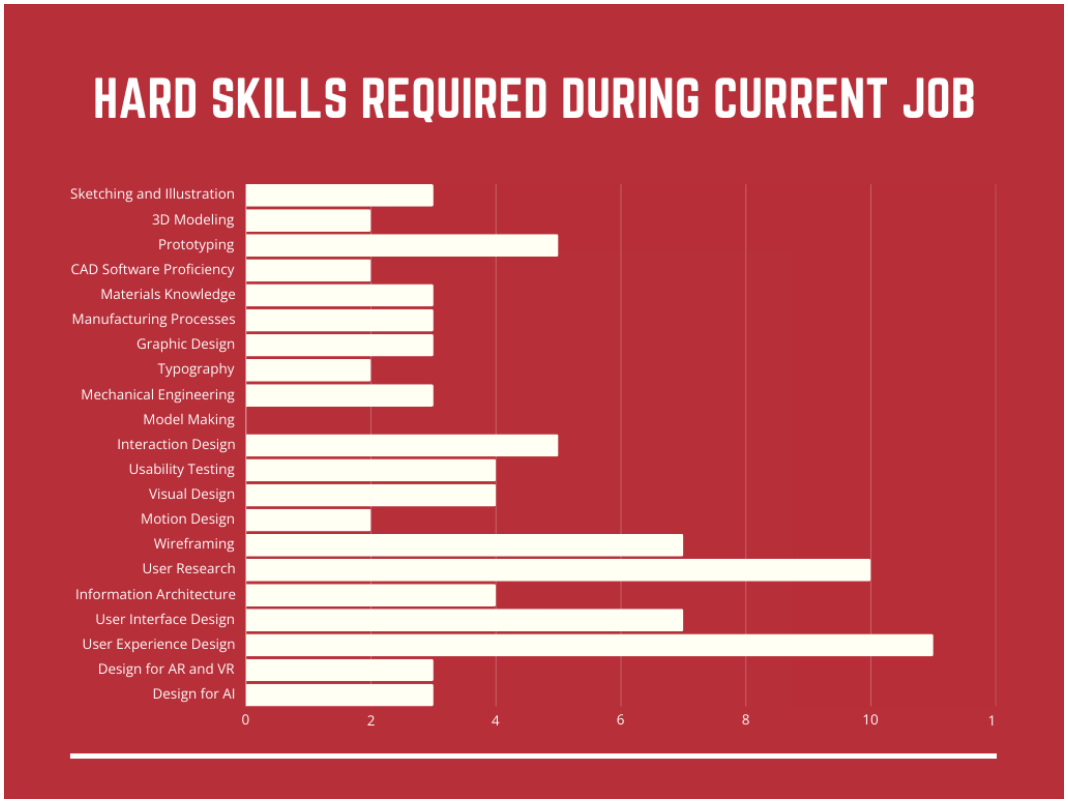
7. What is your current job title?



8. Select the soft skills that you feel are most required during your current job?



9. Select the hard skills that you feel are most required during you current job?



10. Why are the reasons why you have transitioned towards a Digital Product Design or a Design Consultant role?

“I wanted to find a job where all my skills were taken into consideration. Having had a lot of strategical education (market knowledge, economics, project management and value proposition for company creations) in my first master degree, it made sense to join a company where the goal was to help clients create new products and services from A to Z (though it is rare that we go to Z so my prototyping and detailed concepts skills are less used than I thought they would be) Also I wanted to work in France and there was not many company options that fit my requirement. Of course, the job I envisioned when applying was not the exact job I truly am doing today.”

“Limited job options at that time that interested me.
More UX/UI Design job opportunities that I could apply to with my current skillset”

“There is no reason as such. I started with the jobs that came my way. I made the informed choice of choosing UX over UI”.

“Digital design projects, those are the projects that are most commonly undertaken by lot of stakeholders”.

"I have always been in a design role. It gives us the ability to think from user centric and empathetic perspective which a lot of companies are lacking. They only look at numbers and not the people delivering the numbers."

"I was always passioned by games (UX & Game Design) and the Architecture job prospects are very limited and poorly paid".

"Because that's the future, digital"

4.1.3. Conclusion on Survey

The findings from this survey underscore a significant trend in the career trajectory of design professionals, particularly those transitioning from physical product design to the realm of digital product design. The survey illuminates a key distinction between the transferability of soft and hard skills acquired during university studies.

Respondents consistently highlighted the remarkable transferability of soft skills acquired during their university studies. Skills such as critical thinking, problem-solving, creativity, and empathy, ingrained in traditional design education, emerged as invaluable assets in the digital product design landscape. These soft skills provided a strong foundation for adapting to the dynamic and user-centric nature of digital design. The ability to think critically, understand user needs, and approach challenges with creativity proved to be essential elements in navigating the intricacies of digital product design.

Conversely, respondents expressed challenges in transferring hard skills associated with physical product design to the digital domain. While aspects such as attention to detail remained relevant, the tangible and manufacturing-focused nature of hard skills are not that transferable in the digital design world. There are cases where skills such as 3D modelling and Rendering are useful for example: Design for Virtual. Furthermore, we also see the apparition of virtual interfaces in all physical products, hence, even if the designer choses to follow a physical design career route, he will now need to acquire digital product design skills.

The survey outcomes suggest implications for design education, emphasizing the need for curricular adaptations that recognize the evolving demands of the design industry. There is a call for a balanced approach that not only imparts the foundational hard skills necessary for traditional design but also places a heightened emphasis on cultivating adaptable soft skills that form the backbone of success in the digital landscape.

