

**EXPLORING THE RELEVANCE OF GARRETT'S ELEMENTS OF
UX DESIGN IN CONTEMPORARY DESIGN PRACTICES
THROUGH A LOCAL FIFA (EA) ESPORTS MOBILE APP
PROTOTYPE**

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Declaration

I Uzubenathi Mathew Mjindi, hereby declare that this research dissertation is my work, except where cited and indicated. Quotation marks have been used to reference to other researchers' direct words. This submission has been submitted to the Faculty of Humanities, School of Arts, University of the Witwatersrand, Johannesburg, as per the requirements of a Master's degree in Digital Arts. I further declare that this research dissertation has not been previously submitted for any other degree or examination to another University.

A handwritten signature in black ink, appearing to read 'Uzubenathi Mathew Mjindi', with a large, stylized initial 'U'.

Uzubenathi Mathew Mjindi

Day of 28 June 2024

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Abstract

User Experience (UX) design is a constantly evolving field. This factor requires designers to continually review UX frameworks and assess whether they still meet the demands of advances in technology and user needs. The study focuses on one of the prominent foundational UX frameworks (Garrett's framework) for its user-centred approach and comprehensive structure of the UX design process. It aims to investigate the relevance of Garrett's framework, which is described in his 2011 book 'The Elements of UX: User Centered Design, for the Web and Beyond'. The study also applies Garrett's framework in the development of a local *FIFA* (EA) eSports mobile app prototype. The research problem focuses on meeting contemporary user needs while addressing the challenge of integrating UX theory with practical design implementation. The objective of the research is to examine areas where Garrett's framework is still effective or may be limited, including identifying potential improvements. This is carried out in the context of contemporary design practices to address the needs and expectations of today's users. The study applies a mixed method approach to establish a comprehensive investigation of Garrett's framework, with both quantitative and qualitative research. The sampling techniques applied were purposive and convenience sampling, within the premises of a private college in Johannesburg. Data were collected through interviews with academic practitioners and an online survey completed by a sample group of 'Gen Z' eSports enthusiasts. The online survey prompted participants to evaluate the *FIFA* (EA) eSports mobile app before responding to the survey questions rating their experience with the prototype. The study concludes that Garrett's framework is still a relevant and effective tool for a structured foundation for UX design. It does, however, need enhancements to meet contemporary UX practices and user needs. The study recommends integrating methodologies and approaches such as Lean UX, Agile UX, data analytics, responsive design, and emotional design to offer more comprehensive strategies.

Keywords: *Garrett's elements of user experience, User Experience (UX), Contemporary design practices, Mobile app prototypes, FIFA (EA) eSports, eSports.*

CHAPTER 1: INTRODUCTION

This chapter contextualises the selected topic. It also explains the research problem and the importance of the study, research aim, objectives, and questions.

1.1 Introduction

UX design, short for UX, is a continually evolving field and it is thus important to continuously examine frameworks that guide our knowledge and understanding. This is especially true because of advancements in technology and shifts in user behaviour. Influential figures such as Donald Norman and Jakob Nielsen have paved the way for a user-centred design approach that focuses on usability and interaction (Norman, 1988; Nielsen, 1994). The landscape has now evolved to include engaging design experiences, as highlighted by Hassenzahl and Tractinsky (2006), in which aesthetics and functionality play a crucial role in modern UX design. As a result of these changes, it is necessary to reassess established UX frameworks, such as Garrett's framework, to ensure their relevance to today's design practices. In today's changing technological landscape, however, incorporating theory into practical scenarios can be quite a challenging task. It is essential that UX education aligns with user requirements and industry standards. This study explored and engaged in the challenge between theory and practice implementation. To begin, I provide a summary and background of Garrett's framework model, which will be key to the study.

1.1.1 Garrett's Framework

Jesse James Garrett's ¹framework, as discussed in his book '*The Elements of UX; User Centered Design, for the Web and Beyond*' (Garrett, 2011), is a model that helps

¹ Jesse James Garrett is one of the founders of *Adaptive Path*, a UX consultancy based in San Francisco. Since 1995 (Garrett, 2011).

us understand and implement UX design. It consists of five planes or stages: strategy, scope, structure, skeleton, and surface, which are discussed in more detail in Chapter 2. Each of the five planes is directly dependent on the other planes below it, implying that the process conducted in the bottom plane informs the process of the planes above it. Garrett (2011: 22) outlines these five planes as demonstrated in his framework model (see Figure 1), as briefly discussed below:

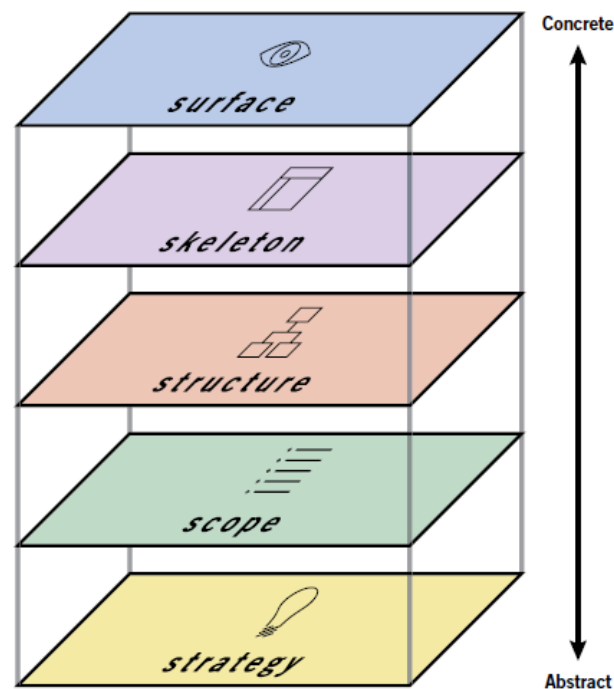


Figure 1: Garret's five elements of UX (Garrett, 2011: 22)

The Strategy: This forms the foundation of the process, focusing on two main aspects: user needs² and defining product objectives.

The Scope: The second plane of Garrett's model is the scope plane, which is determined directly by the strategy. It outlines the features and content that will be included in the product.

² These are the needs of the individuals (users) who will use the product (Garrett, 2011).

The Structure: The planning of the interaction design and information architecture is carried out to define the system behaviour, and the arrangement and display of information.

The Skeleton: As the term 'skeleton' suggests, this plane underlies the design surface and encompasses the layout planning of interfaces, navigation systems, and information.

The Surface: Like the term 'surface' suggests, this plane refers to what is presented to the user on the surface or design of the product or prototype³.

Garrett's framework emphasises the importance of taking a user-centred approach in design, focusing on both the aspects of a product and the emotions, thoughts, sensations and behaviours of users. This holistic perspective is crucial for developing products that deliver positive UX, ultimately increasing satisfaction and engagement (Getto & Beecher, 2016). Perea and Giner (2017: 36-37) state that 'A positive UX is the result of a careful design that is centered on the user needs. This statement further emphasises the user-centred perspective of UX.

1.2 Research Problem and Significance of the Study

1.2.1 Problem Statement

In the evolving field of UX design, it is crucial to update and reassess educational and practical frameworks to align with current industry standards and meet user expectations. Garrett's Elements of UX Design, a framework for both UX education and practice, faces a challenge in terms of its applicability due to rapid technological advances, evolving methodologies, and changing user behaviours. Although the practical importance of Garrett's model in UX/UI design has been acknowledged (Kompaniets *et al.*, 2020), the complexities observed in team environments suggest

³ According to Kunicina, Zabasta, Patlins, Bilic, and Peksa (2020) 'A prototype is an initial attempt to make a working model usable in the real world.'

that adaptations may be necessary to keep it relevant (Zaina, Sharp & Barroca, 2021). Furthermore, evolving methodologies for extracting and analysing UX data as discussed by Yang *et al.* (2019), indicate opportunities to integrate approaches within Garrett's framework. The increasing need for teaching efforts in UX, which includes revisiting frameworks such as Garrett's elements to respond to the dynamic digital landscape, has been highlighted by Yargin, Günay and Süner (2019). This perspective explains the beginning of this study. Furthermore, the extension of UX design to areas such as the metaverse, as explored by Delgado (2022), highlights the importance of evaluating and potentially adapting models such as Garrett's, for these emerging contexts.

1.2.2 Significance of the study

The motivation behind this study is guided by the need to revisit frameworks such as Garrett's elements of UX in current teaching efforts, as emphasised by Yargin, Günay and Süner (2019). Furthermore, it is necessary to combine frameworks with implementations in UX design. By focusing on the development and testing of the *FIFA* (EA) eSports app, this study sought to gather data on UX and engagement. This empirical approach allowed an evaluation of how Garrett's model guides the design process in meeting user expectations by addressing concerns that are increasingly relevant in the field of UX, as discussed by Nielsen and Norman (2016). This practical application, supported by direct user feedback and usability testing, responds to the need for research on UX design methodologies, as argued by Benyon, Turner and Turner's (2005) advocacy for integrating theory and practice in UX research.

1.2.3 Aim of the study

This research aimed to assess the relevance of Garrett's framework model in contemporary design practices and identify areas where it remains effective or may fail. The purpose is to assess whether any modifications or additional components are needed in this model to adequately equip UX designers for the evolving demands of the field. Moreover, this study assessed Garrett's components in a real-world setting by experimenting with a *FIFA* (EA) eSports mobile application prototype. The main goal of the prototypes is to provide a central information source for users seeking a

foundational understanding of local *FIFA* eSports, and eSports in general. The relevance of the app prototype is further supported by the need for communication channels that are easily accessible to the public, to learn about eSports (Womack, 2020: 90).

The approach adopted to develop the prototype follows Garrett's five-plane model to consider all aspects of the UX of the app. A deliberate attempt to stay within Garrett's framework with minimal support from external frameworks is emphasised. This is applied as an experiment to the app prototype as a case study to practically appreciate the effectiveness or limitations of Garrett's framework model.

1.3 Research Objectives

To address the above research aim, the study was guided by the following research objectives:

- a) To explore the relevance of Garrett's framework of the elements of UX in contemporary design practices.
- b) To evaluate the effectiveness of Garrett's framework in addressing user needs and expectations of the *FIFA* (EA) eSports mobile app prototype.
- c) To explore potential enhancements to Garrett's framework to better align with contemporary UX design practices.

1.4 App Objectives

To address the research aims, the study was guided by the following app objective:

- a) Demonstrate local *FIFA* eSports content guided by Garrett's elements of UX design.

1.5 Dissertation Outline

The paper consists of six chapters. Chapter 1 establishes the study's goals and objectives, laying a foundation for exploration. Chapter 2 reports on an examination of existing literature that provides background information and relevant theories for the study. Chapter 3 gives an overview of the research methodology exploring the procedures and techniques used throughout the research process. Chapter 4 examines the FIFA (EA) eSports app prototype in a case study⁴ format, applying Garretts framework model to analyse its real-world context and derive insights. Chapter 5 delves into the analysis of the collected data to understand and interpret the research findings. Finally, Chapter 6 summarises the findings and offers suggestions based on the research results, ensuring an examination of the topic under study.

1.6 Chapter Summary

This chapter has introduced and contextualised the topic and outlined the problem statement, and motivated the significance of the study, research aim, objectives, and questions. It highlighted the contributions of scholars and practitioners, particularly Donald Norman, and emphasises that UX design is a multidisciplinary field that incorporates aspects of psychology, anthropology, and computer science. Chapter 1 also provided a brief overview of Garrett's framework model in UX design, which provides an approach through its five distinct planes. It stressed the importance of integrating frameworks with applications in UX design using the development and testing of the FIFA (EA) eSports mobile app as a case study. This research aimed to assess how relevant and applicable Garrett's model is in contemporary design practices, while addressing the necessity for adaptation in response to technological advancements and changing user behaviours.

⁴ Wohlin (2021:3) defines a case study as 'an empirical investigation of a case, using multiple data collection methods, to study a contemporary phenomenon in its real-life context'. He further emphasises that this is conducted without the investigator's active participation.

CHAPTER 2: LITERATURE REVIEW

This chapter discusses the literature that has been written on UX. It specifically focuses on providing an overview of the evolution of UX concepts, a review of Garrett's framework, methodologies in UX, and challenges in UX products. It concludes with a theoretical framework that seeks to contextualise Garrett's framework in current UX practices.

2.1 The Evolution of UX Design

The topic of UX has been extensively researched and discussed over the years, uncovering various perspectives and approaches. This study begins by unpacking the historical evolution of the concept of UX design.

UX is described by Hartson and Pyla (2019: xv) as 'the phenomenon felt by users before, during, and after usage—usually a combination of usability, usefulness, emotional impact, and meaningfulness.' This definition indicates that UX has a combination of functional considerations in usability, usefulness, and additionally, psychological considerations in the emotional impact and meaningfulness for users. According to Perea and Giner (2017: 36-37), 'The UX of a product or service is defined by how we perceive the summary of our interactions with it.' This suggests that the UX is subject to the user's interpretation of the product. Garrett (2011: 6) continues to argue that 'UX is not about the inner workings of a product or service. User experience is about how it works on the outside, where a person comes into contact with it.' In essence, it has less to do with the technical 'back-end' of the product or service, but rather with the 'front end' with which the user engages.

Initially, the concept of UX design was proposed by Scholar Donald Norman through human interface research and application in 1995 (Berni & Borgianni, 2021). Norman's proposal for the term UX was originally within the field of industrial design (Li & Kim, 2023). However, the roots of UX can be traced back to human-centred design

principles since the 1940s, indicating a longer history than is commonly acknowledged (Hussein, Hussain, Mkpojiogu, Nathan, & Zaaba, 2019). According to (Law *et al.*, 2009) 'It encompasses broad range of fuzzy and dynamic concepts, including emotional, affective, experiential, hedonic, and aesthetic variables.' This statement highlights the broad nature of the UX concept.

The importance of understanding UX can be further observed by designers in a market-driven design environment. It helps them discover key factors such as user preference, usage context, product features, and their interrelations (Yang *et al.*, 2019). However, this does not mean that design is the only discipline in which UX can be observed.

UX has been described by scholars such as Ortiz and Aurisicchio (2011), and Sun and Teng (2003) as multidisciplinary. It can be associated with various key disciplines such as psychology, anthropology, computer science, engineering, and product design (Bernl & Borgianni, 2021). However, despite these multidisciplinary associations, there are arguments for more consideration of the influence of technology and the impact of UX design on society and human behaviour. This perspective emphasises the long-term effects of UX design on society and culture (Kusuma *et al.*, 2022). Therefore, it is important for UX designers to further analyse the effects of using products and not just to focus on usability and functionality.

The term user experience has gained popularity as a 'buzzword' in the fields of human-computer interaction (HCI) and interaction design over the past few decades (Hassenzahl & Tractinsky, 2006). Human-computer interaction (HCI) can be defined as a multidisciplinary field that includes the design, testing, and deployment of interactive computing systems created for human use. The process also includes investigating the key phenomena that influence these systems (Carta & Boratto, 2016). It encompasses computer graphics, human factors, ergonomics, industrial engineering, operating systems, cognitive psychology, and computer science (Cho *et al.*, 2021). HCI also 'combines the theories and practices from a number of fields including computer science, cognitive and behavioural psychology, anthropology, sociology, ergonomics, and industrial design' (Wania *et al.*, 2006: 1). This suggests that the discipline of Human-Computer Interaction (HCI) encompasses various

disciplines and practices that prioritise human use and experience in interactive computer systems.

The early emergence of the concept of UX design was presented to describe the dynamics of the human-product interaction. Furthermore, it was envisioned that design would be the main beneficiary of UX research. However, this was not necessarily the case, as the research results were not easily integrated into design theory and practice (Bernl & Borgianni, 2021). The HCI discipline has subsequently been categorised under the umbrella of UX. This affiliation has led practitioners and academics to explore innovative approaches to designing interactive products that accommodate the experiential qualities of technology use, rather than just product qualities (Hassenzahl *et al.*, 2010). Here, a shift from usability and functionality to broader holistic considerations of the UX is made.

Although many might agree with the close associations between HCI and UX, there is a contrasting view. This view emphasises the critical component of UX, namely, the measurability of emotions. This refers to the cognitive rationalistic model, rather than to the socio-constructive interactionist framework. According to Winograd and Flores (1987) and Dourish (2001) as cited in Law & van Schaik (2010: 315) ‘...such an argument reflects the decades-long dispute between the cognitivist and phenomenological approaches’. This perspective challenges the underlying theoretical framework used to measure and understand user emotions in the design process. Moreover, it continues to challenge the traditional understanding of UX (Law & van Schaik, 2010). These arguments emphasise the importance of considering both cognitive and phenomenological perspectives and approaches in the field of UX design.

Furthermore, Wang and Jin (2021) argue that the concept of UX has been interpreted in a variety of ways, and there is no clear agreement on its definition within the HCI community. This statement further shows that UX is not a one-dimensional concept that is easily defined or classified.

2.2 Methodologies in UX Design

In the field of UX design, various methodologies are used to understand and enhance how users interact with a product. A UX methodology refers to a structured, theory-based approach to UX design that involves specific processes, techniques, and principles (Garrett, 2011). This section provides an overview of some of the prominent methodology approaches. They include user-centred design, which focuses on meeting user needs, design thinking to create solutions based on empathy, the double diamond process for emphasising a structured approach to problem solving and user-focused solutions, lean UX for processes, and agile UX for flexibility and quick iterations. This introduction provides a brief overview of how these various methodologies contribute to ensure user-centric digital experiences in today's ever changing digital world. Discussions of each of these methodologies follow below.

2.2.1 User-Centred Design (UCD)

User-centred design (UCD) is an iterative UX design method that emphasises the needs and goals of the user. This approach seeks to create effective solutions that are uniquely customised for users (Fisher, Ellis, Willoughby, & Barca, 2014). Understanding user goals is a key factor in establishing what experience UX designers will be designing. Kaasinen *et al.* (2015) propose five approaches to extract insights and inspiration for UX goal setting, including brand, theory, empathy, technology, and vision. These five approaches are categorised to support the multidisciplinary nature of UX in their own unique ways. This integrated approach is aimed at human-centred principles before the design phase, and later accommodates the need for evolution and creativity in UX design. The methodology of user-centred design (UCD) was popularised by key theorists such as Donald A. Normans in his book '*The Design of Everyday Things*', emphasising the importance of creating products and systems that focus on user needs and behaviours (Norman, 2016).

2.2.2 Design Thinking

The framework of design thinking is not necessarily specific to UX, but is a factor in the contemporary discourse of UX. This approach combines knowledge from various

fields including psychology, computer science, anthropology, cognitive science, design, and ethics (Liu *et al.*, 2021). It considers diverse developments in technology and aims to go beyond conventional human and computer interactions. Here, factors such as usability and accessibility become the subject of enhancement of user satisfaction and experience (Hassenzahl & Tractinsky, 2006). Design thinking creates solutions that prioritise user needs, driven by insights and incorporating the process and design principles to create experiences (Adams, Daly, Mann, & Dall’Alba, 2011). In the context of design, the framework of design thinking is linked to the principles of human-centred design. It is further categorised by multidisciplinary collaboration and iterative problem solving.

2.2.3 The Double Diamond

The Double Diamond methodology follows a structured approach with four distinct phases: Discovery, Definition, Development, and Delivery. It all begins with the Discovery phase, where designers dive into understanding the problem by conducting user research (Mahmoud *et al.*, 2020). Following this is the Definition phase, where insights are synthesised to articulate the problem statement (Yoo *et al.*, 2015). In the Development phase, designers create prototypes for different solutions (Oliveira & Inhamuns, 2020) leading up to the Delivery phase. Here solutions are refined based on valuable user feedback (Fagundes & Gomes, 2016). This methodology ensures that design decisions are firmly rooted in user needs and contexts, thereby promoting innovation and solutions tailored to users.

2.2.4 Lean UX

Lean UX has become a prominent methodology in the field of software development. The use of the term ‘lean’ in lean UX can be related to the aim of this methodology to reduce waste in factors such as cost and time (Aarlien & Colomo-Palacios, 2020). Lean UX emphasises the incorporation of user research and design thinking practices into software development. This integration promotes collaboration between UX designers and developers in a team setting (Gardey, Grigera, Rossi, & Garrido, 2021). Therefore, lean UX not only streamlines the development process, but further

guarantees that software creation is guided by user-centric design principles. This leads to a more productive and successful product development cycle.

2.2.5 Agile UX

When agile development methodologies are combined with UX, they provide a collaborative approach to software development. This approach places emphasis on iteration, gathering user feedback, and fostering cross-functional teamwork. In his book *'Lean UX'*, Jeff Gothelf emphasises lean principles in agile environments to enhance the UX. Building upon this concept, Rex Hartson and Pardha A. Pyla delve into the lifecycle of UX in their book *'The UX Book'* covering design orchestration and evaluation stages that go beyond usability (Franklin, 2013).

Moreover, the integration of methodologies in educational software development showcases a growing trend towards human-centred approaches by combining Scrum and lean UX with user-centred and UX design practices. This approach places emphasis on identifying usability issues and key factors impacting UX (González, Delgado & Cruz, 2015). In summary, integrating development with UX design goes beyond usability considerations. It centres product development around meeting user needs and receiving valuable feedback to ensure optimal quality of overall UX.

2.3 Understanding Garrett's Framework

Chapter 1 introduced Garrett's framework in a brief overview. This section further elaborates on Garrett's framework. The exploration will also unpack Garrett's five element planes of design and their subcategories. These are detailed in Garrett's UX book (Garrett, 2011). It is worth noting, however, that there are more detailed aspects and tools related to the subcategories; these will be unpacked later on, and how they were applied in practice on the *FIFA* (EA) eSports prototype. To manage the scope of this review of the literature, the study specifically focused on Garrett's five planes and their subcategories as outlined in his framework model (see Figure 2).

In naming his framework as 'The Elements of User Experience', Garrett fundamentally describes the components of user experience (Garrett, 2011: 19). Avoiding the terminology that sounds too awkward and technical, such as 'The components of user

experience', using a thesaurus for alternatives, he replaced the term 'components' with 'elements' (Garrett, 2011: xvii).

Describing the flow of his framework model, Garrett (2011: 21) states, 'On each plane, the issues we must deal with become a little less abstract and a little more concrete'. This can be observed in his framework model, where the abstract or intangible ideas such as the product objectives (Strategy plane), develop into concrete or tangible solutions such as visual designs in the sensory design (Surface plane).

Garrett's framework model expands into two main categories, namely the **product as functionality**, and the **product as information**. These two categories split Garrett's five planes into two distinct focuses; functionality (on the left), and information (on the right) as illustrated in his framework model. This influences the type of activities conducted under each of the five planes, as per the two focuses discussed below:

- **Functionality of the product**

On the (left) functionality side, emphasis is placed on completing one or multiple tasks with the product serving as a tool, or set of tools used to complete them (Garrett, 2011: 28).

- **Information about the product**

On the (right) information side, emphasis is placed on offering information to the user. This should be done in a manner that is easily accessible, understandable, meaningful, and encourages an informative experience through the relevant information provided (Garrett, 2011: 28).

