

Design Thinking Based UI/UX Design for Photolio: An Integrated Digital Portfolio Platform for Freelance Photographers

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ABSTRACT

The increasing demand for integrated digital platforms has posed challenges for freelance photographers in portfolio management, client interaction, and work monetization. This study aims to design a user centered UI/UX prototype for Photolio, a digital photography portfolio application, using the Design Thinking approach. The research employed five stages empathize, define, ideate, prototype, and test supported by personas, user journeys, wireframing, high fidelity prototyping in Figma, and usability testing with 25 participants. The findings indicate that Photolio effectively addressed user needs for simplicity, security, integrated transactions, and efficient navigation. Usability testing further demonstrated positive evaluations in navigation, information clarity, visual accessibility, and overall satisfaction. These results suggest that Design Thinking is effective for developing functional and user oriented digital platforms for the creative photography industry.

INTRODUCTION

The rapid advancement of digital technologies has significantly transformed the landscape of photography, making online platforms essential for photographers to showcase their work and manage their brands effectively. As highlighted by Er, new media technologies have reshaped creative practices, emphasizing the need for innovative user interface (UI) and user experience (UX) designs that cater to the unique requirements of photographers (Er, 2025). Platforms like Photography Hub exemplify this trend by providing tools that facilitate connections and project management, thereby enhancing artistic growth and collaboration among users (Sathya & B, 2024). Additionally, studies on specific portfolio websites, such as those developed for Dezzly Creative and Difotoin Studio, demonstrate that well designed UI/UX can significantly improve user satisfaction and market reach, ultimately supporting photographers in navigating the competitive creative economy (Hudhayana & Saputro, 2025) (Pratama et al., 2024). As photography continues to evolve, the integration of emerging technologies and user centered design principles will be crucial for meeting the demands of both professional and freelance photographers ("Photography Trends to Watch in 2025", 2024).

Freelance photographers, particularly those at the beginning of their careers, encounter numerous challenges in portfolio management, client attraction, and brand establishment. Traditional platforms often lack the necessary flexibility and integration with tools that cater specifically to photographers' needs, such as user-friendly portfolio displays and monetization opportunities (ARPIT & Harsh, 2025) (Scolere, 2019). For instance, Freelance Fuze addresses these gaps by providing a comprehensive platform that enables photographers to build portfolios, gain verified ratings, and connect with clients through real time communication, thereby enhancing their credibility and visibility in a competitive market (ARPIT & Harsh, 2025). Additionally, systems like Studio Fotograferku streamline the process of finding and hiring photographers, offering features that allow clients to compare portfolios and manage bookings efficiently (Astutik & Radhitya, 2024). Overall, the integration of community engagement and client interaction within these platforms is crucial for fostering a supportive environment that empowers freelance photographers to thrive (ARPIT & Harsh, 2025) (Astutik & Radhitya, 2024).

The current landscape of portfolio management platforms for freelance photographers reveals significant gaps, particularly in community engagement, secure client interactions, and monetization tools. Existing platforms often prioritize image showcasing over these essential features, leaving many photographers, especially those new to the field, underserved ("Razvoj inovativne platforme za komercija...", 2023) (ARPIT & Harsh, 2025). For instance, while Storge Magazine aims to facilitate client engagement and service management, it may still lack the user-friendly interface that emerging photographers require (Souza, 2023). Similarly, Freelance Fuze provides tools for portfolio building and client communication but may not fully integrate monetization opportunities within a cohesive ecosystem (ARPIT & Harsh, 2025). The need for a more comprehensive platform is evident, one that not only

displays work but also fosters personal brand growth and offers seamless monetization options, thereby addressing the unique challenges faced by photographers in a competitive market (B. et al., 2024).