For aspiring designers looking to make a transition from physical to digital design, the emphasis lies in recognizing the importance of continually developing and refining soft skills. The survey advocates for a proactive approach to learning, embracing the dynamic nature of the digital design field, and fostering a mindset that values adaptability, user-centric thinking, and creative problem-solving.

In conclusion, this survey sheds light on the transformative journey of design professionals and underscores the pivotal role soft skills play in navigating career transitions. The design industry's shift towards digital realms demands a holistic skill set, with soft skills emerging as the linchpin for success in the ever-evolving landscape of digital product design.

5. METHODOLOGY AND RESEARCH DEVELOPMENT - IN DEPTH INTERVIEW

I have chosen the In-depth interview as a research method because the goal I had was to gain a comprehensive and detailed understanding of a participant's experiences, perspectives, or emotions and to compare the results with the ones gathered from the survey. These interviews allowed to delve deeply into the subject matter and uncover nuanced insights that may not be easily captured through quantitative methods. For example. These interviews offer a rich and in-depth exploration of the complex and multifaceted experiences of the participants, contributing to a deeper understanding of the phenomenon under investigation. I wanted to delve deeper into the reasons why industrial designers decide to transition to roles of Digital Product Designers. (Trochim, 2007)

5.1.1. Methodology of the interview

Good practices for conducting interviews as a research method are essential for ensuring the quality and reliability of the data collected. Below are some key practices with references:

Preliminary Research: Before conducting interviews, immerse yourself in the existing literature and research related to your topic. This background knowledge helps you formulate informed questions and identify gaps in the current understanding of the subject.

Structured Interview Guide: Develop a well-structured interview guide with clear objectives. The guide should consist of open-ended questions that encourage participants to provide detailed responses. Structured guides maintain consistency across interviews while allowing for flexibility.

Building Rapport: Start the interview with an icebreaker or informal conversation to build rapport. Establishing trust and comfort with the participant can lead to more open and honest responses.

Active Listening: Practice active listening throughout the interview. This means giving the participant your full attention, maintaining eye contact, and showing empathy. Avoid interrupting and let participants express themselves fully.

Probing for Detail: Use probing questions to dig deeper into responses and explore specific aspects of the participant's experiences. These probes help uncover richer data and provide a more comprehensive understanding.

Recording and Transcribing: Always seek the participant's consent to record the interview, as this ensures accurate data capture. Afterward, transcribe interviews meticulously to preserve the integrity of the data.

Maintaining Confidentiality: Guarantee the confidentiality of participants' responses and data. Make it clear that their information will be anonymized and used solely for research purposes.

Self-Reflection: As the interviewer, reflect on your role and any potential biases that might influence the interview or data interpretation. Awareness of your position is critical for maintaining objectivity.

Transparency: Be transparent about the purpose and goals of the research and explain to participants how their input will be utilized. This openness helps build trust.

Member Checking: Consider offering participants the opportunity to review transcripts or summaries of their interviews to validate the accuracy of their responses. This member checking can enhance data reliability and credibility.

Triangulation: Enhance data validity by employing triangulation, which involves using multiple data sources and research methods. This approach helps corroborate findings and strengthen the overall validity of the research.

Data Analysis: After data collection, use systematic and rigorous analysis techniques. Common approaches include thematic analysis or content analysis, depending on the research objectives.

Ethical Considerations: Always adhere to ethical considerations, such as obtaining informed consent, addressing any potential harm or distress to participants, and conducting the research with integrity.

The interviews were performed using the Microsoft Forms following the good practices.

Motivations for Transition:

1. Can you share your background in industrial or product design, including your educational and professional experiences?

2. What motivated you to transition from industrial or product design to roles focused on digital design and user experience?

3. Were there specific events, experiences, or realizations that influenced your decision to make this transition?

4. How do you perceive the differences between traditional design disciplines (industrial/product) and digital design/UX in terms of their challenges and opportunities?

5. What personal or professional goals did you hope to achieve by transitioning into digital design and UX roles?

Challenges and Opportunities:

1. What challenges did you encounter during your transition into digital design and user experience roles?

2. Could you describe any notable opportunities that emerged because of this career shift?

3. Were there specific skills or knowledge areas that you had to develop or adapt to excel in your new roles and what are the most important skill that you already possessed from your formal studies that helped you transition?

4. How did your prior experience in industrial or product design contribute to your ability to address challenges or leverage opportunities in digital design and UX?

5. Can you share examples of projects or experiences that exemplify the challenges and opportunities you've encountered in your transition?

Influences on Career Shift:

1. How have academic institutions, such as universities or design schools, played a role in preparing individuals for careers in digital design and UX?

2. What specific courses, programs, or resources did you find valuable during your academic journey into digital design and user experience?

3. In what ways have industry demands and trends influenced your decision to shift from traditional design to digital design and UX?

4. Could you describe how evolving technologies, software tools, or design methodologies impacted your career transition?

5. What advice do you have for individuals who are considering a similar career shift from industrial or product design to digital design and user experience roles?

5.1.2. Interview 1

Motivations for Transition:

1. Can you share your background in industrial or product design, including your educational and professional experiences?

I completed my undergraduate studies in the Design and Engineering program at Politecnico di Milano, which provided me with a strong foundation in industrial and product design. During my academic journey, I had the opportunity to engage in a variety of design projects that ranged from designing physical products to considering the user's experience with those products. These experiences gave me valuable insights into the design process and the importance of user-centred design.