The following section will unpack each of the five planes and their subcategories, as demonstrated below in the model of Garrett's framework (Garrett, 2011: 29):

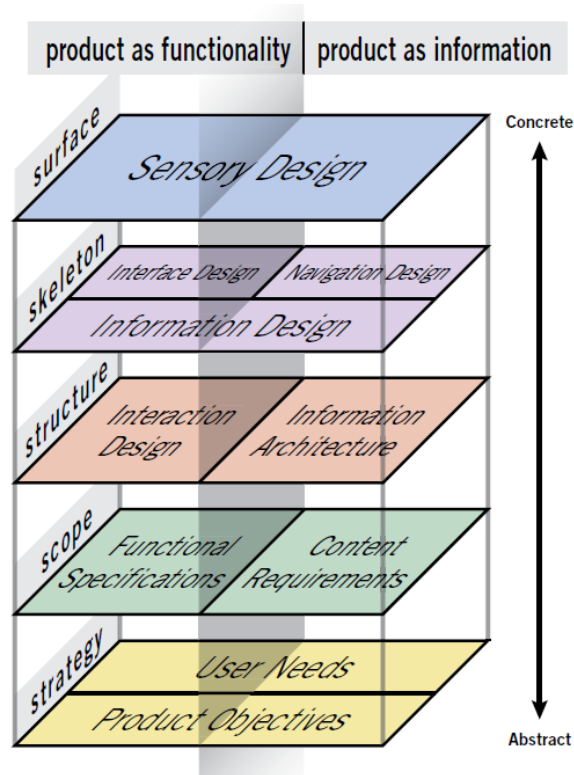


Figure 2: The elements of UX framework model (Garrett, 2011: 29)

2.3.1 The Strategy (First Plane)

The **first plane** of the Garrett model is the Strategy plane, which serves as the foundational phase focusing on two main aspects, namely the **user needs** and the **objectives of the product**. These are discussed below:

- **Product Objectives**

Product objectives are regarded as the goals for the product, whether it be for business or any other manner of goals (Garrett, 2011: 28). Here, Garrett (2011: 36) argues that a relevant question should be answered, ‘what do we to get out of this product?’ This question is internal, meaning that the business or organisation needs to establish what goals or objectives it seeks to achieve with the product.

- **User Needs**

In contrast to product objectives, user needs are external (coming from outside the business or organisation). These are the needs of the individuals (users) who will use the product. Garrett (2011: 28) argues that the relevant question that needs to be answered regarding the product is, 'what do our users want to get out of it?' The focus now shifts to the objectives when using the product.

2.3.2 The Scope (*Second Plane*)

The **second plane** of Garrett's model is the Scope plane, which is directly determined by the strategy (Garrett, 2011: 29). Now that the strategy (product objectives and user needs) has been established, a scope of the **content** and **functionality requirements** must be determined. These requirements are discussed further as follows:

- **Content Requirements**

The Information aspect (product as information focus) of the scope categorises the Content Requirements. In simpler terms, the process is focused on what kind of content is required to meet the user needs and product objectives (Garrett, 2011: 29).

- **Functional Specifications**

The functionality aspect of the scope categorises the functional specifications. In describing the functional specifications, Garrett (2011: 29) states, 'a detailed description of the 'feature set' of the product.' In summary, at this stage of development, the aim is to determine what features or functions the product should have to meet the user needs and product objectives.

2.3.3 The Structure (*Third Plane*)

This **third plane** of Garrett's model is the Structure plane of development, which defines how users move through the system, whether it be a site or app, etc. (Garrett, 2011: 29). It does this through defining all the categories and possible avenues the user can access or move to from page to page, including the manner in which all the features fit together (Garrett, 2011: 20-21). Below is a discussion of the two key

aspects that work together to build the structure, namely, the **Information Architecture** and the **Interaction Design**.

- **Information Architecture**

According to Garrett (2011: 30), 'For information resources, the structure is the information architecture: the arrangement of content elements to facilitate human understanding.' This means that the focus here is to organise the content in a manner that makes it easier for the user to understand it. Clear organisation, grouping, ordering, and presentation of content are key steps in this process (Garrett, 2011: 81).

- **Interaction Design**

According to Garrett (2011: 30) 'The scope is given structure on the functionality side through interaction design, in which we define how the system behaves in response to the user.' Thus, interaction design focuses on responding to the user's interaction with the system. It considers possible user behaviour (when completing tasks, for instance) and how the system will respond and accommodate them (Garrett, 2011: 81).

2.3.4 The Skeleton (*Fourth Plane*)

The **fourth plane** of Garrett's model is the Skeleton plane of the development, which underlies the surface of the design. The skeleton outlines the placement and layout arrangements of interface elements such as buttons, controls, photos, text blocks, and all other design elements that are found on each page. At this phase of the process, (concrete) visual elements are created from the (abstract) concepts outlined in the structure (Garrett, 2011: 20). The Skeleton plane can be divided into three components, namely the **Information design** flanked by the **Interface design**, and **Navigation design** (Garrett, 2011: 30). These are further discussed below.

- **Information Design**

When referring to information design, the primary focus is on efficiently presenting information in a manner that promotes user understanding (Garrett, 2011: 30). In their research, Alao *et al.* (2022) emphasise the significance of user design when

developing interfaces that are not only user friendly but also visually appealing. Their study on crafting a university information management system highlights the importance of incorporating simplicity, responsiveness, and interactivity into UX design, which directly aligns with principles of information design.

- **Interface Design**

Interface design includes both tangible (physical) and intangible (nonphysical) products, combining user-centred design and UX models (Wong, Khong & Thwaites, 2012: 703). The Interface design is a process that focuses on the considered arrangement of interface elements for the purpose of efficient functionality that users can interact with on the products' system (Garrett, 2011: 30). A recent study examined how the design of online learning systems can impact the experience of adults. The findings suggest that navigation structures and cognitive load greatly influence user satisfaction. The research recommends using linear navigation systems for users, highlighting the importance of adapting interfaces to meet the diverse needs and preferences of different user groups. This emphasises the significance of designing user-centred interfaces in interface development (Shi, Huo, & Han, 2021).

- **Navigation Design**

The Navigation design refers to the set of visual screen elements that the user needs to interact with to move through the system (Garrett, 2011: 30). In UX design, navigation design focuses on creating an interface that allows users to locate and utilise components of a system with ease. It encompasses the organisation, placement, and visual design of navigation elements using clear terminology. Researchers have utilised eye tracking technology to gain insights into the factors that contribute to navigation. Effective navigation plays a key role in UX, as unclear or confusing navigation can hinder usability (Schall, 2014: 363- 370).

2.3.5 The Surface (*Fifth Plane*)

Finally, the **fifth plane** of Garrett's model is the Surface plane of development. As the name suggests, this is what the user sees and interacts with on the surface of the product or system. The surface refers to the visual presentation of the product, where

aesthetics, content, and functionality are integrated to meet the goals set out in all previous planes. Garrett (2011: 133) further describes the focus on **sensory design**.

- **Sensory Design**

Sensory design not only considers visual design, but also how the product engages the user's senses. The type of product created will further influence which of the five senses (sight, hearing, touch, smell, and taste) are involved. Garrett (2011: 135), however, particularly considers smell and taste to be rare considerations for UX designers.

On the contrary, Mueller, Maes and Grudin (2019) highlights the importance of incorporating design that activates a range of human senses, namely, touch, sound, smell, taste, and body wisdom (intuition). This approach goes beyond visual-centric design. It aims to create more inclusive and enriching human experiences by engaging the senses to make interactions more meaningful. Moreover, Obrist (2017) stresses the importance of integrating senses in HCI, to enhance the UX. Incorporating touch, smell, taste, sight and hearing into technology design, becomes more immersive and impactful, resulting in more significant user interactions.

For example, Oh *et al.* (2016) present an example of design where they developed an augmented reality (AR) based block puzzle education system for infants. This system allows learners to simultaneously enhance creativity and develop fine motor skills abilities while learning English. Through indirect learning with their five senses such as vision, hearing, and touch, among others (Oh *et al.*, 2016), learners can engage with the materials in a way that sparks interest and provides a sense of immersion.

The use of augmented reality (AR) in education is an example of how sensory design can enhance learning by creating immersive and engaging experiences for young students. These multisensory learning opportunities not only captivate children's attention, but also provide them with valuable educational benefits.

Moving on from the above discussion, the study will focus on Garrett's particular perspective on sensory design, to align more closely with the research objective of evaluating its effectiveness. The five senses will be further unpacked in Chapter 4 and

it will be explained how Garrett's approach to sensory design influenced the decisions made in the final prototype design.

2.4 Challenges in Digital Product Design

The main challenges in digital product design revolve around the need to keep up with technological advancements, understand evolving user behaviours, and successfully integrate different methodologies.

- **Technological Advancements**

It is important to adapt to technological advancements. Lindley, Coulton, and Alter (2019) introduce the concept of 'ghosts in the machine', to illustrate the complexities designers face when bridging digital mediums in product design. This metaphor emphasises the intricate balance designers must navigate in this technologically driven world (Lindley, Coulton & Alter, 2019).

- **Evolving User Behaviours**

Addressing the evolving user behaviours poses further challenges for UX designers. Charness and Boot (2022) highlight the importance of designs that cater to a range of user needs. They specifically emphasise the age-related digital divide and stress inclusive design practices (Charness & Boot, 2022).

- **Integrating Methodologies**

Integrating a variety of methodologies into the design process is a challenge Answer and Roucoules (2021) discuss how harmonising product and process design is essential, while adapting to digital transformation within product design cycles (Answer & Roucoules, 2021). This emphasises the importance of balancing both product and process design.

- **Usability Testing**

Finally, application and usability testing are aspects to consider during the design process. Ilhan and Karapars (2019) discuss the difficulties encountered in educating

individuals about product design, emphasising the significance of acquiring skills and effectively managing time (Ilhan & Karapars, 2019).

2.5 Theoretical Framework

2.5.1 Garrett's Framework in Contemporary UX Practices

In this theoretical framework, the study sought to identify prominent contemporary UX practices with the aim of addressing the research objective that explores the relevance of Garrett's framework. To achieve such, the researcher compared the way that contemporary UX practices align or misalign with Garrett's framework and further evaluated its current relevance in relation to these practices.

Contemporary UX practices encompass a wide range of methods, techniques, and principles. These are used to design and improve the UX of various products like websites, mobile apps, software, etc. The main objective of these practices is to create products that not only function well but also provide pleasure and ease of use for the user. These approaches are continuously influenced by factors such as evolving trends, technological advancements, user feedback, and ongoing research. Furthermore, UX practices can be summarised as actions taken to fulfil the principles of UX (Kashfi *et al.*, 2019).

However, it is important to note the difficulty in categorically consolidating a set list of contemporary UX practices. Hellweger, Wang, and Abrahamsson (2015) in a paper '*Exploring the Understanding of User Experience, in Practice*', delve into discussing the ever-changing field of UX. They emphasise that UX is a concept that encompasses practices and perspectives. The study highlights the absence of a list of prominent contemporary UX practices that demonstrate the diverse nature of this field. It further reveals that UX professionals primarily focus on designing product user interactions showcasing the array of approaches employed in this domain. This diversity is also evident in the way perspectives, though not heavily emphasised in the literature, can still be observed in the work of the practitioner. The research findings underscore the constantly evolving landscape of UX practices without an agreed upon set of top practices (Hellweger, Wang & Abrahamsson, 2015).

Taking into account this context and keeping within the scope of the study, the research sampled just a few of the common contemporary UX practices that are cited in the literature, as a tangible comparison to the Garrett framework. Contemporary UX practices, such as gathering user feedback, analysing data, designing responsiveness and adaptability, ensuring accessibility and inclusivity, conducting usability testing, and incorporating design principles, are deeply rooted in research, industry trends, and academic discussions. These practices play a role in creating digital products that are easily accessible to all users and capable of evoking emotional connections. Research in the fields of HCI and psychology has emphasised the importance of factors such as user feedback data analysis through analytics tools and incorporating design strategies to enhance user satisfaction and engagement (Lazar *et al.*, 2017; Norman, 2013).

With the rise of devices and the growing emphasis on inclusivity, responsive designs that adapt to different screen sizes along with accessibility considerations have become imperative. These principles align with the legal standards that promote inclusive digital environments (Marcotte, 2011; Holmes & Langdon, 2018). Usability testing has proven effective through studies highlighting its role in enhancing product usability (Dumas & Redish, 1999), while industry trends and academic frameworks advocate the integration of these practices into UX design processes to comprehensively address user needs and expectations (Desmet & Hekkert, 2007; Firtman 2015). This integration showcases how evidence, industry changes, and scholarly discourse shape contemporary UX methodologies. These sampled contemporary UX practices are unpacked further below:

- **User Feedback and Analytics**

User feedback and analytics involve collecting and analysing user data to understand how people use technology and respond to it. This can include data from tools that track user interactions with a system, as well as qualitative feedback from users themselves through surveys or interviews. The aim is to use this information to improve UX and make design decisions (Lazar, J., Feng, J.H. & Hochheiser, H., 2017). Recent literature further supports this approach, emphasising the impact of data and analytics tools on UX design strategies. This represents a shift from traditional

methods (Lazar, Feng & Hochheiser, 2017). Although Garrett initially recognised the importance of user feedback in his framework, he did not fully anticipate the role that modern digital tools and data analytics would play in UX design (Nielsen & Norman, 2013). The integration of these tools with Garrett's principles marks a move towards a more data driven approach in the field. It highlights the need to align design practices with user behaviours and preferences for the best outcomes (Hassenzahl & Tractinsky, 2006).

- **Responsive and Adaptive Design**

Responsive and adaptive design is a technique that enables digital products such as web pages to be effectively adapted to various devices and screen sizes. These include mobile, tablet, and desktop devices for faster web renderings and an optimised and positive UX (Almeida & Monteiro, 2017: 48). Responsive and adaptive design are closely related to UX practices. This approach aligns with Garrett's framework in terms of the surface and skeleton planes, which emphasise the significance of interface adaptability and consistency across different platforms (Garrett, 2011). However, there seems to be a gap because Garrett's model extensively covers various aspects of UX, but does not explicitly delve into the technical mechanisms that support responsive or adaptive behaviour. These strategies are crucial in today's range of devices, highlighting a disparity between theoretical UX frameworks and the practicalities of designing for a multi-device environment (Marcotte, 2011; Frain, 2012). This mismatch underscores how UX design is evolving, and necessitates finding a balance between Garrett's principles and responsive and adaptive design approaches, to meet modern user expectations.

- **Accessibility and Inclusivity**

Contemporary UX design places an emphasis on making products accessible and inclusive for individuals, including those with disabilities (Gilbert, 2019). This aligns with Garrett's framework principle of creating designs that can be universally used, emphasising the importance of delivering consistent UX across user groups (Garrett, 2011). However, there is a distinction to note; while Garrett's framework advocates for usability, it does not explicitly integrate the specific standards and practices outlined

in contemporary accessibility guidelines like the Web Content Accessibility Guidelines (WCAG). These guidelines are crucial to ensure that products are accessible to all users (Lazar *et al.*, 2017). This discrepancy highlights how UX practices have evolved beyond Garrett's principles to encompass precise and actionable standards that specifically address accessibility and inclusivity considerations.

- **Usability Testing**

Usability testing is a testing method and UX practice linked to user-centred product development. It involves observing the use of a product to evaluate and improve its usability (Riihiho, 2017). It aligns closely with Garrett's principles of designing and testing (Garrett, 2011). While Garrett's framework highlights the importance of user testing in the design process, it does not fully address usability testing methods like unmoderated testing, which have become more prominent in recent years (Tullis & Albert, 2013). This indicates that the UX field is evolving to incorporate advancements and changes in user behaviour patterns while still valuing the integration of user feedback during the design process as advocated by Garrett (2011). This integration is essential for creating user-friendly products.

- **Emotional Design**

Emotional design in the field of UX aims to obtain responses and enhance users' interaction with interfaces (Norman, 2006). This approach aligns with Garrett's principles of consistency and engagement in UX design, emphasising the importance of creating interfaces that not only function well but evoke emotional satisfaction (Garrett, 2011). However, emotional design primarily focuses on the aspects of UX compared to Garrett's framework. Garrett's model mainly addresses the elements of UX design, suggesting room for expansion to fully incorporate the complexities of design (Hassenzahl, 2010). This integration highlights how UX practices are continually evolving, and underscores the importance of considering users' emotional and psychological needs when developing captivating experiences. It further emphasises the significance of the emotional and psychological requirements of users when creating engaging experiences.

CHAPTER 3: RESEARCH METHODOLOGY

This chapter describes the research methodology applied to collect primary data in the study. It explains the research design, data collection, population and sampling, and data analysis techniques that were undertaken.

3.1 Research Design

This section describes the research methods applied in this study, which is a mixed-method approach. A seminal figure in the field, Creswell (2015) emphasises the distinction and value of integrating both qualitative (e.g., interviews) and quantitative (e.g., survey) data and approaches to address research problems comprehensively, a methodology known as mixed methods research. The objective of mixed method research is to offer an increased understanding of the research problem rather than to limit oneself only to a qualitative or quantitative method. This mixed-methods approach is applied in the study by combining qualitative and quantitative research, including user testing. An explanation of the research methods is introduced in the following discussion, which further explains why they were chosen for the study.

3.1.1 Qualitative Research

Qualitative research involves a method used to grasp the real-life experiences of individuals and the contextual viewpoints of the behaviours, processes or phenomena being studied. In contrast to research that focuses on quantifying and analysing data statistically, qualitative research delves into the depth and complexity of a topic to reveal patterns, themes, and meanings (O'Brien *et al.*, 2014).

Researchers have several research methodologies available, such as interviews, focus groups, ethnography, content analysis, and case studies. These methods allow researchers to understand people's emotions, attitudes, behaviours, and the social settings in which they exist and function. The goal is not to generalise findings across all populations, but to comprehend a group or scenario (Bhandari, 2023). This

methodical approach enables an examination of Garrett's framework in today's UX design landscape by delving into the perspectives of both UX educators and practitioners offering valuable insights into the framework's current relevance and practicality.

A qualitative research methodology is adaptable, allowing for adjustments and shifts in focus as the study progresses, which is crucial for investigating social phenomena (Ritchie *et al.*, 2013). By employing this methodology, the study could develop a theory on potential enhancements ensuring that the framework adapts to address present day and future challenges in UX design.

In essence, qualitative research facilitates a nuanced and meticulous exploration of experiences. It serves as a tool for gaining deeper insights into the nuances of human behaviour, interactions, and experiences.

3.1.2 Quantitative Research

The term *quantitative* is used to describe research that involves numbers; therefore, quantitative methods produce numerical outcomes (Field, 2013). In this study, quantitative research allowed for measurable results in the form of numerical data that could be analysed statistically. Statistical analysis provides the means to examine connections between variables, such as how various aspects of Garrett's framework influence user satisfaction or application usability (Field, 2013).

In describing the processes involved in qualitative and quantitative approaches, Creswell (2015) states: 'both approaches follow the general process of research: Identify a problem, determine research questions, collect data, analyse data, and interpret results.' The section has outlined the research problem and research questions as in Chapter 1. A discussion on how the data was collected, analysed, and interpreted follows in the next section.

3.2 Data Collection

The study used a quantitative approach to collect data through a Google Forms online survey. Data collected from a quantitative study are defined as quantitative data. It

provides close-ended information, such as those found in a survey and often referred to as 'numeric' data or 'numbers' collected in a quantitative study (Creswell, 2014: 125). Quantitative measures such as usability tests of the *FIFA* (EA) eSports mobile app prototype enabled the gathering of data. These data evaluate how well Garrett's framework satisfies user needs and expectations. It also relates to how users interact with the system, their satisfaction levels, and any usability issues. The data were populated by user feedback from the Google forms online survey, as an objective method to measure variables, correlations, and test a hypothesis, which in this case is the relevance of Garrett's framework (Saunders *et al.*, 2016: 440). The researcher manually evaluated the data results through the survey results. The data were collected from the population and sample groups as discussed in the below section.

3.3 Population and Sampling

When identifying participants for both interviews and the survey, the sampling techniques that were used are purposive sampling and convenience sampling. The selection of these sampling techniques was based on their effectiveness in focusing on participant traits and the feasibility of recruitment, in a limited environment. The chosen setting was that of a Johannesburg-based private higher education institution.

Purposive sampling is essential in qualitative research to identify and select information-rich cases related to the phenomenon of interest. The key aspect of this approach is the researcher's judgment in choosing participants who are most likely to contribute valuable insights and understandings due to their specific characteristics or experiences (Patton, 2015). The researcher chose five academic practitioners with academic expertise in the research topic and framework; the purposive selection is based on their unique knowledge and expertise that directly relate to the study's focus. This approach ensures that the collected data are profoundly relevant and meaningful to the research objectives.

The sample group for the quantitative survey was inspired by the target audience samples of eSports followers. This sample provided a holistic overview of audiences who would most likely engage with eSports content. Kuzma (2010) emphasises the importance of purposive sampling in focusing on a specific group of interest, which

proves to be a useful approach when the study aims to grasp the viewpoints of a particular subset of the population. Purposive sampling is a method that researchers intentionally employ to choose participants who satisfy criteria pertinent to the research inquiry. GWI Gaming conducted an analysis report (2021: 55) in the fourth quarter of 2020, with a sample size of 7,506 eSports followers between the ages of 16-64 in 15 markets. The report revealed that 58% are male and 42% are female, refuting the traditional perception that eSports is a male-dominated field. The analysis further revealed that 35% were middle income, 33% high income, and 27% low income. It is clear that the majority of users fall in the middle- and higher-income bracket. This is likely due to the high costs of data, gaming events, and required resources.

A generational analysis conducted with different sets of eSports followers reveal that 61% of Millennials⁵, 58% of Gen Z, 38% of Gen X and 19% of Baby Boomers, follow eSports. In particular, this shows a higher following from Millennials to Gen Z. Therefore, the app needs to appeal to a wide audience within the 16-64 age groups, both male and female (GWI Gaming, 2021: 55). The audience can be divided into two categories, namely, the primary audience (eSports novice) and the secondary audience (eSports current follower). The eSports novice seeks a structured introduction and overview to understand local *FIFA* eSports to optimise their general knowledge and grow their interest and participation in the field. The eSports follower (secondary audience) on the other hand, has an existing awareness of eSports, meaning that they have some knowledge, follow, or participate in eSports. This secondary audience seeks to expand their knowledge of local *FIFA* eSports, and they are keen on platforms that keep them up to date and introduce further insights into the industry and social eSports community. They are also interested in active offerings like eSports tournaments and possibly creating or joining LAN parties.

In the context of the *FIFA* eSports app prototype UX study, purposive sampling allows the researcher to specifically target students (male and female Gen Z's) who are

⁵ Millennials are born 1981-1994 aged 30-43, Gen Z are born 1995-2009 aged 15-29, Gen X are born 1965-1980 aged 44-59, and Baby Boomers are born 1949-1964 aged 60-75 (Jakob, 2022:5).

interested in, or are already followers of eSports. This method ensures that the sample reflects the specific characteristics that the study aims to explore. It is worth noting that participants were given the freedom to share the survey in their circles with persons older than 18 years with a shared interest in eSports and app testing. This accommodated secondary generational groups such as millennials.

Convenience sampling is the second form of sampling technique that was applied in the study. Access to readily available participants was a determining factor in this study sample process, for both the interviews and the survey, mainly due to convenience. Convenience sampling can be described as a practical method for studies where the ease of access to participants is a significant consideration, making it suitable for conducting research in a campus setting. Hence, recruiting students and academics from the campus of a private higher education institution, where the researcher has free access, logically suits the situation. The identified student participants were enrolled in courses relatable to eSports, such as gaming or digital degrees, and also included general eSports enthusiasts. It is worth noting that convenience sampling is often subject to criticism for its potential to introduce bias. However, researchers can argue for its value, especially in the exploratory phases of research or when they face logistical constraints or limitations for the researcher. In the context of this study, the researcher considered the limitations of time and the feasibility of applying more randomised sampling methods (Etikan, Musa & Alkassim, 2016).

3.3.1 Interviews

The first phase of the data collection aimed to gain insights through qualitative interviews with five academic practitioner participants. These interviews were initiated to first address the research objective of exploring the relevance of Garrett's framework for elements of UX in contemporary design practices, and secondly, to identify potential gaps between Garrett's theoretical framework and contemporary design practices through the perspective of academic topic experts.

Upon receiving approval from the ethics committee of the chosen institution, followed by that of the campus head, meetings could then be set up with interview participants.

The five participants were formally invited by the researcher via emailed consent forms, which they later signed. All details of the consent forms were read to the participants before the start of the interviews, which were conducted through an MS Teams meeting call.

All five of the interview participants were affiliated with the chosen private higher education institution. The first participant is the national design head of the private higher education institution, with a background in web and experience design, while the other four participants lecture on experience design, including web and UX design. It should be noted that one of these four interview participants was based on the Cape Town campus of the institution, while the other three were from the Johannesburg campus. Two of the four interview participants, which include the Cape Town based participant, further overlap into the gaming degrees in their teaching portfolios. Beyond the academic sphere, these participants also have vast experience in industry, making them ideal candidates with background knowledge in UX frameworks academically and in industry practise. During the organising of these interviews, the researcher simultaneously distributed the quantitative research tools in the form of the online survey and prototype, which is discussed below.

