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TITLE:

How do different devices impact users' web browsing experience?

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Abstract

The digital world presents many interfaces, among which the desktop and mobile device platforms are dominant. Grasping the differential user experience (UX) on these devices is a critical requirement for developing user focused interfaces that can deliver enhanced satisfaction. This study specifically focuses on the user's web browsing experience while using desktop and mobile.

The thesis adopts quantitative methodology. This amalgamation presents a comprehensive understanding of the influence of device specific variables, such as loading speed, security concerns and interaction techniques, which are critically analyzed. Moreover, various UX facets including usability, user interface (UI) design, accessibility, content organization, and user satisfaction on both devices were also discussed.

Substantial differences are observed in the UX delivered by desktop and mobile devices, dictated by inherent device attributes and user behaviors. Mobile UX is often associated with personal, context sensitive use, while desktop caters more effectively to intensive, extended sessions.

A surprising revelation is the existing discrepancy between the increasing popularity of mobile devices and the persistent inability of many websites and applications to provide a satisfactory mobile UX. This issue primarily arises from the ineffective adaptation of desktop-focused designs to the mobile, underscoring the necessity for distinct, device specific strategies in UI development.

By furnishing pragmatic strategies for designing efficient, user-friendly and inclusive digital interfaces for both devices; the thesis contributes significantly to the existing body of literature. An emphasis is placed on a device-neutral approach in UX design, taking into consideration the unique capabilities and constraints of each device, thereby enriching the expanding discourse on multiservice user experience. As well as this study contributes to digital marketing and targeted advertising perspectives.

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Md Ashiqur Rahman & Amit Sarker

Table of Contents

Part One: Introduction

The significance of user experience (UX) in the success of interactive systems has gained recognition as the digital landscape continues to evolve rapidly. A satisfying UX positively impacts engagement and overall effectiveness (Hassenzahl, 2008). With mobile devices such as smartphones and tablets becoming more prevalent (Kildare & Middlemiss, 2017), it is now critical to understand how UX differs across desktop and mobile device platforms. This study aims to analyze and compare UX variations found on these differing devices by examining a range of factors contributing to overall UX quality.

Comparing the user experience on desktop and mobile devices is crucial since both serve distinct purposes, presenting unique opportunities and challenges. Desktop interfaces offer a larger screen size and precise input tools, providing users with extensive functionality in a focused work environment (Sweeney & Crestani, 2006). In contrast, mobile devices offer portability with touchscreen interaction and tailored context access to engage anytime, anywhere (Colley & Häkkilä, 2014).

This research aims to assess the user experience on both desktop and mobile devices across various aspects. We will analyze usability factors such as ease of use, efficiency, and learnability to identify discrepancies in task performance and user interactions. Additionally, accessibility considerations like readability, navigation, and inclusive design will be explored across devices. Furthermore, user satisfaction will be evaluated by capturing subjective perceptions and preferences which are crucial measures of the overall experience.

The study aims to pinpoint the essential factors that impact the user experience across both desktop and mobile devices. Variables like loading speed, interaction techniques, and security concerns may differ between these two channels and influence overall satisfaction. With a better understanding of these elements, interface designers can create optimal experiences that foster engagement and pleasure for users on both devices.

This research will help interface designers, developers, and organizations improve user experience on both desktop and mobile devices. By addressing gaps in existing research, this

study expands our understanding of user interactions across devices. This study aims to offer valuable insights for enhancing interface design practices, improving user satisfaction, and advancing the field of user experience.

1.1 Background and Motivation

User experience is critical for the success of interactive systems in today's digital world (Battarbee & Koskinen, 2005). It impacts user satisfaction, productivity, and engagement significantly. While user experience research is well-established, there remains a notable gap in understanding the nuanced disparities between desktop and mobile devices.

Specifically, the inquiry into how mobile devices influence user experience has gained significant traction, given the widespread use of smartphones and tablets (Kildare & Middlemiss, 2017). As a master's student, one finds this topic intriguing due to its relevance in our daily lives. It is essential to study how user experience differs between these handheld gadgets and traditional desktop interfaces.

The research aims to bridge the knowledge gap by thoroughly exploring and comparing the user experience on desktop and mobile devices. This investigation can reveal insightful data that will guide professionals in designing and developing tailored interfaces for both devices. The practical implications can benefit experts in fields such as user experience design, data driven decision making, interface development and in digital marketing as well.

Furthermore, the authors have observed two distinct user experiences on both desktop and mobile devices. This deep interest in user experience research, combined with personal motivation, drives an investigation into the subtle distinctions between these two device contexts and their respective platforms.

The researcher’s aim is to enhance their comprehension of the differences in user experience levels on desktop and mobile devices. This study's outcomes could help create more efficient, user friendly interfaces that fulfill the distinct demands and prospects of users on different devices.

1.2 Research question and objectives

The research focuses on exploring the difference in user's web browsing experience between desktop and mobile devices. It aims to examine the implications of these differences on interface design; digital marketers can also benefit from this research.

The research aims to explore user experience intricacies on desktop and mobile devices. By conducting a comparative analysis of usability, accessibility, and satisfaction across these devices, it is possible to gain insights into variations in user experiences. This helps identify unique advantages or challenges associated with each device.

To fully understand the subject, it is crucial to recognize the key factors that shape user experience on both desktop and mobile interfaces. Differences arise when considering specific aspects like loading speed, security concerns, and interaction techniques across devices. These elements have a significant impact on the overall user experience, providing valuable insights for digital marketers to effectively target their advertising strategies.

The research is ambitiously aimed at understanding how various influential factors and diverse user experiences impact interface design strategies (Berni & Borgianni, 2021). A significant part of this study involves decoding the most effective approach to interface design for different devices. By leveraging insights gained from these objectives, practical recommendations are proposed to enhance user interface design across devices.

The researchers have two main objectives. Firstly, they seek to enhance the user experience by providing guidance based on their research findings. Secondly, they aim to expand the domain of user experience design by addressing current research gaps. The goal is to foster meaningful discussions on device usage and make substantial contributions to the field, with a specific focus on digital marketing and targeted advertising perspectives.

The research provides a comprehensive understanding of the key factors that influence user experience across different devices. This study focuses on important aspects including loading speed, security concerns, and interaction techniques. By grasping these elements, digital

marketers can make data-driven decisions to effectively implement targeted advertising strategies on each device.

By addressing the existing research gaps in this field, this study aims to contribute significantly to user experience research. It emphasizes the improvement of interface design practices, enhancing user satisfaction, and advancing our understanding of user experience across various devices. These efforts will provide valuable guidance for practical applications in interface designs, meeting the needs of digital marketers for targeted advertising. This contribution proves invaluable in shaping the landscape of user experience.

Part Two: Literature Review

2.1 Definition of user's web browsing experience

In the modern era of technology, the internet has become an indispensable part of our daily lives (Rainie & Wellman, 2019). It permeates every aspect, from online shopping and entertainment to digital education and work commitments. One pivotal element of this digital landscape is web browsing the process of navigating through the vast information network known as the World Wide Web. Consequently, a user's web browsing experience has gained significant importance in shaping their engagement, satisfaction, and overall effectiveness while interacting with websites or web applications (Montgomery & Faloutsos, 2001).

The web user's browsing experience is complex, comprising various elements like usability, accessibility, performance, design, utility, ergonomics, overall human interaction, and marketing. A positive experience helps keep users engaged and increases the likelihood of return visits and desired actions such as purchases or signups. Conversely, a negative experience leads to

frustration, disengagement, and missed opportunities for both the users and website owners (Montgomery & Faloutsos, 2001).

The understanding of the web browsing experience and its crucial components, influencing factors, and potential enhancements holds great significance (Xia, 2010). This essay aims to delve into these aspects by providing valuable insights into users' web browsing experiences from existing literature.

2.2 Understanding Web Browsing Experience

The experience of browsing the web is a multifaceted concept that encompasses a user's perceptions, emotions, and responses to the utilization of web based systems. It goes beyond merely using a website or web application for functional purposes. Instead, it encapsulates the entire journey that users embark upon from their initial entrance into a website until they depart (Xia, 2010).

Usability is a crucial aspect of the web browsing experience. It pertains to the ease with which users can interact with websites and web applications. Usability encompasses various elements, including an intuitive interface design, user-friendly navigation, efficient task completion, and effective error handling. A highly usable website promotes easy comprehension and enables users to accomplish their objectives in a productive manner, thereby minimizing frustration and errors (VoigtAntons et.al., 2018). It enhances the overall browsing experience by ensuring user satisfaction and enjoyment.

Accessibility plays a pivotal role in enhancing the web browsing experience. When it comes to web browsing, accessibility refers to the design of websites that enable all individuals, including those with disabilities, to navigate and utilize them effectively. This involves providing alternative text for visual content, ensuring keyboard navigation compatibility, and optimizing compatibility with assistive technologies like screen readers. The significance of an accessible

website extends beyond legal obligations; it also enriches the user experience for everyone by offering flexibility and adaptability based on diverse user preferences and needs (Kruk et. al. 2007).

Performance, encompassing the speed and responsiveness of a website, plays a pivotal role in shaping the overall web browsing experience. The modern user demands swift loading times and seamless functionality from websites. Delays in loading can give rise to frustration and may even prompt users to abandon the website altogether. Conversely, a fast and responsive website has the power to elevate user satisfaction and enrich their interaction, consequently increasing their likelihood to remain engaged on the site and accomplish their intended goals (Huang et. al., 2022).

The impact of a website's design and aesthetics on the web browsing experience cannot be overstated. A well crafted website with visually pleasing elements has the power to captivate users and leave a lasting positive impression. Achieving this requires consistency and coherence in design, facilitating easy navigation and comprehension of content. Additionally, responsiveness plays a vital role as the design should adapt seamlessly to various screen sizes and orientations, ensuring an optimal browsing experience across different devices (Gardner, 2011).

Additionally, ensuring the relevance and quality of content remains crucial for an optimal web browsing experience. When users visit websites, their main objectives revolve around seeking information or accomplishing specific tasks. Therefore, it becomes imperative that the content presented is not only accurate and uptodate but also directly applicable to their needs (Nietzio et. al., 2014). By delivering high quality content that caters to user expectations, we can significantly enhance their overall experience and satisfaction levels, thereby increasing the likelihood of revisiting our site in the future.

2.3 Factors Influencing Web Browsing Experience

The browsing experience on the web is influenced by numerous factors. These factors encompass individual user characteristics, technological aspects, and others (Constantinides, 2004). It becomes imperative to comprehend these key elements in order to design and develop websites and web applications that guarantee a positive and gratifying browsing encounter.

Individual Factors

Individual factors encompass the user's attributes, such as their knowledge, skills, preferences, and needs. For example, a user's familiarity and past experiences with similar websites significantly influence their ability to navigate and comprehend the content on a site. Additionally, their level of computer literacy directly affects how effectively they can utilize the site's functionalities. Moreover, personal preferences and unique requirements play a crucial role in shaping users' perceptions of a website. For instance, some individuals appreciate minimalistic designs while others gravitate towards visually rich interfaces (Kumar & Tomkins, 2010). Understanding these individual factors empowers designers to develop websites that cater to diverse user profiles.

Technological Factors

Technological factors encompass various aspects tied to the design and functionality of websites or web applications, as well as the browsing device. These factors include elements like site layout, interface intuitiveness, browser speed and efficiency, content relevance and quality. They collectively shape the user's web browsing experience (Harris & Punchihewa, 2013). Moreover, different types of devices such as desktop computers, laptops, tablets, or smartphones can also influence how users interact with websites. For example, due to limited screen space on smartphones, a more streamlined and simplified design is often necessary.

The Impact of Web Browsing Experience

The impact of browsing on user engagement and satisfaction influences the success of websites and web applications (Attfield et. al., 2011). This understanding holds immense importance for web designers, developers, and website owners seeking to create effective and successful digital platforms for different devices.

User Engagement

User engagement pertains to the extent of user participation and interaction with a website. A positive web browsing experience can significantly enhance user engagement. A well-designed website is crucial for a positive user experience. It should have easy navigation, high-quality and relevant content, and a fast and responsive interface to keep users engaged. This encourages them to explore the site further and spend more time on it. Conversely, a negative web browsing experience with a confusing layout, irrelevant content, or slow loading times can lead to frustration and disengagement. This may cause users to leave the site prematurely (Attfield et al., 2011).

User Satisfaction

User satisfaction pertains to the degree of fulfillment regarding a user's needs and expectations in relation to the website. A positive browsing experience can contribute to elevated levels of user satisfaction. To illustrate, websites that are easily accessible, aesthetically pleasing, and offer tailored and pertinent content have the potential to meet or surpass user expectations, resulting in a heightened sense of satisfaction (Attfield et. al., 2011). Conversely, an unfavorable web surfing encounter can lead to dissatisfaction and may deter users from revisiting the site in the future.

Website Success

The impact of the web browsing experience goes beyond individual users and influences the overall success of websites or web applications. When users are highly engaged and satisfied, it can result in a multitude of positive outcomes. These include increased traffic, higher conversion rates, and improved user retention (Kuan et. al., 2005). Ultimately, these outcomes contribute to the overall success of a website whether measured through revenue, user growth, or other key performance indicators.

Improving Web Browsing Experience

Improving the web browsing experience is an ongoing pursuit to create websites and web applications that captivate users, optimize efficiency, and foster user friendliness (Wagh & Patil, 2017). By implementing strategies to enhance this experience, web designers and developers can guarantee a positive and gratifying interaction with their digital platforms for desktop and mobile devices.

User Centered Design

User Centered design (UCD) improves the web browsing experience by prioritizing the needs, preferences, and behaviors of users. This approach involves deeply understanding users' requirements and incorporating their insights into the design process. Through methods like user research, usability testing, and iterative design cycles, designers can create interfaces that align with user expectations (Abras et. al., 2004). As a result, intuitive navigation, efficient task completion, and overall user satisfaction are facilitated.