Upon completing my degree, I worked for a couple of years in traditional industrial design roles. These roles primarily involved designing tangible products, considering aspects such as aesthetics, functionality, and manufacturability. While I enjoyed this work, I started to recognize the increasing importance of digital interfaces and user experiences in the products I was designing. This realization marked the beginning of my transition into digital design and user experience roles.

2. What motivated you to transition from industrial or product design to roles focused on digital design and user experience?

One of the key motivations behind my transition was the rapid evolution of technology and its impact on how people interact with products. As I observed the growing integration of digital interfaces into various products and the increasing emphasis on user experience, I felt a strong curiosity and interest in this evolving field. I was motivated to explore the potential of digital design to create more meaningful and user-friendly experiences.

Additionally, I recognized the growing demand for professionals with expertise in digital design and user experience. Companies across industries were placing a high value on ensuring that their digital products were intuitive, efficient, and enjoyable for users. This demand for specialized skills in digital design and UX played a significant role in my decision to transition.

3. Were there specific events, experiences, or realizations that influenced your decision to make this transition?

There were a few specific events and realizations that influenced my decision to transition. One pivotal moment was when I worked on a product that involved both a physical device and a mobile app. I was responsible for the physical product's design, while a colleague focused on the app's user interface. During the project, I saw how the user experience of the app could significantly enhance or detract from the overall product's success. This experience made me appreciate the impact of digital design on the entire product.

I also attended industry conferences and seminars where experts discussed the future of design and the importance of human-computer interaction. These discussions emphasized the increasing role of digital design and user experience in shaping the products of tomorrow. It became evident that this transition was not just a personal interest but also a necessity to stay relevant in the design field.

4. How do you perceive the differences between traditional design disciplines (industrial/product) and digital design/UX in terms of their challenges and opportunities?

The differences between traditional design disciplines and digital design/UX are both intriguing and significant. In traditional design, the challenges often revolve around physical aspects such as materials, manufacturing processes, and aesthetics. Opportunities are tied to creating innovative, tangible products that meet user needs.

Conversely, in digital design and UX, the challenges are more centred on creating intuitive and efficient user interfaces. This includes considerations like information architecture, interaction design, and accessibility. The opportunities lie in crafting digital experiences that seamlessly blend functionality and aesthetics, ultimately enhancing user satisfaction and engagement.

The shift from traditional design to digital design and UX presents the opportunity to work on a broader range of projects, including mobile apps, websites, and software applications. The challenge is to adapt to the fast-paced nature of digital design, where technology is constantly evolving, and user expectations are continually changing.

5. What personal or professional goals did you hope to achieve by transitioning into digital design and UX roles?

By transitioning into digital design and UX roles, my primary professional goal was to broaden my skill set and adapt to the changing landscape of design. I aimed to become proficient in digital design tools, understand user behaviour and psychology, and apply user-centred design principles effectively. I also hoped to take on more diverse and intellectually stimulating projects that extended beyond the physical realm of products.

On a personal level, I wanted to challenge myself and explore new horizons within the design field. I aspired to create digital experiences that not only looked visually appealing but also offered users a sense of delight and efficiency. The ultimate goal was to contribute to the development of products and applications that positively impacted people's lives.

The transition into digital design and UX has indeed allowed me to work towards these goals, and I continue to find fulfilment in this dynamic field of design.

Challenges and Opportunities:

1. What challenges did you encounter during your transition into digital design and user experience roles?

Transitioning into digital design and user experience roles presented several challenges. One of the primary challenges was adapting to a significantly different design approach. In industrial and product design, my focus had been on the tangible aspects of design, such as form, materials, and manufacturability. Shifting to digital design and UX required a shift in mindset towards understanding user interactions and designing for screens. It was a significant learning curve.

Another challenge was the pace of change in digital design. With technology continually evolving, keeping up with the latest design tools and trends demanded ongoing self-education and adaptability. Staying current in an ever-changing field required continuous effort.

2. Could you describe any notable opportunities that emerged because of this career shift?

The transition into digital design and user experience opened up numerous exciting opportunities. Notably, I found myself working on projects across various industries, including

healthcare, e-commerce, and entertainment. The digital realm allowed for diverse projects that ranged from designing medical apps to creating interactive e-commerce platforms and enhancing user experiences for gaming applications.

One significant opportunity was the chance to work on projects with a global reach. Digital design and UX often involve products or platforms that are accessible internationally. This global perspective offered the chance to design for a wide and diverse user base.

3. Were there specific skills or knowledge areas that you had to develop or adapt to excel in your new roles and what are the most important skills that you already possessed from your formal studies that helped you transition?

To excel in digital design and UX, I had to develop several specific skills. These included proficiency in design software such as Adobe XD and Sketch, understanding of interaction design principles, and knowledge of user research and usability testing methodologies. Learning how to create wireframes, design user interfaces, and conduct user testing was essential.

However, my formal studies in industrial and product design provided a solid foundation for this transition. My background in design thinking, aesthetics, and the ability to empathize with users' needs remained valuable. Skills in sketching, understanding materials, and creating tangible prototypes were transferable in a broader sense. Design is a mindset, and the core principles of creating user-centric and functional solutions were constants in both traditional and digital design.

4. How did your prior experience in industrial or product design contribute to your ability to address challenges or leverage opportunities in digital design and UX?

My background in industrial and product design was advantageous in addressing challenges and leveraging opportunities in digital design and UX. It instilled in me a problem-solving mindset. Designing physical products often involves complex challenges like ergonomics, functionality, and materials, which require creative solutions. These problem-solving skills were readily applicable in digital design, particularly when tackling user interface challenges or optimizing user experiences.