3.3.2 The Survey

For the second phase of the data collection, an online survey link (see Appendix 1) and QR code was provided to approximately five hundred (500) students enrolled at the private higher education institution. The diverse student population at this institution was chosen because it represented one of the core demographic groups beneficial to the research topic and data collection, namely Gen Z. Those who agreed to participate, went through the survey link provided, which included a link to the *FIFA* eSports mobile prototype for user testing. The user testing was then followed up by an anonymous survey that guided the user to reflect on their user experience of the prototype. The online survey was divided into three sections, namely:

- **Section One**

Demographic information: The participant was requested for information about their age, gender, and race. The names of the participants were not required as the survey was anonymous.

- **Section Two**

Your knowledge of eSports: Sort to establish the participant's background knowledge about eSports and categorically *FIFA* eSports, including locally. It also asked for previous experience with any form of eSports mobile application.

- **Section Three**

Feedback after testing the *FIFA/EA* mobile app prototype: Participants were asked to rate their overall UX of the prototype. The ratings further expanded on the user's perception of the prototype's clarity, usability, visual design, interactivity and user engagement, trustworthiness, and credibility. Furthermore, participants were then asked to identify the features of the prototype they found most useful, confusing, difficult, and those features that they would have liked in the prototype. The survey ended with participants reflecting on whether the prototype met their expectations and requested suggestions, comments, or additional feedback.

3.4 Data Analysis Methods

3.4.1 Mixed Method Analysis

Combining qualitative and quantitative research methods helps to get a thorough grasp of the subject by leveraging the unique advantages of each method. Quantitative studies enable generalisations and accuracy, while qualitative research offers insights into individual viewpoints. This approach allows researchers to gain insights from 'two perspectives', providing a comprehensive view of the subject through structured data responses and personal views (Creswell, 2015). Below is a summary of how the mixed methods strategy was implemented in this study.

Quantitative Analysis: The survey data, including details and evaluations on the app prototype and eSports awareness, underwent a statistical analysis. Tables, pie charts, histograms, and percentages were used to provide a comprehensive understanding of demographics and overall satisfaction levels.

Qualitative Analysis: The researcher analysed open-ended survey questions and interview transcripts to identify common themes among the perceptions of the UX educators of Garrett's framework and the usability of the prototype based on feedback from the survey participants.

By combining both methods, the mixed analysis provided a detailed understanding of user feedback and academic perspectives. This approach, supported by Creswell (2015), emphasises that mixed methods offer a comprehensive view and data, rather than quantitative or qualitative methods alone. By merging analysis with interpretations, the study generated results to improve the app prototype and update the framework in line with current design practices

CHAPTER 4: CASE STUDY: *FIFA* (EA) eSports app prototype

This chapter discusses the purpose of the app prototype and provides context into its content and area of focus, eSports. This is followed by a detailed structural application of Garrett's framework in creating the FIFA (EA) eSports app prototype to meet its objectives.

4.1 Introduction

The objectives of the *FIFA* eSports mobile app prototype, as outlined in Chapter 1 of the 'app objectives', is to demonstrate local *FIFA* (EA) eSports content, guided by Garrett's framework. The purpose of the app's content is to provide users with a structured foundational understanding of eSports and local *FIFA* eSports organisational and competitive structures. Research by Caleb Womack with 384 local participants in a report '*Consumers' awareness levels of eSports in South Africa*' revealed high awareness levels of eSports. On the contrary, however, it further revealed that participants had less knowledge of defining eSports, its attributes, associations, and organisations. It is, however, worth noting that the demographic sample of the 384 participants for his study was arguably homogenous, with 78% white and 83% male respondents (Womack, 2020: 90). This factor may result in a narrowed perspective in its findings, but it still provides valuable insights to assess within the more diverse user sample of this study. A core focus of the creative component (app prototype) of this study is therefore to share knowledge gained in the form of researched information about eSports that includes its attributes, organisations, structures, and competitions, among others.

The information provided on the prototype is sourced and academically substantiated through research from the literature and credible sources of eSports online content. These sources include the eSports associations, affiliated organisations, partners, sponsors, and so on.

In the global eSports and gaming markets, South Africa is recognised as the largest gaming community on the continent of Africa, thanks to a savvy youth market and the adoption of smart devices (Jukes & Bosma, 2021: 18). Reference to a 'savvy youth market' likely further suggests that South African youth are highly adaptable to new technology and have more media options than previous generations (van der Merwe, 2013: 359). Aside from the socioeconomic challenges experienced in South Africa, there is a potential lack of engagement in eSports from older generations (Gen X and Baby Boomers) due to a lack of interest or exposure. This is further supported by a generational analysis that revealed a much higher eSports following among younger audiences, from Millennials to Gen Z (GWI Gaming, 2021: 55). This enthusiasm and popularity of eSports among younger consumers remains increasingly persuasive for investors (McGehee, 2019).

The use of cellphones and mobile apps has become ubiquitous in South Africa (Minnaar, Mototo, & Chuchu, 2020). The mobile application is thus a conveniently accessible tool on smartphones and allows for a concise but interactive presentation of information on, or offline. Furthermore, this allows easy access to various resources, such as social media and other relevant external links or file types. The approach of this mobile app prototype is more informative about local eSports and *FIFA* eSports, with the aim of creating a space for learning, understanding, and demystifying misconceptions in the world of eSports. The approach of applying Garrett's framework to the development of the app prototype aims to follow a structured approach, which is further discussed in more detail below. The researcher made a deliberate attempt to keep within Garrett's framework, with minimal support from external frameworks.

4.1.2 Background on Garrett's framework to develop the *FIFA* mobile app prototype.

The development process of creating an interactive platform or interface for users is one that requires an appreciation of the elements of UX. The phenomenon of UX is one that is well documented in the fields of Web, app, and other forms of digital mediums that require user engagement.

For the core structural process of the practical component (a *FIFA* eSports app), the research refers to Garrett's framework which he calls 'the elements of user experience'. In less technical terms, by the 'elements of user experience', he simply refers to the 'components of user experience' (Garrett, 2011).

There are various definitions for UX that may come across; however, Garrett (2011: 6) explains that 'User experience is not about the inner workings of a product or service. UX is about how it works outside, where a person comes into contact with it.' In essence, it has less to do with the technical 'back end' of the product or service, but rather the 'front end' with which the user engages.

Benyon (2019) states: 'User experience (UX) encompasses all the feelings, thoughts, sensations, and actions of engaging in some activity'. Therefore, terms such as user friendliness, usability, and accessibility, among others, are key considerations in UX design. They consider how users feel when using a product (Garrett, 2011: 6). This means that the aim is to give users a positive experience of the system or products that they are creating, which will increase their chances of using it again or referring to someone else. This process requires us to understand user needs and strategically plan how a prototype will satisfy these needs in the best manner possible.

In the context of this front-end approach, the practical component (*FIFA* eSports app) is developed as an interactive prototype design, focusing on the UX rather than the technical programming or coding nuances of online published applications. Therefore, the prototype allows an opportunity to focus on a user-centred design approach and a fully immersed exploration of the elements of UX design.

According to Schork and Kirchner (2018: 1), 'Designers and developers use prototypes in the product development process to gather information about the final product and its behaviour as early as possible as well as to lower the risk of developing failing products.' The prototype is therefore a critical part of the development workflow of an app or other interactive products. It allows for user testing and client approval before the rigorous production processes involving coding and programming undertaken by developers.

In his book, Garrett (2011) describes the elements of UX visually, in the form of a five-plane model diagram (Figure 1). According to Garrett (2011: 21), 'These five planes - strategy, scope, structure, skeleton, and surface - provide a conceptual framework for talking about UX problems and the tools we use to solve them.' This means that at every stage of the planes, the prototype development will progress, and each plane will provide its own set of guides on how to develop the app prototype. Each of the five planes is directly dependent on the one below it and also expands across two main categories, namely the functionality and the information of the product. These two aspects, hence, influence the type of activities conducted under each of the five planes.

In this context, the study applies Garrett's five planes to develop an eSports app prototype that seeks to achieve a positive UX. Garrett (2011: 21) further states: 'On each plane, the issues we must deal with become a little less abstract and a little more concrete'. This can be seen in the diagram (Figure 1), where the abstract or intangible ideas at this stage, such as the product objectives, develop into concrete or tangible content. This would be actualised on the surface plane, for instance, in the form of an interface with which the user can interact.

On the lowest plane, we are not concerned with the final shape of the site, product, or service, but only with how the site will fit into the strategy (while meeting the needs of the users). This enhances Garrett's (2011: 21) notion of 'Building from the bottom to top', meaning that the approach to building the prototype would start with the bottom planes or theories, to the top, as discussed below.

4.2 Building the Prototype

4.2.1 Applying Garrett's framework to develop the *FIFA* mobile app prototype

This section starts by demonstrating local *FIFA* eSports content through an app prototype. The app prototype is designed with UX principals in mind through elements of UX design, which is discussed in detail and applied to build the prototype in this chapter, and guided by Garrett's guidelines on effective UX design/development. They include five planes or stages, namely, strategy, scope, structure, skeleton, and

surface. These elements are considered in the design and development of the app prototype. This includes how the app prototype is structured and how its content was developed using the elements of UX design. First, some background into these elements is considered.

4.2.1 The Strategy

The **first plane** of Garrett's model is the strategy plane, which focuses on two main aspects, namely, the **user needs** and the **product objectives**. The user needs align to the user's goal to gain a better understanding of local *FIFA* eSports. The product objectives, however, can be lined up directly to the app objectives, as discussed in Chapter 1.

Both aspects affect the functionality and information of the product or prototype (in this case, a *FIFA* eSports app) (Garrett, 2011: 29). Consider this phase, the conceptualisation stage of the app prototype.

- **Product Objectives**

The product objectives are the goals for the product, whether it be for business or any other manner of goals (Garrett, 2011: 28). These can also be considered the app objectives in the study. The first question on what we want the product to accomplish is described by Garrett as coming from inside the organisation, further answering the product's objective (Garrett, 2011: 36). Answering this question in the context of the product prototype seeks to accomplish a few goals or objectives. These are, namely, analysing *FIFA* eSports, particularly locally, its local structures, institutions, and its competitive structures, further demonstrating and presenting these in a UX driven app prototype design. The aim is to develop a better understanding of local *FIFA* eSports, to bridge the gap in the knowledge on this topic. According to Garrett (2011: 36), 'The second question addresses user needs, objectives imposed on the product from outside.' These needs are discussed in more detail below:

- **User Needs**

Garrett (2011: 28) states: '**User needs** are the goals for the site that come from outside our organization specifically from the people who will use our site. It is important to understand what our audience wants and how that fits in with other goals they have.' It is ideal to conduct this form of investigation at the beginning phases of the research, however due to logistical limitations in acquiring the primary research, secondary research with a similar local sample was utilised. This research conducted by Caleb Womack with 384 local participants, revealed high awareness levels of eSports. However, participants had less knowledge of defining eSports, its attributes, associations, and organisations. In the context of this research, the prototype seeks to address the needs of such users (eSports novices or enthusiasts) who seek a better understanding of local eSports and *FIFA* eSports. Hence, the user needs are to gain access to an informative centralised source of information, and learn more about local *FIFA* eSports.

4.2.2 The Scope

The **second plane** of Garrett's model is the scope plane, which is directly determined by the strategy (Garrett, 2011: 29). According to Garrett (2011: 21), 'Strategy becomes scope when you translate user needs and product objectives into specific requirements for what content and functionality the product will offer to users'. The scope firstly helps us address the app objectives of categorising the structures and institutions of local eSports and *FIFA* eSports. Second, it further addresses presenting the local *FIFA* eSports competitive structures. The two key aspects in this stage of the development are the functional specifications and content requirements, as determined from the strategy stage, and how these features fit together (Garrett, 2011: 21).

- **Content Requirements**

The information aspect of the scope categorises the content requirements. In describing the content requirements, Garrett (2011: 29) provides 'a description of the various content elements that will be required'. In simpler terms, here we focus on

what kind of content is required to meet the user needs and product objectives. A key step that helped determine this aspect was to refer to the app objectives and then asking the question: What needs to be known before building the app? Thereafter, one should make a list of all the relevant information needed to research in order to meet the user needs, as described in the strategy. At the heart of that research would be a better understanding of local *FIFA* eSports. The original list is a broad outline to guide what needs to be researched, and includes the following:

- A general overview exploration of eSports and *FIFA* eSports, then narrowed down to South African/local *FIFA* eSports to meet the app objective of categorising the structures and institutions of local eSports and *FIFA* eSports.
- An exploration of some of the Top local Tournaments/Competitions, Platforms, Devices, Teams, and Players to meet the app objective of presenting the local *FIFA* eSports competitive structures.

The above populated list is what then led to the information collected for the content and was broadly detailed in Chapter 2. Garrett (2011: 63) adds, 'Content requirements often have functional implications.' This means that the content required can influence how that content is accessed interactively in the product/prototype.

However, when describing content, Garrett (2011: 72) states, 'Don't get confused between the format of a piece of content and its purpose'. In other words, describing content as text, images, audio, video, etc., is only describing the format in which the content or information is presented (Garrett, 2011: 72). The purpose of the content, therefore, gives more clarity on what it will be used for, for example, audio of the national anthem. According to Garrett (2011: 72), 'Other content requirements can fulfil that same purpose; but when the focus is on the format, the purpose itself can be forgotten.' A common example here might be how an icon and button link may lead to the same page or location. Another consideration that argued by Garrett is the importance of providing guides and rough estimates for each feature such as size, word count, pixel dimensions, audio. Attachable elements such as PDF and audio files

do not need to be specific (Garrett, 2011: 72). Likely because they are adjustable independently.

With all the above guides taken into consideration, a summary of Content Requirements for the prototype is listed in a table format as below, which includes the format, purpose, and estimates as advised by Garrett (2011: 72). These estimates below are proportioned to the width of 375px width, which accommodates accessibility to even older and smaller versions of android and iPhones:

Table 1: List of Content Requirements on the FIFA eSports Mobile App Prototype.

Content Requirements (<i>FIFA eSports app prototype</i>)		
Content:	Format:	Estimates:
App logo reveal at launch.	• Animated GIF	Size: 216 x 160 px.
Formal eSports, Commercial eSports, and Informal eSports content (information).	• Text	Font: Arial, Regular, 14pt.
Icons showing the dates on when content was posted.	• Clock (icon and text info)	Icon: 13 x 13 px. Font: Arial, 12pt.
Previews of featured stories, Map of the LAN location.	• Images	Large: 375 x 244 px. Small: 112 x 112 px.
The globe icon indicates the original source from which the content was posted.	• Icon and text info	Icon: 13 x 13 px. Font: Arial, 12pt.
LAN Location (GPS location icon), Settings (Bolt icon), LAN Calendar date (Calendar icon), LAN start time (Clock icon), (Play icon) Streaming link.	• Icons	Icon: 13 x 35 px. Font: Arial, 10pt, Caps, Bold.

The content requirements listed in the table above give an overview of the type of content a user can expect to find on the app. Starting with the logo reveal animation, this is the user's first interaction with the app, helping to introduce the app and its brand identity. The categorised content on Formal eSports, Commercial eSports, and Informal eSports aims to address the app objectives. These relate specifically to categorising the structures and institutions of local eSports and *FIFA* eSports. This further presents the local *FIFA* eSports competitive structures. The icons and images in the app prototype aim to contextualise categories of information such as postdates,

featured stories, sources of original information, LAN locations, etc. The estimates were determined through the design process and adjusted for suitability for app dimensions.

- **Functional Specifications**

The functionality aspect of the scope categorises the Functional Specifications. In describing the Functional Specifications, Garrett (2011: 29) describes 'a detailed description of the 'feature set' of the product.' In summary, at this stage of development, we seek to determine what features or functions the product needs to meet the user needs and product objectives.

In listing the Functional Specifications of the product, Garrett (2011: 69) explains that 'No matter how large or complex the project may be, a few general rules apply to writing any kind of requirements.' First, be positive, describe the positive thing the system will do to prevent the negative. Second, be specific, and leave no room for misinterpretation by being as descriptive as possible. Lastly, avoid subjective language, avoid language or explanations that are ambiguous or vague (Garrett, 2011: 69-71).

In consideration of the above-discussed guides, Table 2 outlines the Functional Specifications of the app prototype which have been kept positive, specific and non-subjective as discussed by Garrett (2011: 69-71). The below (Table 2) consolidates these three aspects to provide a more concise (less excessive table) description of the functional specifications of the app prototype. Further interpreting Garrett's rules in simpler terms as, be positive (what problem it solves); be specific (describe it); avoid subjective language (be clear).

Table 2: List of functional specifications in the FIFA eSports mobile app prototype.

FUNCTION	THE PURPOSE
	<i>Be positive: What does it solve? Be specific: Description; Avoid subjective language: Be clear.</i>
1. Loading bar	The loading bar indicates the apps loading progress with an animated loading bar that fills up from the left to right. This serves as a visual guide that shows the user that the loading action is in progress. The app will launch once the animated loading bar has filled (loaded) up. Adobe XD applies a similar animated loading bar when loading projects.
2. Primary navigation (icons)	The primary navigation icons, present the homepage and primary categories of local eSports (Formal, Commercial, and Informal). They are introduced on the homepage and consistently located at the bottom menu of each page. They serve as quick links that allow the user to bypass sub-categories or pages on the app. Instagram applies a similar approach to display links to the homepage, reels, search etc.
3. Hamburger menu (icon)	The hamburger menu (icon) is located at the top right corner of the navigation menu (as three stacked bars), collapses (hides) the secondary navigation links. This minimises the horizontal space occupied by the menu, preventing a narrowed viewing space of the page on a user's mobile screen. Facebook also uses a hamburger menu (top right corner), however it is more for the less used links such as memories, groups, events etc. Contrarily, The Netflix app places it on the top left corner, to accommodate the search tool.
4. Auto-filled forms	In the context of the prototype, text fields are auto-filled with placeholder (text) information to protect users' personal information while testing the prototype on the sign-in, sign-up. Join or create LAN forms. This allows the user to continue the app testing when selecting the 'call to actions' such as continue, submit, login etc. Google forms applies this approach to autofill a user's saved data.
5. Page slide transitions	Each page on the app has a slide transition (slides right) when the user navigates forward and (slides left) when navigating backwards. This aims to prevent the user feeling that they are still on the same page. Apple's iOS settings app is an example of this transition approach between pages.
6. Image links	Images on the app also serve as direct links to featured stories or articles, when a user opts not to use the menu. Image links are activated when clicked, and deactivated as normal images, once the user has reached the page that was prompted by the specific image. Pinterest images function similarly to pin or link to content.
7. Secondary navigation (buttons)	The secondary navigation links are located within the drop downs of the burger menus (icon converts to an 'X' when clicked or expanded). These links present sub-categories and featured topics, to guide the user structurally through the extensive app content, minimising confusion. Facebook similarly has its secondary links in the burger menu.
8. Read more (buttons)	The read more buttons are located at the bottom left of the content they will expand when clicked. They provide users with the option to 'read more' on a chosen topic of interest, without being overwhelmed or cluttered by other topics. This operates in the same manner as Facebook's 'see more' option.
9. Arrow navigation	The arrow navigations are located at the top left or right side of the menus. Arrows pointing to the left navigate backwards (previous page) and arrows pointing to the right, navigate forward (next page). These serve as quick pointers to the next or previous pages, to provide the user with quicker options to navigate when they opt not to use the secondary links or icons. The Netflix app similarly uses arrows next to the button labels on dropdowns.

The Functional Specifications listed in the table above provide an overview of the main elements that make the app prototype function. These are the elements with which a user would directly interact. The purpose of every element is listed next to each one on the table (see Table 2), and these mainly focus on two aspects. These are first,

transitioning elements between pages like the loading bar, page slide-transitions. The rest of the elements allow the user to navigate through the prototype and include primary menu navigation, hamburger menu, auto-filled forms, image links, secondary navigation (buttons), read more (buttons) and arrow navigation. These functions will allow the user to experience the content and to play an interactive role in addressing the objective of the app of demonstrating the local *FIFA* eSports content.

4.2.3 The Structure

Here, we discuss a key stage in structuring a good UX of the app to meet the app objectives of demonstrating local *FIFA* eSports content through the elements of UX design. This **third plane** of Garrett's model is the structure plane of the development, which defines how users move through the system, whether it be a site or app, etc. (Garrett, 2011: 29). It does this through defining all the categories and possible avenues the user can access or move to from page to page, including the manner in which all the features fit together (Garrett, 2011: 20-21). The structure was one of the key components in conceptualising the prototype. It allowed a bird's eye view of the scope of the app and how to structure the content accordingly. Below, we discuss two key aspects that work together to build the structure, namely, the Information Architecture, and the Interaction Design.

- **Information Architecture**

According to Garrett (2011: 30), 'For information resources, the structure is the information architecture: the arrangement of content elements to facilitate human understanding.' This means that the focus here is to organise content in a manner that makes it easier for the user to understand it, which directly links to the research aims of getting a better understanding of local eSports and *FIFA* eSports through the app prototype.

In both information architecture and interaction design, we need to have a good awareness and understanding of how people consume information and facilitate the sequence in which the information is presented to them (Garrett, 2011: 81). Garrett (2011: 89) adds that 'On content sites, information architecture is concerned with

creating organizational and navigational schemes that allow users to move through site content efficiently and effectively.’ However, the principle of organising information for users is not a new practice; it can even be exemplified in how this research document was structured, including the different chapters, headings, sub-headings, and so on. We can consider a key organisational component that makes this possible as being ‘categorisation schemes’ (Garrett, 2011: 89). In other words, creating categories of information can make the information easier for the user to consume, allowing them to focus on their specific needs versus overwhelming them (information overload).

Garrett discusses two approaches that can be used to achieve these ‘categorisation schemes’, namely, the **top-down** and **bottom-up** approach. The **top-down approach** is one that is ideal to plan the categories of the content, as it outlines the core content and considers subcategories under each core content theme. This is guided by the previously mentioned list of content requirements of what the user needed to know or learn from the prototype. Garrett (2011: 90) argues: ‘Approaching the architecture from the top down can sometimes cause important details about the content itself to be overlooked.’ This proved true, as the subcategories of content needed to be revisited as more ideas were developed. This was opposed to restricting the structure to the researcher’s own preconceived assumptions on the topic of *FIFA* eSports.

The alternative **bottom-up** approach takes a reversed perspective to structuring with categories and subcategories. Here, the focus is on gathering source material into low-level categories and later into higher-level categories to build the structure that best reflects the strategy (our product objectives and user needs) (Garrett, 2011: 89). Reflecting on progress, this method allowed categories to form as research progressed. The research revealed layers of information that had not been fully anticipated and later had to be considered in a hierarchy of importance and progressive presentation. Hence, creating smaller subcategories of content could later be grouped accordingly.

Garrett (2011: 90) argues that ‘a bottom-up approach can sometimes result in an architecture so precisely tuned and fitted to the existing content that it isn’t flexible enough to accommodate changes or additions.’ The same proved true in the study,

as readjusting the smaller categories and structure in general to allow more flexibility to achieve a clear structure. Garrett (2011: 90) states: 'Striking a balance between top-down and bottom-up thinking is the only way to make sure the final result can avoid these pitfalls'. We could refer to this as a mixed approach; this, indeed, proved to be the way forward. There was similar experience in the study when moving back and forth (bottom and top) in parts of the process, such as the Information Architecture (Sitemap) and Functional Specifications. This shows that no one part of the five planes of UX is truly complete or set in stone until the entire prototype is complete.

Table 3 summarises the main categories and subcategories that began to emerge through the research. Here, the mixed approach of both **top-down** and **bottom-up** is applied, to form a hierarchy that later groups by levels of importance:

Table 3: List of the Structure levels on the FIFA eSports mobile app prototype.