The application of Design Thinking in developing UI/UX for portfolio management apps tailored for freelance photographers is indeed an emerging area, with several studies highlighting its potential. Research indicates that the creative industry, particularly photography, requires a user centered approach to enhance user experience and interface design. For instance, one study utilized Design Thinking to create a mobile platform for buying and selling photography, achieving an 86% success rate in usability testing, which underscores the importance of addressing user needs through iterative design processes (Wibowo & Saputro, 2025). Another study focused on a photography studio's website, employing User Centered Design to improve navigation and visual appeal, resulting in high satisfaction scores from users (Hudhayana & Saputro, 2025) (Rizal et al., 2024). Furthermore, the integration of Design Thinking principles can facilitate better connections between photographers and clients, addressing the unique challenges faced in the competitive photography market. Overall, while foundational work exists, there remains a significant gap in comprehensive solutions specifically designed for freelance photographers' portfolio management needs.

The application of Design Thinking in developing a UI/UX for Photolio, a digital portfolio platform for freelance photographers, aligns with established methodologies that emphasize user centered design. The five stages of Design Thinking Empathize, Define, Ideate, Prototype, and Test are crucial for understanding and addressing the specific needs of photographers, as demonstrated in various studies. For instance, research on Maka Studio and Dezzly Creative highlights how these stages facilitate the creation of intuitive interfaces that enhance user experience and satisfaction, with significant improvements in navigation and information clarity reported (Ramadhan et al., 2025) (Hudhayana & Saputro, 2025). Additionally, the integration of User Experience Questionnaires (UEQ) in evaluating design effectiveness underscores the importance of user feedback in refining UI/UX, ensuring that platforms like Photolio not only meet functional requirements but also resonate emotionally with users (Rizal et al., 2024) (Rachman & Sutopo, 2023). This interdisciplinary approach not only fosters innovation but also enhances the marketability of freelance photographers' work.

The increasing number of freelance photographers necessitates innovative portfolio management solutions that enhance user experience and support professional growth in a competitive digital landscape. Research indicates that employing a User Centered Design (UCD) approach in developing portfolio websites significantly improves user satisfaction, as evidenced by a rise from 70% to 90% in satisfaction scores when utilizing a CMS like WordPress (Darmansah et al., 2024). Additionally, comprehensive web portfolio platforms that integrate advanced technologies and customization options empower photographers to establish a strong digital presence, which is crucial for attracting clients and collaborators (B. et al., 2024). Effective UI/UX design further enhances navigation

and visual appeal, leading to higher user engagement and market reach(Hudhayana & Saputro, 2025). Moreover, platforms like Storge Magazine aim to streamline service management and improve visibility for photographers, addressing their specific needs through targeted development processes(Souza, 2023). Overall, these findings underscore the importance of tailored digital solutions in fostering the success of freelance photographers in today's dynamic economy(Bhosle, 2023).

LITERATURE REVIEW

Desain Thinking

The Design Thinking method consists of five key stages: Empathize, Define, Ideate, Prototype, and Test, which collectively facilitate user-centered design in various applications, including photography portfolio apps. The Empathize stage involves understanding user needs through observations and interviews, as demonstrated in the development of the Iso Stock app and Maka Studio website, where user feedback was crucial for identifying navigation issues and content clarity(Wibowo & Saputro, 2025) (Ramadhan et al., 2025). In the Define stage, the insights gathered are synthesized into clear problem statements, guiding the design process. The Ideate phase encourages brainstorming multiple solutions, leading to innovative design concepts visualized in prototypes, as seen in the iterative designs for both the reservation system and portfolio websites(Darmansah et al., 2024) (Yuliani & Wardhana, 2025). Prototyping allows for tangible representations of ideas, which can be tested with users to gather feedback, ensuring that the final product effectively meets user expectations and enhances usability(Wibowo & Saputro, 2025) (Yuliani & Wardhana, 2025). Finally, the Test stage involves evaluating the prototypes, refining them based on user interactions, and ensuring that the design effectively addresses the identified needs(Ramadhan et al., 2025) (Jane & Landay, 2021).