Moreover, my prior experience emphasized the importance of design iteration and testing. In traditional design, creating prototypes and refining them based on user feedback is standard practice. This iterative approach translated effectively into digital design and UX, where continuous improvement and user testing are essential.

5. Can you share examples of projects or experiences that exemplify the challenges and opportunities you've encountered in your transition?

One project that exemplified the challenges and opportunities of my transition involved designing a mobile banking app. The challenge was in creating a user-friendly interface that allowed for complex financial transactions while ensuring security and ease of use. The opportunity lay in designing a product that had a direct and widespread impact on users' daily

lives. This project demanded not only a strong understanding of digital design principles but also empathy for users' financial needs and concerns.

Additionally, I worked on a healthcare app where the challenge was to make the application accessible and intuitive for a diverse user base, including older adults and individuals with various levels of tech-savviness. The opportunity was in contributing to a product that could genuinely improve healthcare access and information for users, particularly during a global health crisis.

These projects showcased the complex, multifaceted nature of digital design and UX, where challenges and opportunities often coexist, and the design process is a dynamic journey of continuous learning and improvement.

Influences on Career Shift:

1. How have academic institutions, such as universities or design schools, played a role in preparing individuals for careers in digital design and UX?

Academic institutions have a pivotal role in shaping individuals for careers in digital design and UX. They provide a structured and comprehensive foundation in design thinking, aesthetics, and problem-solving, which are crucial for these roles. Moreover, universities and design schools offer dedicated programs and courses that specifically focus on digital design, interaction design and UX.

These institutions create an environment where students can collaborate, learn from experienced faculty, and gain hands-on experience. For example, at Politecnico di Milano, where I studied, they offered specialized courses that introduced us to the principles of digital design and user experience. These courses covered topics such as interaction design, user research, and usability testing, which laid the groundwork for my transition.

2. What specific courses, programs, or resources did you find valuable during your academic journey into digital design and user experience?

During my academic journey, several courses and resources were particularly valuable. These included:

Interaction Design: Learning about interaction design was crucial, as it provided insights into designing interactive elements that are intuitive and engaging for users.

Digital Prototyping: Understanding how to conduct create prototypes that can be tested in early stages of design in order to validate the ideas.

Software Tools: Optional courses that introduced us to design software like Adobe XD, Figma and Unity, were essential. Proficiency in these tools is a prerequisite for digital design and UX roles.

Design Thinking: Participating in design thinking course encouraged me to a adopt a user-centric approach and a deeper understanding of problem-solving through empathy.

Career Services: University career services often offer resources, workshops, and connections to industry professionals. These were instrumental in building my network and gaining insights into career opportunities.

3. In what ways have industry demands and trends influenced your decision to shift from traditional design to digital design and UX?

The influence of industry demands and trends on my decision to transition into digital design and UX was substantial. It became apparent that the digital realm was rapidly expanding and that users' interactions with technology were evolving. The demand for skilled professionals who could create seamless, user-friendly experiences in the digital space was on the rise.

The emergence of mobile applications, responsive web design, and the increasing importance of user-centred design in software development indicated a shift in the design landscape. This shift aligned with the opportunity to be at the forefront of an industry with immense potential for growth.

Furthermore, the prevalence of tech companies and start-ups with a focus on digital products and services presented a wealth of career opportunities in digital design and UX. It was evident that this transition was not just a personal choice but a strategic response to the evolving demands of the design industry.

4. Could you describe how evolving technologies, software tools, or design methodologies impacted your career transition?

Evolving technologies and design methodologies played a significant role in my career transition. For instance, the rise of smartphones and the advent of touchscreens altered the way users interacted with digital interfaces. This required a fundamental shift in the design approach to create touch-friendly and responsive designs.

Software tools like Adobe XD and Figma revolutionized the digital design process by providing dedicated platforms for creating user interfaces and prototypes. These tools streamlined the design workflow and enabled rapid iterations and user testing.

The adoption of agile methodologies in software development, such as Scrum and Lean UX, influenced my approach to project collaboration. It emphasized the importance of cross-functional teams and close collaboration with developers and product managers to create user-centred products.

Additionally, the proliferation of online learning resources and communities, such as UX design courses on platforms like Coursera and interaction design forums, contributed to my continuous learning and adaptation.

5. What advice do you have for individuals who are considering a similar career shift from industrial or product design to digital design and user experience roles?

For individuals contemplating a shift from traditional design to digital design and UX, I would offer the following advice:

Build a Strong Foundation: Seek out courses or resources that provide a foundational understanding of digital design and UX principles. Understanding concepts like user research, information architecture, and interaction design is essential.

Hands-On Experience: Look for opportunities to gain practical experience through internships, freelance projects, or personal design challenges. The more hands-on experience you have, the more you'll learn and grow in this field.

Stay Current: Keep up with the latest trends, tools, and technologies in digital design. The field evolves rapidly, so staying current is crucial for success.

Networking: Connect with professionals in the digital design and UX community. Attend conferences, join design organizations, and engage in online forums to build a network that can offer guidance and opportunities.
Embrace Feedback: Be open to feedback and critique. It's a fundamental aspect of design, and it's how you'll improve your work.

User-centred Approach: Always prioritize the needs of the end-users. Developing empathy for users and understanding their goals is at the heart of digital design and UX.

Continuous Learning: Be prepared for a continuous learning journey. The digital design and UX field are ever evolving, so adaptability and a growth mindset are key to success.

Passion: Finally, be passionate about what you do. A genuine interest in user experiences and a dedication to creating user-centric designs will be your driving force in this field.

5.1.3. Interview 2

Motivations for Transition:

1. Can you share your background in industrial or product design, including your educational and professional experiences?