FIFA eSports app prototype - Structure		
Level 1	- Primary Navigation	• Home • What is eSports? • Formal eSports • Commercial eSports • Informal eSports
Level 2	- Secondary Navigation	What is eSports? • eSports Followers • Gaming as an Entertainment Platform
		Formal eSports • MSSA • SAFA • USSA E-sports
		Commercial eSports • Live Streaming • Tournaments • Team News
		Informal eSports • LAN's (Local Area Networks)

Level 3	- Tertiary Navigation	MSSA • Game Genres • Tournaments
		SAFA • SAFA eCup 2021
		USSA E-sports • ACGL University tournament
		Live Streaming • eSports Key Platforms report 2022 • FIFA viewer Interest report • Top Devices
		Tournaments • Local FIFA eSports Tournaments • The FIFAe Major tournaments
		Team News • Pirates eSports • Goliath Gaming • Bravado Gaming
		LAN's (Local Area Networks) • Join a LAN • Create a LAN

In practically organising structures, Garrett refers to the **node** as the basic unit for holding information structures. We can think of the node as a common representation of grouped information which is not limited in size but relative to the scope of the structure in question. A node could simply represent content elements on a page, the page itself or the pages of a website as a group of nodes, etc. (Garrett, 2011: 92-93). According to Garrett (2011: 93), 'These nodes can be arranged in many different ways, but these structures really fall into just a few general classes.' He classifies these into four general classes, namely, **Hierarchical** Structure, **Matrix** Structure, **Organic** Structure, and **Sequential** Structure. The key difference between these node structures is based on their unique node organisational techniques (Garrett 2011: 93). They are discussed individually in the following:

The **Hierarchical** Structure is also known as the Tree, or Hub-and-spoke structure, it operates as a flowchart, or uses the tree model (with reference to the family tree concept), where every node has a parent or child relationship or at times, both. The hierarchy is established with the parent situated above or ahead of the child or children (if multiple nodes are attached to it). This is a model that is also adopted in planning the structure of the prototype. This is based on its ability to visually communicate the hierarchy of the prototype's pages with immediate visual ease, from top to bottom. It is possible to achieve this structure with hand drawn ideation techniques such as mind mapping, however, there are many online tools that visually digitise the process, allowing for ease of editing and shifting nodes.

These tools are associated with a process commonly used by designers called 'Sitemaps'. According to Garrett (2011, 103), 'A site map is a common remote navigation tool that gives users a concise, one-page snapshot of the overall site architecture.' Garrett also refers to a term that is more popular internally for sitemaps as 'architecture diagrams'. In describing the purpose of the diagrams, Garrett (2011: 102) adds, 'It's more important to document conceptual relationships: Which categories go together, and which remain separate? How do the steps in a given interaction sequence fit together?'. Garrett also conjectures the term 'Visual Vocabulary', which similarly defines the same process but includes his specific style of visual elements. Through personal experience, the term *sitemap* is one that is quite commonly used, including its search engine optimised (SEO) friendliness when searching for examples and resources online. However, these are not the only descriptions of the process; Zhang (2022: 18) states that 'During the UI design process, a user flow is often represented as a flow chart which can demonstrate the connection between screens and user interactions'. Perhaps the key visual element emphasised (outside of the included functionality aspects) is the 'screens' that are only depicted with various shapes in Garret's diagrams. However, this is not a major contradiction, as the fundamental purpose of representing pages is mutual.

In the structural phase of content organisation, a free online site mapping tool called '*GlooMaps*' was applied, mostly due to its ease of use. The structure is, however, an ongoing process as the research progresses. Nodes are added and adjusted in the

structure accordingly. *GlooMaps* does present some limitations in its structure, as it cannot connect a child node to more than one parent node; something that would be achievable in a **Matrix** Structure. For this purpose, another free online tool called *FlowMapp* was utilised for flexibility. In describing why this Matrix feature is important for the structure, Garrett (2011: 30) explains: 'For example, if some of your users really want to browse products by color, but others need to browse by size, a matrix can accommodate both groups.' *GlooMaps* does have a **Matrix** Structure option; however, it is only a layout option and does not fully allow multiple connections from a child node to more than one parent node.

The **Matrix** Structure hence gives the user the flexibility to move along two or more dimensions in the node structure, from node to node. Garrett (2011: 93-94) adds that 'Matrix structures are often useful for enabling users with different needs to navigate through the same content, because each user need can be associated with one Hierarchical structure axis of the matrix.' However, Garrett further advises not to exceed three dimensions, as it can overwhelm the user, granted the human brain is not well equipped to visualise four or more dimensions in a structure (Garrett, 2011: 94). This statement proved to be a useful space for consideration, as the structure (sitemap) created on the *FlowMapp* became too detailed due to the flexibility of the application (See Figure 3). However, this assisted in thinking through the details of the app content, to create a more concise version back in *GlooMaps* that would be more user friendly (See Figure 4):

BEFORE[View]:



Figure 3: Screenshot showing the detailed draft sitemap produced in FlowMapp (Flowmapp, 2022).

AFTER:

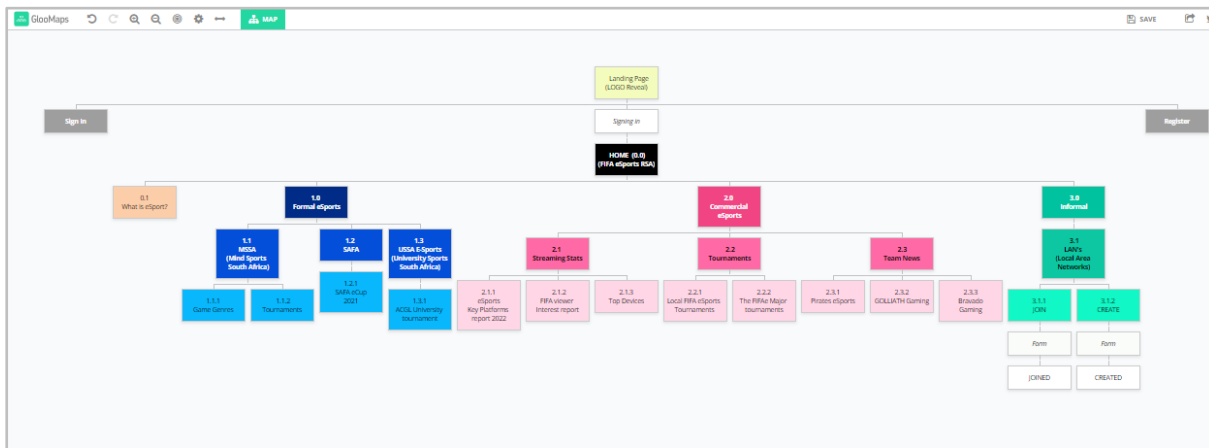


Figure 4: Screenshot showing the final sitemap produced in GlooMaps (GlooMaps, 2022).

The **Organic** Structure, on the other hand, does have a clear structured hierarchy but a rather free flowing node structure. Here nodes are flexible and may connect to multiple nodes; this structure encourages free exploration. This is a function that can be achieved with software such as *FlowMapp* (see Figure 3) that has these multiple links in various parts of the hierarchical structure. In *GlooMaps*, however, the software does not make this function possible. Therefore, it was important to take advantage of the software's ability to fulfil this function when linking pages in Adobe XD. Adobe XD uses nodes that allow the user to link pages without using any code. Here, the function of flexible nodes was made possible, as seen in Figure 5.

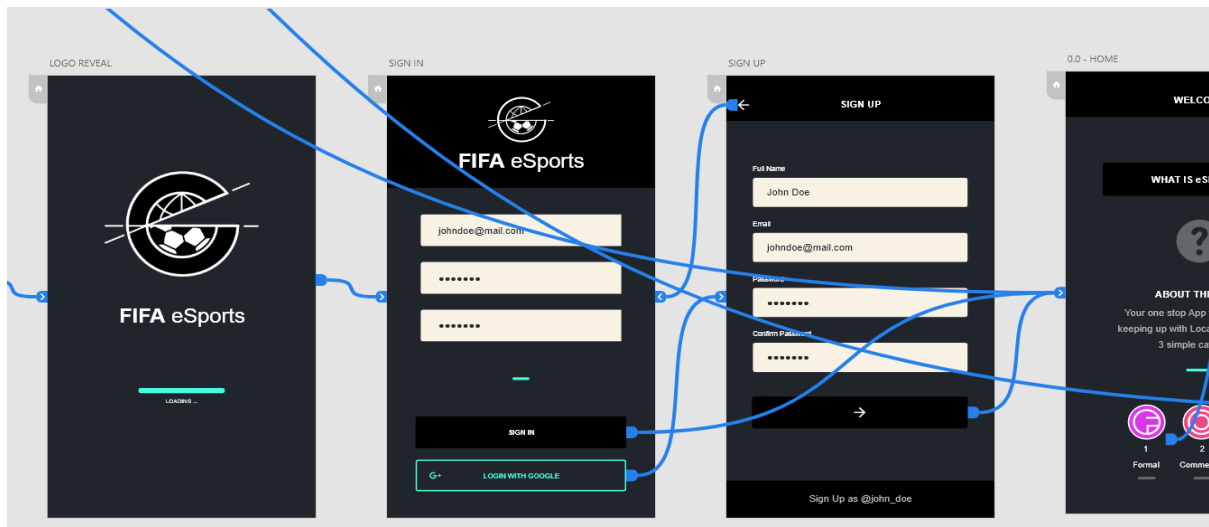


Figure 5: Screenshot of the linking nodes from distance to close-up view (Adobe XD, 2022).

There are, however, some drawbacks to using organic nodes (Figure 5). It may present challenges when users need to find their way back to specific content (Garrett, 2011: 94). At a distance, when we view all the prototype pages, it becomes nearly impossible to discern from the web of nodes where each one connects. This was hence a major factor in not applying the organic structure in the sitemap (which needs to be concise) and only in Adobe XD, where it is required for creating links. It is, however, worth noting that these nodes will not be visible to users in the final prototype; these are only visible in the back end of the software.

The **Sequential** Structure is technically the most basic and commonly used information structure. It simply gives information in a linear manner or a step-by-step approach as with many information sources, such as books, audio, video, or instructional material (Garrett, 2011: 94). This approach, however, may not offer as much flexibility and freedom in the context of an interactive exploratory prototype.

- **Interaction Design**

Interaction design focuses on responding to the user's interaction with the system. Here we discuss another key aspect of the structure that will ensure that the research objective of demonstrating local *FIFA* eSports through the app prototype is interactive, in the form of Interaction design. This discipline originates from Interface Design but

is now recognised separately and is aimed at creating a structured experience for the user (Garrett, 2011: 80). Garrett (2011: 81) adds that 'Interaction design concerns the options involved in performing and completing tasks'. Table 4 is a summary of the options presented on the prototype app system and how it behaves in response to the user's interaction.

Table 4: List of the Interaction Design elements on the FIFA eSports mobile app prototype.

<i>FIFA</i> eSports app – Interaction Design		
Interaction	Option 1	Option 2
- Navigation (Buttons)	Prompts the user to Sign-in to the app.	Prompts the user to Login with Google (Account).
	Prompts the user to Join a LAN.	Prompts the user to Create a LAN.
- Arrow Navigations	Allows the user to move to the next page.	Allows the user to move to the previous page.
- Image Links	Leads the user to featured stories.	Leads the user to the specific topic of the image.

Table 4 describes the type of interaction the user will encounter on the app and expresses two options of how the system will behave in response to the user's choices. The Navigation buttons on the prototype are linked to prompts that request the user to choose how to log in (see Figure 6 – left-side screenshot), they also prompt choices on Joining or Creating LANs. The Arrow navigations are placed at the top left corner (point to the left) of every page, excluding the landing and homepages of the app (see Figure 6 – right-side screenshot), they allow users to move back to the previous page. There is only one arrow navigation that moves forward (points right) to the next page, found on the 'What is eSports?' page button on the homepage (see Figure 6 – middle screenshot). This is mainly to emphasise this structurally unique page of the prototype. All the images on the prototype are linked to either featured stories or the specified content for ease of access to the sub-sections of the Formal, Commercial, or Informal category main pages (see Figure 6 – middle screenshot). The following are examples of how the Interactive design elements are placed on the prototype pages:

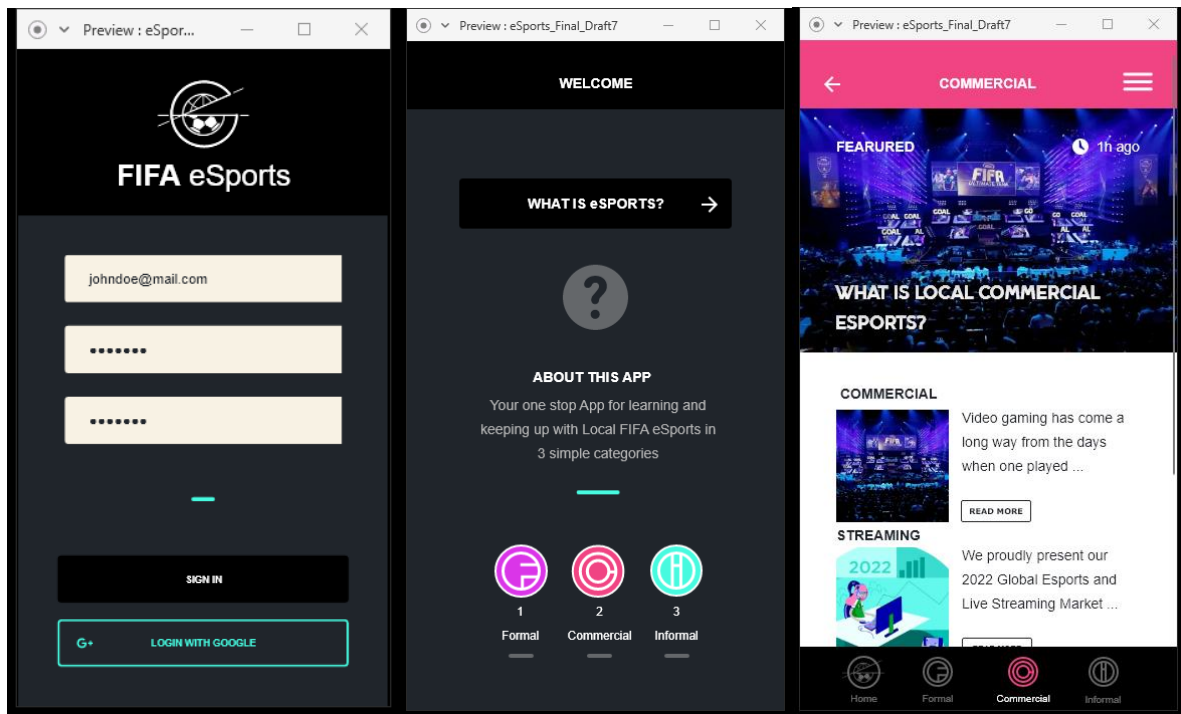


Figure 6: Screenshots of the Login page, Home page, and Commercial category main page (Adobe XD, 2022).

4.2.4 The Skeleton

The **fourth plane** of Garrett's model is the Skeleton plane of development, which, as the term suggests, underlies the surface of the design. This phase underlies the visual structure we engage to meet the research objective, to present local *FIFA* eSports competitive structures to the user. The skeleton outlines the placement and layout arrangements of interface elements, such as buttons, controls, photos, text blocks, and all other design elements that we find on each page.

At this phase of the process, we visually create (concrete) elements from the (abstract) concepts outlined in the structure (Garrett, 2011: 20). The Skeleton plane can be broken up into three components, namely, the **Information design**, and on either side of it is the **Interface design**, and **Navigation design** (Garrett, 2011: 30). These are further discussed below:

Information design: When referring to information design, we primarily refer to efficiently presenting information in a manner that promotes user understanding (Garrett, 2011: 30).

Interface design: The Interface design is a process that focuses on the considered arrangement of interface elements, for the purpose of efficient functionality that users can interact with on the product's system (Garrett, 2011: 30).

Navigation design: The Navigation design describes the set of visual screen elements that the user needs to interact with, in order to move through the system (Garrett, 2011: 30).

Wireframes: The above three components of the Skeleton plane (**Information design, Interface design, and Navigation design**) are closely linked. Seeking solutions for one can easily overlap into the other (Garrett, 2011: 109). The wireframe is a key tool in resolving some of these challenges. According to Garrett (2011: 128), 'The wireframe is a bare-bones depiction (as the name suggests) of all the components of a page and how they fit together.' In essence, wireframes exemplify the skeleton of the product/prototype in a visually structured manner. They are basically annotated line drawings, done by hand or digitally, that portray the interface design layout of content elements, including the information and navigation placement, etc. (Garrett, 2011: 129).

According to Garrett (2011: 129), 'Wireframes are a necessary first step in the process of formally establishing the visual design for the site, but almost everyone involved in the development process will use them at some point.' Depending on how far one is in the process, the level of detail of the wireframe may vary. The main categories used to classify wireframes are that of **low fidelity** and **high fidelity**. According to Zhang (2022: 9), 'So far, fidelity has been presented as either low or high fidelity. However, in reality, these are very broad categories, and the fidelity of the prototype can change over the course of many iterations.'

The term 'fidelity' is the common factor in this process. Zhang (2022: 9) adds, 'Fidelity as it relates to a prototype refers to how well the prototype conveys the final look and feel of the final product. This can be in reference to the visual design, content, and interactivity of the prototype.' In Zhang's approach, we see the term fidelity being applied not only to wireframes, but also the prototype. However, the principal purpose of term evidently remains consistent. However, Zhang consolidates both the wireframe

and the prototype in the UI design process (User Interface), following the drafted user flow (presented as a flow chart), which we can resemble to Garretts' Visual Vocabulary (Garrett, 2011: 102).

According to Zhang (2022: 18), 'From there, the wireframes can then be made into clickable wireframe prototypes to test preliminary functionality.' With this approach, we could say that one is killing two birds with one stone and saving valuable time. Zhang (2022: 18) adds, 'This combination of steps within the UI design process as well as the use of graphs, UI design patterns, and sketching will hopefully speed up the overall prototyping speed of low-fidelity UI wireframes'. Adapting the insights from Garrett's elements of UX design process, hence, proved key when combined with Zhang's tips on speeding up the overall prototyping process from high- or low-fidelity UI wireframes.

The final product would thus serve as the high-fidelity prototype, but able to test the functionality through a clickable wireframe (Skeleton). In streamlining the process, Adobe XD was used. Adobe XD is a prototyping app that equips UX designers with the tools of planning UX layouts using wireframes, up to the finalised stages of handing over interactive prototypes to developers for coding (Keluskar, n.d). This way would not need to reconfigure the skeleton of the UI design in fully fledged design software such as Adobe Illustrator or Photoshop, but could rather focus on developing assets like the logo, etc. Below (Figure 7) is a sample of the medium fidelity prototype, which already resembles a structured app prototype awaiting the final details in design and content such as images, icons, colours, and so on.

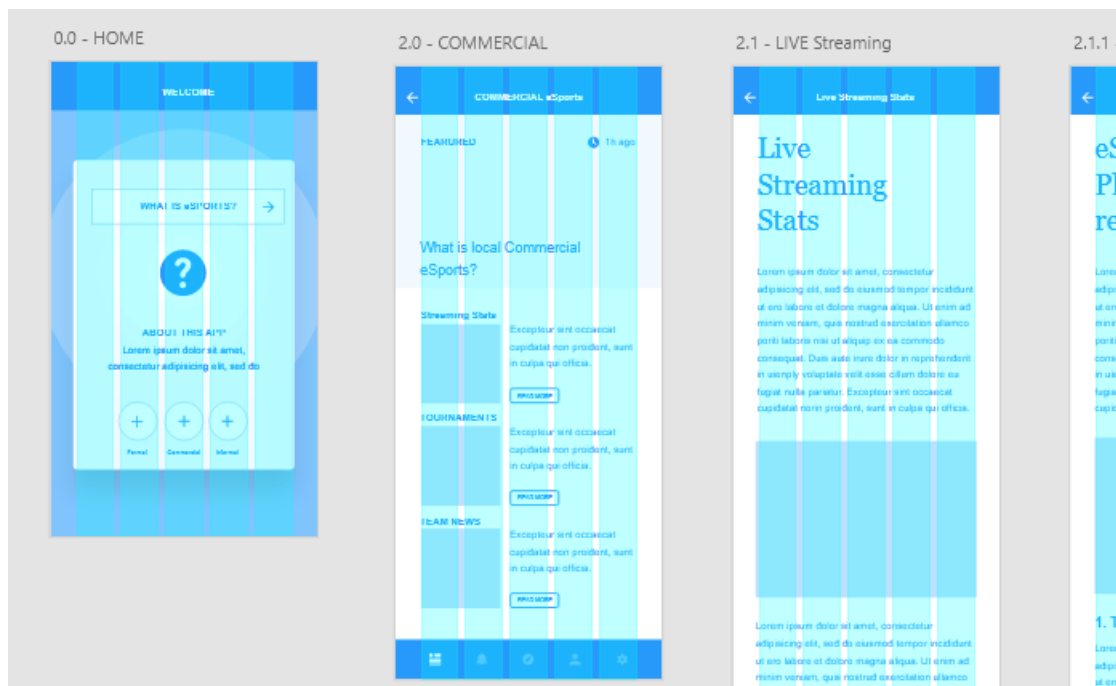


Figure 7: Screenshot showing the medium-fidelity wireframes created in Adobe XD (Adobe XD, 2022).

4.2.5 The Surface

Visual Design (*Moodboard - Visual style guide, final prototype*)

Finally, we have the **fifth plane** of Garrett's model, the surface plane of development, which, as the name suggests, is what the user sees and interacts with on the surface of the product or prototype. This phase allows the presentation of content in a structured and visually appealing manner, addressing the app objective of presenting the local *FIFA* eSports competitive structures through the app prototype. This concrete visual stage includes content in the form of information and assets such as images, icons, text, etc., that may be clickable and activate various functionalities (Garrett, 2011: 20). In this phase, Garrett (2011: 133) describes that 'users will notice first: the sensory design. Here, content, functionality, and aesthetics come together to produce a finished design that pleases the senses while fulfilling all the goals of the other four planes.'

Essentially, with sensory design, we consider how we can engage all the user's senses with the final product, namely, touch, hearing, and vision. However, in the

context of (UX) User Interface design, there is less focus on smell and taste (Garrett, 2011: 135-136). The key sense for UX designers, however, is the sense of vision with respect to the surface phase, which predominantly concerns the visual design. According to Garrett (2011: 136) 'because visual design plays a role in virtually every kind of product there is.' The focus, however, is not solely on aesthetics, but on how well the visual design works in terms of information design, interface design, and navigation design. Garrett further outlines some key aspects that need consideration in developing the visual design, namely, **Following the eye, Contrast and Uniformity, Internal and External Consistency, Colour Palettes and Typography, Design Comps, and style guides.**

In the context of the prototype, Garrett's framework was consulted to address the abovementioned aspects in the visual design process. These considerations are discussed in more depth below with regard to their focus and how they were applied practically to the design of the prototype.

- **Following the eye**

The technique of following the eye simply refers to the user's eye, how designers pay attention to visual elements in the design, and how those influence the user's behaviour while browsing the page (Garrett, 2011: 137). According to Garrett (2011: 138-139), 'If your design is successful, the pattern the user's eye follows will have two important qualities: First, it follows a smooth flow...Second, it gives users a sort of guided tour of the possibilities available to them without overwhelming them with detail.' The aspect of following a smooth flow seeks to avoid the design becoming too busy or cluttered for the user, leading to a negative UX. To achieve this, the design made use of enough white space and negative space. This means that there had to be enough breathing space between design elements and content, including text, images, and buttons.

The second aspect of 'giving users a guided tour of the possibilities available to them' seeks to do so subtly, while making it easier for them to achieve their tasks and intended goals in the interface design. In this aspect, hierarchy was an important consideration to apply, considering what the user would see first, and where they end.

The approach aimed to give some form of introduction, allowing for options depending on the user's goal, and then providing primary navigation to guide the user to the specific categories of content. At this initial stage, a quick overview of the app is given and a link is provided to introduce eSports to give users a foundational understanding.