Website

Websites play a crucial role in the digital landscape, serving as platforms for information dissemination, communication, and business transactions. They enable users to access a vast array of information, from educational resources to e-commerce, thereby transforming traditional interactions and enhancing societal engagement(Agrawal, 2024). The development of websites involves various technologies, including HTML, CSS, and JavaScript, which facilitate the creation of user friendly interfaces and effective information sharing("Creating Websites: Principles, Technolog...", 2025)(Arikah et al., 2023). Furthermore, websites can enhance transparency and accessibility, particularly in public sectors, by providing essential information to communities and improving administrative processes. However, challenges such as the digital divide and the need for technical skills among users remain significant barriers to maximizing the benefits of online information services (Dorman, 2003)(Arikah et al., 2023). Overall, the effective utilization of websites is vital for fostering informed societies and promoting technological literacy.

User Interface

The user interface (UI) plays a pivotal role in enhancing website traffic by facilitating user interaction with digital content. Effective UI design not only encompasses aesthetic elements but also prioritizes usability and user experience (UX), which are critical for engaging a diverse user base (Mustafa et al., 2025). Research indicates that a well designed interface can significantly influence user retention, as users are more likely to remain on a site that is intuitive and easy to navigate. The evolution of UIs has shifted from complex systems requiring specialized knowledge to more accessible graphical user interfaces (GUIs) that utilize familiar input devices like keyboards and mice (Jacob, 2003). This transition underscores the importance of designing interfaces that communicate processes clearly and intuitively, thereby enhancing user satisfaction and ultimately driving traffic to websites (Kudrus, 2011).

METHODOLOGY

According to Reneau (2022) Design thinking is a human centered methodology aimed at solving complex problems through a structured process consisting of five stages: empathize, define, ideate, prototype, and test. The process begins with empathizing, where designers gain a deep understanding of users' needs and experiences, which is crucial for identifying the core issues to address (Suauthai et al., 2022). Next, the define stage involves articulating the problem based on insights gathered, ensuring clarity in objectives (Ling, 2015). The ideate phase encourages brainstorming a wide range of ideas and potential solutions (Eamcharoen, 2024). Following this, prototypes are developed to visualize and test these ideas, allowing for rapid iteration and refinement (Suauthai et al., 2022). Finally, the testing phase evaluates the prototypes with users, gathering feedback to improve the solution further (Reneau, 2022) (Ling, 2015). This iterative process emphasizes empathy and user involvement, making it effective across various fields, including education and healthcare (Suauthai et al., 2022).

The Five Design Thinking Steps



Figure 1. Stages of the Design Thinking Method

The stages of the design thinking process to be used are shown in Figure 1.1 The following is a description of the research phases using the Design Thinking approach

1. Empathize
At this stage, the primary focus is on understanding the needs, desires, and challenges faced by users. This is achieved through observation and direct interaction with potential users to gain deep insights into their experiences.
2. Define (Defining the Problem)
This stage involves formulating a clear definition of the problem that needs to be solved. The insights gained from the Empathize stage are used to define the problem to be solved and to understand how the solution can provide optimal benefits for users.
3. Ideate (Generating Ideas)
This stage emphasizes a brainstorming process to generate potential solution ideas for the defined problem. This approach is highly open-ended and creative, with a focus on generating a variety of solution options.
4. Prototype (Creating a Prototype)
Prototyping is an experimental stage that tests the developed ideas. Prototypes are created to visualize and test the functionality of the envisioned solutions, while also gathering direct feedback from users.
5. Test (Testing)
The testing phase is conducted to evaluate whether the created prototype functions as expected by users. User feedback is used for improvements and further iterations of the design.

Implementation you test the app prototype by involving participants who provide feedback on various aspects of the app, including ease of navigation, clarity of information, and overall satisfaction with the visual design and functionality of the app.

RESEARCH RESULT

1. Discussion of the Empathize Phase: Identifying User Needs as the Foundation of Design

In the *empathize* phase, the design process begins with the creation of *personas* and *user journeys* to understand the real needs, expectations, and challenges faced by potential users.