Personalization and customization play pivotal roles in enhancing the web browsing experience. When users are provided with the freedom to personalize their settings, layouts, and content preferences, websites can deliver tailored experiences that cater specifically to their individual needs and desires. This includes offering features such as customizable dashboards, adaptive

content recommendations, and user controlled interface elements, empowering users with a sense of control and fostering a deeply personalized browsing journey (Cato, 2001).

Improvement

Accessibility is a vital aspect of enhancing the web browsing experience. It revolves around the creation of inclusive websites and web applications to ensure easy access for individuals with disabilities. This involves providing descriptive text for images, utilizing HTML markup that carries meaning, enabling keyboard navigation, and adhering to established accessibility guidelines like the Web Content Accessibility Guidelines (WCAG). By prioritizing accessibility in design, website creators can guarantee effective content access and navigation for all users, regardless of their abilities. Literary devices such as metaphor or personification are not employed explicitly to optimize website performance is crucial in providing users with a smooth and efficient web browsing experience. Slow loading times and unresponsive pages can frustrate visitors, leading to a lack of engagement. Employing techniques like image compression, code minification, caching, and server optimization can enhance page load speeds and overall performance (Isa, et. al., 2016). Moreover, utilizing responsive design principles and optimizing websites for different devices and screen size ensures a seamless browsing experience across devices.

High-quality and relevant content is essential for a positive web browsing experience. When users visit websites, they expect to find valuable and accurate information that is presented in an organized and easy-to-understand manner. Outdated or poorly presented content can lead to dissatisfaction (Harris & Punchihewa, 2013). To enhance user satisfaction, websites can utilize data driven approaches, such as analyzing user behavior and employing content personalization algorithms. By doing so, they can deliver targeted and meaningful content tailored to users' interests and needs.

Designers and developers can enhance websites and web applications by utilizing effective strategies, continuously evaluating the browsing experience, and implementing iterative

improvements. By placing a strong focus on user centered design, personalization, accessibility, performance optimization, and content quality, they can create digital device platforms that offer users a delightful, efficient, and engaging experience (Abras et. al., 2004). This approach leads to increased user satisfaction, improved engagement levels, and the overall success of these online platforms across devices.

2.4.1 Web browsing experience in Desktop

Web browsing on desktop offers a superior experience for many users, due to the expansive screen space. This advantage of a larger viewing area enables multiple windows or tabs to be open and visible concurrently, facilitating efficient multitasking. It is especially valuable for activities such as extensive research, data analysis, and content creation, where comparative viewing is critical (Sweeney & Crestani, 2006). Beyond work oriented tasks, the larger screen also enhances leisure activities like video streaming or gaming, where the wider view and higher resolution enrich the experience.

With the typically superior processing power of desktop machines, the speed and efficiency of web browsing are significantly enhanced. Complex tasks can be executed with ease, graphic rich websites load swiftly, and multiple open tabs do not lead to a drop in performance (Powers & Potenza, 1996). Even when running resource intensive web applications or streaming high definition video content, desktop browsers maintain an elevated level of responsiveness, ensuring a smooth and enjoyable user experience (Lestari et. al., 2014).

Another notable advantage of desktop browsing is the convenience provided by the input devices. The precision of a mouse cursor or a trackpad, coupled with a full size keyboard, makes for a browsing experience that is both comfortable and efficient. Navigating through web pages, inputting data, and performing intricate tasks such as graphic design or coding are easier. The combination of keyboard shortcuts and mouse controls accelerates numerous operations, from simple page navigation to complex commands in web based applications (Card et. al., 1991).

Enhanced security features are also a cornerstone of the desktop browsing experience. Desktop browsers come equipped with robust protection mechanisms such as anti phishing technologies, malware detection, SSL encryption, and private browsing modes. Additionally, the ease of clearing cookies and browsing data adds another layer of privacy. This heightened level of security is vital for users who frequently conduct sensitive operations online, such as banking transactions or business communications (Botha et. al., 2009). As digital threats continue to evolve, desktop browsers constantly update these protective features to ensure a secure browsing environment.

2.4.2 Web browsing experience in Mobile

Accessing the internet from mobile devices has seamlessly integrated into our daily routines, as their compact and portable design allows users to browse the web from any location. The smaller screen space on mobile devices has motivated developers to create efficient, user friendly designs. Browsing interfaces on mobile phones are meticulously designed to facilitate readability and ease of navigation, often through scrollable content and touch friendly buttons. To enhance user experience, websites and applications are designed to be mobile-friendly. This ensures that users can easily access the information and features they need without any unnecessary clutter (Nejati & Balasubramanian, 2016).

While mobile devices may not possess the same processing power as desktop computers, advancements in mobile technology have greatly enhanced the speed and efficiency of web browsing on these devices. Modern smartphones and tablets can handle a wide range of tasks, from loading media rich websites to running web applications (Roto, 2006). Additionally, technologies like 4G and 5G have enabled faster internet speeds on mobile devices, making the browsing experience smooth and responsive (Ezhilarasan & Dinakaran, 2017).

In terms of input, mobile devices offer unique advantages. The touchscreen interface allows for intuitive direct interaction with web content. Functions like pinch to zoom and swipe navigation provide an easy and efficient browsing experience (Colley & Häkkilä, 2014). Onscreen

keyboards and voice input options also offer flexibility for data entry and search, catering to the on the go nature of mobile use (Qian et. al., 2017).

Mobile browsers offer functionalities such as incognito mode, popup blocking, and features to clear browsing data. SSL encryption and anti phishing technologies are standard across mobile browsers to ensure secure data transmission. In addition to the enhanced security provided by mobile browsers, some also offer biometric authentication. This extra layer of protection ensures that users can browse on their mobile devices with confidence, knowing that their data and privacy are safeguarded (Watson & Zheng, 2017).

2.4.3 Comparison of web browsing experience between Desktop and Mobile

Screen Size and Its Impact on Web Browsing Experience: A Comparison of Desktop and Mobile Devices

Desktop Devices: Advantages of Larger Screen Size

Desktop devices, with their larger screens, offer several advantages for web browsing. The spacious display enhances content visibility, allowing users to view websites, images, and videos with greater ease. The increased screen real estate enables better readability, particularly for text heavy content such as articles or documents. Users can enjoy crisp and clear visuals, minimizing the need for zooming or scrolling excessively (Sweeney & Crestani, 2006).

Moreover, the larger screen size on desktop devices enhances multitasking capabilities (Powers & Potenza, 1996). Users can open multiple browser tabs or windows side by side, facilitating efficient navigation between different web pages or applications. This multitasking ability allows for smoother workflows, enabling users to simultaneously view and compare information from various sources.

Mobile Devices: Challenges of Smaller Screen Size

Mobile devices, characterized by their smaller screens, present unique challenges for web browsing. The limited screen real estate can lead to reduced content visibility, particularly when viewing websites designed for desktop screens. Users may experience difficulties in reading smaller fonts or viewing intricate details in images or graphics. Smaller screens also impact readability, as the text may appear cramped or require zooming in to ensure legibility. This can disrupt the natural flow of browsing and create a less immersive experience (Chae & Kim, 2004). Additionally, the compact size of mobile screens may hinder multitasking capabilities, as users have less screen space to work with and switch between different tasks or applications.

Portability and Its Impact on Web Browsing Experience: A Comparison of Desktop and Mobile Devices

Desktop Devices: Limitations of Portability

Desktop devices are known for their lack of portability. They are typically larger and require a stationary setup, such as a desk or office space. This limitation restricts users from easily moving their devices from one location to another. Users who rely solely on desktop devices may face inconveniences when they need to browse the internet outside of their usual settings. For example, professionals who need to work on the go or students who require access to online resources outside of their home or office environment may find desktop devices less practical for their needs. The lack of portability can limit users' flexibility and hinder their ability to browse the web seamlessly in various contexts.

Mobile Devices: Advantages of Portability

In contrast, mobile devices provide unmatched portability for web browsing. They are specifically engineered to be small, lightweight, and effortlessly carried in pockets or bags. The portability of mobile devices enables users to access the internet anytime and anywhere, providing a significant advantage in terms of convenience and flexibility (Rioja et. al. 2020). Whether users are traveling, commuting, or simply relaxing in a coffee shop, mobile devices

empower them to stay connected and browse the web effortlessly. This flexibility allows users to seamlessly integrate browsing into their daily lives and take advantage of available pockets of time to access information, engage with online content, and stay connected with others.

Exploring Performance in Web Browsing: A Comparison of Desktop and Mobile Devices

Desktop Devices: Unleashing Superior Performance

Desktop devices are renowned for their superior performance in web browsing. They are equipped with powerful processors, substantial memory capacity, and advanced graphics capabilities. These features enable desktop devices to handle resource intensive tasks with ease, resulting in a fast and seamless browsing experience. The faster processing power allows for swift page rendering, smooth navigation, and quick response times. The larger memory capacity enables users to open multiple tabs and applications simultaneously without compromising performance. Furthermore, the superior graphics capabilities enhance the visual experience by providing crisp and detailed rendering of websites and multimedia content (Roto, 2006).

Mobile Devices: Performance Considerations on the Go

Mobile devices have witnessed remarkable advancements in performance, but certain considerations arise when it comes to web browsing. While modern mobile devices feature increasingly powerful processors, they still face constraints compared to their desktop counterparts. The compact design and energy efficiency of mobile devices often result in lower processing power and limited memory. These factors can impact the loading speed of web pages, particularly those with extensive multimedia elements or complex layouts. Users may experience slightly longer loading times and occasional delays when interacting with content that requires significant processing resources (Dasari, 2018).

Navigating Privacy Concerns: A Comparison of Desktop and Mobile Devices in Web Browsing

Desktop Devices: Strengthening User Privacy

Desktop devices offer several privacy features and considerations that contribute to a secure web browsing experience. Builtin firewalls provide a first line of defense against unauthorized access and potential threats from the internet. Users can also customize advanced security settings to suit their privacy preferences, such as blocking popups, managing cookie settings, and implementing strict privacy controls. Desktop browsers often come with robust privacy extensions and addons, enabling users to enhance their privacy further by blocking tracking mechanisms, encrypting connections, and managing data sharing preferences (Botha et. al. 2009). These features empower users to have greater control over their online privacy, ensuring a more secure and private browsing experience.

Mobile Devices: Navigating Privacy Concerns

While mobile devices offer convenience and mobility, they come with unique privacy concerns in web browsing. Due to their always connected nature and reliance on various applications and services, mobile devices are susceptible to data leakage, tracking, and unauthorized access. Mobile apps often ask for permission to access sensitive information like location data and personal contacts, which raises concerns about data privacy and the potential for misuse (Botha et. al. 2009). Furthermore, mobile browsers may have limitations when it comes to privacy controls and extensions, making it more challenging for users to customize their privacy settings compared to desktop devices.

Risks of Data Leakage, Tracking, and Unauthorized Access

Mobile devices may face risks of data leakage, particularly when using public WiFi networks or insecure websites. Unsecured connections can potentially expose sensitive information to eavesdropping and interception (Mu et. al., 2013). Mobile apps and websites often track user data for targeted advertising or analytics. This tracking can invade privacy since users may not be aware of how much their online activity is monitored (Wolfe, 2010). Additionally, the small size of mobile devices and the risk of loss or theft increases the chance of unauthorized access to personal information stored on these devices.

Understanding Content: A Comparison of Mobile and Desktop Experiences

On mobile devices, the smaller screen size can pose challenges in terms of content readability. Text and images may appear smaller, requiring users to zoom in or scroll more frequently to access the information. This can affect the overall reading experience, as users may find it more difficult to consume lengthy articles or detailed content (Baudisch et. al., 2004). Advancements in mobile device technology, including high-resolution displays and responsive design, have made content more readable on smaller screens. Websites and applications are now optimized to adjust to different screen sizes, making text and images clear and easily accessible (Reeves et. al., 1999).

In contrast, desktop devices offer larger screen sizes, providing more space for content presentation. By displaying text and images in a larger format, desktop devices enhance readability and reduce the need for zooming or scrolling. The wider viewing area also allows for more comprehensive content layouts, ultimately improving the user experience. Also, desktop devices often provide more precise cursor control through a mouse, making it easier for users to navigate complex web pages, menus, and links.

In terms of navigation, mobile devices typically rely on touch gestures, such as swiping and tapping, to interact with content (Colley & Häkkilä, 2014). While these gestures are intuitive for mobile users, they may require some adjustment for users accustomed to desktop devices. On the

other hand, desktop devices utilize keyboards and mice, providing precise input and allowing for efficient navigation through menus, dropdowns, and hyperlinks. This can result in a more seamless and familiar browsing experience for users.

Input Method and Easiness: Exploring Desktop and Mobile Input Methods

Exploring the Advantages and Considerations of Keyboards and Touchscreens

When it comes to input methods, desktop, and mobile devices offer distinct options that influence the ease of use for users. Desktop devices primarily rely on physical keyboards, which offer tactile feedback and precise typing capabilities. The advantage of keyboards on desktop devices lies in their familiarity and efficient input for tasks that require extensive typing, such as writing documents or emails. The tactile feedback provided by physical keys enhances the typing experience, allowing users to type with speed and accuracy. However, keyboards may pose challenges for individuals who are not accustomed to touch typing or prefer a more intuitive interface.

In contrast, mobile devices employ touchscreens as the primary input method. Touchscreens offer a more interactive and versatile approach, allowing users to directly interact with the interface by tapping, swiping, and gesturing (Colley & Häkkilä, 2014). Touchscreens offer several advantages, such as their intuitive navigation, multitouch capabilities, and compatibility with various gestures. They excel in tasks that involve interacting with graphical elements like browsing websites, using apps, or playing games. However, when it comes to tasks that require extensive text input, touchscreens can present challenges. Virtual keyboards are often more error-prone and slower compared to physical keyboards (Albinsson & Zhai, 2003).