I have a background in industrial and product design, having pursued my education in the Design and Engineering program at Politecnico di Milano. This program provided me with a strong foundation in traditional design disciplines, including industrial and product design. Following my education, I worked in the field of industrial design for less than a year for an internship. I was involved in designing physical products, such as consumer goods and furniture, during this period. However, I encountered challenges related to the limited job opportunities in industrial

design and the competitive nature of the field. These challenges led me to consider alternative career paths where my design skills could be applied effectively.

2. What motivated you to transition from industrial or product design to roles focused on digital design and user experience?

The transition from industrial or product design to digital design and user experience was primarily motivated by the scarcity of job opportunities in traditional design fields. The industrial design job market was highly competitive, making it challenging to secure stable and fulfilling employment. This reality encouraged me to explore adjacent fields where the demand for design professionals was growing.

Additionally, I recognized that my skill set as a designer extended beyond physical products. I had developed strong soft skills related to design thinking, problem-solving, and creativity during my education and early career. These skills were transferrable to digital design and user experience roles, and I saw an opportunity to apply them effectively in a different context.

3. Were there specific events, experiences, or realizations that influenced your decision to make this transition?

Several factors influenced my decision to transition. First, I noticed that the design industry was evolving rapidly, with a significant emphasis on digital interfaces and user-centred experiences. This shift became evident as more companies were investing in digital products and online platforms to meet changing consumer demands. This shift sparked my interest in exploring the digital design landscape.

Moreover, I participated in interdisciplinary projects during my time at Politecnico di Milano, collaborating with students from various backgrounds. These experiences taught me the value of cross-disciplinary skills, which were essential in digital design. I realized that my capacity to think critically, solve problems, and communicate effectively could be assets in the digital design and UX field.

Additionally, I attended design conferences and workshops that emphasized the growth potential in digital design and user experience. These experiences served as an eye-opener and encouraged me to consider this transition as a promising career move.

4. How do you perceive the differences between traditional design disciplines (industrial/product) and digital design/UX in terms of their challenges and opportunities?

The transition from traditional design disciplines like industrial or product design to digital design and UX is marked by notable differences in challenges and opportunities. In traditional design, challenges often relate to the physical aspects of a product, such as materials, manufacturing, and ergonomics. Opportunities are focused on creating tangible and visually appealing products.

Conversely, digital design and UX revolve around intangible experiences and interactions. Challenges in this realm are centred on user engagement, accessibility, and usability. Opportunities include designing innovative digital interfaces, enhancing user experiences, and leveraging data-driven insights to optimize designs continually.

The primary difference is the shift from physical to digital and from aesthetics to user-centred functionality. Digital design and UX require a deep understanding of user behaviour, information architecture, and interaction patterns, whereas traditional design focuses on form and materiality. The challenge in transitioning is adapting to these new considerations.

5. What personal or professional goals did you hope to achieve by transitioning into digital design and UX roles?

By transitioning into digital design and UX roles, my personal and professional goals were multi-faceted. Firstly, I aimed to secure stable employment in a field with growing opportunities. The lack of job prospects in industrial design motivated me to find a more promising career path.

Professionally, I sought to leverage my design skills and creativity in a way that could make a meaningful impact on the digital experiences of users. I aspired to work on projects that aligned with my passion for problem-solving and human-centred design.

Moreover, I hoped to further develop my digital design capabilities, including proficiency in design software, user research, and interaction design. I aimed to create intuitive and aesthetically pleasing digital interfaces that catered to user needs and preferences.

Ultimately, my transition into digital design and UX roles was driven by a desire for professional growth, job security, and the opportunity to apply my design skills in a dynamic and evolving industry.

Challenges and Opportunities:

1. What challenges did you encounter during your transition into digital design and user experience roles?

The transition into digital design and user experience came with its set of challenges. One significant challenge was adapting to the intangible nature of digital products and user experiences. In traditional design, the focus was on tangible products, and I had to shift my mindset to consider digital interfaces and user interactions. Understanding how to create seamless user experiences was a steep learning curve.

Another challenge was mastering the rapidly evolving digital design tools and technologies. Keeping up with the latest software and industry trends required continuous learning and adaptation. I had to invest time in acquiring skills related to user interface (UI) design, interaction design, and usability principles.

Furthermore, adjusting to a different pace of work in digital design was challenging. Industrial design projects often have longer timelines, while digital projects can be more iterative and agile. This shift in project management and collaboration methods took some getting used to.

2. Could you describe any notable opportunities that emerged because of this career shift?

The transition into digital design and user experience opened up several exciting opportunities. I found that digital design roles often involve more dynamic and interdisciplinary work environments. Collaborating with professionals from various backgrounds, such as developers, content strategists, and marketers, provided me with a broader perspective on product development. This diversity of skills and backgrounds enhanced my creativity and problem-solving abilities.

One notable opportunity was the chance to work on projects with global reach. Digital products, whether websites or mobile apps, have the potential to impact a vast and diverse audience. I had the privilege of working on projects that reached users from different corners of the world, which was immensely rewarding.

Additionally, digital design roles offer the advantage of more immediate feedback and user testing. This allowed me to fine-tune designs in real-time, resulting in more user-friendly and effective products.

3. Were there specific skills or knowledge areas that you had to develop or adapt to excel in your new roles, and what are the most important skills that you already possessed from your formal studies that helped you transition?

To excel in digital design and user experience roles, I had to develop and adapt various skills and knowledge areas. I honed my skills in user research, which was critical for understanding user behaviours and preferences. Learning to create wireframes, prototypes, and conducting usability testing were crucial aspects of my adaptation.