No	Concern
1	Potential users want an app to showcase their photography work to build a portfolio
2	Potential users want an app that is lightweight, space efficient, simple, and power efficient
3	Potential buyers want a trustworthy platform for every transaction
4	Potential users want a single app that covers all features

The results of this phase indicate that users want an app that is simple, lightweight, secure, and capable of integrating portfolio and transaction needs into a single platform. These findings confirm that the need for simple

navigation, quick access to key features, and transaction security guarantees form the primary foundation for design decision making. This demonstrates that the *Design Thinking* approach successfully places the user at the center of the design process, resulting in solutions that are not only visually oriented but also prioritize ease of use, efficiency, and a sense of security during use.

2. Discussion of the *Define* Phase: Formulating the Problem Based on User Needs

This section discusses how the user needs and concerns identified during the *empathize* phase are formulated into the core problem for the application design.

Problem Insight	Insight
Users want an app that can function as both a seller and a buyer on a single platform	Features for buyers and sellers are currently in separate software/apps
How ?	Might
How can the app make it easier for users to conduct transactions?	By offering more payment methods, supported by local mobile banking services such as BCA, BRI, Mandiri, and QRIS
How can we make it easier for users to find the products they're looking for?	By designing a system that can filter images based on themes

The results of this phase indicate that the primary challenge lies in the need for a single platform that can accommodate both sellers and buyers, facilitate product searches, offer a variety of payment methods, and ensure transaction security. These findings should be discussed as a basis for determining the direction of the design development so that the solution aligns with user needs.

3. Discussion of the *Ideate* Phase: Development of Design Solutions in Response to User Problems

This section discusses the process of developing design solution ideas based on the problems formulated in the *define* phase. The results of this phase indicate that the designed solutions include:

- a. Image filtering features based on theme,
- b. Local bank and QRIS payment methods,
- c. Integration of sellers and buyers within a single application,
- d. A transaction security system
- e. A help feature,

These findings need to be discussed as a form of design response to user needs while also demonstrating the novelty of this research in combining portfolio, creative community, and marketplace functions within a single platform.

4. Discussion of the Prototype Phase: Visualizing Design Solutions into an Application Interface

The prototype phase in this study serves as the concrete manifestation of the various solution ideas formulated in the previous phase. Design ideas were progressively realized through wireframes, low fidelity designs, and finally high fidelity prototypes using Figma, ensuring the design process did not remain at the conceptual level but evolved into a visualizable and testable interface design. The resulting prototype presents the application as a platform for buying and selling photos, featuring a simple UI that is easy for the average user to understand.

a. Wireframe dan Low Fidelity Design

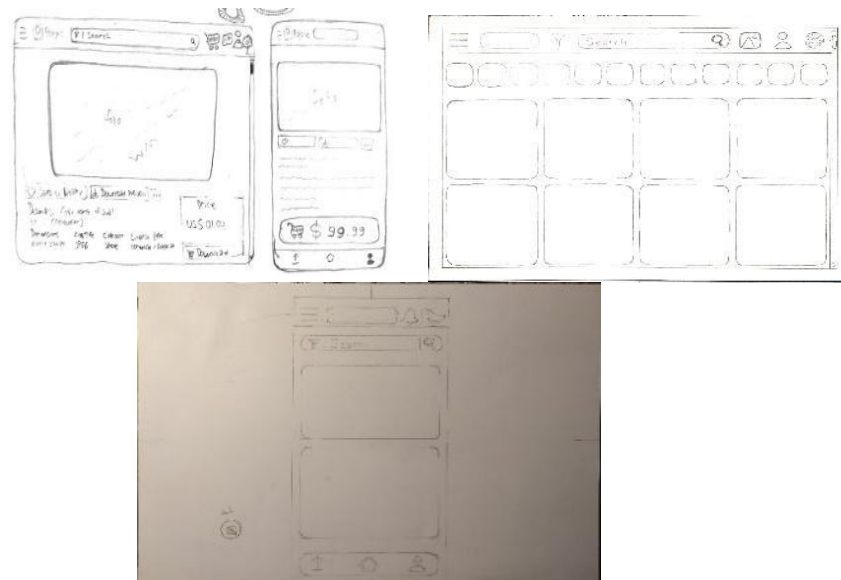
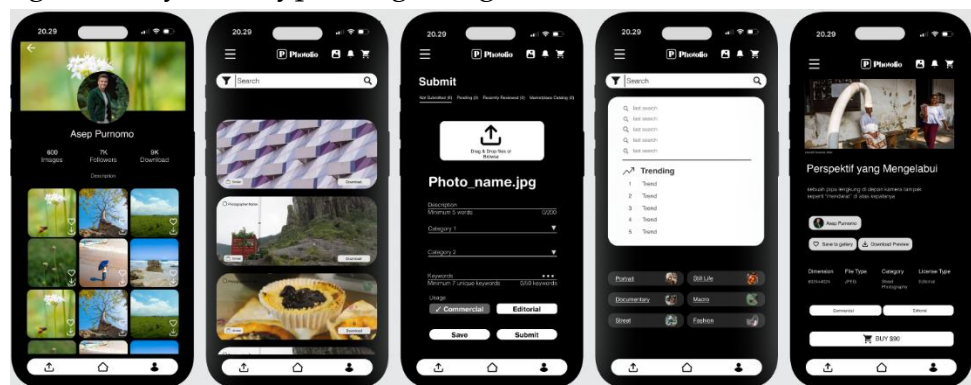