Keyboards, Touchscreens, and Beyond: Enhancing User Interaction and Flexibility

In addition to keyboards and touchscreens, various input devices contribute to the overall user experience on desktop and mobile devices. For instance, desktop devices offer support for a variety of peripherals like mice, trackpads, and stylus pens (Jacob, 1996). These input devices offer precise control and facilitate tasks that require fine movements, such as graphic design,

image editing, or digital illustration. They provide an alternative or supplementary input method to the keyboard, enhancing the overall user experience by offering more flexibility and customization options.

In contrast, mobile devices have more limited options in terms of external input devices. While some mobile devices may support external keyboards or stylus pens, they are not as prevalent or widely used compared to desktop setups. The primary input method remains the touchscreen, which provides a convenient and portable solution for most users' needs. Mobile devices mostly rely on an onscreen keyboard (Faraj, 2009). The absence of additional input devices on mobile devices may limit certain tasks that rely on specialized input methods, but it also contributes to the device's compactness and portability.

Loading Speed: Exploring Desktop and Mobile Performance

Harnessing Power and Efficiency for Swift Browsing

The speed at which a website loads is incredibly important for a positive browsing experience. However, it's worth noting that loading speeds can differ between desktop and mobile devices due to various factors. Desktop devices often benefit from more stable and faster internet connections, such as wired Ethernet or high speed WiFi. These connections provide a consistent bandwidth and lower latency, enabling faster data transfer between the device and the server. In addition to internet connection, desktop devices possess more powerful hardware, including faster processors and ample memory (Powers & Potenza, 1996). This increased processing power allows desktop devices to handle complex web content more efficiently, resulting in faster loading speeds. Furthermore, desktop websites are often optimized for larger screens and can display a greater amount of content at once, reducing the need for continuous loading of additional elements.

Navigating Mobile Networks and Hardware Limitations for Optimal Performance

On the other hand, loading speed poses challenges for mobile devices. Despite advancements in mobile network technology that have greatly improved internet speeds, mobile connections are

still affected by factors like network coverage, signal strength, and network congestion. In areas with weak or unstable cellular signals, the loading speed of websites on mobile devices may be affected (Dasari, 2018). Additionally, mobile devices have lower processing power and limited memory compared to desktop devices. This can impact the loading speed, especially for websites that contain resource intensive elements such as high resolution images, videos, or complex interactive features. To mitigate these limitations, website developers employ techniques like content optimization, responsive design, and caching to enhance the loading speed on mobile devices (Nebeling & Norrie, 2013). By optimizing the size and format of images, minimizing unnecessary scripts, and prioritizing essential content, developers can improve the overall loading speed and user experience on mobile devices.

Security: A Comparison of Desktop and Mobile Devices

Harnessing Robust Security Features for Enhanced Protection

Ensuring the security of personal information and sensitive data while browsing the internet is of paramount importance. When it comes to security features, there are certain differences between desktop and mobile devices. Desktop devices tend to have a more advanced security system as they have well-established operating systems and thorough security measures in place. They offer features like firewalls, antivirus software, and advanced security settings that can guard against different online threats. Moreover, desktop browsers often support a variety of security plugins and extensions which allow users to further enhance their browsing safety (Botha et. al., 2009). However, desktop devices are not immune to risks, and users must stay vigilant against threats such as malware, phishing attacks, and unauthorized access.

Mitigating Risks in the Mobile Landscape for Safer Browsing

Mobile devices, on the other hand, present unique security challenges. Their smaller form factor and reliance on wireless networks make them more susceptible to certain vulnerabilities. Mobile devices may be more prone to physical loss or theft, potentially exposing sensitive information to unauthorized individuals. Moreover, the extensive use of mobile apps introduces additional security concerns, as malicious or poorly designed apps can compromise user data. To mitigate

these risks, mobile operating systems include security features like app permissions, app sandboxing, and secure app stores (Qian et. al., 2017). Users are encouraged to practice safe browsing habits, such as downloading apps from reputable sources, keeping their device's operating system and apps updated, and using strong passwords or biometric authentication.

2.5 Existing device specific relevant studies

The encompassing web browsing experience is the overall user encounter of engaging with websites and digital applications. According to (Thüring & Mahlke, 2007), web browsing experience embodies three principal dimensions: usability, aesthetics, and emotions. Usability pertains to the ease of use and navigation of a website, whereas aesthetics relates to the visual and sensory attractiveness of the website. Emotions link to the feelings and affective reactions the website evokes, including pleasure, frustration, and engagement. Similarly, (Bonnardel et. al., 2011) characterize the web browsing experience as the sum of users' cognitive, perceptual, and motor processes in interacting with a website. This definition underscores the multidimensional nature of the web browsing experience, incorporating cognitive and perceptual factors, motor abilities, and coordination.

Various categories of contraptions are employed for web browsing, with each device extending distinct features and capabilities that may impact the user experience. In their analyses, (Ni et. al., 2006) advises that desktop computers are utilized for more intricate tasks, such as content creation and data analysis, providing more massive screens and processing potential than alternative devices. Moreover, (Perry et. al., 2003) affirm that laptops offer greater portability and flexibility, allowing users to browse the web from any location. Tablets and smartphones are portable devices that extend the ability to access the web while moving. Tablets typically possess more massive screens than smartphones, rendering them more suitable for jobs requiring more screen real estate, such as reading or browsing social media (Gardner, 2011). In another study, (Malinen & Ojala, 2012) conclude that Smartphones are tailored for quick and effortless access

to web content and are employed for tasks such as checking email, social media updates, and messaging.

A study by Raptis and Co. discovered that desktop devices offer better usability than mobile devices due to their massive screen size (Raptis et. al., 2013). The research found that users had more favorable success rates, completion times, and satisfaction rates on desktop devices than on mobile devices. Chang and (Chang & Nilssen, 1989) ascertained that desktop devices offer more multitasking capabilities, rendering them a more versatile option for users. Users can readily switch between multiple tabs, open numerous windows, and access various applications while browsing the internet on a desktop. Desktop devices similarly feature more powerful hardware than mobile devices, which can lead to speedier browsing speeds and superior performance (Paulson, 2003). Nevertheless, desktop devices possess limitations. They are not portable, which makes them less convenient for users who require access to the internet while on the move. Desktop devices similarly necessitate a power source, which can limit their use in areas without access to electricity.

Smartphones and tablets have become increasingly popular for internet browsing due to their portability and convenience. A report by statista.com discovered that more than 5 millions of Norwegians possess a smartphone (Statista, 2023). Mobile devices offer unparalleled convenience compared to desktop devices. Users can access the internet anytime and anywhere. However, the smaller screen size poses a challenge for viewing content and navigating websites, which hinders the immersive experience (Zhang, 2003). Additionally, multitasking on mobile devices can be difficult, limiting users' ability to manage multiple tasks while browsing the internet. A study by Mohorovičić's (2013) found that users are five times more likely to abandon a task if a website is not mobile-friendly, highlighting the importance of optimizing websites for mobile devices.

A 2013 study conducted by Kim and Lennon explored the influence of different devices on users' perceptions of website quality. The findings revealed that consumers' assessment of websites varied depending on the technology they used, with desktop users generally having higher

expectations for website quality. Similarly, Zviran et. al. (2006), investigated how users' opinions of online usability were influenced by their device usage, finding that mobile users rated websites as less usable than desktop users.

According to Nikou and Economides (2017), the study comparing computer and mobile based assessments in higher education revealed no significant difference in overall usability scores between the two systems, suggesting interchangeable use for certain assessment tasks. The User Experience Questionnaire (UEQ) results indicated that mobile based assessments were perceived to be more attractive, enjoyable, and innovative. Despite its limitations, the study provided empirical evidence that mobile devices could complement or replace desktop computers in higher education summative assessments, emphasizing the importance of usability and user experience in technology adoption. Further research is needed to explore different question types, interaction types, age, gender, and exam performance in mobile based assessments.

Neerincx and Streefkerk (2003) conducted a study investigating the impact of device type on user performance and trust while accessing web services. The research compared interactions on a laptop and a mobile device, finding that task performance was significantly worse on the mobile device. Users using the mobile device often used incorrect links to find information, due to limited visibility of navigation paths. Trust in the service increased during interactions with the laptop but remained low with the mobile device, due to the lower performance. The research highlights the importance of enhancing the performance and trustworthiness of web services through improvements in mobile interaction. Additionally, emotional states influenced task performance and user experience, highlighting the importance of considering user emotions in web service interactions. The findings provide valuable insights for optimizing mobile interaction and shaping future concepts like Personalized Adaptive Learning Spaces (PALS).

Adepu and Adler (2016) conducted a study comparing the performance and user experience of a word game on desktop computers and smartphones. Despite better task performance on desktop computers, participants preferred playing the game on smartphones due to their touchscreen features, portability, and ease of use. The widespread use of smartphones and their improved

computing power have led users to perform more sophisticated tasks on mobile devices. The findings highlight the importance of considering user preferences and ease of use when designing applications for different devices, even if performance might be better on traditional desktop computers.

In their research, Agrawal and Agrawal (2018) found that eshopping awareness among youth is widespread. The study revealed that Amazon.com and Flipkart.com are the most preferred websites in India due to their reliability and extensive coverage. Electronic gadgets and home apparels emerged as the top choices for online purchases, primarily because customers noticed significant price differences between the online and offline markets. Interestingly, desktops and laptops were considered more comfortable and secure for online shopping, with mobile devices being preferred for nonpayment tasks. Cash on delivery was the preferred payment option, particularly in India, and village respondents expressed greater comfort in shopping online due to the limited availability of products locally. Moreover, the research highlighted the popularity of mobile applications as a viable option for those without access to desktops or laptops. Overall, respondents were evenly split between desktop and mobile shopping, with an inclination towards mobile purchases, due to exclusive discounts. This study sheds light on the preferences and behaviors of online shoppers, offering valuable insights for ecommerce platforms and businesses targeting the youth demographic.

In a recent study by Khan et al. (2023), the focus was on understanding how customer engagement (CE) and customer experience (CX) differ between interactions on mobile apps and desktop browsers. While there is existing research on CE and CX, little is known about their impact specifically within mobile app interactions. The study aimed to explore these differences and investigate how they influence relationship quality and loyalty intention among online customers. To gather data, the researchers utilized a quantitative survey-based approach. The results showed that both CE and CX have significant impacts on customers' perceived relationship quality and loyalty intention, although the strengths of these impacts varied. Notably, loyalty intention was found to be more crucial in mobile app interactions compared to desktop browser-based ones. However, perceived relationship quality emerged as a key driver for

customer loyalty across both devices. This study provides valuable insights into the effects of CE and CX on customer relationships and loyalty in the context of mobile apps and desktop browsing experiences.

In their study, Jiang et al. (2018) conducted an analysis of clickstream data from the popular website Fengqu to compare the visiting behaviors of mobile and desktop users. The research aimed to understand the differences in footprint distribution, footprint depth, and core footprint distribution between these two user groups. Fengqu primarily provides service through mobile apps, in line with the growing trend of mobile internet usage in China. The study revealed distinct behaviors between mobile and desktop users, with mobile users primarily doing product discovery, while desktop users focused on browsing product details and leaving comments. Mobile users showed more efficient behavior, viewing more products, and spending less time overall. Surprisingly, even though product viewing was more common on desktops, mobile users had deeper footprints on navigation, utility, and account pages, due to the well organized navigation of the app and the use of mobile devices for certain activities such as payments and downloads. The research also analyzed various mobile platforms and found similarities in their usage patterns and engagement levels between mobile applications and websites. Furthermore, the observed patterns on the desktop website were similar to those on the mobile website. A recent study found that Android users tend to spend more time on their devices compared to iOS users. This is believed to be due to the slower loading speed of the Android system. The research provides valuable insights into the browsing habits of mobile and desktop users, highlighting the growing importance of mobile app usage in China's mobile internet landscape.

In the study conducted by Wäljas et al. (2010), the authors demonstrate how characteristics specific to cross platform environments influence service user experience. Their findings highlight that service composition and continuity play crucial roles in shaping user experience. Interestingly, users seem less sensitive to consistency issues between device platforms than previously believed if they understand the overall system composition. To improve user experiences, the authors suggest matching system composition with users' primary activities or situational requirements. Their framework contributes to HCI design by identifying essential

factors impacting cross device user experience, providing a foundation for future design guidelines and checklists. Embracing the complexity of multi device ecosystems, they propose harnessing combinatorial use practices and thoughtful design to unlock new opportunities for utilizing technologies.

In a study conducted by Ong et al. (2017), the researchers explored how changes in search behavior can be explained by Information Foraging Theory in different search environments, specifically comparing desktop and mobile users. The results revealed that the level of information scent (ISL) was a stronger indicator of search behavior than information scent pattern (ISP) for both desktop and mobile users. On desktop, an increase in ISL consistently led to higher measures of search behavior, while on mobile, the impact was mixed. ISP partially influenced search behavior on mobile devices. The study also examined the differences in search behavior between desktop and mobile environments under similar ISL/ISP conditions. Mobile users tended to employ depth-focused strategies, aiming to find and save relevant documents from their initial queries, whereas desktop users were more inclined toward reformulation-focused strategies. In tasks with a greater number of relevant search results, mobile users exhibited higher accuracy rates, while desktop users showed better accuracy when faced with distributed relevant results. Overall, this study highlights the unique characteristics of search behaviors among desktop and mobile users, providing insights into the evolving landscape of mobile search behavior.

In his 2006 study, Roto investigated the effects of screen resolution and size on user experience on mobile devices. According to the study, users prefer larger screens with greater resolutions because of enhanced visual quality, readability, and usability. Raptis et al. (2013), investigated how smartphone screen size affects user surfing behavior and found that larger screens increase user happiness and browsing effectiveness.