The technique of following the eye has developed into technologies used by researchers that can track a user's eye browsing activities on the screen (Garrett, 2011: 137). This information can be useful for understanding users and what attracts them the most on the screen. Garrett, however, also states the effectiveness of asking users specific questions to determine these same factors. Garrett advises on the questions as follows:

'Where does the eye go first? What element of the design initially draws the users' attention? Are they drawn to something important to the product's strategic objectives? Or is the first object of their attention a distraction from their goals (or yours)?'

(Garrett 2011: 137)

Garrett's questions have been considered in this design process, including other design considerations as discussed below.

- **Contrast and uniformity**

According to Garrett (2011: 139), 'In visual design, the primary tool we use to draw the user's attention is contrast.' As designers, **Contrast** is one of the principles of design that we use to create emphasis on specific elements of the design. In UX design, these could be navigational elements and other groups of information design (Garrett, 2011: 139). Through experience, one also appreciates that Contrast can be applied to various elements of design, such as Line, Colour, Typography, Texture, Shape, etc. The key is often to style and differentiate the element of design we seek to contrast by either highlighting or making it bold, etc. to draw the attention of users.

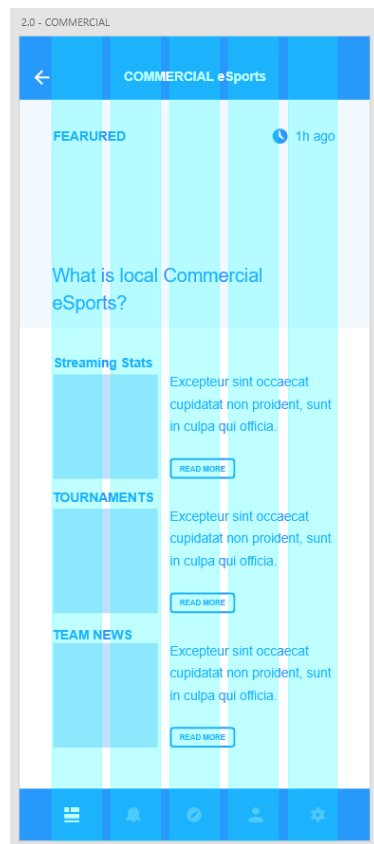
The researcher applied the principle of Contrast in various ways through the prototype design through key components, such as colour of the main categories, navigation, foreground and background elements, etc.

Uniformity is another principle that ensures that we avoid clutter and overwhelming design elements for the user on the interface design. For example, simply keeping design elements, such as navigation buttons, the same height and width creates Uniformity. One of the key techniques that give this structure to designers, are **Grid-based layouts**. These layouts are originally from the print discipline, but are effectively applied in digital design (Web, apps, etc.) too. Furthermore, Garrett (2011: 141) adds, 'This approach ensures uniformity of design through a master layout that is used as a template for creating layout variations.' Essentially, the Grid should carry all the design elements, which in turn, need to be kept uniform and consistent when designing (Garrett 2011: 141).

In the context of the prototype design, the **Grid-based layout** has also been a key consideration to create uniformity in the design. From experience of **Grid-based layouts**, the units that build them include columns and gutters. The gutters are simply the gaps between the columns. Generally, for desktop layouts, we use more columns, e.g., 8, 12, 16, etc. and less on mobile, e.g., 2, 4, 6 columns. Digital design software such as Adobe Creative Cloud (Illustrator, Photoshop, and XD) tend to focus on the (vertical) columns and not so much on rows when it comes to Grid layout design for the Web; however, they do consist of full background grids too.

Basically, the more horizontally designed elements in the design, the more columns (vertical) one would use. On the mobile prototype, since the screen dimension is smaller, it is practical to use a 6 column Grid based layout (see Figure 8), as this would give enough freedom to lay out various design elements uniformly. The effect of the grid is truly appreciated in the alignment of content, giving a seamless but structured layout. The grids are, of course, hidden to the user in the final prototype but are essentially visible for the designer in the back end of the design. It is still clear to see the effect of the grids, even after they have been hidden. They create a clear margin space and gutters to structure the content. Below (see Figure 8) is a visual example of the medium-fidelity wireframe, with- and without the 6 column grid layout:

6 Column (Visible Grid)



6 Column (Grid hidden)

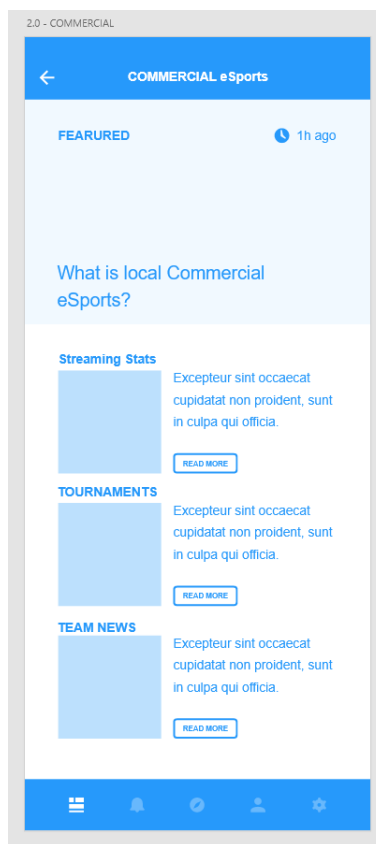


Figure 8: Screenshot showing wireframes, with- and without Grid (Adobe XD, 2022).

- **Internal and External Consistency**

Consistency is arguably one of the key attributes in UX design, as research has alluded to previously. According to Garrett (2011: 144), 'Enforcing design consistency across media presents your audience - customers, prospects, shareholders, employees, or casual Observers - with a uniform impression of your brand identity.' Therefore, **internal consistency** must be managed in all aspects of the product's design, for example, ensuring that the design is consistent on all pages (including navigational items, graphics, colours, etc.). **External consistency** must be managed through all brand products with a consistent identity (Garrett, 2011: 143). In this study however, the app does not conform to an existing brand, but it needed to share some consistencies with the genre of app (eSports) whilst maintaining its own unique and consistent brand identity. These are further discussed and categorised below.

- **Colour Palettes and Typography**

According to Garrett (2011: 145), '**Color** can be one of the most effective ways to communicate a brand identity.' This is something many brands have taken into account and have become somewhat synonymous with certain colours. In local football, we can think of brands like Orlando Pirates FC, which are synonymous with the colour black (they are also known as 'Ezi'mnyama ngenkani, loosely translated from Zulu as 'Those who are black by force'). Furthermore, Garrett (2011: 145) states 'That doesn't mean they use these colours to the exclusion of all others. The core brand colours are usually part of a broader color palette used in all of a company's materials.'

This is well demonstrated in the Orlando Pirates FC brand colour palette which includes red and white, also prevalent on their website. Garret further explores some general guides for using colours, such as brighter or bolder colours for the foreground elements and more muted colours for the backgrounds to create contrast and uniformity in the visual design (Garrett, 2011: 145). Through personal design experience, the use of colour naming through hexadecimals, such as RGB (Red, Green, Blue) for digital and CMYK (Cyan, Magenta, Yellow, Black) keeps brand colours consistent across all mediums. Thus, it was key to develop the core colours and colour palette for the prototype, which were sampled from creating a visual mood board, generated from the research inspiration (see Figure 9). 'Designers create inspirational mood boards to express their design ideas visually, through collages of images and text. They find appropriate images and reflect on them as they explore emergent design concepts' (Koch, Taffin, Lucero, & Mackay, 2020). This was a key step in developing a foundation for the conceptual theme and visual direction of the prototype. The mood or tone generated from the moodboard needed to capture the vibrancy and energy of eSports and *FIFA* football.

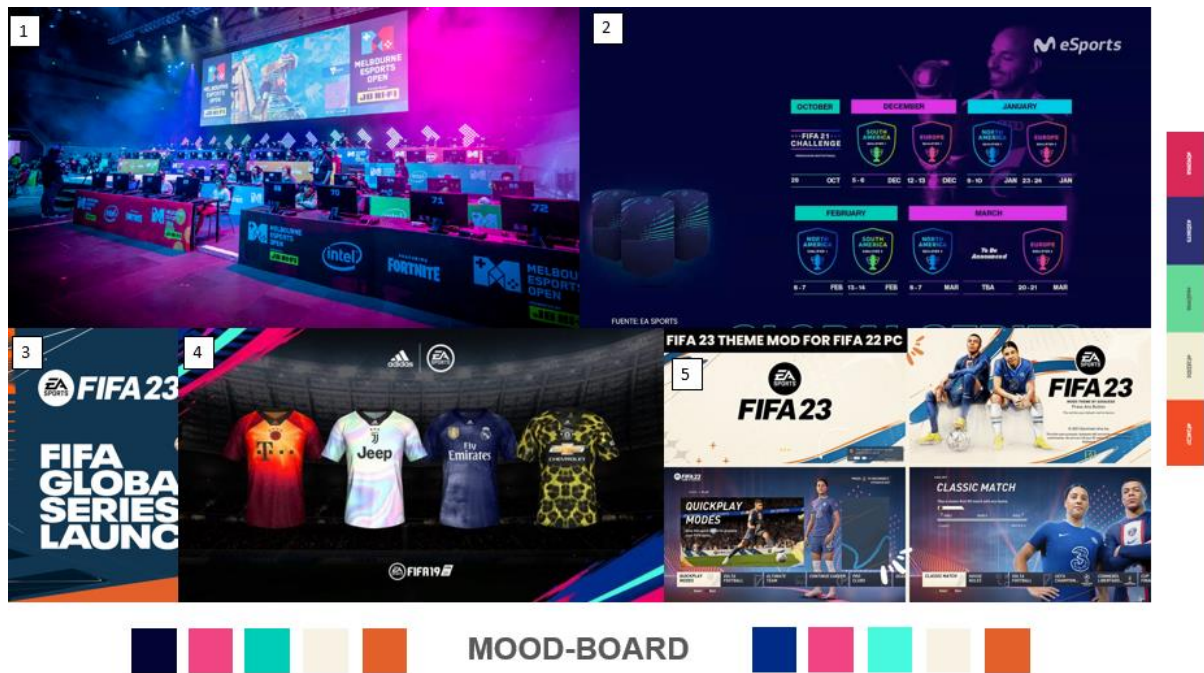


Figure 9: A Moodboard for eSports and EA's FIFA game interface (Bryne, 2019; EA FIFA esports, 2020; EA FIFA esports, 2022; Zorn, 2018; SidausXD, 2022).

In defining **Typography**, Garrett (2011: 145) describes 'the use of fonts or typefaces to create a particular visual style'. Like colours, some brands are synonymous with certain typefaces. This is partly due to the ability of creating their own typefaces for an extra uniqueness in brand identity; Coca Cola is one of the many that can be mentioned. However, this is not necessarily the direction taken in the prototype app brand identity, but the same intention of uniqueness was considered in selecting typefaces that resonate with the concept of the app. Garrett further mentions the importance of contrast in typography, with simpler typefaces for body copy and more expressive/display fonts for titles, navigation, etc. However, it is advised to use only a handful of fonts; from experience, no more than three is the general recommendation. The inspiration for the typography was also generated from the moodboard, and further refined in the style guide. The apparent emphasis of the bold *FIFA* headline font, paired with the more subtle and regular body copy text, is a combination applied in the design.

- **Design Comps and style guides**

According to Garrett (2011: 148), 'The most direct analog to the wireframe for the realm of visual design is the visual mock-up or design comp.' The term 'comp' simply stands for composition, which refers to the visualisation of the finished product, also known as mock-up. Garrett (2011: 149) states that 'The visual design doesn't have to match the wireframe precisely—it only has to account for the relative importance and grouping of elements presented in the wireframe.' Garrett continues to emphasise that there, however, needs to be a fair correlation between the elements of the wireframe and design comps (Garrett, 2011: 148). In a sense, the wireframe helps us plan the layout and content placement, but we can make subtle changes where needed on visual mock-up/design comps.

A critical tool in the transition from wireframes to design comps is the **style guide** (see below Figure 10). In defining the style guide, Garrett (2011: 149) states, 'The definitive documentation of the design decisions we have made is the style guide.' The Style Guide ensures that there is a definitive blueprint or guide for every aspect of the visual direction of the design. Garrett (2011: 150) further describes 'Global standards affecting every part of the product—such as design grids, color palettes, typography standards, or logo treatment guidelines—are usually the first things to go into a style guide.' From experience, these can be summarised into a concise one-pager that outlines all these design elements.

The style guide serves as one of most important guides for the designer or anyone else who would later need to apply a consistent and cohesive visual style for the brand (Garrett, 2011: 151). The style guide assisted in contextualising the inspiration from the moodboard into a well-structured visual guide, suited for web or specifically the mobile app prototype. According to Garrett (2011: 150), 'In some cases, the standards documented in the style guide will go all the way down to the level of individual interface and navigation elements.' The style guide had to include navigational elements such as buttons, hyperlinks, social media links, etc. (Figure 11) is a screenshot sample of the final style guide, presented in the form of an infographic created in Adobe XD. The changes that were made in the final style guide are indicated with the yellow arrows.

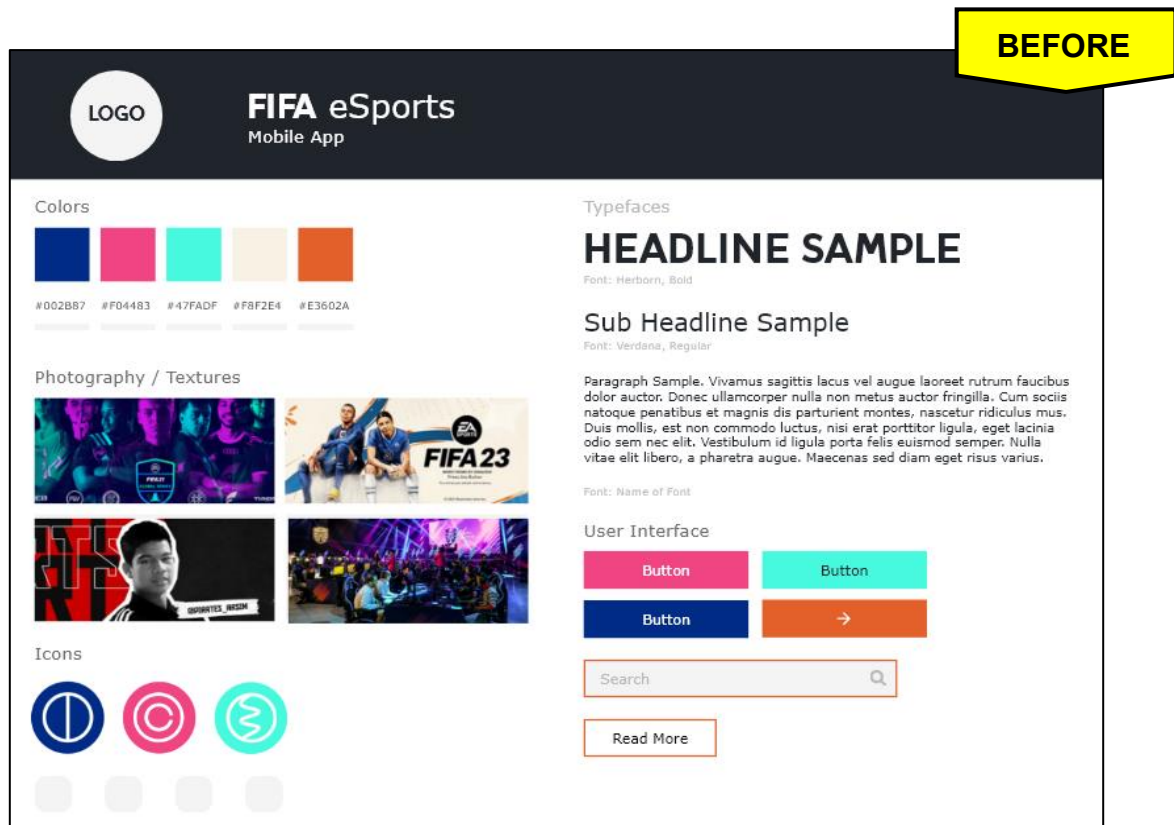


Figure 10: Screenshot of the style guide before the updated changes of Adobe XD (Adobe XD, 2022).

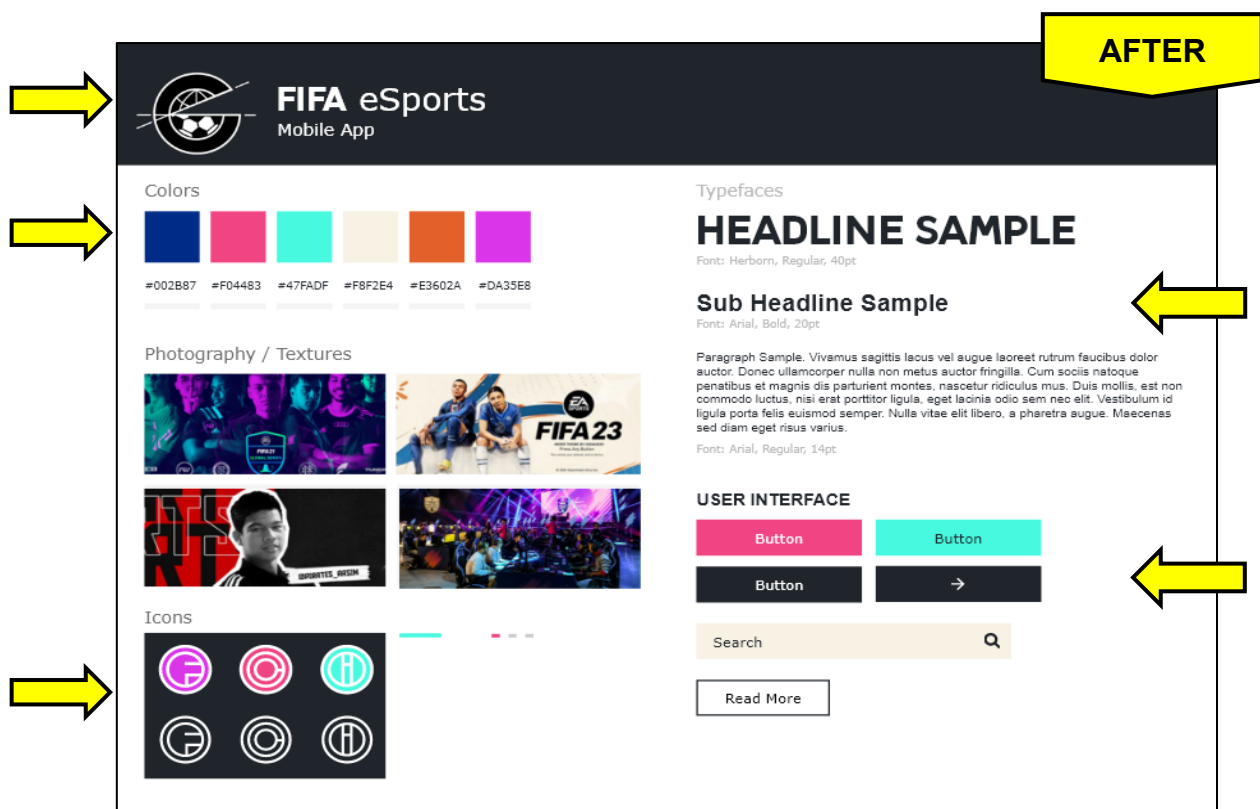


Figure 11: Screenshot of the final style guide created in Adobe XD (Adobe XD, 2022).

CHAPTER 5: DATA ANALYSIS

This chapter presents the findings of the primary data collection as derived from surveys and interviews. It includes an in-depth discussion of the findings and results to derive a reflective conclusion for the main research question.

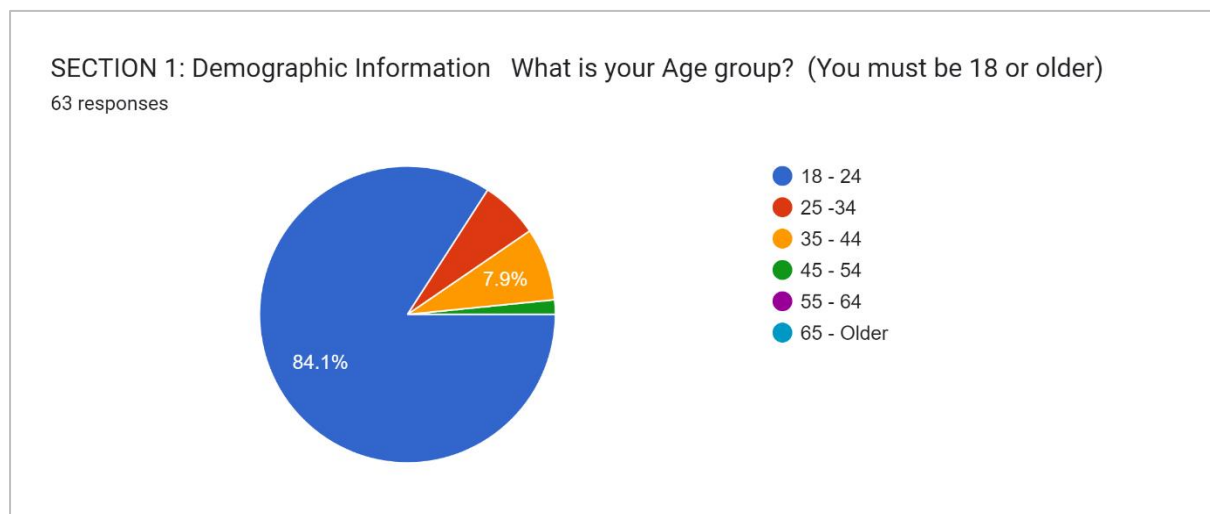
5.1 Survey Results

This section presents and analyses data collected from an online survey. The survey was distributed to students enrolled at a private higher education institution on 29 November 2023. A link to the survey was distributed to a small diverse sample group of students (approximately 500) in different qualifications that included experience design, communication design, gaming, and other qualifications. Distribution was achieved by sharing the survey link with the institution admin team, after securing an ethics clearance and a permission letter from the campus head. The admin team had access to student WhatsApp groups (via class reps) and emails, which allowed the distribution of the survey link remotely. Of those approximately 500 students, the survey only received 63 respondents to the survey, that is, a response rate of 12.6 %, by 15 January 2024.

The email request sent to the students included a link to the Google forms survey, with full instructions further indicating that the survey participation was anonymous and voluntary. Participants were also encouraged to share the survey with anyone who may have interest in the topic of eSports or general app testing. The survey instructions also indicated two phases to the participation, firstly usability testing of the *FIFA* (EA) app prototype and its user experience, and secondly, answering survey questions reflecting on the user experience of the prototype.

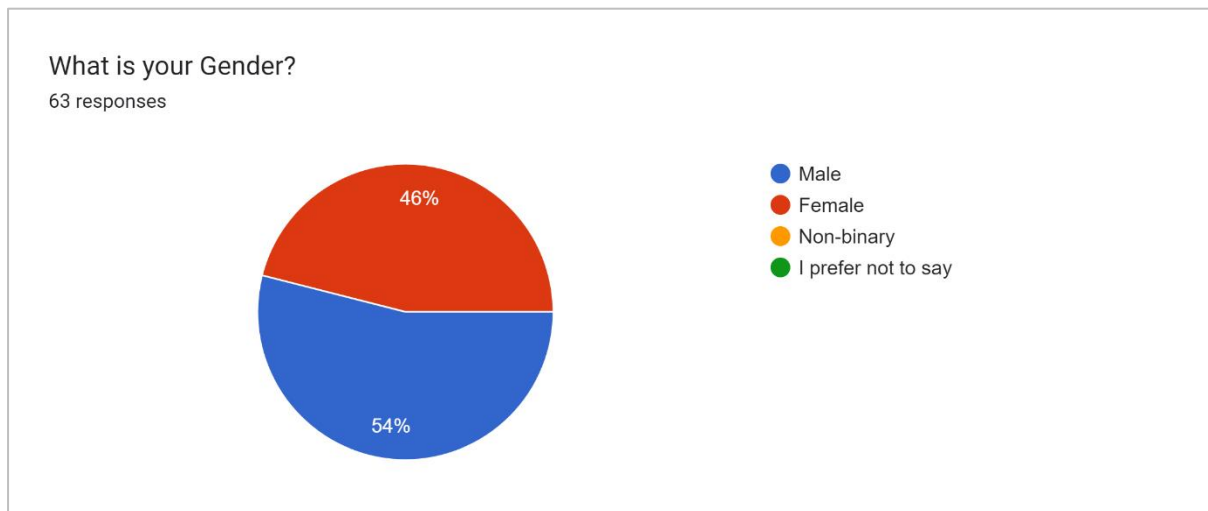
5.1.1 Survey findings

Table 5: Age demographic of the survey participants.