Figure 2. Wireframes and Low Fidelity Designs for Desktop and Mobile

b. High Fidelity Prototype dengan Figma



5. Discussion of Usability Testing Results: Design Usability and Intuitiveness

This section discusses the results of prototype testing conducted with 25 users who were asked to perform tasks such as searching for products, submitting products, and completing transactions. The findings indicate that the interaction flow built into the application is sufficiently clear and easy to understand, even for users trying the system for the first time. Users' success in completing these tasks demonstrates that the design is not only visually appealing but also functionally effective. From a usability perspective, these findings align with the aspects of learnability, efficiency, and satisfaction, where users are able to quickly learn how to use the application, perform tasks efficiently, and feel comfortable interacting with the interface.

Testing utilized the System Usability Scale (SUS) to quantitatively measure the ease of navigation design. Based on the SUS results regarding navigation ease, the majority of respondents rated the Photolio app as easy to use. A total of 58.82% of respondents stated that navigation was very easy, while 41.18% stated it was easy. No respondents experienced difficulty or significant difficulty in using the application's navigation. Regarding information clarity, the test results showed a very positive perception. A total of 70.59% of respondents stated that the information in the application was very easy to understand, and 29.41% stated it was easy. No respondents rated the information as difficult or very difficult to understand, indicating that the presentation of information was clearly and effectively organized.

The aspect of visual accessibility, particularly contrast and text readability, also received favorable ratings. 47.06% of respondents stated it was very easy, while 52.94% stated it was easy to read and understand the text in the app. This indicates that the selection of colors, contrast, and typography supported user visual comfort. Regarding screen reader compatibility, the results showed a similar pattern of ratings to visual accessibility. A total of 47.06% of respondents stated the content was very easy to access, and 52.94% stated it was easy. The absence of "difficult" or "very difficult" ratings indicates that the app's content can be displayed and read effectively by assistive technologies. Furthermore, regarding overall user satisfaction (System Usability Scale/SUS), 58.82% of respondents rated the app as "easy," and 41.18% rated it as "very easy" to use overall. These findings indicate a relatively high level of user satisfaction with the Photolio interface. Regarding time efficiency, the test results showed that 52.94% of respondents rated the app as very easy to learn, while 47.06% rated it as easy. This indicates that users do not need much time to understand how the app works. Finally, regarding intuitive visual design, 52.94% of respondents stated that the app's design was very easy to understand, and 47.06% found it easy. The absence of respondents reporting difficulties suggests that Photolio's visual design has effectively supported user understanding and interaction. The table presents the results of the Photolio app prototype testing.