In a recent study conducted by Alrizq et al. (2021), the performance of participants in understanding text while practicing skim reading was compared on two screen sizes: fullscreen and mobile screens. The study focused on participants' memory recall of important, unimportant,

and inference sentences in both screen conditions. Although no significant effects were found for sentence memory between the two screen sizes, an overall analysis showed slightly higher mean values for the fullscreen condition. Additionally, the study examined previous research by Duggan and Payne that emphasized how memory inferences impact meaningful sentence comprehension during skimming. Overall, this research provides insights into designing mobile-friendly websites and suggests that using smaller screens may result in slightly lower performance compared to larger screens. It is important to note that the study acknowledges limitations in sample size and participant diversity, suggesting further research to explore additional factors like scrolling behavior on mobile screens. In conclusion, this study sheds light on the implications of screen size on skim reading performance.

In a comprehensive four-year study, Nejati et al. (2020) examined the evolution of mobile web performance. They analyzed various factors such as devices, browsers, website versions, and network conditions to understand how page load performance improved over time. The research revealed that web browsing has indeed become faster on all browsers, primarily due to advancements in newer mobile device hardware. Interestingly, older browsers performed better than their newer counterparts on the same hardware, and enhancements in network infrastructure showed diminishing returns in terms of page performance. These findings highlight the need for web developers and browser vendors to rely on increasingly powerful hardware to compensate for their overheads. This reliance can have an impact on user experience and security, particularly for individuals who cannot afford frequent upgrades of their mobile devices.

Yu et al. (2020) carried out a study involving 50 young adults to investigate the effect of response time on user experience for mobile applications. They also examined how gender and network environment influence this relationship. The study assessed user experience based on three dimensions: tolerance, acceptance, and satisfaction. The findings indicated that response time significantly impacts user experience, although its effect varies across the three dimensions. In addition, the study found that the impact of response time is influenced by gender, with males experiencing a more negative impact compared to females. This finding contradicted the initial

hypothesis. Additionally, the combined influence of gender and network environment was also found to be significant. This research helps us understand how users experience mobile applications and highlights the importance of considering response time in mobile app design. By incorporating response time optimization, we can enhance user experience while efficiently utilizing resources.

In their research, Bothe et al. (2009) investigated the security aspects of mobile devices, specifically focusing on Windows Mobile. The study revealed that while mobile devices offer some security features, their extent and usability are often lacking. When transitioning from desktop to mobile devices, users encounter different experiences, particularly when it comes to authentication, connectivity, and content protection. Password-based authentication on mobile devices presents a tradeoff between security and usability, which may necessitate alternative authentication methods like biometrics. Additionally, users may find the connectivity options on mobile devices unfamiliar, each carrying its own security considerations and configuration settings. Additionally, mobile devices may support reduced levels of security functionality, requiring users to be aware of the limitations and adjust their security expectations accordingly. The study highlights the importance of considering security and user access effectively in the design of mobile device interfaces to avoid potential issues and provide a better user experience. Remote management tools can help corporate users, but the goal is making security accessible and understandable to all users while offering appropriate protection and reassurance.

A study conducted by BenAsher et al. (2011) aimed to explore users' interest in safeguarding their mobile devices and their attitudes towards the data stored on them. The survey findings demonstrate that users genuinely care about the security of their mobile phones and are aware of the sensitivity of certain types of data. They consider data stored on the device, such as personal pictures or work related emails, as sensitive and fear unauthorized access. The survey also highlighted the need to provide users with control over the protection of their stored items and the device's functions. Users preferred authentication methods that are nonintrusive and convenient, with fingerprint identification being the most preferred option. However, the authors

emphasized the importance of carefully integrating such sensors and offering users a range of authentication methods to choose from based on their usage patterns and content sensitivity. The study suggested that flexible and dynamically adjustable security levels based on users' needs and usage scenarios would be beneficial in enhancing mobile device security.

In a study by Djamasbi et al. (2013), researchers conducted two exploratory studies to understand search behavior and the influence of advertisements on search engine results pages (SERPs). One study was conducted using a desktop computer, while the other used a smartphone. Initial analysis of the data suggested that ads on mobile SERPs might be more effective compared to desktop ads, as a higher percentage of users viewed ads on their mobile phones. Interestingly, in the mobile phone study, the presence of ads had minimal impact on users' viewing patterns. Users displayed similar coverage of the SERPs whether or not ads were present. However, on desktops, users engaged in more thorough scanning of the page when no ads were present. The smaller screen size of mobile phones may encourage consistent scanning regardless of ad presence. Further research is necessary to address questions regarding user behavior and ad perception in different search environments.

In their study, Lestari et al. (2014) examined the impact of different website designs on user experience when accessed on different devices, including desktop and mobile. They found that home functionality quality was well maintained between designs on different devices, as users were able to understand website overviews effectively regardless of the design. However, information architecture (navigability) quality was better on desktop compared to mobile devices, as navigating the dropdown menu on mobile required more effort and time from users. Readability content quality was maintained well between distinctive designs on different devices, but designers need to ensure content is readable without horizontal scrolling to enhance user understanding. The quality of enjoyment of using the website was the same across assorted designs and devices. On mobile devices, non responsive websites required less scrolling and clicking compared to responsive ones for exploring information architecture, while responsive

websites required 74% less scroll than unresponsive ones for exploring content readability due to the need for more horizontal scrolling.

In the aforementioned article authored by Nancy R. Glassman and Phil Shen, entitled "One Site Fits All: Responsive Web Design," the authors delve into the implications and prospects brought about by the increasing prevalence of mobile devices and the concurrent decline of desktop computers in terms of website accessibility and available online content. They emphasize the importance of reaching out to mobile users while acknowledging the difficulties in maintaining separate apps for various operating systems. The authors introduce the concept of responsive web design (RWD) as a solution, where websites automatically resize to fit the screen size of the device being used. They explore the use of RWD in health sciences libraries and provide examples of how some libraries have implemented it. The article highlights the tools and technologies used in RWD and offers resources for further learning on the topic. The authors assert that RWD allows for a flexible and adaptable web presence that can cater to users across various devices.

2.6 Research Gap

Although there has been extensive research conducted on the impact of various devices on users' web browsing experiences, there still remains a significant gap in our understanding of how different devices specifically affect key components of the browsing experience. While previous studies have examined overall user satisfaction and performance metrics, there is a lack of comprehensive research that delves into how different devices influence specific aspects of the browsing experience. For example, we need more insights into how devices contribute to website loading times, content comprehension, ease of inputting information, and perceptions of security. This research gap hinders a nuanced understanding of how users interact with websites on diverse devices and their perceptions of security, usability, and efficiency on each device. Addressing this gap is essential to guide web developers and designers in creating more device

adaptive websites and to inform users about the strengths and limitations of different devices for various online activities.

Additionally, investigating how age and gender interact with the effects of different devices on browsing experiences is vital for providing insights into user behavior and preferences among distinct demographic groups. This knowledge can enable marketers to customize content and user interfaces based on demographic characteristics, improving user satisfaction and brand loyalty.

2.7 Contribution of the study

Contribution to the Digital Marketing Sector:

User Behavior Understanding

Ensuring a profound grasp of user behavior across various devices, such as desktops and mobiles, holds utmost importance within the digital marketing industry. This understanding serves as the foundation for crafting impactful marketing strategies that prioritize user satisfaction and facilitate a smooth cross device experience (Desai & Vidyapeeth, 2019).

When evaluating how users engage with interfaces across different devices, numerous factors come into play. These include demographic information (such as age and gender), technological proficiency, input convenience, security perceptions, and content comprehension ease. Each of these aspects significantly influences the overall user experience. The study's collected data provides valuable insights into various aspects across different device types. By examining demographic information, we can uncover distinct patterns and preferences in user behavior

(Yang, 2023). Notably, older users may gravitate towards desktop interfaces, while younger users tend to favor mobile interfaces.

The impact of technological savviness on user navigation across devices varies. Advanced tech users effortlessly transition between different devices (Swilley, 2019), while individuals with limited tech experience may find one device more user friendly than the other. The ease of inputting information emerges as a crucial consideration. On mobile devices, users might encounter challenges presented by smaller input fields and less accurate touch controls in contrast to the more spacious desktop interfaces. These valuable insights assist marketers in optimizing forms and navigation across devices, promoting a smoother input experience.

The perception of security holds immense importance across all devices (O'Neill, 2016). User's confidence in engaging with content and sharing personal information should remain intact, regardless of whether they are using a desktop or a mobile device. By delving into users' perceptions of security, this study offers valuable insights to address these concerns effectively and enhance user trust. In the investigation of content clarity and accessibility, it is crucial to prioritize the ease of understanding regardless of the device. Users can be discouraged by complex language, poor layout, or confusing navigation. This study examines these factors in desktop and mobile devices, offering practical insights for enhancing content comprehension and usability. This study provides a comprehensive understanding of user behavior in multi device contexts by considering desktop and mobile devices. The derived insights will enable marketers to design more effective, inclusive, and user friendly marketing strategies, facilitating a seamless user experience across devices.

Campaign optimization:

Campaign optimization impacts the success of marketing initiatives on both desktop and mobile devices in digital marketing (Ullah & Binbusayyis, 2022). It is a critical element that relies on factors including demographic information, technological aptitude, ease of input, security

perceptions, and content comprehension. The study collects demographic data (age and gender) that informs marketing campaign optimization. It highlights differences in preferences and behaviors among various groups, guiding the design and delivery of more targeted marketing messages (Singh, 2020). For example, mobile devices may be more successful for campaigns targeting younger audiences, while campaigns optimized for desktop might resonate better with an older demographic. Additionally, understanding gender based preferences and behaviors can further enhance the effectiveness of marketing strategies.

Technological savviness plays a crucial role in effective campaigns. Consideration should be given to users with varying levels of tech skills. For those less proficient, simplifying navigation, using clear language, and offering helpful prompts can enhance usability. Conversely, more experienced individuals may prefer advanced features and a sophisticated interface. Campaign optimization relies heavily on the ease of inputting information, particularly when it comes to collecting user data or facilitating transactions. If users encounter difficulties during this process, they may abandon the task, resulting in decreased conversion rates. Marketers can utilize insights from studies to streamline their forms and data collection methods, making them more user friendly and straightforward. This optimization enhances user engagement and boosts conversions (Sawicki, 2016). Security perceptions play a crucial role in optimizing campaigns. If users perceive a device as insecure, they may hesitate to engage with the campaign—particularly those involving personal information or transactions. Marketers can enhance trust and encourage user engagement by comprehending users' security perceptions, integrating security features, and effectively communicating data safety measures.

The success of a campaign heavily relies on the audience's understanding of its content. If users find it confusing or difficult to comprehend, they are less likely to engage with it. Marketers can simplify their content, use more accessible language, and organize it effectively by considering insights from studies. This enhances user understanding and engagement. By incorporating numerous factors and user data, campaign optimization can be improved, resulting in more engaging and effective marketing strategies across different devices (Lio et. al., 2009). This study offers comprehensive insights necessary for holistic campaign optimization.

Contribution to the UX Design Industry:

Inclusive Design Practices:

In the digital marketing and UX design fields, inclusive design has transformed from a luxury into a necessity. It recognizes the immense diversity among users and strives to develop interfaces and marketing campaigns that are accessible, userfriendly, and enjoyable for all individuals. Age, gender, technological proficiency, and other personal characteristics should no longer be hurdles in delivering satisfying experiences to users (Tavares et al. 2022). By acknowledging that younger users may exhibit distinct preferences and navigation habits compared to their older counterparts, UX designers can strive for interfaces that cater to both demographics (Backhaus, 2018). Similarly, recognizing potential differences between male and female users in terms of preferences and behaviors can guide the design of features and interfaces that resonate with all users, encompassing a wider audience rather than just a subset (Sagnier et. al. 2020).

Inclusive design considers technological savviness as a crucial aspect. One must acknowledge that users possess varying levels of comfort and proficiency with technology. UX designers, considering this understanding, can develop interfaces that cater to a diverse range of tech skills. For users with limited tech experience, offering simplified interfaces, intuitive navigation, and clear instructions can be advantageous (Cowan et. al. 2017). Conversely, advanced users may appreciate the availability of more sophisticated options. Inclusive design places immense importance on facilitating the input of information. It ensures that individuals, regardless of their physical abilities or device preferences, can effortlessly input data, promoting accessibility. This may involve implementing larger and more accessible input fields, voice to text functionalities, or alternative methods of input for those with motor impairments. Security holds a crucial role in inclusive design. Every user, regardless of their level of technical expertise or demographic

background, should be able to feel secure while engaging with digital interfaces. By gaining insights into users' perceptions and concerns regarding security, UX designers can effectively incorporate appropriate security features and convey information about data protection measures (Furfaro et. al, 2014).

Ensuring the comprehensibility of content becomes a pivotal aspect of inclusive design. Content should adopt a clear and concise approach, facilitating easy understanding for all users. This can encompass utilizing plain language, providing alternative text for images, or presenting content in multiple languages (Nietzio et. al. 2014). This study profoundly contributes to the inclusive design practices within the digital marketing and UX design industries. By providing a comprehensive understanding of diverse user experiences on both desktop and mobile devices, it empowers UX designers with valuable insights necessary for creating more inclusive, accessible, and satisfying digital experiences that cater to all users.

New Services Development:

The digital landscape is constantly evolving (Jukes et. al. 2010), which creates a growing demand for innovative services in the fields of digital marketing and UX design (Mishra, 2020). This study thoroughly examines user experiences on mobile and desktop devices, providing valuable insights to shape the development of these services.

Recognizing the diverse levels of technological proficiency among users drives the creation of novel services. For individuals with limited tech knowledge, there arises a demand for assistance and guidance in navigating digital interfaces. Conversely, proficient users can get the benefits of services that offer advanced functionalities and customizable options. The user experience benefits from easy inputting of information. The insights gathered through this study serve as inspiration to develop new services that streamline this process (Stickdorn & Schneider, 2012). These services can range from intuitive and user friendly forms to alternative methods of input

for individuals with physical impairments or other challenges. Users' security concerns are of utmost importance. Understanding their perceptions and worries can guide the development of services that enhance security. This may involve creating features like secure data storage, encryption, or identity verification (Furfaro et. al, 2014). The ease of understanding content significantly impacts user engagement. This study has the potential to inspire the development of various services aimed at enhancing content clarity and comprehension. Examples include content optimization services, translation services, or services that specialize in creating visually captivating and easily digestible content (Besbes et. al. 2016).