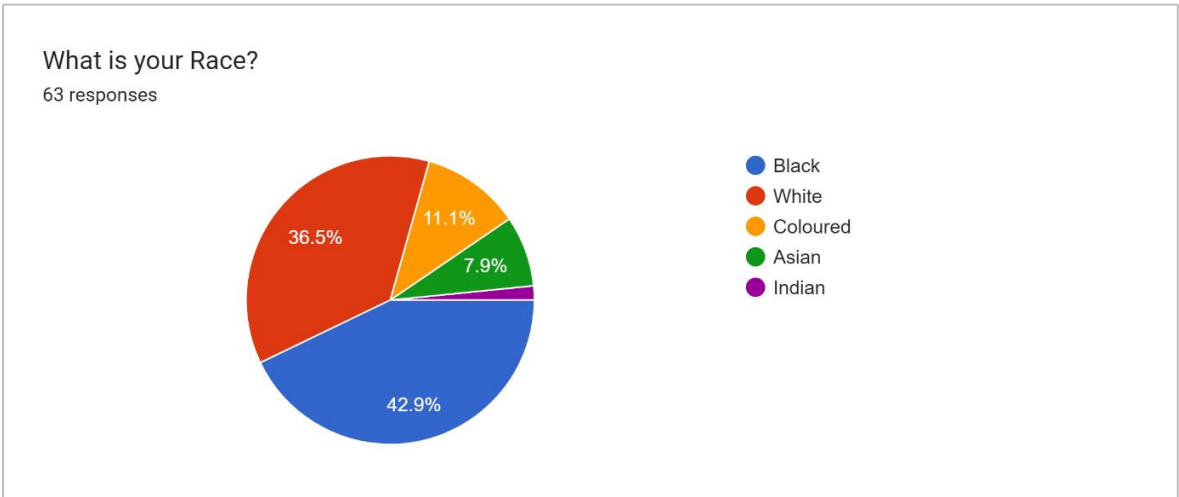
The above table demonstrates Section 1 of the demographic section, where respondents were asked ‘What is your age group?’ For ethical consent purposes, participants had to be 18 years or older to participate in the survey. Among the 63 respondents, the majority, specifically 84.1%, fall within the age range of 18 to 24. This demographic falls under the generational category of Gen Z's (aged 15 - 29), which revealed that 58% of this group follow eSports, according to a GWI Gaming report sample (GWI Gaming, 2021: 55). The correlation suggests a broad appeal and engagement amongst this demographic. There are four respondents in the age group of 25 - 34, making up 6.3% of the total, and five respondents in the 35 - 44 age group, which makes up 7.9% of the sample. There was a single respondent in the age group of 45 - 54, which accounted for the remaining 1.6%. On the basis of the analysis, it is evident that a large portion of the survey respondents are young adults. Specifically, 84.1% of the participants belong to the 18 - 24 age group. This indicates a noticeable preference for a younger demographic in the sample.

Table 6: Demographics of gender of the survey participants.



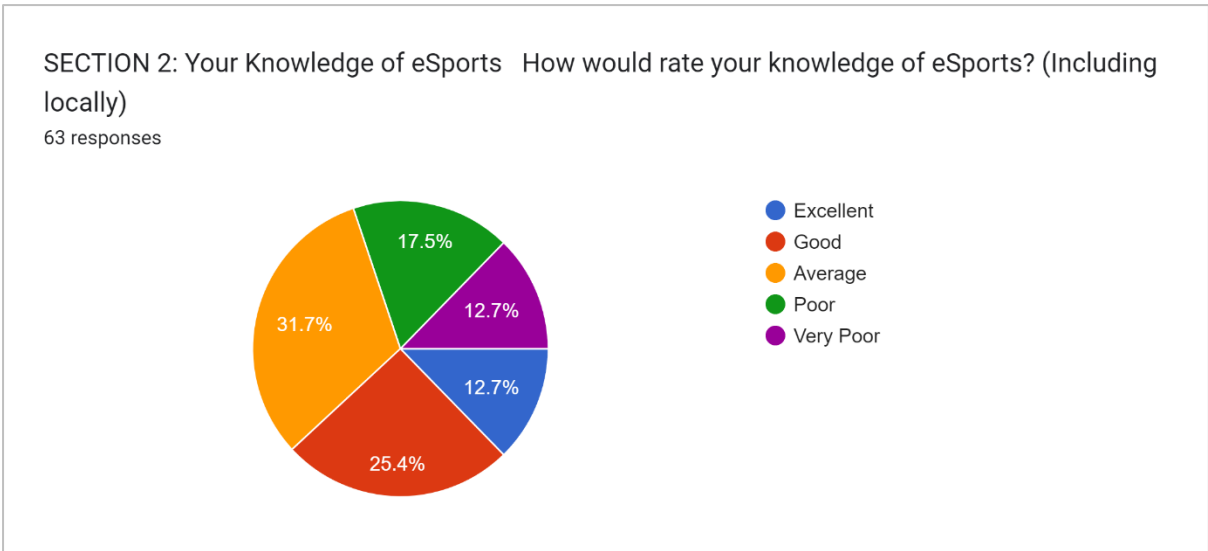
This table displays the responses to the question regarding individuals' gender. Of the 63 respondents, 29 identified as female (46%), and 34 as male (54%). In this dataset, there is a slight male majority. There were no respondents who identified as non-binary or who preferred not to say. This dataset aligns with the purposive sampling guided by the GWI Gaming report, discussed in Chapter 3 (under the population and sampling). The research that was reported on in the GWI Gaming report was conducted in 15 markets with a sample size of 7,506 eSports followers, similarly revealed a slight majority of 58% male and 42% female sample, suggesting a significant female sample should be considered (GWI Gaming, 2021: 55). This balance supports the importance of including a significant representation of female participants in the current survey and study.

Table 7: Race demographic of the survey participants.



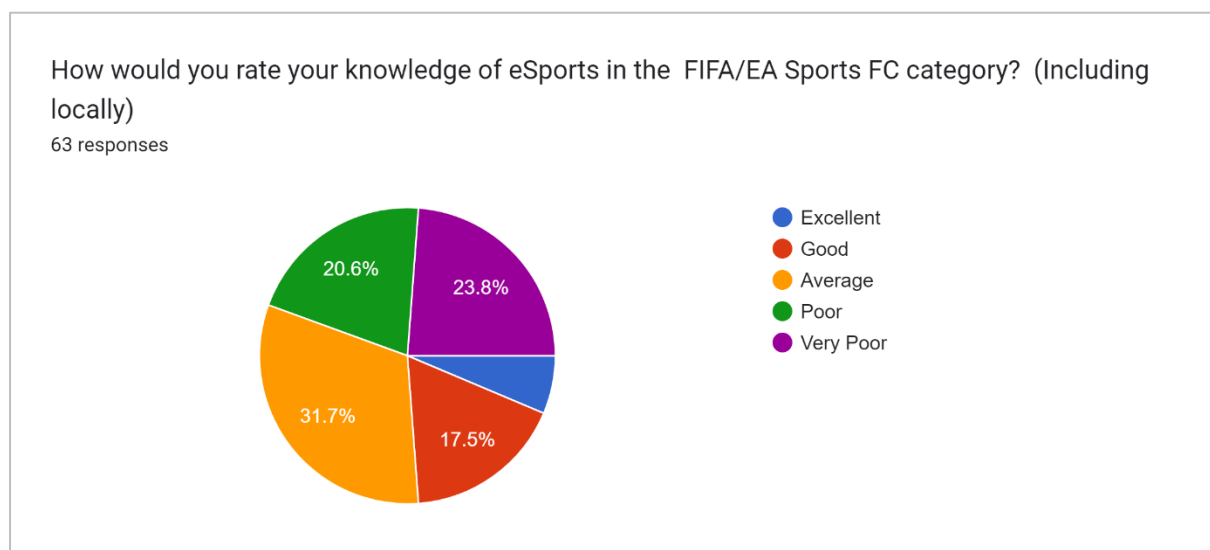
The table provided above displays the various responses given when individuals were asked about their racial background. Among the 63 respondents, the racial distribution is as follows. The sample consisted of 27 Black individuals, 23 white individuals, seven (7) coloured individuals, five (5) Asian individuals, and one (1) Indian individual. The most prevalent group in this sample is Black, followed by white. Coloured and Asian individuals are present in smaller numbers, while Indian individuals are the least represented.

Table 8: Rating the knowledge of eSports of the survey participants.



The table above displays the results of a survey asking individuals to rate their knowledge of eSports. Of the 63 respondents, 31.7% (20 individuals) rated their knowledge as 'average'. A significant portion of individuals, specifically 16 in number, consider their knowledge to be 'good,' which represents approximately 25.4% of the total. Of the total number of surveyed, 8 individuals, representing 12.7% of the respondents, rated their knowledge as 'excellent'. Of the group, 11 individuals, which represents 17.5% of the total, rated their knowledge as 'poor'. Finally, eight respondents, which represents 12.7% of the total, reported having a 'very poor' level of knowledge. Statistics indicate that most participants consider their knowledge of eSports to be average, while the remaining responses are fairly evenly distributed among the other categories.

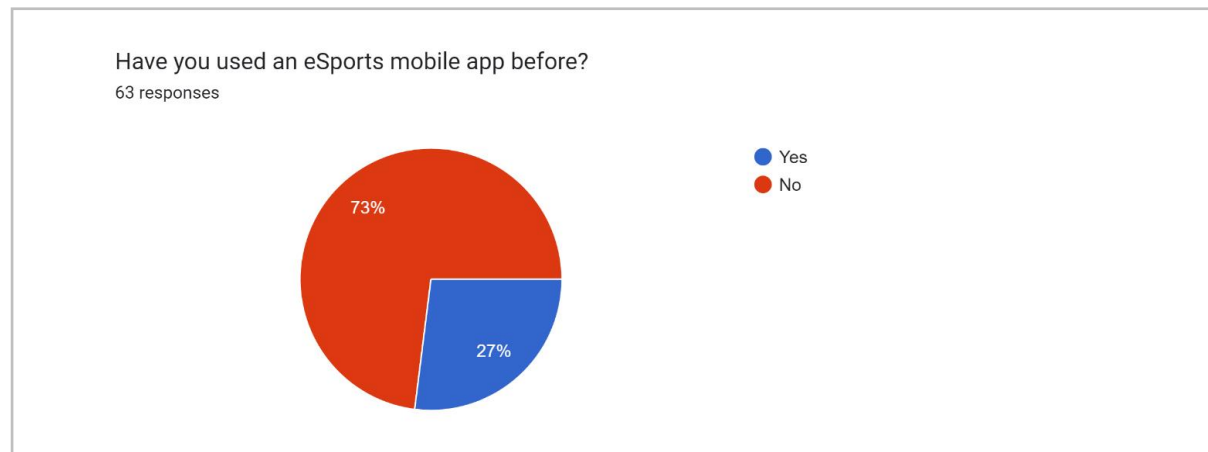
Table 9: Rating the knowledge of FIFA/EA eSports of the survey participants.



When considering the research question about evaluating one's understanding of eSports in the *FIFA/EA Sports FC* category, the answers from a total of 63 responses, reveal that 20 respondents reported an 'average' level of knowledge, which accounts for 31.7% of the total. Eleven respondents, representing 17.5%, identified their knowledge as 'good'. Four respondents, representing 6.3%, possess extensive knowledge. Thirteen respondents, or 20.6% of the total responses, have expressed a limited understanding. There were 15 respondents who expressed a lack of knowledge, making up 23.8% of the total. On the basis of the data, it seems that most

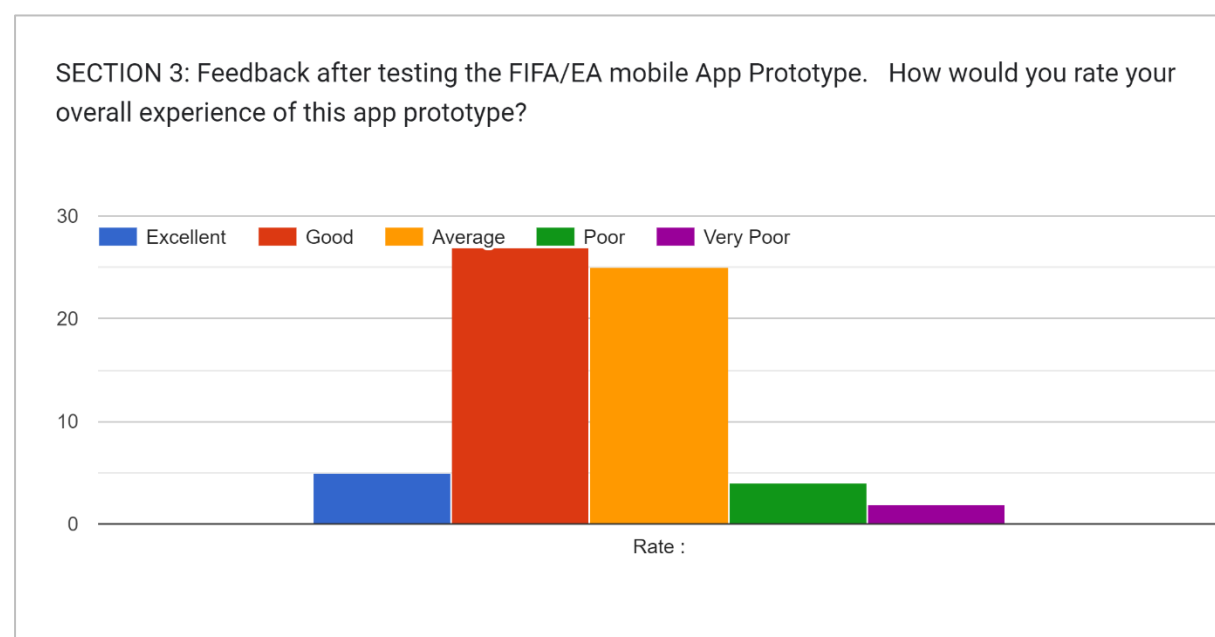
participants in the FIFA/EA Sports FC category have a moderate to high level of familiarity with eSports. Most of them rated their knowledge as 'average' or 'good'.

Table 10: eSports mobile app awareness of the survey participants.



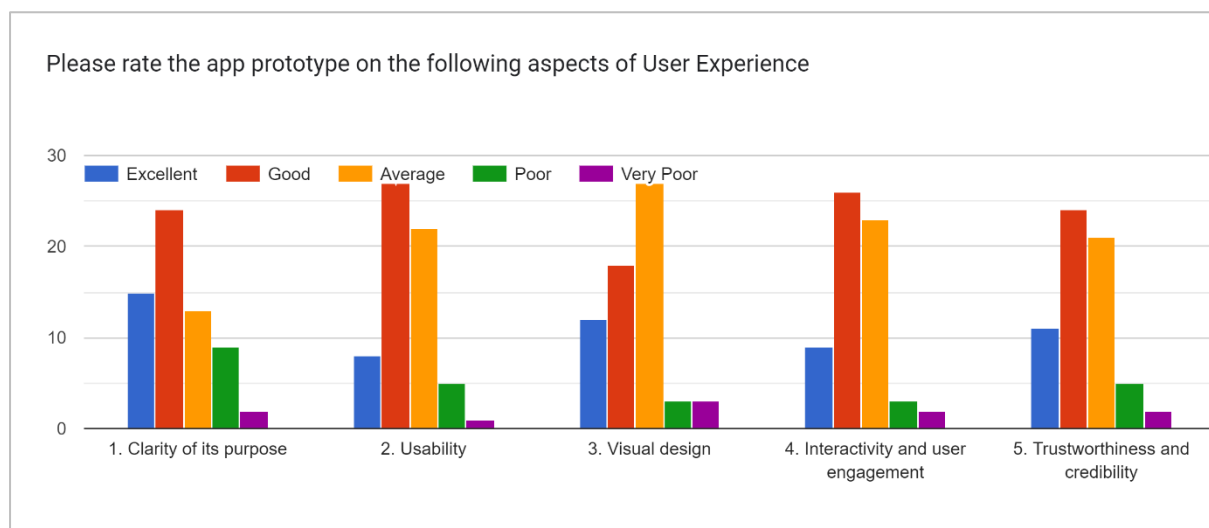
Of the 63 respondents, 46 answered 'no' when asked if they had used an eSports mobile app before, while 17 answered 'yes.' According to the data, most of the participants, 73%, have not yet used an eSports mobile app. Only 27% of the participants have already experienced using such an app.

Table 11: Overall prototype UX of the survey participants.



The overall experience of the FIFA/EA mobile app prototype was evaluated by 63 respondents, who provided the following ratings. Of the total respondents, most rated their experience as 'good' with a percentage of 42.9%. The 'average' rating followed closely behind, accounting for 39.7% of the feedback. A smaller percentage of users, 7.9%, reported an 'excellent' experience. On the other hand, some respondents, 6.4%, noted a 'poor' experience, while an even smaller number, 3.1%, described their experience as 'very poor'. The data indicate that the app prototype had a generally positive reception, with a majority of the respondents (50.8%) giving ratings of 'excellent' or 'good'. However, a significant proportion (39.7%) rated it as 'average'.

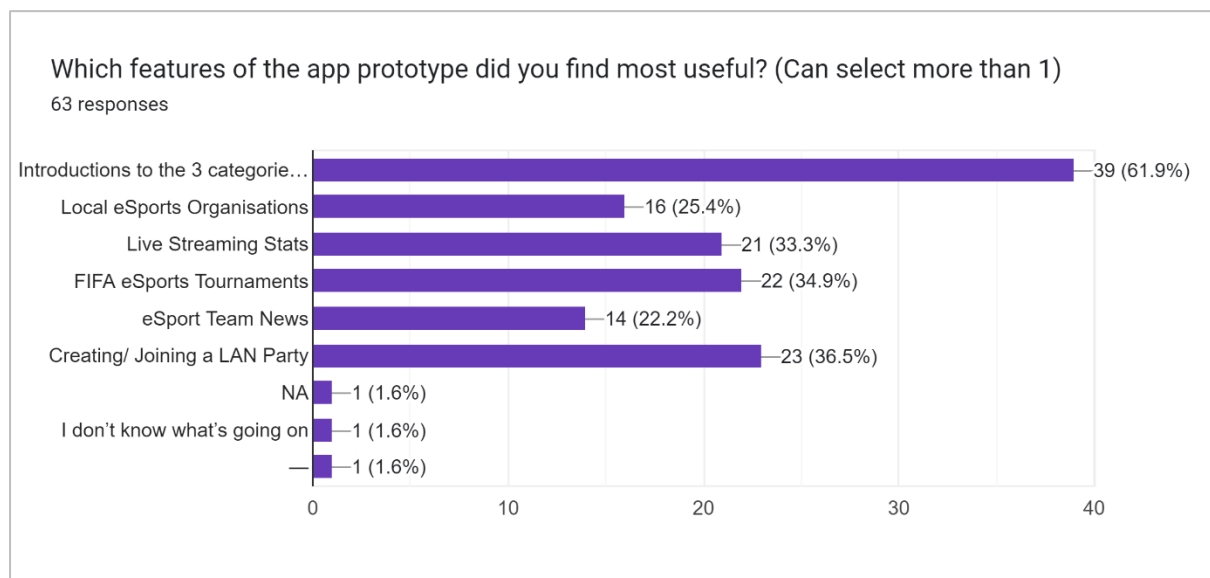
Table 12: Rating aspects of UX by the survey participants.



After assessing the clarity of purpose of the app prototype, feedback from 63 respondents indicated that 15 respondents, or 23.8%, rated it as 'excellent'. A total of 24 respondents, representing 38.1%, rated the purpose of the app as 'good'. Thirteen respondents, representing 20.6% of the total, considered it 'average', while nine respondents, 14.3%, rated it 'poor'. Additionally, two respondents, representing 3.2% of the total, rated the clarity of the purpose of the application as 'very poor'. The distribution reveals that the majority, 61.9%, had a positive perception of the app's purpose. However, a notable minority of 38.1% rated it as 'average' or below, suggesting that there is potential for improvement.

The app prototype received mixed opinions from 63 respondents when evaluating its usability aspect. Out of the total respondents, a small but significant percentage, 12.7%, rated the usability as 'excellent.' A total of 27 respondents, representing 42.9%, reported that they found the usability to be 'good'. Out of the respondents, 22 individuals, representing 34.9%, rated the usability as 'average'. A smaller group of five respondents, representing 7.9%, described usability as 'poor.' Lastly, a single respondent, which accounts for 1.6% of the total, rated usability as 'very poor'. According to this feedback, a majority of users (55.6%) have rated the app's usability positively, while a significant portion (42.9%) consider it to be average, and a small percentage (9.5%) have a negative view of it. Based on the findings, it appears that most of the participants are content with the usability of the product. However, a significant number of people believe that there is room for improvement in terms of usability.

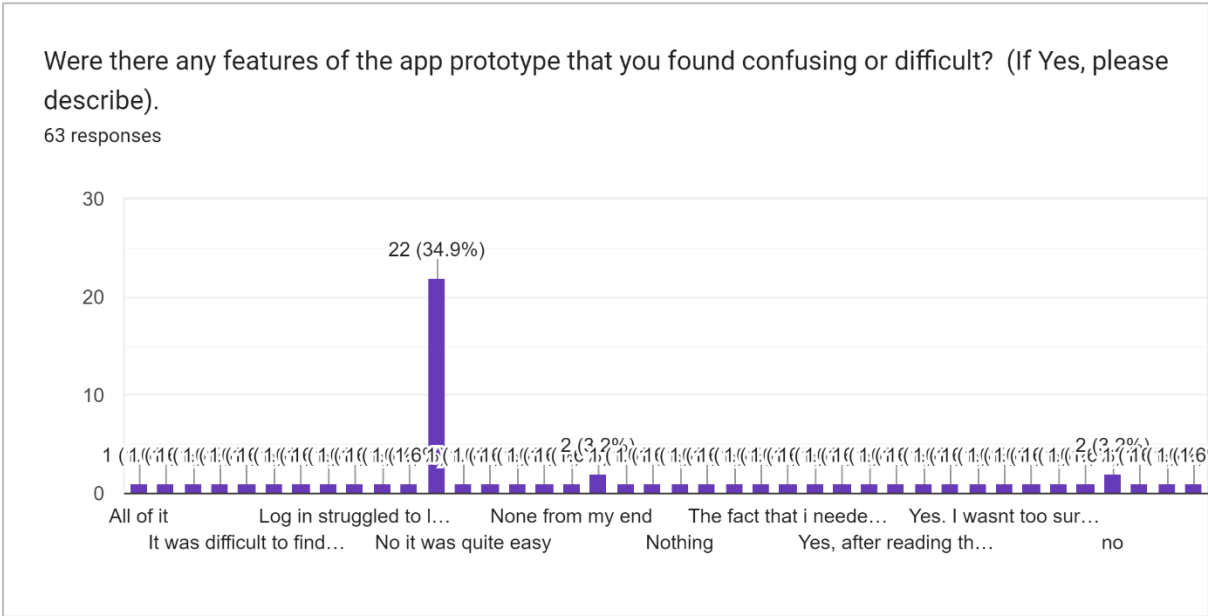
Table 13: Useful parts of the prototype identified by survey participants.