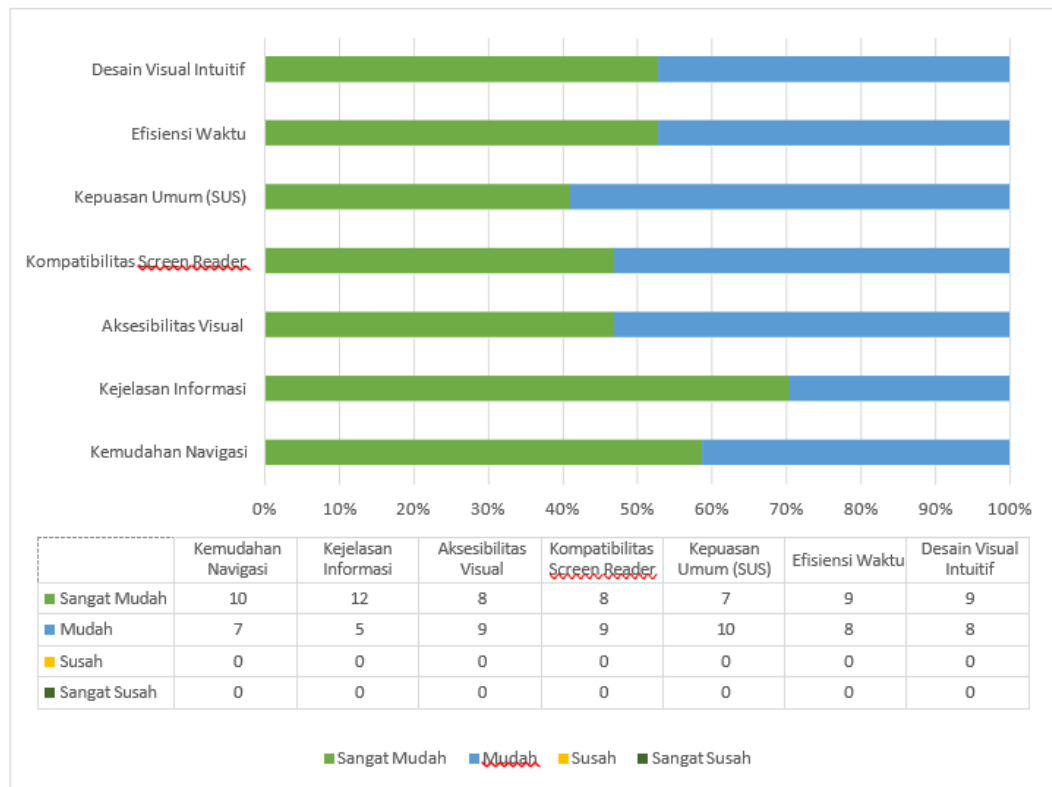


Figure 5. Test results for the Photolio prototype

DISCUSSION

1. Analysis of Findings and Development Direction for the Photolio App

The research findings indicate that the application of Design Thinking in the design of the Photolio app resulted in a systematic development process, ranging from empathize, define, ideate, and prototype, through to usability testing. In the initial stage, the identification of user needs through personas and user journeys revealed that users desire an app that is simple, lightweight, secure, and capable of integrating portfolio and transaction functions into a single platform. These findings were then translated into design requirements, including an integrated platform for sellers and buyers, ease of product search, diverse payment methods, and transaction security guarantees, which were subsequently visualized into wireframes, low fidelity designs, and high fidelity prototypes. Testing results also showed that users rated the app as easy to learn, easy to navigate, informative, and intuitive, thereby confirming that the resulting design is not only visually appealing but also functionally effective.

Conceptually, these findings align with Brown (2008), who views design thinking as an innovation approach that integrates human needs, technological possibilities, and business success requirements. In line with this, ISO 9241-210 states that human centered design aims to make interactive systems more useful, usable, accessible, and satisfying by focusing on the user, the task, and the context of use (International Organization for Standardization [ISO], 2019). Thus, Photolio's success in delivering simple navigation, integrated features, and a

positive user experience can be understood as a logical consequence of the consistent application of human centered design principles.