This study presents extensive information that can shape the development of new services in the digital marketing and UX design industries. By comprehending the distinct needs and experiences of various user groups, businesses operating within these sectors can create groundbreaking services that elevate user experiences, foster user engagement, and drive business growth.

Fostering Inclusivity:

In effective user experience design and digital marketing, inclusivity serves as a crucial foundation. It guarantees that individuals of all demographics and abilities can access, comprehend, and engage with different device platforms. This study provides valuable insights that support the promotion of inclusivity in the digital landscape (Parsons & Hick, 2008).

Demographic data, such as age and gender, play a crucial role in comprehending the diverse needs and experiences of users. For example, through studies we can uncover distinct challenges and preferences across different age groups. This knowledge encourages industries like UX design and digital marketing to consider these varied experiences when developing their designs and strategies. Moreover, by acknowledging and addressing gender based differences, we promote inclusion in creating digital experiences that resonate with all genders (Pawluczuk et. al. 2021).

The study emphasizes the significance of accommodating users with varying levels of technological expertise. To ensure a seamless engagement with devices, it is crucial to create interfaces that are simple and intuitive for less tech savvy individuals. On the other hand, advanced features and customization options should be provided to more tech savvy users, enhancing their overall digital experiences and avoiding any neglect in addressing their needs (Chammas et. al. 2015).

In the realm of user experience, facilitating the input of information is a pivotal aspect that can significantly influence inclusive practices. It becomes imperative to explore alternative methods of data entry for individuals who may encounter hurdles when inputting data, especially on smaller mobile screens (Grabe et. al. 1999). Users' security perceptions play a crucial role in establishing trust and inclusivity within an environment. Insecure device platforms can deter user engagement, leading to the potential exclusion of certain user groups (Hanus & Wu, 2016). This study emphasizes the importance of security measures.

This study's findings would have the potential to contribute significantly to promoting inclusivity within the digital marketing and UX design industries. By exploring diverse user experiences and challenges, it implores these industries to adopt more inclusive practices. This crucial shift ensures that device platforms are accessible, understandable, and engaging for all users.

Contribution to Knowledge Base:

Holistic Understanding:

Developing a comprehensive understanding of user experiences is crucial in enhancing digital interactions and promoting user engagement (Basri et. al. 2016). This study contributes to a holistic perspective by examining numerous factors that influence user experience, including

age, gender, technological proficiency, ease of inputting information, security perceptions, and content comprehension. By analyzing these aspects across mobile and desktop devices, we gain valuable insights into the overall user experiences.

Demographic data, such as age and gender, provides valuable insights into how diverse groups engage with digital platforms (Tavares et al. 2022). By understanding the distinct challenges and preferences faced by older users or the contrasting behaviors of male and female users (Sagnier et. al. 2020), developers can tailor user interfaces and marketing strategies to be more personalized and effective.

Technological proficiency significantly impacts user experience. Understanding the broad spectrum of technological aptitude, ranging from novices to experts, allows for a more nuanced comprehension of user experiences (Evans & Robertson, 2020). Consequently, this understanding can serve as a guiding factor in tailoring interfaces and campaigns to cater to this diverse range. This might involve simplifying interfaces to accommodate less tech savvy users while providing advanced features for those who are more technologically inclined. The ease of inputting information holds immense importance in enhancing user experience. If users encounter difficulties while entering data, they may be inclined to abandon the task or purchase, resulting in reduced engagement and conversion rates (Dewan & Benckendorff, 2013). This study sheds light on the challenges faced by users during information input, contributing to a more comprehensive understanding of their experiences.

In the realm of user experiences, security perceptions hold immense significance. If individuals perceive a digital device platform as lacking in security, they may abstain from engaging with it, regardless of its other appealing features (Hanus & Wu, 2016). By delving into users' perceptions of security, this study contributes to a comprehensive understanding of the factors that drive user engagement and foster trust in digital device platforms.

Finally, the extent to which content is easily understood impacts user engagement. If users encounter complexity or confusion in content, they may disengage, thereby affecting both their experience and involvement. This study delves into user perceptions and interactions with content, enhancing our comprehension of how to optimize it for improved user experiences. This study considers a wide range of factors and user experiences. It aims to provide a comprehensive and holistic understanding of how users interact with mobile and desktop devices. By gaining this enriched understanding, developers can create more effective and user centric interfaces, campaigns, and digital strategies. These improvements enhance user experiences and increase engagement across the digital landscape (Demangeot & Broderick, 2016).

2.8 Expected direction of results and reasoning

Hypothesis 1: The ease of understanding content will be rated higher on desktop devices than on mobile devices.

The size and arrangement of display screens are key differentiating factors between desktop and mobile devices. Desktop devices typically feature larger screens that offer a broader view of the content. This allows for more expansive layouts where content can be displayed more comprehensively and with greater detail (Sweeney & Crestani, 2006). For example, more information can be viewed at once without scrolling, and multiple windows can be open simultaneously for cross referencing information. Moreover, larger text size can enhance legibility and improve visibility of images, ultimately leading to better comprehension.

On the other hand, mobile devices have smaller screens that can only show a limited amount of content at once. This might result in extra actions needed to access the same information, like more scrolling or zooming (Colley & Häkkilä, 2014). These extra actions can disrupt the user's thought process and make it harder to form a clear understanding of the information, which in turn can hinder comprehension.

In addition, the design and layout of websites or applications often vary between desktop and mobile versions. Although most sites and apps are now created to be mobile-friendly, condensing content and navigation for smaller screens can occasionally lead to a less intuitive or fragmented user experience (Baudisch et al., 2004). For instance, some features or information might be hidden behind menus or tabs on mobile versions to save screen space, requiring users to take extra steps to access them. Such design constraints can potentially make it more challenging for users to understand the content on mobile devices compared to desktop devices.

Based on our analysis of factors such as screen size, layout, and design, we have come to the hypothesis that users will find content easier to comprehend on desktop devices compared to mobile devices.

Hypothesis 2: The loading speed of websites will be rated higher on desktop devices than on mobile devices.

There are several factors that contribute to the difference in perceived loading speed between desktop and mobile devices. These include device capabilities, network conditions, and website design.

Desktop computers generally have stronger processors and larger memory capacities compared to mobile devices (Powers & Potenza, 1996). This means they can process and display website data more quickly. Additionally, desktop computers are often connected to stable high-speed internet connections, which further improves the loading speed of websites.

However, compared to desktop devices, mobile devices still have some limitations in terms of processing power and memory capacity. As a result, complex web pages may take longer to load on mobile devices. Additionally, mobile devices often rely on wireless or mobile data connections which can be less reliable or slower than wired connections. This is especially true in areas with poor network coverage (Ezhilarasan & Dinakaran, 2017). This could potentially lead to slower loading speeds on mobile devices.

Website design is another factor that can influence the perceived loading speed. Websites designed for desktop viewing can be dataheavy due to high resolution images, videos, or complex interactive elements, which can take longer to load on mobile devices. While many websites employ responsive design to adapt their content for mobile viewing, the process of scaling and reformatting the content can also add to the loading time (Gardner, 2011).

Considering these aspects, we hypothesize that users will rate the loading speed of websites higher on desktop devices than on mobile devices.

Hypothesis 3: Users will report higher ease of inputting information on desktop devices compared to mobile devices.

Inputting information on a device depends on the interface and the input methods available. On a desktop, users typically have a physical keyboard and mouse, which provide precise control and allow for quick and easy data entry (Dewan & Benckendorff, 2013). Features like tabbing to move between fields, copy pasting information, and easily correcting mistakes make inputting information on a desktop easier.

On the other hand, mobile devices primarily use touchscreens for input. This method can be more challenging for users as the small onscreen keyboards can lead to more errors, especially for users with larger fingers or those not accustomed to touchscreen typing (Colley & Häkkilä, 2014). Moving between disciplines, copying and pasting information, and fixing mistakes can be challenging. Additionally, completing long forms or entering a significant amount of data can be especially cumbersome on a mobile device because of the small screen size.

In addition, multitasking on desktop computers could make inputting information easier. On a desktop, a user could have multiple windows or applications open simultaneously and can easily switch between them, which can be especially useful when inputting information requires reference to other sources. Mobile devices, on the other hand, have more limited multitasking capabilities (Nagata & van, 2003).

Thus, based on these considerations, we hypothesize that users will report higher ease of inputting information on desktop devices compared to mobile devices.

Hypothesis 4: Users will report higher levels of security concern on mobile devices compared to desktop devices.

Security concerns are a significant aspect of user experience (Avast, 2022), particularly when it comes to engaging in online activities. Users' perception of the security measures and safeguards provided by their devices can influence their level of comfort and confidence while using them.

Mobile devices are more prone to certain security risks compared to desktop devices (Watson & Zheng, 2017). They are frequently used on public networks, such as WiFi hotspots, where the risk of data interception or unauthorized access is higher (Karaymeh et. al., 2019). Mobile devices are also more susceptible to physical loss or theft, potentially exposing sensitive information to unauthorized individuals. In addition, the smaller screens on mobile devices can make it more difficult for users to notice important security indicators or prompts. This can increase concerns about privacy and data security.

On the other hand, desktop devices are generally used in environments that are more controlled, such as homes or offices. These settings often have stronger network security measures in place. Additionally, desktop devices typically have dedicated internet connections and are less susceptible to physical security risks compared to mobile devices.

Based on these factors, we hypothesize that users will express greater levels of concern regarding security when using mobile devices in comparison to desktop devices. The perception may arise from the belief that mobile devices are more prone to security threats, leading individuals to feel less secure while engaging in online activities on such devices.

Part Three: Methodology

3.1 Research Design and Approach

The research study employs a survey methodology to investigate and compare the user experience between desktop and mobile devices. The quantitative research design allows for efficient data collection from a larger sample size, providing comprehensive insights into the research topic without bias.

To evaluate user experience across desktop and mobile devices, a comprehensive survey has been constructed. The survey would include questions aimed at measuring the usability, accessibility & security concern of users for both devices and their perceived differences. Participants' perceptions and experiences can be thoroughly captured by including Likertscale questions and multiple choice items (Nemoto & Beglar, 2014).

To ensure the survey instrument's reliability and validity, a small group of participants may conduct a pilot study (In, 2017). The pilot study can help improve the survey questions and recognize any areas that require further improvement or troubleshooting.

The survey targeted individuals with experience using desktop and mobile devices. Participants are selected via purposive sampling technique, and the survey would be administered anonymously using online platforms for data collection. The survey aims to ensure confidentiality and encourage honest feedback from the respondents.

After collecting the survey data, appropriate statistical analysis techniques are utilized. A descriptive summary of the user experience on both devices presented using statistics such as means, median, standard deviation and regression analysis.

The survey findings discussed along with considering existing literature and theoretical frameworks. The resulting limitations such as sample size and potential biases also addressed.

Throughout the research process, ethics is the top priority. This includes obtaining participants' informed consent and ensuring utmost privacy and confidentiality for them.

The study's research design primarily relies on using a survey methodology. This approach affords an efficient means of gathering data and performing statistical analysis (Ali & Bhaskar, 2016), as it enables the investigation and comparison of user experience across both desktop and mobile devices. These surveys are designed to provide valuable insights into any similarities or differences in user satisfaction between these two devices.

3.2 Sampling and Participant Recruitment

We used purposive sampling to select participants with experience using both desktop and mobile devices. This approach ensures the sample consists of individuals who can provide valuable insights into user experiences on both devices.

To reach a wider audience for participant recruitment, various methods are utilized (Patel Et. al., 2003). Utilizing online platforms like social media groups, forums, and professional networks can help connect with potential participants from different geographical locations. Inperson recruitment approaches using university campuses and local community centers can also identify suitable individuals who meet the study criteria.

During the recruitment process, it is essential to establish clear inclusion criteria to ensure that participants possess sufficient experience and knowledge in using desktop and mobile devices. These criteria may incorporate numerous factors such as age, gender, device usage frequency, and prior experience with different applications or websites.

The study's purpose, procedures, and potential risks or benefits are explicitly explained to the participants. Each participant's informed consent is obtained, ensuring their full comprehension of their rights and voluntary participation in the study.

To increase participation rates, researchers may provide attractive incentives such as a possibility of receiving a gift card or access to the summarized findings of the study. This could boost

motivation in potential participants and encourage their active involvement in the research process.

To obtain comprehensive insights into user experience on both desktop and mobile devices, the research purposive sampling objectives and data saturation level determined the sample size. It is crucial to ensure diversity within the participants by including individuals from different demographic backgrounds, occupations, and technological proficiencies (Connelly, 2013).

Throughout the process of collecting data, the privacy and confidentiality of all participants was maintained in a proper way. To ensure anonymity, no personally identifiable information is associated with survey responses. Measures are also taken to protect this information and maintain confidentiality.

Potential biases from the sampling approaches are carefully considered (GonzálezBailón Et. al., 2014). The study team aims to mitigate any bias by selecting participants with a diverse range of perspectives and maintaining transparency about the purpose of the research.

The study aims to collect insightful perspectives on user experience across desktop and mobile devices by using purposive sampling and a well designed participant recruitment strategy, maintaining the desired levels of neutrality and balance throughout the narrative.

3.3 Questionnaire Design and Administration

The questionnaire's design and administration in this study are critical components to gather relevant insights about the user experience on desktops and mobile devices. By focusing on research objectives, we craft an effective questionnaire that provides a comprehensive understanding of the user experience across both devices. This approach ensures the collected data captures key insights while minimizing bias (Bowling, 2005).