Of the 63 respondents, a significant majority, 39 individuals representing 61.9%, found that 'Introductions to the 3 categories of eSports' was the most valuable characteristic. Twenty-three participants chose 'Creating/Joining a LAN Party', representing 36.5% of the total. Twenty-one respondents selected 'Live streaming stats', which is 33.3% of the total. 'FIFA eSports tournaments' were chosen by 22 respondents, representing 34.9% of the total. 'Sport team news' was selected by 14 respondents, making up

22.2% of the total. Lastly, 16 respondents, representing 25.4%, found that 'local eSports organisations' were useful. A single respondent expressed confusion with the statement 'I don't know what's happening,' suggesting that a small percentage of individuals (1.6%) were uncertain about the features of the app. Two responses were unclear or invalid, marked by 'N/A' and '-', accounting for only 1.6% each. In general, the data suggest that users are highly interested in educational content related to eSports and community engagement through LAN parties. This indicates that these features are likely to be the main drivers of user engagement and satisfaction with the app.

Table 14: Difficulties of the prototype identified by survey participants.

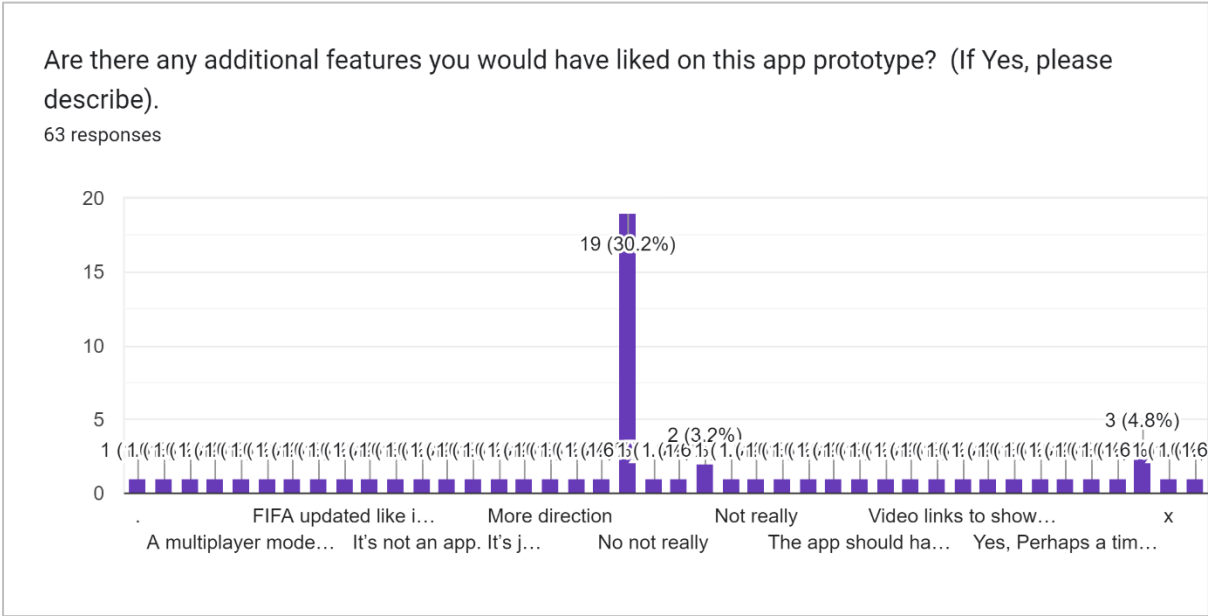


The survey question about confusing or difficult features of the app prototype received a range of responses. There were four responses that were unclear or invalid, marked by various symbols, representing a total of 6.3% in percentage calculations. Of the total of 63 respondents, a considerable portion of them, 36 in number, which represents 57.1%, responded negatively. This information can be found in (Table 14), where 22 respondents, representing 34.9%, indicated 'no'. Another 14 individuals, representing 22.2% of the respondents, responded negatively, with variations of 'no' or 'nothing' about expressing their ease and understanding of the app prototype.

However, a significant number of respondents, approximately 36.5%, provided feedback that highlighted specific issues.

Many critical responses highlighted the confusion surrounding the navigation and purpose of the app. Some users felt that it resembled a website too closely, making it difficult to understand where to click next. In addition, there were concerns about the amount of reading required, indicating a need for a simpler design. Some individuals found certain aspects, such as 'local sports organisations', the explanation of the '3 categories of eSports', and the 'log in' function, unclear. Some people mentioned that the UX could use more guidance, and one person described it as 'aimless scrolling.' Also, some users found that the colour scheme, especially the high amount of white, was visually straining. Additionally, it was noted that the app may not be suitable for those who are new to the subject matter and that there was a lack of excitement in exploring the presented content. One respondent found the navigation between pages to be disorganised, while others expressed confusion about the app's purpose, particularly when it came to features such as creating a LAN party.

Table 15: Additional features of the app that survey participants desired.

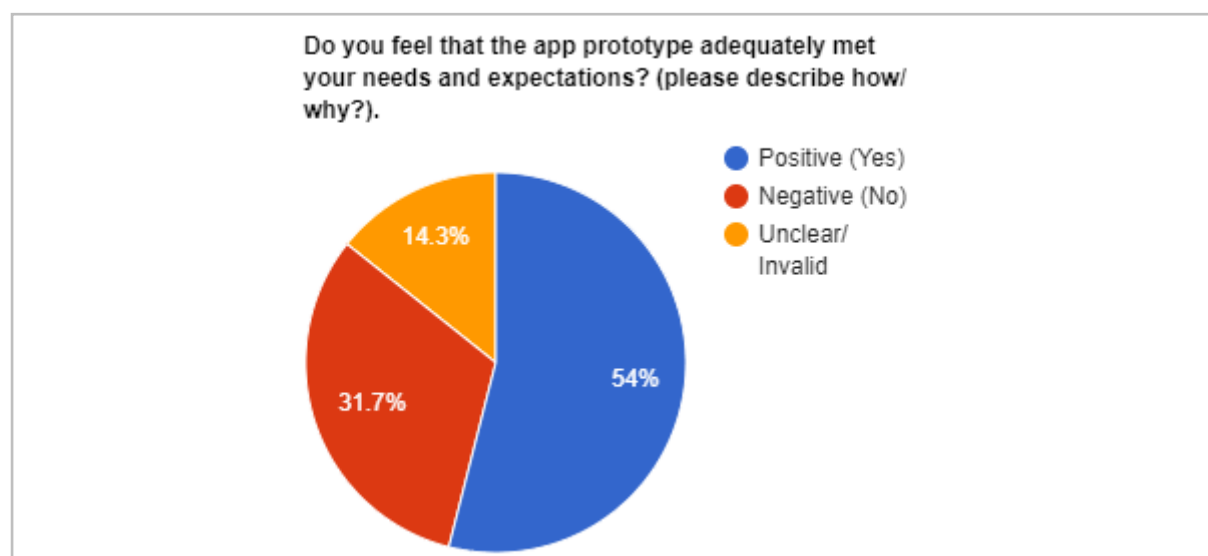


When examining the feedback from 63 participants about the app prototype, we found that four responses were unclear or invalid. These responses were marked with 'N/A',

'x', '—' and '.', and accounted for a combined 6.3% of the percentage calculations. Based on the responses, it was found that 35% of the participants, specifically 22 individuals, expressed satisfaction with the current features. Their responses included phrases like 'nope', 'nothing...', 'not really' and 'none', indicating that they did not feel the need for additional enhancements. Nineteen of these 22 simply responded 'no' (as seen in Table 15).

On the other hand, 37 (59%), which is a significant majority, expressed a desire for improvements in different areas of the app. Some users provided feedback on the app's visual appeal and design usability, expressing their desire for improved visuals and a sleeker overall UI design. There is a noticeable need for more options to engage with content in a more dynamic manner. This could involve incorporating video links to provide a visual representation of eSports or exploring interactive methods to engage with the content instead of relying solely on text. Furthermore, the report emphasised the need for functional improvements, specifically in terms of accessibility and relevant *FIFA* event links. For example, it was suggested to include links to specific social media platforms for tournaments and links to join or watch live events or player streams. This feedback highlights the importance of improving the app's visual appeal, interactivity, and functionality. It suggests that these areas are crucial for enhancing user satisfaction and engagement.

Table 16: User needs and expectations identified by survey participants (Good Calculations, 2024)



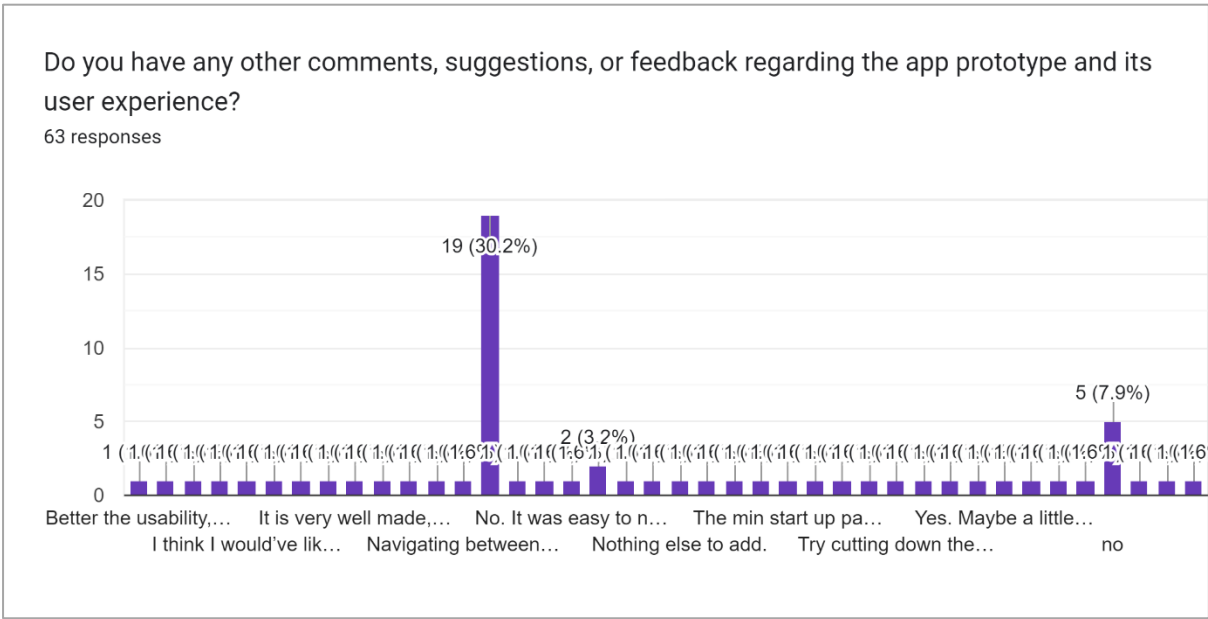
The chart above was created using the Good Calculators app (Pie Chart Calculator) because Google Forms did not display the data in a pie chart as requested. After analysing feedback from 63 participants on whether the app prototype is functional, the detailed examination shows user experiences. A slight majority of around 54%, which is 34 respondents, indicated 'yes', that the app met their expectations, that they appreciated its content, user interface, and aesthetic design. Positive feedback described the app as 'purposeful and efficient', 'very well made and easy to use' and 'visually appealing, easy to read and navigate.' These responses underscore the effectiveness of apps in providing engaging content.

However, 31.7% of the respondents, totalling 20 individuals, expressed dissatisfaction mainly by selecting 'no' due to issues such as poor performance, confusing layout, and lack of engaging content. Some users found the app too basic and lacking in features. Criticisms included comments such as 'found it a bit confusing and slow' and 'I'm not the target market', indicating a mismatch between user expectations and what the app offers.

Additionally, nine (9) contributing to 14.3% of the feedback were unclear or neutral, with responses such as 'I don't know what I was expecting', '.___' and 'N/A', indicating that some users were unsure, or did not have specific expectations from the app.

The feedback from the respondents shows a range of levels of satisfaction. It further provides ideas for future enhancements by improving user engagement, speeding up loading times, and tailoring content to meet user needs effectively to significantly boost user satisfaction. These changes could convert the more sceptical users into positive ones by ultimately improving the overall efficiency and attractiveness of the app.

Table 17: Additional UX comments from survey participants.



After receiving feedback on the features and enhancements for the prototype app, we made several key observations. A significant proportion of the participants, 19 individuals (30.2%) of the 63 respondents (as shown in Table 13), along with an additional 16 people (25.4%), totalling 36 individuals representing 55.6% of the respondents, expressed their satisfaction by responding with 'no', 'none', or 'nothing'. This suggests a high level of satisfaction with the current state of the app. Four (4) responses were unclear or invalid, as indicated by terms such as 'N/A' and 'x'. Two individuals encountered difficulties when trying to access the prototype, making up a total of 6.3%.

However, feedback from the other participants provided valuable insight into areas that could be improved. Some individuals expressed their desire for a visually appealing and engaging interface. Another user mentioned that the app's design could be more appealing and less basic, in order to better cater to the preferences of the eSports community. Another important aspect that was emphasised was the density of the text. It was suggested to include more visuals and reduce the amount of text to simplify navigation. Based on feedback from another user, navigating between pages and scrolling through content can sometimes be a bit perplexing. The website contains a significant amount of text that gives it an unprofessional appearance.

Additionally, there was a request for interactive features, such as live updates on tournament results and compelling call-to-actions. Practical features like a booking area or countdown timer were also proposed to improve usability. Suggestions were made to enhance animations and user engagement, with one participant recommending 'Maybe a little more animation to improve the user experience.'

In general, while the majority at 55.6% expressed satisfaction with the prototype, the feedback from others provided insights on enhancements that could boost the app's attractiveness and functionality for a wider audience within the eSports community.

5.1.2 Results of the interview

This section of the study presents the data collected from the interviews. The interviews were conducted by MS Team calls. The findings are presented and discussed in relation to each of the questions posed. The main responses are considered, and their findings are discussed in relation to the core theory being explored in the study.

This research seeks to investigate the applicability of Garrett's UX framework in modern design practices. Specifically, it examines the viewpoints of academic practitioners in the field of UX design. The aim is to uncover any differences between theory and practice by considering the long-standing influence of Garrett's framework in UX design education and practice. However, it is important to acknowledge that the design landscape is constantly evolving, which may result in new requirements or areas that need attention. To explore these aspects, we conducted qualitative interviews with five academic practitioners. The purpose of these interviews was to gain insights into the application of Garrett's UX framework and identify any discrepancies between theoretical frameworks and current design practices. This analysis explores the alignment between Garrett's framework of UX elements and current design practices, highlighting any gaps that may exist between the framework and real-world application. The findings and their implications will be discussed in detail. Below is an analysis and discussion of all the questions and responses from the semi-structured interviews.

Question 1:

Kindly introduce yourself and your academic professional role within the field of UX design (including years of experience)? Can include industry.

The purpose of the question

Collecting contextual information on the interviewee's experience and perspective within the UX design field. This provides a foundation for understanding their perspectives within the framework of their academic and possibly industry-related background.

Responses

The responses from the participants shed light on the wide range of perspectives and shared experiences in the UX design and education domains. Everyone has a combination of academic and practical experience, emphasising the significance of integrating theory with real-world application in UX education. The combination of their practical industry experience and academic expertise enhances the learning experience for students.

One notable similarity is the diverse range of backgrounds they bring to the table, including digital design, information technology, and animation. This reflects the interdisciplinary nature of UX design. 'So, my undergraduate degree is in multimedia, followed by my honours in animation. Currently, I am in the process of completing my Master's in Education in Information Technology and Communication, one participant says, highlighting the diverse range of fields that intersect in the realm of UX. One individual highlights the importance of applying UX principles to different projects, stating, 'I incorporate UX principles into all of my work, whether it involves website development or focusing on enhancing the UX for a particular client.'

The participants vary in their years of experience, ranging from three (3), to 26 years, and each has their own specific areas of focus within UX. This variety showcases the wide range of opportunities available in the field and the many ways to make a meaningful impact in UX design. For example, an experienced educator with extensive

experience in UX design mentioned starting in the field before it was even referred to as UX. This highlights how the field has evolved and how the pathways into UX roles have changed over time.

Question 2:

Which UX design methodologies or frameworks (including Garrett's framework of the elements of UX) do you emphasise in your teaching methods? How do you incorporate them with industry trends and evolving UX design practices?

I) The purpose of the question

To gain insight into the UX design frameworks and methodologies that the interviewee focuses on in their teaching, as well as how they incorporate these with current industry trends and evolving practices. This question aims to examine the practical implementation of theoretical frameworks in education.

II) Responses

Educators widely recognise the significance of incorporating basic, user-centred approaches, such as Garrett's framework and design thinking, into their teaching. Their responses highlight a general consensus on the value of including UX design methodologies and frameworks. These methods are widely recognised by educators as crucial for imparting the principles of UX design to students, while also highlighting the importance of being adaptable to industry changes. For example, the importance of the structure and skeleton aspects of Garrett's framework is highlighted as crucial, and design thinking is praised for offering a thorough overview of UX steps.

Variances in teaching methods and preferred frameworks demonstrate a profound understanding of UX education. There is a variety of approaches that educators take when incorporating different methodologies into their teaching. For example, some may draw on Peter Morville's Honeycomb principles to explore the aesthetic and emotional aspects of UX. Others may incorporate insights from influential figures such

as Don Norman to foster a curiosity-driven approach. This particular type demonstrates a commitment to finding a harmonious blend of theoretical knowledge and practical application, specifically designed to meet the evolving demands of the UX industry.

Many educators are concerned about the difficulty in aligning course content with the rapid developments in the industry. An educator has noted that teaching methods may not be adequately adapting to these changes. This emphasises a broader educational issue: equipping students with a strong foundation of knowledge while also instilling in them the ability to adapt to upcoming trends.

In general, there is a consensus on the importance of specific UX frameworks and methodologies. However, educators employ various approaches to integrate them into their teaching methods. This highlights the educational environment that strives to equip students with a solid base and the skills to adjust to the ever-changing UX field. It demonstrates the intricate balance between established principles and the necessity for continuous adaptation in the education of UX design.

Question 3:

In your opinion as an educator, how relevant is Garrett's framework in current UX design education and which parts are particularly key for students to understand? Give some examples.

I) The purpose of the question

To gauge the educators' perspective on the ongoing significance of Garrett's framework in UX design education, with a specific emphasis on the elements they consider to be of utmost importance for students. This question seeks to determine the lasting values or possibly outdated aspects of Garrett's framework.

II) Responses

Experts in UX design education find Garrett's framework to be highly relevant, although they emphasise different aspects and teaching methods. The importance of

a strong skeleton and structure cannot be overstated when it comes to interface and navigation design. This is particularly true in contexts such as gaming and web apps. A prime example of this is providing users with the ability to invert the mouse, allowing for greater customisation. One person likens the framework to a pizza with uneven slices, implying that the educational emphasis leans more toward strategy and visual design rather than scope and structure. The framework is compared to design thinking, which is considered valuable for monitoring progress in large-scale systems with a focus on user-centred approaches. It also emphasises the importance of collaborative structure planning. The framework's layers are quite complex, suggesting the need for a more inclusive interpretation that considers the impact of AI on both business objectives and user needs. Ultimately, it is clear that there is agreement on the significance of the framework. However, a teaching method that strikes a better balance between theoretical knowledge and practical application is needed. Participants have highlighted the importance of considering the emotional impact of UX and human-centred design principles.

Question 4:

How do you find the response of students to learning Garrett's framework and which parts are particularly successful or challenging for them to learn? Give some examples.

I) The purpose of the question

To examine the efficacy of teaching Garrett's framework by analysing student feedback, specifically identifying the aspects that are well understood and those that pose difficulties. This question aims to gain a deeper understanding of effective teaching methods and how students actively participate in understanding intricate ideas.

II) Responses

An examination of feedback on students' learning experiences, according to Garrett's framework, reveal that there is a noticeable trend: Students tend to find the practical

aspects of their work, like creating navigation bars, quite manageable, as they are considered 'relatively straightforward tasks'. However, they face significant difficulties with the more complex and strategic aspects of the framework, such as 'user needs and objectives'. These aspects are considered more demanding, as they require in-depth demographic information and extensive research. Successfully applying data strategically to design projects requires a higher level of synthesis and conceptual understanding, as it goes beyond simply gathering information.

Furthermore, although students can handle simple tasks effortlessly, their difficulty in understanding and incorporating intricate strategies into practical designs reveals a gap in their learning. It is evident that there is a demand for educational methods that combine hands-on design experience with a comprehensive grasp of user-centred strategy to effectively equip students for real-life implementation of the framework. Such integration would enable students to not only complete tasks but also gain a deeper understanding and foster innovation in the field of design.

Question 5:

How do you adapt your UX design curriculum to align with UX trends, industry demands, and principles found in Garrett's framework?

I) The purpose of the question

Investigate how the educator keeps the UX design curriculum up-to-date with current UX trends, industry needs, and Garrett's framework principles. This discusses the ever-changing nature of UX design education in response to external factors.

II) Responses

After examining the responses, it is clear that educators who adjust their UX design curricula are grappling with the task of reconciling with established academic frameworks while also keeping up with the fast-paced changes in the industry and emerging technologies. They offer different perspectives on this matter, often highlighting the importance of adaptability within established curriculums. A popular approach is to customise the project details to align with current trends and

technological requirements, as emphasised by an educator: 'I have the flexibility to modify it according to the requirements of the brief without deviating from the curriculum as a whole.'

Another approach involves utilising personal initiatives, such as utilising digital platforms like YouTube and Medium to incorporate current trends. 'I utilise... I frequently watch YouTube videos... I maintain my Medium page with regular updates... we dedicate a significant portion of our work to analysing trends.' This approach not only ensures that the curriculum remains up to date, but also fosters a sense of curiosity and a commitment to lifelong learning among students. Additionally, educators can improve the relevance of the curriculum by engaging industry professionals and keeping students informed about the latest tools, such as Adobe XD and Figma. These methods showcase a proactive approach to ensuring educational effectiveness in UX design, striking a balance between fundamental principles and the ability to adapt to the latest industry trends and advancements.

Question 6:

From your teaching experience, do you have any recommendations for effectively integrating Garrett's framework into UX design education?

I) The purpose of the question

Looking for advice or suggestions on incorporating Garrett's framework into teaching UX design based on the interviewee's teaching experience. This seeks to provide some ideas on how Garrett's framework can be relevantly applied to UX design learning outcomes from the perspective of experienced UX educators.

II) Responses

The suggestions for incorporating Garrett's framework into UX design education highlight the importance of a methodical and hands-on approach that is specifically designed to improve student comprehension and involvement. One idea is to divide the framework into smaller, more manageable sections that can be taught at specific times to coincide with different stages of real-world projects. This approach allows

students to better understand the practical application and significance of the material. One approach emphasises the importance of developing strong visual design skills as a foundation before diving into the framework.

This structured approach helps to simplify complicated concepts. It was suggested to incorporate visual aids, such as information graphics, to enhance learning efficiency and make the content more accessible and engaging. The need for an active learning approach is emphasised, motivating students to actively participate in the framework by completing practical exercises that reinforce fundamental concepts and promote analytical thinking ('Allowing them to create a tangible product or digital solution and then evaluating it against the framework'). Ultimately, striking a harmonious balance between theoretical knowledge and practical applications, while fostering opportunities for reflection and collaboration, is widely recognised as essential for equipping students to tackle real-world challenges. These various strategies work together to enhance Garrett's framework as a powerful tool in UX design education.

Question 7:

Are there any additional insights or experiences you would like to share regarding the relevance and application of Garrett's framework within educational settings?

I) The purpose of the question

Allow the interviewee to provide additional insights, experiences, or observations about the use of Garrett's framework in educational settings, which may reveal new applications or criticisms that have not been mentioned before.

II) Responses

When examining Garrett's framework in educational settings, it becomes clear that there is a general agreement on the importance of being adaptable and considering the context. A participant highlights that the significance of each step in the framework depends on the project's size and scope. Thus, the applicability of the framework can vary accordingly. Another person highlights the potential for broader applications, mentioning that they had to reconsider and examine the names and terminology.