One of the most valuable skills I possessed from my formal studies in industrial design was the ability to think critically and problem-solve. Design thinking, which I had cultivated during my education, was highly applicable in digital design. It helped me approach challenges with a user-centred perspective, emphasizing empathy and creativity.

Moreover, my background in industrial design instilled a strong foundation in visual aesthetics, which was beneficial in digital design. My understanding of form, proportion, and aesthetics seamlessly translated to designing visually pleasing digital interfaces.

4. How did your prior experience in industrial or product design contribute to your ability to address challenges or leverage opportunities in digital design and UX?

My prior experience in industrial and product design significantly contributed to my ability to address challenges and leverage opportunities in digital design and UX. First and foremost, the

problem-solving skills homed in industrial design were invaluable. Identifying design problems and generating creative solutions were skills that seamlessly transferred to digital design.

Additionally, the attention to detail instilled during my industrial design education was beneficial. Creating pixel-perfect designs, considering every aspect of a user interface, and ensuring consistency across digital platforms required meticulous attention to detail.

Understanding materials and manufacturing processes from my industrial design background was also advantageous. While digital products don't have physical materials, the knowledge of how things are made allowed me to design interfaces that considered real-world constraints and feasibility.

5. Can you share examples of projects or experiences that exemplify the challenges and opportunities you've encountered in your transition?

Certainly, an example was working on an e-commerce website. The challenge was to create a user-friendly platform that encouraged conversions and provided a satisfying shopping experience. This involved understanding user behaviours, optimizing the checkout process, and ensuring smooth navigation.

The opportunity here was the ability to apply user research findings to design improvements continually. Real-time analytics and user feedback allowed us to make data-driven decisions to enhance the user experience. These projects underscore the challenges and opportunities inherent in digital design and user experience roles, where adaptability, creativity, and problem-solving are key to success.

Influences on Career Shift:

1.How have academic institutions, such as universities or design schools, played a role in preparing individuals for careers in digital design and UX?

Academic institutions, including universities and design schools, play a pivotal role in preparing individuals for careers in digital design and UX. They provide a structured learning environment where students can acquire the fundamental skills and knowledge required for these roles.

In my case, my education in industrial design at Politecnico di Milano was a solid foundation that equipped me with critical thinking, problem-solving, and design aesthetics. While my formal education was rooted in traditional design disciplines, the soft skills I developed, such as creativity, adaptability, and empathy, were transferable and highly valuable in digital design and UX.

2. What specific courses, programs, or resources did you find valuable during your academic journey into digital design and user experience?

During my transition, I found certain courses and resources to be particularly valuable. Many academic institutions now offer courses related to digital design, UI/UX, and human-computer

interaction (HCI). These courses covered essential topics like user research, interaction design, and usability principles.

Additionally, resources such as online tutorials, design blogs, and webinars were instrumental in keeping up with the latest industry trends and technological advancements. They complemented my academic learning and allowed me to stay informed about the fast-paced digital design landscape.

3. In what ways have industry demands and trends influenced your decision to shift from traditional design to digital design and UX?

The decision to shift from traditional design to digital design and UX was significantly influenced by industry demands and trends. One noticeable trend was the increasing demand for digital products and experiences. With the growth of e-commerce, mobile apps, and web services, the job market for digital designers and UX professionals expanded considerably.

Moreover, the importance of user-centric design became a dominant trend. Businesses recognized the need to prioritize user experience to remain competitive. This shift in the industry emphasized the value of soft skills like empathy, creativity, and problem-solving, which designers inherently possess.

The dynamic nature of the digital design field and the constant emergence of new technologies and design methodologies also motivated the transition. The opportunity to work on cutting-edge projects and innovative solutions was highly appealing.

4. Could you describe how evolving technologies, software tools, or design methodologies impacted your career transition?

Evolving technologies and software tools had a profound impact on my career transition. The design industry continuously introduces new tools and methodologies, making it necessary to stay updated.

For instance, the advent of prototyping tools like Figma and Sketch transformed the design process. These tools allowed for rapid prototyping and iterative design, aligning with the agile methodologies often used in digital projects.

Additionally, design thinking gained prominence as a problem-solving approach. It emphasized understanding user needs, rapid ideation, and iterative development. This methodology was highly compatible with the soft skills acquired during my industrial design education, making the transition smoother.

5. What advice do you have for individuals who are considering a similar career shift from industrial or product design to digital design and user experience roles?

My advice to individuals considering a similar career shift would be as follows:

Leverage Your Soft Skills: Design is not just about technical skills; soft skills like creativity, empathy, and critical thinking are invaluable in digital design and UX. Highlight and leverage these skills during your transition.

Continuous Learning: Stay updated with the latest industry trends, tools, and methodologies. Digital design is dynamic, and continuous learning is essential for success.

Networking: Connect with professionals in the digital design and UX fields. Attend industry events, join online communities, and seek mentorship to gain insights and guidance.

Build a Portfolio: Create a portfolio showcasing your digital design and UX projects. Highlight your adaptability and the value you bring from your previous design background.

User-centred Focus: Embrace a user-centred perspective. Prioritize understanding user needs and the impact of your design decisions on the end user.

Embrace Change: Be open to change and adaptability. The transition may come with challenges, but a flexible mindset is key to a successful shift.

Passion for Learning: Cultivate a passion for learning and innovation. Embrace challenges as opportunities to grow and improve your skills.

The transition from industrial or product design to digital design and user experience roles is not only possible but can be highly rewarding. By focusing on your existing skills, adapting to evolving trends, and embracing the opportunities of the digital landscape, you can navigate this shift successfully.