The survey commences with a succinct and comprehensible introduction, outlining the study's aims and guaranteeing respondents of their anonymous and secure participation. The questionnaire stresses the voluntary character of their contribution, fostering truthful replies. To

contextualize data analysis and gain insight into potential discrepancies in consumers' experiences, demographic information such as age, gender and technical knowledge levels are also gathered through targeted queries.

The questionnaire aims to evaluate the customer demographics and experience of the participants (Connelly, 2013). It includes questions regarding their age, gender, technological savviness, privacy concern as well as loading speed, security, ease of sharing information, ease of receiving information and type of device they are using. By doing so, this survey intends to gain insights into the participants' engagement with both desktop and mobile devices.

The researchers used a questionnaire to assess the usability, accessibility, and satisfaction of the users. The participants' perceptions of ease of use, learnability, efficiency, effectiveness on desktop and mobile devices are evaluated using Likert scales or rating scales. This study helps determine overall experience and likelihood of recommending the interface to others.

Participants can share their experience on the differences between desktop and mobile user experiences through Likert scale. Such questions offer valuable insights into nuanced preferences of each device, complementing the quantitative responses (Nemoto & Beglar, 2014). This method helps to get a comprehensive understanding of both devices and ensures specific details are considered in evaluating them.

We used popular online survey platforms like Qualtrics, SurveyMonkey and Google Forms to administer the questionnaire with utmost efficiency. These platforms offer a seamless way to quickly distribute the questionnaire and track responses (Regmi Et. al., 2016). Additionally, considering that many participants may access the survey through their mobile devices, an intuitive and device friendly layout is provided for enhanced usability.

Prior to launching the survey, a pilot test was carried out with a small group of participants. This step is intended to identify any potential ambiguities, confusing questions or technical issues and refine the questionnaire as needed for clarity and effectiveness. Once launch ready, the survey facilitates a specific data collection period for receiving participants' responses. To maximize responsiveness, periodic reminders are circulated throughout this period aiming at improving

response rates and achieving an adequate sample size within designated times (Tenforde Et. al., 2010).

Through meticulous questionnaire design and efficient administration techniques, this study seeks to gather comprehensive and dependable data on the user experience between desktop and mobile devices. Findings obtained from the responses lends insight into the variances of user experience for these devices, informing interface design practices while enhancing satisfaction levels and fostering engagement.

3.4 Data Collection and Analysis

For this study, researchers used a questionnaire to collect data from eligible participants (Tenforde Et. al., 2010). The survey was administered online for ease of accessibility and convenience. Clear instructions on completing the questionnaire are given to respondents who can complete the exercise at their preferred time within a specified collection period.

To ensure accurate and reliable data collection, the researchers strive to encourage a diverse and representative sample. They may also send reminders or notifications to reduce possible nonresponse bias (Berg, 2005). Ethical standards such as informed consent and participant privacy are also adhered to throughout data collection.

Once all the data has been collected, a thorough analysis is conducted to extract valuable insights from it. The process of data analysis entails various steps:

- To ensure accurate and trustworthy data analysis, the collected information undergoes careful examination. The team meticulously identifies and addresses errors, missing values, or inconsistencies through data cleaning. This step guarantees that the data is both accurate and reliable before moving onto subsequent analytical steps.

- The researchers conducted a descriptive statistical analysis to summarize and present characteristics of the sample. This includes demographic information and usage patterns.

Various measures such as means, median, percentages, standard deviations and regression analysis is used to provide an overview of the data.

- In exploring potential variations in user experience based on participant characteristics, such as age, gender, technological savviness and privacy concern would be performed. This approach pinpoints any patterns or differences within specific groups and delivers deeper insights into the factors that influence user experience. Understandability, ease of use, loading speed and security concern related data would be collected to measure users browsing experience.

- The researchers interpreted and discussed the data analysis findings based on the research objectives and existing literature. The implications of these findings are considered to be explored, highlighting key insights and identifying areas for further research.

During the data analysis process, accurate and comprehensive analysis is facilitated by utilizing appropriate statistical software. The report of the findings obtained from the data analysis process presented in a concise and unambiguous manner, supported by relevant tables, charts, and quotes where necessary (Rabiee, 2004).

This study aims to uncover valuable insights into the user experience on desktop and mobile devices by using robust data collection methods and rigorous analysis. The results helped to understand differences, similarities, and influential factors in user experience. This understanding can inform interface design practices and facilitate improvements in user satisfaction and engagement.

Part Four: Result

4.1.1 Descriptive statistics of participant demographics

Descriptive statistics are a wonderful way of summarizing data (Holcomb, 2016). The study recruited 105 participants – where 61 participants are male, 41 female participants, 1 nonbinary and 2 participants preferred not to disclose their gender. The age range varied from 18 to 65 years, where the mean age is 30.

Regarding tech savviness, participants were asked to rate their technological savviness on a scale of 1 (Not tech savvy) to 5 (Extremely tech savvy). The average tech savviness score for users was 3.02, where the standard deviation was 1.31; indicating a moderate level of technological savviness among participants.

The participants were surveyed on a scale of 1 to 5 regarding their privacy concerns, with 5 being the highest level of concern. On average, the participants scored a 3.42, where the standard deviation was 1.1; indicating moderate levels of apprehension about privacy issues.

The participant sample, in terms of gender, age, tech savviness, and privacy concerns, is diverse. This diversity adds robustness to the findings.

4.1.2 Descriptive statistics of web browsing experience ratings

Both mobile and desktop users have provided ratings on their web browsing experience based on five key parameters. These parameters include the time spent on each device, ease of understanding content, inputting information, loading speed, and overall security.

Time spent on each device:

Out of 105 respondents 47 said they have spent more time on mobile device where 58 said they spend much time on desktops, which is slightly lower than mobile devices. For the ease of calculation from non numeric value collected with survey desktop is considered as 1 and mobile device was considered as 0.

Easiness of understanding content:

Participants were asked to rate the ease of understanding the content on a scale ranging from 1 (extremely difficult) to 5 (very easy).

For desktop users, the content received an average rating of 4.02 (standard deviation=0.89), indicating that most participants found it easily understandable with ratings closely clustered around the average score. The median rating of 4 reinforces this result, reaffirming that there was a high perceived ease in understanding the content.

According to the study, mobile users gave an average rating of 3.56 with a standard deviation of 1.02, indicating that while most participants found the content moderately easy on their mobile devices, it was not as easy as for those using a desktop.

Inputting information (enter information):

The survey requested participants to evaluate the simplicity of data entry on a 15 scale, with 1 signifying "extremely difficult," and 5 indicating "very easy."

Desktop Users: Participants rated the ease of entering information at an average of 4.04, with a standard deviation of 0.92. The median rating was 4.0, indicating that most respondents found it easy to input information on desktop.

Mobile users rated entering information on the devices with an average of 3.41 and a standard deviation of 0.98, indicating moderate ease. The median rating was found to be 3.0 implying that most respondents found the task only slightly difficult compared to desktop.

Loading speed:

Participants were asked to evaluate how fast or slow the content loaded overall. The rating scale ranged from very slow (1) to extremely fast (5).

For desktop users, the loading speed received an average rating of 3.61 with a standard deviation of 0.83, indicating a satisfactory experience with some variation in responses. The median rating of 4 suggests that most participants found the loading speed fast.

Mobile users provided an average score of 3.41 (SD=0.86) for loading speed, indicating slightly less satisfaction compared to desktop users with variations in responses. However, the median rating of 3 suggests that overall, most mobile users found the loading speed moderate.

Overall Security:

Participants were asked to rate their level of internet security perception using a five point scale, where 1 represents "not secure at all," and 5 refers to "extremely secure."

For those who utilize desktops, the security rating averages at 3.15 with a standard deviation of 0.89, presenting a moderate level of perceived safety with some slight variations in responses. This is further supported by the median rating of 3.0 which amplifies the sensation of overall moderate security during web usage.

For mobile users, the average security rating was slightly lower at 3.01 with a standard deviation of 1. This suggests that the perceived level of security is like desktop users but with slightly more variability in their responses. The median rating of 3.0 also confirms a moderate level of perceived security, consistent with desktop user results.

Desktop users feel slightly more secure than mobile users as per the difference in their average security rating. The former's average rating stands at 3.15 while that of the latter is at a close 3.01, making the difference between them relatively small.

The ratings provide a valuable snapshot of participants' perceptions regarding their web browsing experience. Across all four parameters, overall moderately positive ratings were observed.

4.2 Comparison of web browsing experience ratings across devices

We conducted a comparative analysis to examine the disparities in web browsing experiences between mobile and desktop users. Our study included data from 105 participants.

Out of the 105 participants 58 individuals spent more time on mobile devices than desktops. However, the remaining 47 participants indicated that they preferred using desktops for web browsing activities.

Browsing Experience	Mean	Median	Standard Deviation
Easiness of understanding content (Desktop)	4.02	4	0.89
Easiness of understanding content (Mobile)	3.56	4	1.02
Easiness of inputting information (Desktop)	4.04	4	0.92
Easiness of inputting information (Mobile)	3.41	3	0.98
Loading Speed (Desktop)	3.61	4	0.83
Loading Speed (Mobile)	3.41	3	0.86
Overall Security (Desktop)	3.15	3	0.89
Overall Security (Mobile)	3.01	3	1

Table 1: Comparison of web browsing experience ratings from descriptive statistics

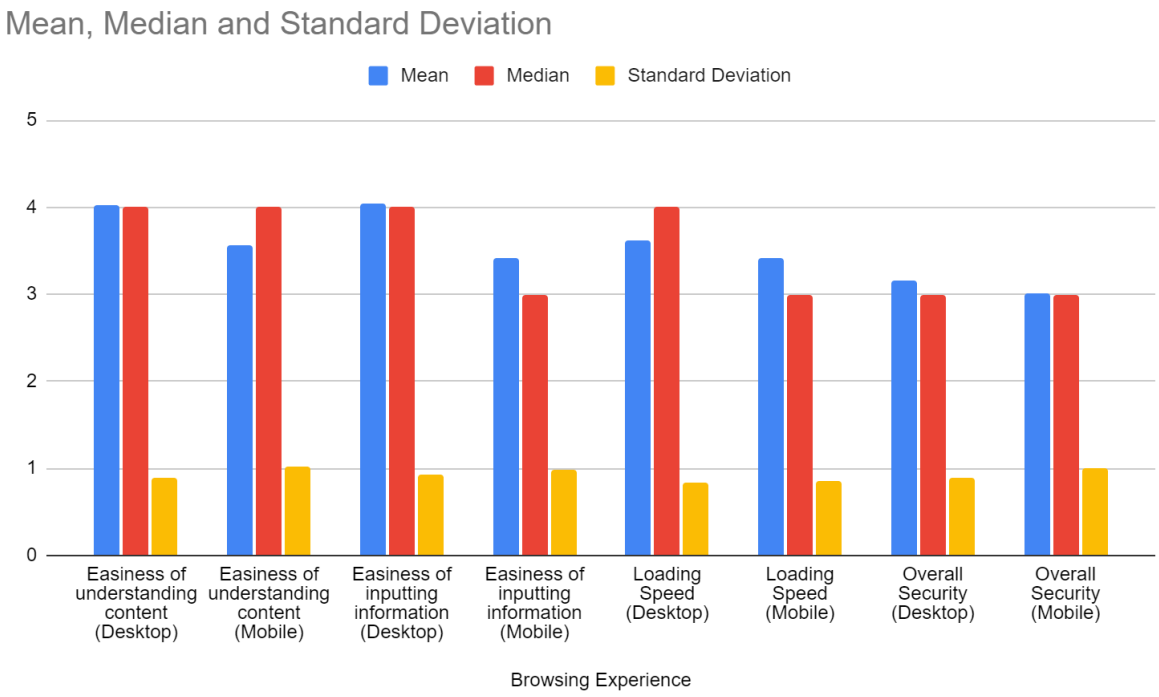

Figure 1: Demonstates Mean, Median and Standard Daviation for browsing experience ratings

Desktop users comprehended web content more easily than mobile users. The average rating for desktop users was 4.02 (SD=0.89) and for mobile users, it was 3.56 (SD=1.02). This implies that desktop users have a higher level of understanding towards web content, as demonstrated by their median rating of 4 compared to 3 among mobile users.

Desktop users (with a mean rating of 4.04 and standard deviation of 0.92) found it easier to input information than mobile users (whose corresponding mean rating was 3.41 with a standard deviation of 0.98). The median rating for desktop users was recorded at 4 while it slightly dipped for mobile users at 3, suggesting that data entry tasks are more user friendly on desktops.

Regarding content loading speed, both desktop and mobile users rated it as satisfactory. Desktop users slightly favored the speed, with a median rating of 4 suggesting they found the loading fast. Mobile users' median rating was 3 indicating a moderate speed. The mean satisfaction score for desktop users was M= 3.61 (SD = 0.83) while for mobile users, M=3.41 (SD=0.86).

Regarding overall security, desktop users perceived a slightly higher level of security (measured by mean score M=3.15, standard deviation SD=0.89) than mobile users who rated their security at M=3.01 with SD=1. Both groups had moderate perception of security as indicated by median rating 3 across both devices.

After comparing the ratings of web browsing experience, desktops marginally outperform mobile devices. The minor differences exist in understanding content, entering information, loading speed, and overall security. However, the dissimilarity between both devices is not significant, highlighting that users can have a satisfactory experience regardless of their choice.

4.3 Regression analysis between device characteristics and web browsing experience ratings

Multiple regression is one of the best ways to measure relationships with quantitative variables and predictor variables (Berger, 2003). We used multiple regression methods in this study to see the effect of other variables on dependent variables.

Easiness of understanding content:

$Y = \beta 0 + \beta 1*(\text{Device}) + \beta 2*(\text{Age}) + \beta 3*(\text{Gender}) + \beta 4*(\text{Tech Savviness}) + \beta 5*(\text{Privacy Concern}) + \varepsilon$

Where:

Y is the dependent variable.