However, when I considered that, it could just as easily be applied to curriculum design. It is important to recognise the value of incorporating visual design to improve learning.

By combining design elements with research methodologies, we can help alleviate the cognitive burdens of students. It is concerning that there is not enough time to fully engage with the framework in educational settings. There seems to be a lack of reflection on the mistakes made, with the comment: 'We never say, OK, what did you do wrong?' How can we enhance and contemplate on our work? It is emphasised that incorporating multiple frameworks is crucial to stay current with industry and educational demands. The speaker believes that there should be opportunities to explore different frameworks and methodologies and put them into practice. These insights collectively support the idea of an adaptable approach to education that can meet changing educational and industry demands while still maintaining core principles.

5.2 Discussion

5.2.2 Broader implications for UX Design:

- **Awareness and Usability of eSports Apps**

It is evident from the data that a significant number of respondents, 73% to be precise, have not yet had the opportunity to experience the benefits of using an eSports app. This finding indicates a clear gap in terms of awareness and usability. It is crucial for UX designers to prioritise the development of user-friendly onboarding experiences that effectively guide new users through the features of the app. Streamlining the learning process and offering concise and easy-to-follow guidance can enhance user acceptance and contentment.

- **Feedback on the prototype UX**

Feedback on the *FIFA* (EA) app prototype's UX has been varied, highlighting areas for potential improvement in UX design. With 50.8% of users rating their experience as 'excellent' or 'good', but a significant portion 39.7% rating it as 'average', while

approximately 9.5% deemed it 'poor' or 'very poor', it is evident that there is potential to improve the user interface and experience. One possible approach is to streamline navigation, clarify the purpose of the app, and ensure that interactive elements are captivating and user-friendly.

- **Key Features and User Preferences**

The respondents expressed a strong interest in features such as 'Introductions to the 3 categories of eSports' and 'Creating/Joining a LAN Party', highlighting their desire for informative content and active participation in the community. This observation highlights the significance of including elements that not only offer information but also encourage a feeling of community and engagement among users.

- **Challenges of Interaction in Navigation and Purpose**

The challenges mentioned regarding navigation and comprehension of the app's purpose underscore the importance of having a well-structured information architecture in UX design. It is crucial to prioritise the ease of finding information and comprehending the app's features for optimal UX. This could potentially include implementing more user-friendly design elements, incorporating clearer visual indicators, and simplifying content organisation to make it easier for users to navigate and understand.

- **Desire for Enhanced Visual and Interactive Elements**

Feedback suggesting enhancements to visual appeal and interactive elements suggests that designs that are primarily text-based and lack dynamism may be less captivating. Designers should prioritise the creation of visually captivating interfaces that incorporate animations, interactive elements, and multimedia content to maximise user engagement and satisfaction.

- **Balancing Theory and Practice**

The interviews with educators revealed a unanimous agreement on the fundamental importance of Garrett's framework, while also emphasising the necessity of being flexible and responsive to current trends. It is important for UX design education to find

a middle ground between teaching established theoretical frameworks and integrating current industry practices and emerging technologies, such as AI and advanced interaction design.

- **Recommendations for Curriculum Integration**

Experts suggest incorporating Garrett's framework into the curriculum by dividing it into smaller sections, prioritising hands-on projects, and utilising visual aids. This approach has the potential to simplify complex concepts and better equip students for real-world applications. It also implies that regular updates to the curriculum are essential to stay up-to-date with industry developments.

CHAPTER 6: CONCLUSION

This chapter is a summary of the findings and insights uncovered from the set aims and objectives of the study.

6.1 Conclusion

This research explored the relevance of Garrett's framework model in contemporary design practices to identify areas where it remains effective or limited. Moreover, the study assessed Garrett's model in a real-world setting with a case study of a *FIFA* (EA) eSports mobile application prototype. The findings aimed to adequately equip UX designers with insights for the evolving demands of the UX design field. The primary findings suggest that Garrett's framework is still relevant for organising UX design processes. However, while Garrett's framework provided a solid foundation, the study identified several enhancements to better align with contemporary UX design practices.

Garrett's framework was structurally applied to address the objective of the app to demonstrate local *FIFA* eSports. According to the survey results, the users found the app to be informative and engaging. They particularly liked the categorisation of eSports content and the ability to create or join LAN parties. However, some users raised concerns about the navigation and clarity of purpose of the app, indicating areas that could be improved. In particular, 39.7% of users found their experience to be average, indicating a requirement for improved guidance and more user-friendly navigation features. Interactive and dynamic elements, like animations and multimedia content, user engagement and satisfaction can be greatly enhanced. Additionally, incorporating methodologies such as Lean UX and Agile UX can enhance the flexibility and responsiveness of the design process.

Incorporating approaches like data analytics, responsive design, and emotional design could offer a more comprehensive strategy. These modern approaches follow and further expand Garrett's principles. User feedback and analytics use modern digital

tools to gather and analyse user data, helping designers make informed decisions to improve the UX. Responsive and adaptive design ensures that digital products work across devices, emphasising flexibility and consistency, which Garrett's framework does not explore in depth.

Modern UX design must be accessible and inclusive to ensure usability of the product for diverse users. Garrett's framework emphasises usability but doesn't include WCAG, which are crucial in today's digital world. Changes in user behaviour and technology have led Garrett's framework to include unmoderated usability testing.

Emotional design creates interfaces that evoke positive user responses and improves your product experience. Garrett's framework addresses engaging and consistent UX, but emotional and psychological aspects can be added to create more captivating and meaningful interactions.

These findings have implications for both UX teaching and application. In terms of education, the study highlights the importance of updating UX curricula to include new technologies and methods. Practitioners are advised to modify frameworks such as Garrett's to better address contemporary design challenges, ensuring that their work stays pertinent and efficient in today's ever evolving digital age.

6.2. Limitations and Recommendations

Despite its contributions, the study has limitations. In the study, a small, homogeneous sample was used, specifically within the Gen Z age group (18-24 years). This was due to the sample being predominantly limited to students within a campus setting. Factors such as time constraints, due to the additional requirement of testing the prototype, were an apparent deterrent for some participants. Awkward student schedules and ethical clearance delays between Wits and the chosen private higher education institution were other contributors to the awkward scheduling and the lower number in sample size. This could potentially impact the generalisability of the findings. It would be beneficial for future research to consider expanding the participant pool to include a wider range of individuals. Limitations may arise in drawing comprehensive conclusions due to the narrow focus on a single-app prototype for *FIFA* (EA) eSports.

The study was limited to an app prototype due to the scope of the topic and initial focus on eSports information cited and interpreted by the researcher. Considering a wider range of prototypes across various mediums would have allowed for a more thorough assessment of Garrett's framework.

Due to financial limitations and considering the small sample size, the study did not source the services of a data analyst, which could have produced more variables within the data. Although qualitative insights provided valuable information, conducting a more detailed statistical analysis would have enhanced the quantitative findings. It is essential for future research to integrate more robust statistical methods.

The prototype user testing was limited to a first impression basis, as users were requested to provide feedback only after a few minutes of engaging with the prototype. Extending the duration of the study to observe how user behaviour and satisfaction evolve over time would offer valuable insights into the long-term relevance of Garrett's framework.

The study was carried out before the termination of the *FIFA* and EA Sports partnership or license agreement in 2023, including the release of EA Sports FC 24. The eSports and app prototype content is thus based on previous releases and eSports events of the *FIFA* video game. Future research could explore changes or advancements in the context of these dynamics.

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Appendix 1: Questionnaire and Informed Consent – Online Survey

Masters Research Study *(Includes Survey Swap & Survey Circle)*

Good day,

My name is Mathew Mjindi, and I am a Masters student in Digital Arts at the University of the Witwatersrand, Johannesburg. As part of my studies, I have to undertake a research project, Titled:

Exploring the relevance of Garrett's Elements of UX Design in contemporary design practices through a local FIFA (EA) eSports mobile app prototype.

Under the supervision of Kieran Reid. This research project aims to investigate Jesse James Garrett's framework of the elements of User Experience (UX) in today's UX design practices. It will evaluate its relevance and areas of adaptation, through testing its application on a local FIFA (EA) eSports mobile app prototype.

As part of this project, I would like to invite you to take part in user testing of a mobile app prototype. This activity will involve testing the mobile app for about 10 - 15 minutes and giving your impressions on its user experience. This activity will thereafter involve answering a few questions and will take around 5 - 10 minutes.

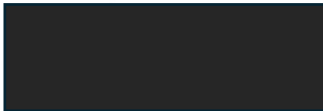
There will be no personal costs to you if you participate in this project, you will not receive any direct benefits from participation but there are no disadvantages or penalties if you do not choose to participate or if you withdraw from the study. You may withdraw at any time or not answer any question if you do not want to. Completing and submitting the online questionnaire is taken to mean consent to participate.

If you have any questions during or afterwards about this research, feel free to contact me at the details listed below. This study will be written up as a research report which will be available online through the university library website. If you wish to receive a summary of this report, I will be happy to send it to you. The data collected from this research project will be stored and will be kept for 5 years. With your permission, the data collected from this research project may be used by other researchers. If you have any concerns or complaints regarding the ethical procedures of this study, you are welcome to contact the University Human Research Ethics Committee (Non-Medical), telephone +27(0) 11 717 1408, email hrecnon-medical@wits.ac.za

Yours sincerely,

Mathew Mjindi

Researcher: Mathew Mjindi



P.S.: This survey contains credits to get free survey responses at SurveySwap.io and Survey Circle.

** Indicates required question*

1. FIFA (EA) eSports Mobile App Prototype

INSTRUCTIONS:

Kindly scan the QR code with your mobile phone or follow the link if you do not have access to a mobile phone.

This activity will involve testing the mobile app for about 10- 15 minutes and giving your impressions on its user experience there after in the next section.

OPTION 1: Please Scan below on mobile :



OR

OPTION 2: Please Click below :

<https://xd.adobe.com/view/338d3223-af8f-4a6f-b39b-a159c1962429-66de/?fullscreen&hints=off>

2. Online Survey:

Kindly complete the below Survey. Estimated completion time 10 -15 mins.

(Please note: You must be 18 or older)

1. SECTION 1: Demographic Information

*

What is your Age group? (You must be 18 or older)

Mark only one oval.

- ☐ 18 - 24
- ☐ 25 -34
- ☐ 35 - 44
- ☐ 45 - 54
- ☐ 55 - 64
- ☐ 65 - Older

2. **What is your Gender? ***

Mark only one oval.

- ☐ Male
- ☐ Female
- ☐ Non-binary
- ☐ I prefer not to say

3. **What is your Race? ***

Mark only one oval.

- ☐ Black
- ☐ White
- ☐ Coloured
- ☐ Asian
- ☐ Other: _____

4. **SECTION 2: Your Knowledge of eSports ***

**How would rate your knowledge of eSports?
(Including locally)**

Mark only one oval.

- ☐ Excellent
- ☐ Good
- ☐ Average
- ☐ Poor
- ☐ Very Poor

5. **How would you rate your knowledge of eSports in the *
FIFA/EA Sports FC category? (Including locally)**

Mark only one oval.

- ☐ Excellent
- ☐ Good
- ☐ Average
- ☐ Poor
- ☐ Very Poor

6. **Have you used an eSports mobile app before? ***

Mark only one oval.

- ☐ Yes
☐ No

7. **SECTION 3: Feedback after testing the FIFA/EA mobile App Prototype. ***

How would you rate your overall experience of this app prototype?

Mark only one oval per row.

	Excellent	Good	Average	Poor	Very Poor
Rate :	☐	☐	☐	☐	☐

8. **Please rate the app prototype on the following aspects of User Experience ***

Mark only one oval per row.

	Excellent	Good	Average	Poor	Very Poor
1. Clarity of its purpose	☐	☐	☐	☐	☐
2. Usability	☐	☐	☐	☐	☐
3. Visual design	☐	☐	☐	☐	☐
4. Interactivity and user engagement	☐	☐	☐	☐	☐
5. Trustworthiness and credibility	☐	☐	☐	☐	☐

9. **Which features of the app prototype did you find most useful? (Can select more than 1) ***

Check all that apply.

- ☐ Introductions to the 3 categories of eSports
☐ Local eSports Organisations
☐ Live Streaming Stats
☐ FIFA eSports Tournaments
☐ eSport Team News
☐ Creating/ Joining a LAN Party
☐ Other: _____

10. Were there any features of the app prototype that you found confusing or difficult? (If Yes, please describe). *

11. Are there any additional features you would have liked on this app prototype? (If Yes, please describe). *

12. Do you feel that the app prototype adequately met your needs and expectations? (please describe how/why?). *

13. Do you have any other comments, suggestions, or feedback regarding the app prototype and its user experience? *

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Google Forms

Appendix 2: Permission letter - Private college campus

  WITS UNIVERSITY WITS DIGITAL ARTS The Digital Convent Braamfontein East Campus 0117174971 info.digitalarts@wits.ac.za	University of the Witwatersrand, Wits School of Arts +27 (11) 717 4609 [REDACTED] 444 Jan Smuts Avenue, Bordeaux, Randburg, 2194 21 November 2023 Dear Sir, Re: Permission to conduct research at [REDACTED] [REDACTED] My name is Mathew Mjindi, and I am studying for a Master of Digital Arts at the School of Arts at the University of the Witwatersrand. I am seeking permission to conduct research at the [REDACTED] Johannesburg [REDACTED] I am conducting research exploring the relevance of Jesse James Garrett's Elements of UX Design in contemporary design practices through a local FIFA (EA) eSports mobile app prototype. Garrett's Elements of UX Design is a User Experience Design framework developed in 2011 and is still commonly referenced by user experience designers and academics today. User experience design has developed considerably since then, so this research seeks to investigate the relevance of Garrett's framework in contemporary design practices. I created a mobile app prototype guided by this framework, exploring the topic of local FIFA (EA) eSports. The purpose of the mobile app is to demonstrate these principles and allow users to test its user experience. I have chosen your organization, as it will allow me the opportunity to speak and gain insights from academic Experience Design professionals and conduct user testing with students. I will invite two sets of individuals from your organization to participate in this study. The first set of individuals will be academic navigators/lecturers from design degrees, especially in digital/experiential design. If they agree, they will be asked to be interviewed for approximately 20–30 min. These interviews will be audio recorded on a password protected mobile device. The interviews might take place on school premises during work hours or virtually on
--	--



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The Digital Convent
Braamfontein East
Campus

0117174971

info.digitalarts@wits.ac.za

MS teams at a convenient time, depending on the navigator/lecturer's availability.

The second set of individuals will be students, mainly design-degree students, especially in digital/experience Design. If they agree, they will be asked to test the mobile app prototype for approximately 15 minutes and answer an online questionnaire for another 5 to 10 minutes. Ideally, this will be conducted on school premises during school hours. However, if students cannot complete these activities during school hours, they may complete them within a given timeframe.

Participants will be asked to provide written or verbal consent before the research commences. Their responses will be treated confidentially, and identities (their names and the name of the organisation) will be anonymous unless otherwise expressly indicated. Individual privacy will be maintained in all published and written data resulting from the study.

The results will be communicated in my master's dissertation. The research participants will not be advantaged or disadvantaged in any way. They will be reassured that they can withdraw their permission at any time during the project without any penalty. There are no foreseeable risks in participating in this study. Participants will not be paid for this study.

The data collected from this research project will be safely stored on a password protected Google account for 5 years after which it will be destroyed. With your permission, the data collected from this research project may be used by other researchers subject to their own ethics clearance.

I therefore request permission in writing to conduct my research at your organization. The permission letter should be on your organization's headed paper, signed and dated, and specifically refer to myself by name and the title of my study.

Please let me know if you require any further information. I look forward to your response as soon as it is convenient.

Yours sincerely,

Mathew Mjindi



[@wits.ac.za](mailto:info.digitalarts@wits.ac.za)

Appendix 3: Gatekeepers Response – IIE Ethics Committee











Reference: R.15903 [RPGS04]
Enquiries: research@iie.ac.za

22 November 2023

Letter of Institutional Consent

Initials and surname:	M Mjindi
Institution Registered at:	University of the Witwatersrand
Qualification:	Master of Digital Arts
Title of study/paper:	Exploring the relevance of Garrett's Elements of UX Design in contemporary design practices, through a local FIFA (EA) eSports mobile app prototype.

Dear Mathew Mjindi

We are pleased to inform you that the IIE Ethics Committee has reviewed and provided consent to utilise IIE staff, students, or artefacts to complete your research project entitled "Exploring the relevance of Garrett's Elements of UX Design in contemporary design practices, through a local FIFA (EA) eSports mobile app prototype."

The following conditions are the standard requirements attached to the approval of all applications to conducts research involving human participants:

- Approval will be for a period of two (2) years, starting from the date of approval.
- You should notify the IIE Ethics Committee regarding any alteration to the approved project.
- You should notify the IIE Ethics Committee in the event of any adverse effects on participants or of any unforeseen development that might compromise the ethical integrity of your research project.
- The researcher(s) will need to obtain informed consent in writing from the participants/ respondents in their sample if the study is not anonymous.
- A copy of this letter must be forwarded to the relevant person(s) at the campus/es that would be involved in this research study.
- Research must be conducted in such a way that the normal programme and operations of the campus / office is not interrupted.
- A report and a copy of any published outputs should be submitted to the IIE Ethics Committee upon the completion of the project.
- You are required to uphold the IIE's Ethics stance as described in the Research and Postgraduate Studies Policy (IIE007). The policy is available on the institutional website.

on behalf of The IIE Ethics Committee

Dr WH Engelbrecht
Dean: Research and Postgraduate Studies
The Independent Institute of Education

ADvTECH House: Inanda Greens, 54 Wierda Rd West, Wierda Valley 2196
P.O. Box 2369, Randburg 2125

Directors: RJ Douglas (UK), JDR Oesch, MD Aitken, SCD Lurie
Group Company Secretary: CB Crouse

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Appendix 4: Gatekeepers Response - Private college Campus





**THE INDEPENDENT
INSTITUTE OF
EDUCATION**

JOHANNESBURG
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Bordeaux, Randburg

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De Waterkant,
Cape Town

DURBAN
+27 31 569 1415
70 Armstrong Avenue,
La Lucia, Durban

PRETORIA
+27 12 343 3669
34 Ingersol Road,
Menlyn, Pretoria

DISTANCE
+27 87 357 2808

22 November 2023

TO WHOM IT MAY CONCERN

Dear Sir/Madam

I hereby give **MATHEW MJINDI**, a student in Master of Digital Arts at the School of Arts at the University of the Witwatersrand, permission to conduct his research in exploring the relevance of Jesse James Garrett's Elements of UX Design in contemporary design through a local FIFA (EA) eSports mobile app prototype on the IIE Vega Bordeaux campus and [REDACTED]

If you have any questions, please contact me on francois@vegaschool.com.

We wish Mathew all the best with his data collection and research process.

Vega regards

[REDACTED]

Francois Barnardo

[REDACTED] Head)
IIE Vega Bordeaux Campus

For the creators.

Directors: RJ Douglas (UK), JDR Oesch, MD Aitken, SCD Lurie | **Group Company Secretary:** CB Crouse

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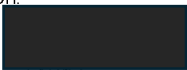
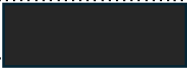
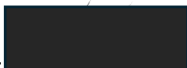
Appendix 5: Interview Questionnaire

Measurement Tool: (Semi-structured interview)

- 1) Kindly introduce yourself and your academic professional role within the field of UX design (including years of experience)?
- 2) Which UX design methodologies or frameworks (including Garrett's framework of the elements of UX) do you emphasize in your teaching methods? How do you incorporate them with industry trends and the evolving UX design practices?
- 3) In your opinion as an educator, how relevant is Garrett's framework in current UX design education and which parts are particularly key for students to understand? Give some examples.
- 4) How do you find the response from students in learning Garrett's framework and which parts are particularly successful or challenging for them to learn? Give some examples.
- 5) How do you adapt your UX design curriculum to align with UX trends, industry demands, and principles found Garrett's framework?
- 6) Based on your teaching experience, do you have any recommendations for integrating Garrett's framework effectively into UX design education?
- 7) Are there any additional insights or experiences you would like to share regarding the relevance and application of Garrett's framework within educational settings?

Thank you ...

Appendix 6: Consent Form – Interview participants

  WITS UNIVERSITY	Title of project:		
	Exploring the relevance of Garrett's Elements of UX Design in contemporary design practices through a local <i>FIFA</i> (EA) eSports mobile app prototype.		
	Name of researcher: Mathew Mjindi		
	I, ...  ..., agree to participate in this research project. I agree to the following:		
	(Please circle the relevant options below).		
	The research has been explained to me and I understand what the research is about.	☒ YES	☐ NO
	I understand that I can volunteer to take part in the study.	☒ YES	☐ NO
	I agree that the interview may be audio-recorded.	☒ YES	☐ NO
	I agree that direct quotations from my interview may be used by the researcher in their research report.	☒ YES	☐ NO
	I agree that other researchers may use the information I provide in my interview (depending on their own ethics clearance being obtained) but my name and any personal information will not be used or passed on.	☒ YES	☐ NO
	 (Signature)		
	 (Name of participant)		
	6 December 2023 (Date)		
	 (Signature)		
	Mathew Mjindi (Name of person seeking consent)		
	06 December 2023 (Date)		

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Appendix 7: Ethics Clearance - University of the Witwatersrand



Research Office

HUMAN RESEARCH ETHICS COMMITTEE (NON-MEDICAL)

R14/49 Mjindi

CLEARANCE CERTIFICATE

PROTOCOL NUMBER: H23/09/22

PROJECT TITLE

Exploring the relevance of Garrett's Elements of UX Design in contemporary design practices through a local FIFA (EA) eSports mobile app prototype

INVESTIGATOR(S)

Mr M Mjindi

SCHOOL/DEPARTMENT

Wits School of Arts/

DATE CONSIDERED

15 September 2023

DECISION OF THE COMMITTEE

Approved
Risk Level: Minimal

EXPIRY DATE

24 October 2026

DATE

23 November 2023

CHAIRPERSON

(Professor J Watermeyer)

cc: Supervisor : Dr K Reid

DECLARATION OF INVESTIGATOR(S)

To be completed in duplicate and **A SIGNED COPY** returned to the Secretary electronically. Unreported changes to the application may invalidate the clearance given by the HREC (Non-Medical)

I/We fully understand the conditions under which I am/we are authorized to carry out the abovementioned research and I/we guarantee to ensure compliance with these conditions. Should any departure be contemplated from the research procedure as approved I/we undertake to submit an amendment of the protocol to the Committee. **I/we agree to completion of a regular progress report. For Minimal and Low Risk studies, this is due annually on 31 December. For Medium and High Risk studies, this is due twice annually on 30 June and 31 December.**

Signature

23 / 11 / 2023
Date

PLEASE QUOTE THE PROTOCOL NUMBER ON ALL ENQUIRIES

Appendix 8: Turn It In Report



Digital Receipt

This receipt acknowledges that Turnitin received your paper. Below you will find the receipt information regarding your submission.

The first page of your submissions is displayed below.

Submission author: Mathew Mjindi
Assignment title: Draft submission (all, regardless of course/programme)
Submission title: MA Dissertation_Mathew Mjindi_Final Resub.docx
File name: MA_Dissertation_Mathew_Mjindi_Final_Resub.docx
File size: 5.94M
Page count: 128
Word count: 29,282
Character count: 168,582
Submission date: 30-Jun-2024 11:25PM (UTC+0200)
Submission ID: 2410776023

EXPLORING THE RELEVANCE OF GARRETT'S ELEMENTS OF
UX DESIGN IN CONTEMPORARY DESIGN PRACTICES
THROUGH A LOCAL FIFA (EA) ESPORTS MOBILE APP
PROTOTYPE

STUDENT NAME: MATHEW MJINDI

STUDENT NUMBER: 740310

SUPERVISOR: DR. OLUWADOTIMI RANDLE

ETHICS CLEARANCE: H23109/22

YEAR OF SUBMISSION: 2024

MASTERS DISSERTATION

UNIVERSITY OF THE WITWATERSRAND, JOHANNESBURG

Wits School of Arts

Department of Digital Arts

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