5.1.4. Interview Conclusion

The insights gathered from the responses of two individuals who transitioned from industrial or product design to digital design and user experience roles provide a nuanced understanding of the evolution of design professionals in the digital age. Drawing conclusions from their experiences, several key points emerge:

1. **Role of Academic Institutions:**
    - Academic institutions play a crucial role in preparing individuals for digital design and UX careers.
    - Traditional design education serves as a solid foundation, imparting critical thinking, problem-solving, and design aesthetics.
    - Soft skills developed during formal education, such as creativity and empathy, are transferable and highly valuable in digital design and UX.
2. **Valuable Courses and Resources:**
    - Courses related to digital design, UI/UX, and human-computer interaction (HCI) are instrumental during academic journeys.

- Online tutorials, design blogs, and webinars supplement formal education, keeping individuals informed about industry trends and technological advancements.

3. **Influence of Industry Demands and Trends:**
    - Shifting industry demands towards digital products and user-centric design principles drive the transition from traditional to digital design.
    - The recognition of the importance of soft skills aligns with the inherent skills possessed by designers, making them valuable in the digital landscape.
4. **Impact of Evolving Technologies:**
    - Evolving technologies and software tools significantly impact career transitions.
    - New design tools, prototyping methodologies, and design thinking approaches reshape the design process, emphasizing adaptability and iterative development.
5. **Challenges and Opportunities in Transition:**
    - Challenges in transitioning include adapting to the intangible nature of digital products, mastering evolving tools, and adjusting to a faster-paced work environment.
    - Opportunities arise from dynamic interdisciplinary work environments, global project reach, and immediate user feedback.
6. **Skills and Knowledge Adaptation:**
    - Skills developed during the transition include user research, wireframing, prototyping, and usability testing.
    - Critical thinking, problem-solving, and attention to detail, cultivated during formal studies, are pivotal skills in digital design.
7. **Leveraging Prior Experience:**
    - Prior experience in industrial design contributes to problem-solving, attention to detail, and understanding of real-world constraints in digital design.
    - The ability to think critically and creatively, instilled during industrial design education, seamlessly translates into digital design.
8. **Project Examples:**
    - Notable projects, such as designing a mobile banking app and an e-commerce website, highlight the challenges of ensuring a seamless user experience while presenting opportunities for impactful and measurable results.
9. **Advice for Career Shifters:**
    - Leveraging soft skills, continuous learning, networking, building a portfolio, adopting a user-centred focus, embracing change, and maintaining a passion for learning are essential pieces of advice for those considering a career shift.

In conclusion, the evolution of design professionals into universal designers is characterized by a holistic skill set, adaptability, and a user-centred focus. The transition from traditional to digital design is not only feasible but also rewarding, with the intersection of diverse skills contributing to the success of design professionals in the dynamic digital age.

6. LITERATURE REVIEW

6.1.1. An Industrial Designer who moved to UX

Whether you're a graduating student who has earned a degree in Industrial Design looking to step into the workforce or a practicing Industrial Designer thinking of a career change, chances are one of your classmates or co-workers has moved into UX Design over the last few years. You hear they're getting paid well and loving their jobs, and you begin to wonder—should I become a UX Designer?

> *"I was introduced to UX Design, where I learned it was a discipline that would allow me to make changes to my design to continuously improve the product even after the product is launched. The flexibility of implementing design iterations as well as the accountability of making the products better for the users ultimately became the reasons that incentivized me to become a UX Designer."*

There are considerable intersections in the roles and responsibilities of Industrial Designers and UX Designers, and Industrial Designers bring a distinctive skill set to UX design that holds substantial value. Some of these valuable skills include:

1. **Designing through scalability:** Industrial Designers, due to considerations like material costs and the expense of tooling in product development, adopt a perspective of scalability and reusability in their designs. This approach, rooted in system design thinking, is highly prized in UX Design. Employing a scalable design framework enhances product development efficiency and ensures a cohesive user experience.

2. **Cross-functional collaboration:** The process of bringing a physical product to market requires close collaboration with cross-functional teams to ensure the feasibility, desirability, and viability of the product. Similarly, in UX Design, particularly in-house settings or agencies, successful outcomes depend on cross-functional collaboration. Syncing up with partners from diverse backgrounds is crucial to align user needs, tech feasibility, and business values.

3. **Designing for affordance:** Sensitivity to affordance is critical in designing physical products or those involving tangible components. For instance, a poorly navigable app on a device may stem from overlooking how users interact with digital components through the physical housing. Industrial Designers excel in bringing human factors into interaction design, creating intuitive and usable designs across devices and user types.

The evolving landscape suggests an interdisciplinary future in design, especially at the nexus of physical and digital product design. Trends like the increasing use of AR/VR in various fields and the demand for seamless experiences between physical and digital touchpoints highlight the need for close communication between hardware and software design. While certain sectors, like wearable technology and gaming products, have made strides in physical-digital experiences, opportunities still abound for Industrial Designers to bridge these disciplines, whether they remain in ID or transition into UX. (Chen, 2023)

6.1.2. Moving from Product to UX

> *"As designers, we work in a trade that never seems to stay still for long. The trends and demands we cater for in our work are always evolving, and for many it's important to keep updating our skills, even changing our job titles and working practices as the industry adopts new techniques, new language and new ideas."*

In an era where digital interactions dominate, there is a surging demand across diverse industries for designers proficient in translating ideas into effective digital products. Whether in health, science, or banking, the reliance on websites, apps, and back-office software is growing, making designers indispensable for realizing the full potential of these digital components.