$ß_0$ is the y intercept or constant term.

$ß_1$, $ß_2$, $ß_3$, $ß_4$, $ß_5$ are the regression coefficients.

Device, age, gender, tech savviness & privacy concern are the predictor variables.

ε is the error term.

	Unstandardized Coefficients				95% confidence interval for B	
Model	**β**	**Standard Error**	**t**	**p**	**Lower Bound**	**Upper Bound**
(Constant)	2.88	0.27	10.72	<.001	2.34	3.41
1827	0.3	0.13	2.28	.023	0.56	0.04
3847	0.64	0.23	2.74	.007	1.11	0.18
4857	1.26	0.37	3.38	.001	2.01	0.52
Female	0.07	0.13	0.53	.594	0.18	0.32
Nonbinary	0.29	0.65	0.44	.658	1	1.57
Prefer not to say	0.23	0.44	0.52	.602	1.11	0.64
Privacy Concern	0.12	0.06	2.01	.046	0	0.25
Technological Savviness	0.15	0.05	2.8	.006	0.04	0.26
Desktop *(Dummy Variable 1)*	0.46	0.12	3.92	<.001	0.23	0.69

Table 2: Insight after regression analysis about Easiness of understanding content

In this study, several variables were examined, including age categories (1827, 3847, and 4857), gender (female, nonbinary, and prefer not to say), as well as control variables such as privacy concern level, technological savviness, and desktop usage. The variables were represented by binary indicators where a value of 1 indicated the presence of the characteristic and a value of 0 indicated its absence. Additionally, the binary variable for desktop usage is distinguished between desktop and mobile.

The reference categories are as follows:

For Age: 2837

For Gender: Male

For device usage: Mobile

The β values demonstrate the expected impact on the dependent variable when a predictor increases by one unit. A positive β indicates an increase in the dependent variable, while a negative β suggests a decrease, all while keeping other predictors constant.

The constant or y intercept of the model was 2.88. This suggests that when all predictors were at their reference level, the dependent variable was expected to have a value of 2.88.

The variable "Age 1827" had a coefficient of 0.3, indicating a decrease in the dependent variable for individuals within this age group compared to the reference age group of 2837. This association was statistically significant (p value = 0.023) at the 0.05 level, suggesting a meaningful relationship. Similarly, the age groups "3847" and "4857" also exhibited statistically significant decreases in the dependent variable compared to the reference group. These findings emphasize the impact of different age groups on the outcome being studied.

The coefficients for the gender categories "Female," "Nonbinary," and "Prefer not to say" were not found to be statistically significant. This suggests that these categories did not differ significantly from the reference category (Male) when considering the dependent variable.

Respondents who expressed concern for their online privacy experienced a notable increase of 0.12 units in the dependent variable, in contrast to those who showed indifference towards protecting their privacy. This difference was found to be statistically significant (p value = 0.046).

Technological savviness was assessed using a scale. Each increment of one unit in technological savviness corresponded to a 0.15unit increase in the dependent variable. Furthermore, the statistical analysis revealed that this predictor had a significant impact (p = 0.006), indicating that individuals with higher technological proficiency demonstrated higher values on the dependent variable.

The study revealed that using a desktop computer for web browsing, rather than relying on mobile devices, resulted in a noteworthy increase of 0.46 units in the measured variable. This association held statistical significance, as indicated by a p value less than 0.001. Consequently,

individuals who utilize desktops find it easier to comprehend online content while engaged in internet surfing.

Easiness of inputting information:

Y = β0 + β1*(Device) + β2*(Age) + β3*(Gender) + β4*(Tech Savviness) + β5*(Privacy Concern) + ε

Where:

Y is the dependent variable.

$ß_0$ is the y intercept or constant term.

$ß_1$, $ß_2$, $ß_3$, $ß_4$, $ß_5$ are the regression coefficients.

Device, age, gender, tech savviness & privacy concern are the predictor variables.

ε is the error term.

	Unstandardized Coefficients				95% confidence interval for β	
Model	**β**	**Standard Error**	**t**	**p**	**Lower Bound**	**Upper Bound**
(Constant)	2.81	0.28	10.07	<.001	2.26	3.36
1827	0.05	0.14	0.36	.722	0.32	0.22
3847	0.73	0.24	3	.003	1.22	0.25
4857	1.21	0.39	3.1	.002	1.98	0.44
Female	0.07	0.13	0.54	.587	0.19	0.33

Nonbinary	0.2	0.67	0.3	.764	1.13	1.54
Prefer not to say	0.5	0.46	1.09	.278	0.41	1.41
Privacy Concern	0.14	0.06	2.11	.036	0.01	0.26
Technological Savviness	0.07	0.06	1.29	.197	0.04	0.18
Desktop *(Dummy Variable 1)*	0.63	0.12	5.18	<.001	0.39	0.87

Table 3: Insight after regression analysis about Easiness of Inputting Information

In this study, several variables were considered. These include age ranges of 1827, 3847, and 4857, as well as gender categories such as "Female," "Nonbinary," and "Prefer not to say." Control variables like Privacy Concern, Technological Savviness, and Desktop Usage were also measured. The latter was represented by a binary variable where a dummy variable of 1 indicated desktop usage and 0 represented mobile device usage.

The reference categories are as follows:

For Age: 2837

For Gender: Male

For device usage: Mobile

The β values demonstrate the impact on the dependent variable when a predictor increases or decreases by one unit, while keeping all other predictors constant. A positive β indicates an expected increase in the dependent variable, whereas a negative β implies a decrease.

The constant or y intercept of the model was 2.81. This suggests that when all predictors were at their reference level, the dependent variable was expected to have a value of 2.81.

The variable labeled "Age 1827" exhibited a coefficient of 0.05. This indicates that individuals belonging to the age group of 1827, in comparison to the reference age group of 2837, experienced a slight decrease in the ease of information entry. However, this difference was not statistically significant with a p value of 0.722. On the other hand, the age groups "3847" and "4857" demonstrated noteworthy negative effects, implying that these specific age cohorts encountered greater difficulty when entering information.

The coefficients corresponding to the gender categories "Female," "Nonbinary," and "Prefer not to say" did not exhibit statistical significance. This suggests that these categories did not display significant differences from the reference category (Male) in relation to the dependent variable.

Those individuals who expressed concern for their privacy while browsing the internet experienced a noteworthy increase of 0.14 units in the dependent variable, as compared to those who did not prioritize their privacy. This observation holds statistical significance, supported by a p value of 0.036.

In the realm of internet browsing, using a desktop instead of a mobile device has been shown to result in a noteworthy 0.63 unit increase in the dependent variable. This association holds significant statistical relevance with a p value lower than 0.001. Consequently, those who opt for desktops tend to experience greater ease when entering information while surfing the web.

Loading Speed:

$Y = \beta 0 + \beta 1*(\text{Device}) + \beta 2*(\text{Age}) + \beta 3*(\text{Gender}) + \beta 4*(\text{Tech Savviness}) + \beta 5*(\text{Privacy Concern}) + \varepsilon$

Where:

Y is the dependent variable.

$ß_0$ is the y intercept or constant term.

$ß_1$, $ß_2$, $ß_3$, $ß_4$, $ß_5$ are the regression coefficients.

Device, age, gender, tech savviness & privacy concern are the predictor variables.

ε is the error term.

	Unstandardized Coefficients				95% confidence interval for β	
Model	**β**	**Standard Error**	**t**	**p**	**Lower Bound**	**Upper Bound**
(Constant)	3.32	0.26	12.84	<.001	2.81	3.83
1827	0.01	0.13	0.05	.962	0.26	0.25
3847	0.48	0.23	2.13	.034	0.93	0.03
4857	1.11	0.36	3.07	.002	1.82	0.39
Female	0.18	0.12	1.46	.146	0.42	0.06
Nonbinary	0.22	0.62	0.36	.723	1.46	1.01
Prefer not to say	0.12	0.43	0.28	.78	0.72	0.96
Privacy Concern	0.07	0.06	1.12	.262	0.05	0.18
Technological Savviness	0	0.05	0.07	.948	0.1	0.11
Desktop	0.2	0.11	1.78	.076	0.02	0.42

Table 4: Insight after regression analysis about Loading Speed

In this study, each variable corresponds to specific categories such as Age 1827, Age 3847, and Age 4857, as well as Gender: Female, Nonbinary, and prefer not to say. Additionally, we consider other control variables including Privacy Concern, Technological Savviness, and Desktop Usage. These variables are represented by binary values where a dummy variable of 1 indicates the characteristic is present on a desktop device, while 0 denotes its absence or mobile device usage.

The reference categories are as follows:

For Age: 2837

For Gender: Male

For device usage: Mobile

The β values indicate how the dependent variable is expected to change when a predictor increases by one unit. A positive β value suggests an increase in the dependent variable, while a negative β value implies a decrease, with all other predictors held constant.

In this model, the β values still indicate the extent to which the dependent variable, loading speed, is expected to increase (when β is positive) or decrease (when β is negative) with a one unit increase in that predictor. This relationship holds true while holding all other predictors constant.

The constant or y intercept of the model is 3.32. This suggests that when all predictors are at their reference level, the loading speed is expected to be at 3.32.

The coefficient for the variable "Age 1827" was 0.01, suggesting a minor decrease in loading speed for individuals in this age group compared to the reference age group of 2837. However, this difference was not statistically significant with a p value of 0.962. On the other hand, both the age groups "3847" and "4857" displayed notable negative effects on loading speed. This implies that loading speed tended to be slower for these age groups when compared to the reference group.

The coefficients assigned to the gender categories "Female," "Nonbinary," and "Prefer not to say" did not demonstrate statistical significance. This suggests that there is no significant deviation in loading speed when compared to the reference category, which is "Male."

Respondents who expressed privacy concerns while browsing the internet experienced a slight 0.07 unit increase in loading speed compared to those who had no privacy related worries. However, this difference was not statistically significant, as evidenced by a p value of 0.262.

In the realm of internet surfing, a comparison between desktop and mobile usage reveals a slight increase of 0.2 units in loading speed for the former. Although this difference lacks statistical significance with a p value of 0.076, it hints at a potential trend favoring faster loading speeds for desktop users compared to their mobile counterparts. However, caution should be exercised when interpreting these findings due to the non significant p value.

Overall Security:

Y = β0 + β1*(Device) + β2*(Age) + β3*(Gender) + β4*(Tech Savviness) + β5*(Privacy Concern) + ε

Where:

Y is the dependent variable.

$ß_0$ is the yintercept or constant term.

$ß_1$, $ß_2$, $ß_3$, $ß_4$, $ß_5$ are the regression coefficients.

Device, age, gender, tech savviness & privacy concern are the predictor variables.

ε is the error term.

	Unstandardize Coefficients				95% confidence interval for β	
Model	**β**	**Standard Error**	**t**	**p**	**Lower Bound**	**Upper Bound**
(Constant)	2.24	0.29	7.66	<.001	1.66	2.82
1827	0.07	0.14	0.5	.62	0.21	0.36
3847	0.55	0.26	2.13	.034	0.04	1.05
4857	0.38	0.41	0.93	.351	1.19	0.43
Female	0.17	0.14	1.23	.221	0.1	0.44
Nonbinary	0.38	0.71	0.54	.591	1.78	1.02
Prefer not to say	0.04	0.48	0.08	.938	0.92	0.99
Privacy Concern	0.02	0.07	0.3	.767	0.11	0.15

Technological Savviness	0.19	0.06	3.21	.002	0.07	0.31
Desktop	0.14	0.13	1.12	.262	0.11	0.39

Table 5: Insight after regression analysis about Overall Security

In this scenario, each variable is categorized into different age groups (Age 1827, Age 3847, and Age 4857), gender categories (Female, Nonbinary, and Prefer not to say), as well as other control variables like Privacy Concern, Technological Savviness, and Desktop Usage. The binary nature of these variables is indicated by a dummy variable: 1 represents desktop usage while 0 represents mobile device usage.

The reference categories are as follows:

For Age: 2837

For Gender: Male

For device usage: Mobile

In this model, the β values indicate how much the dependent variable (overall security) is expected to change when a predictor increases by one unit. A positive β suggests an increase in the dependent variable, while a negative β indicates a decrease. These changes are measured while keeping all other predictors constant.

The constant or y intercept of the model is 2.24. This implies that when all predictors are at their reference level, the overall security is expected to have a value of 2.24.

The coefficient for the variable "Age 1827" was found to be 0.07, indicating a slight increase in overall security among individuals in this age group compared to the reference age group of 2837. However, this difference was not statistically significant with a p value of 0.62. On the other hand, the age group "3847" exhibited a statistically significant positive effect on overall security ($\beta = 0.55$, $p = .034$), suggesting that individuals within this age range perceive the internet as more secure than those in the reference group. In contrast, the "4857" age group showed not statistically significant negative effect on overall security.

The coefficients associated with the gender categories "Female", "Nonbinary", and "Prefer not to say" were found to lack statistical significance. This suggests that these categories did not show significant differences compared to the reference category (Male) in relation to the dependent variable (overall security).

The impact of privacy concerns while browsing the internet and the inclusion of a 'prefer not to say' gender category did not show any significant effect on overall security. Statistical analysis yielded p values of 0.767 and 0.938, respectively.

The study found that individuals with higher technological savviness experienced an increase in overall security ($\beta = 0.19$, $p = .002$). This suggests a positive association between enhanced technological skills and a perception of improved security levels.

In the realm of internet surfing, a noteworthy observation can be made regarding the preference for using desktops over mobile devices. Desktop users tend to perceive a slightly higher level of security compared to their mobile counterparts, although this finding lacks statistical significance with a p value of 0.262. However, caution should be exercised when interpreting these findings due to the non significant p value.