The allure of venturing into digital design is heightened by the multitude of opportunities available, particularly because of the shared core skill set and analogous working processes between product and UX design. The transition is feasible and promising, with much of the knowledge acquired in product design still applicable. However, there are notable divergences that warrant upfront awareness.

The foundational design process remains largely consistent, offering a familiar starting point with user research, concept sketching, prototyping, user testing, iteration, and eventual refinement. The ability to empathize with customers and craft designs that address their needs continues to be a valuable asset.

A key distinction arises in the perpetual evolution of software compared to the recognized 'design freeze' in physical products. Software allows for continuous changes and updates, a practice uncommon in the realm of physical product design. This dynamic nature demands a mindset shift toward ongoing improvements and updates throughout the software's lifetime.

Digital products necessitate a more intricate mapping of user tasks and journeys. User stories and maps take precedence in defining the product's functionality, requiring designers to align efforts with customer needs effectively. The emphasis on user-centric design becomes even more pronounced in this context.

The scope of digital products tends to be more extensive, necessitating decisions on what is in and out of scope. The concept of the Minimum Viable Product (MVP) gains significance, representing the minimal scope and quality that can be launched to provide value.

Interactive prototyping introduces a noticeable shift for product designers, emphasizing the detailing of designs through a series of interactive screens. The design process also accommodates the fluidity of screen sizes, considering variations in device usage.

Testing and iterating become more frequent practices in software design, involving multiple rounds of user testing throughout a project. This iterative approach ensures that designs align with real customer expectations and contributes to successful launches.

Working practices like Agile, Scrum, and Kanban become integral in the collaboration between designers and software developers, with an emphasis on efficiency, collaboration, and continuous measurement of productivity.

The rapid transition from prototype to real, working code distinguishes software design, offering quicker and more frequent rewards compared to the traditionally extended timelines in product design.

Lastly, the emphasis on sketching skills, often prevalent in product design education, remains advantageous in UX design, especially during the conceptual stage, where sketches continue to serve as a rapid visualization tool for feedback and prototype progression. (Pancentric Digital, 2018)

7. CONCLUSION

Reasons why Physical Product Designers are moving towards Digital Product Design:

Growing Demand for Digital Products: The increasing reliance on digital technology and the growth of the tech industry have led to a high demand for digital products. This demand creates job opportunities for designers with skills in digital product design.

Expanding Skill Set: Many physical product designers already possess foundational design skills, such as understanding user needs, creating aesthetically pleasing designs, and solving complex problems. Transitioning to digital design allows them to build on these skills and apply them to a different medium.

Adapting to Industry Trends: As consumer preferences and market trends change, designers often need to adapt. The shift toward digital products and services reflects evolving consumer behaviour, making digital design skills increasingly relevant.

Career Advancement: Some designers see a transition to digital product design as a path to career advancement and higher-paying roles, particularly in tech companies that develop digital products.

Cross-Disciplinary Collaboration: Digital product design often involves collaboration with multidisciplinary teams, including developers, product managers, and user researchers. Physical product designers may be drawn to the opportunity to work closely with these professionals and gain exposure to diverse perspectives.

Creative Freedom: Digital product design offers designers a platform to experiment with interactive elements, animations, and dynamic user experiences that may not be possible in physical product design. This creative freedom can be enticing.

Remote Work Opportunities: Digital product design often allows for remote work, providing greater flexibility and work-life balance, which can be appealing to some designers.

Innovation and Problem Solving: Transitioning to digital product design can be seen to address new challenges and solve unique problems related to user interface (UI) and user experience (UX) design.

Global Reach: Digital products have a global reach, potentially reaching millions of users worldwide. Designers may be attracted to the idea of impacting a broader audience.

Personal Interest: Some designers simply have a personal interest in digital technology, apps, websites, and digital experiences, which motivates them to explore this field.

In the landscape of design professions, our study illuminates a dynamic shift as physical product designers increasingly make the leap into the realm of digital product design. This transition is

not merely a response to industry shifts or financial incentives but represents a profound evolution in design itself.

The motivations behind this shift are multifaceted, ranging from industry demands and personal interests to the myriad opportunities presented by a digital-driven future. It is evident that design is no longer confined to tangible products; rather, it has expanded to incorporate a digital dimension. This expansion is not just a quantitative change but a qualitative one, demanding a more profound skill set and a rapid assimilation of new trends.

The emergence of the "universal designer" is becoming a reality – a designer equipped with interdisciplinary skills, seamlessly navigating the complexities of 3D modelling and interaction design.

The trend towards AR/VR further accentuates the need for this universal designer. The fusion of physical and digital realities requires a designer capable of straddling both worlds, creating a symbiotic relationship between tangible products and their digital interfaces. As the industry becomes more cross-functional, designers must adapt to this new paradigm, becoming even more versatile and adaptive in their skill sets.

This study indicates that the allure of digital product design extends beyond the practicalities; it is an arena that offers a vast space for creativity and innovation. The complexity introduced by the amalgamation of physical and digital aspects provides designers with a canvas for exploration, pushing the boundaries of what design can achieve.
In conclusion, our findings suggest that the trajectory from physical to digital product design is not just a career transition; it represents a paradigm shift in the very essence of design.

The future of design seems to be intricately tied to the digital realm, and designers, in response, are evolving into universal creators, seamlessly blending the tangible and intangible to shape the innovative landscapes of tomorrow. This consensus across various studies strengthens the robustness of our findings, reflecting a broader industry acknowledgment of this transformative trend.

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