Part Five: Summary of findings

The participants' choice of device, whether it be a desktop computer or a mobile device, had a significant impact on their web browsing experience. The descriptive statistical analysis and regression analysis uncovered the following findings:

The research findings uncovered valuable insights into the differences in user experience between desktop and mobile internet browsing. Both regression analysis and descriptive statistics played a significant role in this investigation. The regression analysis showed a meaningful association, with a p value of less than 0.001, implying that utilizing a desktop computer for web browsing led to an impressive increase of 0.46 units in the measured variable. Consequently, individuals who used desktops found it easier to comprehend online content while engaged in

internet surfing. In contrast, according to the study's descriptive statistics, mobile users rated their experience at an average of 3.56 with a standard deviation of 1.02. This suggests that while most participants found the content moderately easy on their mobile devices, it was not as effortless as it was for those using a desktop computer. The higher average rating among desktop users combined with the statistically significant increase observed in the regression analysis provides additional evidence that indeed supports the notion that desktop users find it easier to understand website content compared to their mobile counterparts.

The research findings suggest that using a desktop computer rather than a mobile device for internet browsing is linked to a significant increase of 0.63 units in the dependent variable. This relationship holds strong statistical relevance with a p value below 0.001. As a result, individuals who opt for desktops tend to have an easier time entering information while surfing the web. Descriptive statistics further support these findings, as mobile users rated their ease of information entry on average at 3.41, with a standard deviation of 0.98, indicating moderate ease. The median rating of 3.0 suggests that most respondents found this task only slightly difficult when compared to desktop users. Collectively, this evidence emphasizes the advantages associated with using desktop devices for inputting information during internet browsing.

The research findings reveal a slight improvement of 0.2 units in loading speed for desktop users compared to their mobile counterparts while browsing the internet. However, it is important to note that this difference lacks statistical significance, with a p value of 0.076, indicating caution when interpreting the results. Specifically, for desktop users, the loading speed received an average rating of 3.61 (SD=0.83), with a median rating of 4, suggesting that most participants had a satisfactory and fast loading experience. On the other hand, mobile users provided an average score of 3.41 (SD=0.86) for loading speed, with a median rating of 3, indicating slightly lower satisfaction but still an overall moderate loading experience. To enhance user satisfaction and experience, it is crucial to optimize loading speeds for both desktop and mobile devices. This includes considering the potential trend towards faster desktop loading while addressing the varying experiences reported by mobile users.

The research findings reveal an interesting observation about people's preference for desktops over mobile devices when it comes to secure internet surfing. Desktop users tend to feel slightly more secure compared to mobile users, but this distinction lacks statistical significance (p value = 0.262). It's important to exercise caution when interpreting these results due to the non significant p value. Descriptive statistics support this observation: the average security rating for desktop users is 3.15 with a standard deviation of 0.89, indicating a moderate level of perceived safety with some minor variations in responses. The median rating of 3.0 further reinforces the sense of overall moderate security during web usage. For mobile users, the average security rating is slightly lower at 3.01 with a standard deviation of 1, suggesting similar perceived security levels as desktop users but with slightly more variability in their responses. The median rating of 3.0 also confirms a moderate level of perceived security consistent with desktop user results. These combined findings indicate that although desktop users tend to perceive slightly higher security levels compared to mobile users, both groups overall perceive a moderate level of security while engaging in internet surfing.

Part Six: Discussion

6.1 Interpretation of results

The final goal of this study is exploring the difference in user's web browsing experience between desktop and mobile devices. Variables considered to be research are ease of understanding content, ease of inputting information, loading speed and security.

Based on statistical analysis done in this study and previous literature we find some key points to consider in decision making, those are:

Ease of Understanding Content:

This research proved that desktop users reported finding website content easier to understand compared to mobile users. This indicates that desktop devices offer a smoother comprehension of the information presented on websites than mobile devices.

Ease of Inputting Information:

This research also proved that desktop users found it easier to input information compared to mobile users. This implies that the process of entering data or completing forms is generally smoother on desktop interfaces.

Loading Speed:

This study proved that participants using desktop devices reported faster loading speeds compared to mobile users. This suggests that individuals accessing websites through a desktop may enjoy quicker access to content and functionality, while those on mobile devices may experience some delays.

Security Concerns:

Our experiment proved that desktop devices users reported feeling more secure while browsing compared to mobile users. This indicates that desktop users may have access to more secure browsing options.

6.2 Implications for UX design and Digital Marketing

Desktop vs. Mobile Content Design:

The research findings demonstrate the significance of tailoring content presentation for both kinds of devices. Specifically, desktop users indicate a preference for clearer comprehension when browsing websites. To enhance readability on mobile devices, UX designers should consider optimizing layout, font size, and information hierarchy (Ziefle, 2010). By implementing responsive design principles, the content can seamlessly adapt to different screen sizes, resulting in an improved user experience across all devices (Gardner, 2011).

Digital marketers can maximize this insight by developing distinct content strategies for both desktop and mobile users. By understanding the preferences of each group, marketers can tailor their messages to resonate more effectively with their respective audiences. This targeted approach leads to increased engagement and conversion rates (Alnahdi et. Al., 2014).

Optimizing Input Interfaces:

The ease of inputting information on desktop interfaces is an important focus for UX designers (Li et. Al., 2022). They should prioritize streamlining data entry and form completion processes for mobile devices. By implementing techniques like autofill, intuitive input fields, and minimal text entry, the user experience for mobile users can be enhanced.

Digital marketers should prioritize user behavior when it comes to input forms and data collection. By simplifying the input process and minimizing required fields, marketers can enhance the likelihood of users successfully completing actions such as signups or inquiries.

Performance and Loading Speeds:

The importance of optimizing website performance for both mobile and desktop environments is underscored by the faster loading speeds reported by desktop users. Slow Loading mobile pages not only frustrate users but also contribute to increased bounce rates (Xilogianni et. Al., 2022). Considering this, UX designers should prioritize implementing performance optimization techniques, including image compression, caching, and minification. These strategies ensure swift access to content and functionality across all devices.

Digital marketers understand the crucial impact of loading speed on both user engagement and search engine rankings (Ziakis et. Al., 2019). By prioritizing mobile friendly design and implementing performance driven strategies, they can enhance organic traffic and provide users with an improved overall experience.

Addressing Security Concerns:

The perceived increase in security among desktop users needs enhanced measures to safeguard mobile devices. UX designers must prioritize the implementation of robust security features in mobile devices, including SSL certificates, two factor authentication, and transparent privacy policies (Mutchler et. Al., 2015). This fosters trust and confidence among mobile users when engaging in browsing activities or conducting online transactions.

In digital marketing, emphasizing the security features of mobile apps or mobile friendly websites can give businesses a competitive edge (Mohorovičić, 2013). By highlighting dedication to user privacy and data protection, companies can establish trust with customers and boost conversion rates.

6.3 Limitations and suggestions for future research

Limitations:

In conducting this study, it is paramount for the researcher to recognize and address any limitations that may arise. This ensures the integrity and credibility of our research findings. Throughout our investigation, we encountered a primary limitation involving selection bias within the sample population. Another noteworthy factor was the voluntary nature of participation, which may have attracted individuals with stronger opinions or unique experiences. These aspects could potentially skew the outcomes in specific directions.

To mitigate selection bias, various strategies could be implemented (Smith & Noble, 2014). These included employing a random sampling technique and utilizing multiple recruitment channels to reach a wider audience. However, it is important to acknowledge that despite these efforts, the potential for bias still exists and may have influenced the study's findings.

In future research endeavors, improving the addressing of selection bias could involve adopting more rigorous and inclusive sampling methods (Mugo, 2002). For instance, implementing stratified random sampling or establishing partnerships with community organizations to reach underrepresented groups can enhance the sample's representativeness. Additionally, it is crucial to transparently report on the limitations of the sample and discuss their potential implications. This practice ensures a comprehensive understanding of the research's scope and boundaries.

The Online Survey method has its share of advantages, including cost-effectiveness and widespread accessibility. However, it also comes with certain limitations that we need to consider for our research (Van & Jankowski, 2006). One notable concern is the potential for response bias since participants may provide inaccurate or socially desirable answers without face-to-face interaction. Additionally, relying on self-reporting in online surveys introduces response errors and subjective interpretations of questions. It is crucial to prioritize the privacy

and security of participants' data due to the vulnerability of online platforms to data breaches. Despite these limitations, we have taken care in designing and implementing the survey with clear instructions and well-crafted questions to overcome these issues and ensure the reliability and validity of the data obtained through the Online Survey method.

While our study boasts a sample size of 105 participants, it is vital to acknowledge the potential limitations that accompany such a sample. Firstly, it should be noted that 105 may be considered relatively small for certain types of research, which in turn can restrain the statistical power of our analyses. Consequently, caution must be exercised when attempting to extend our findings to large populations. Additionally, a smaller sample size heightens the risk of chance variations, posing challenges in establishing definite cause and effect relationships between variables (Faber & Fonseca, 2014). Moreover, encompassing the complexities and diversity presented within the broader population we intend to study solely with these 105 participants may affect the external validity of our results. Notwithstanding these restraints, our study endeavors to provide valuable insights within the bounds of this available sample by employing rigorous analysis and transparent reporting methods.

Despite the limitation mentioned, our study still offers valuable insights into the research question at hand. We do, however, encourage readers to approach the findings with caution, particularly when applying them to populations beyond the specific sample recruited for this study. By acknowledging and learning from this limitation, we aim to contribute to ongoing improvements in research methodologies and enhance the credibility of future studies in this field.

Suggestion for Future Research:

This research holds immense significance in providing insights for future investigations into the experiences users have on mobile and desktop devices. By examining a wide array of factors, this study sets the groundwork for subsequent research endeavors in multiple ways.

The collected demographic data serves as valuable insight for future research, enabling a more accurate understanding of age and gender groups (Connelly, 2013). For example, further studies can delve into specific age groups like teenagers or the elderly to uncover intricate nuances in their digital behaviors. Similarly, recognizing gender based differences enable future research to comprehend the diverse needs and preferences of distinct genders, potentially offering insights on making digital experiences more gender inclusive. The data regarding technological savviness provides valuable insights for future research. By considering the varying levels of tech skills among users, researchers can delve into the challenges faced by individuals who are less technologically inclined (Dewan & Benckendorff, 2013). This exploration can aid in devising intuitive and user friendly interfaces catered specifically to this demographic. Similarly, for those proficient in technology, further investigation can focus on enhancing their digital experiences through advanced features and customization options.

The research findings pertaining to the ease of inputting information can serve as a catalyst for further exploration and development of efficient and user friendly data input methods. This may entail investigating alternative approaches, such as voice recognition or predictive text, particularly for smaller mobile screens where typing may pose challenges (Adipat & Zhang, 2005). Research on security perceptions can drive future studies to enhance user trust in different devices. Followup investigations may explore various approaches to effectively communicate security measures, examine the influence of privacy policies on shaping user perceptions, or analyze the impact of security breaches on user trust and engagement (Svilar & Zupančič, 2016). Insights gained from understanding content comprehension can contribute valuable information for future research in content optimization. Subsequent studies may focus on investigating the

readability levels of digital content, evaluating the effectiveness of visual aids, and exploring the influence of language and cultural factors on comprehending informational materials (Halvorson, 2008).

This study offers valuable insights and proposes new methodologies that can shape future user experience research. It not only highlights overlooked areas but also provides a comprehensive view of user experiences across laptop and desktop devices. By doing so, it sets a new precedent for inclusivity and comprehensiveness in digital user experience research.

Part Seven: Conclusion

The research concludes with compelling evidence that identifies distinct user experience differences between desktop and mobile internet browsing. The data clearly demonstrate that desktop users have an easier time comprehending online content and entering information compared to their mobile counterparts. Desktop users also perceive a slightly higher level of security during web interactions. These findings emphasize the importance of acknowledging user preferences and customizing design and functionality for optimal experiences on mobile devices.

By prioritizing user centric approaches and addressing device specific strengths and weaknesses, website developers and designers can enhance satisfaction and usability for internet users whoever uses mobile devices. From a broader perspective, this research sheds light on the significance of device specific optimization in the digital marketing field. Understanding the distinct preferences and behaviors of desktop and mobile users guides marketers in tailoring strategies to effectively engage target audiences. By leveraging each device's strengths while addressing user concerns, digital marketers can create more personalized, impactful campaigns, establishing stronger connections with consumers in today's competitive digital landscape.

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Appendices

Survey Questions:

Characteristics

What is your age?

- 1827
- 2837
- 3847
- 4857
- 5865

What is your gender?

- Male
- Female
- Nonbinary
- Prefer not to say

Do you care about your privacy when you surf on the internet?

- Not at all
- A little
- Moderately
- Very much
- Extremely

How would you describe your level of technological savviness?

- Not tech savvy
- Somewhat tech savvy
- Moderately tech savvy
- Very tech savvy
- Extremely tech savvy

Experience

On which device do you spend more time browsing the internet, desktop or mobile?

- Desktop
- Mobile

When you are using a desktop, how easy is it to understand the content?

- Extremely difficult
- Difficult
- Moderate
- Easy
- Very Easy

When you are using a mobile, how easy is it to understand the content?

- Extremely difficult
- Difficult
- Moderate
- Easy
- Very Easy

When you are using a desktop, how easy is it to enter information correctly?

- Extremely difficult
- Difficult
- Moderate
- Easy
- Very Easy

When are you using a mobile, how easy is it to enter information correctly?

- Extremely difficult
- Difficult
- Moderate
- Easy
- Very Easy

When you are using a desktop, how would you rate the overall loading speed?

- Very Slow
- Slow
- Moderate
- Fast
- Extremely Fast

When you are using a mobile, how would you rate the overall loading speed?

- Very Slow
- Slow
- Moderate
- Fast
- Extremely Fast

How secure do you feel while browsing the Internet on a Desktop?

- Not secure at all
- Somewhat insecure
- Moderately secure
- Very secure
- Extremely secure

How secure do you feel when browsing the internet on your mobile device?

- Not secure at all
- Somewhat insecure
- Moderately secure
- Very secure
- Extremely secure