From a usability perspective, the findings of this study also receive strong theoretical support. Nielsen (2012) explains that usability is a quality attribute that assesses the ease of use of an interface, with key components including learnability, efficiency, memorability, errors, and satisfaction. Additionally, Norman and Nielsen (1998) assert that user experience encompasses all aspects of user interaction with products, services, and systems. In the context of this study, users' positive evaluations of navigation ease, information clarity, time efficiency, visual accessibility, and overall satisfaction indicate that the Photolio interface has met the primary dimensions of usability while simultaneously supporting a better user experience. In other words, a simple and intuitive design not only enhances system usability but also strengthens the overall user experience.

When compared to previous research, these findings align with the literature that positions Design Thinking as an iterative and nonlinear approach to understanding users, challenging assumptions, redefining problems, and generating solutions through prototyping and testing (Brown, 2008; Nielsen Norman Group, 2016). However, the specific contribution of this study lies in its applied context: the integration of photography portfolio functions, a creative interaction space, and a marketplace within a single application ecosystem. In many previous studies, portfolio applications tended to focus on the showcase function, while marketplace applications emphasized transactions. Therefore, the novelty of this research lies in the integration of the dimensions of work presentation, user interaction, and monetization into a single, unified UI/UX design.

Based on these overall findings, the direction of Photolio's development should focus on transforming the prototype into a functional application that can be tested in real world usage contexts. Further development can be directed toward refining search features, strengthening transaction security, expanding community features, and improving accessibility so that the application can reach a broader spectrum of users. This approach aligns with ISO 9241-210, which emphasizes that human centered design is an iterative process throughout the system's lifecycle; therefore, evaluation and refinement must be continuously conducted based on user feedback (ISO, 2019). Thus, this research does not stop at the development of a prototype but provides an empirical and conceptual foundation for the development of a more mature, implementable, and relevant digital product for the digital photography based creative industry ecosystem.

2. Research Contributions, Limitations, and Future Research Directions

This study makes theoretical and practical contributions to the field of UI/UX design based on Design Thinking. Theoretically, the findings of this study reinforce the argument that Design Thinking is an effective approach for generating user centered design solutions, as the entire design process begins with an understanding of users' needs, context, and problems, which are then iteratively translated into testable design solutions. In line with this, Brown

(2008) asserts that design thinking is an innovation approach that integrates human needs, technological possibilities, and business success requirements. This perspective is also consistent with the principles of human centered design in ISO 9241-210, which states that the development of interactive systems must focus on users, their needs, and the context of use so that the system becomes more useful, effective, efficient, accessible, and satisfying (International Organization for Standardization [ISO], 2019). In the context of this study, test results on the Photolio prototype which demonstrated ease of navigation, clarity of information, time efficiency, and intuitive visual design confirm that a user centered approach can yield high usability quality. Thus, this study expands the empirical evidence that Design Thinking is not only relevant as a conceptual framework but also effective as an operational strategy in the development of UI/UX for digital creative applications.

Practically, the results of this study can serve as a reference for designers, application developers, and creative industry practitioners in designing digital platforms that are simple, secure, easy to use, and support the monetization of photographic works. The integration of portfolio functions, transactions, and community features into a single application demonstrates that the needs of creative users can no longer be adequately met by applications that function solely as a showcase or merely as a marketplace. These practical implications are significant because human centered design standards emphasize that the success of interactive systems is not measured solely by technical functionality, but also by the extent to which the system effectively and satisfactorily supports users in achieving their goals (ISO, 2019). Furthermore, Nielsen (2012) explains that usability is a quality attribute that assesses the ease of use of an interface, with key components including learnability, efficiency, memorability, errors, and satisfaction. Based on this framework, the Photolio design can be positioned as an initial model for the development of creative applications that combine the value of work presentation, ease of interaction, and digital economic opportunities within a single service ecosystem. At the same time, the results of this study also indicate that prototype testing in the early stages is a crucial step for identifying usability issues before the system is fully implemented.

Nevertheless, this study has several limitations that require critical consideration. First, the evaluation was conducted at the prototype level, so the results obtained do not fully represent the user experience in a real operational context. Sauer et al. (2010) noted that prototype fidelity and user proficiency levels can influence usability testing results, so the outcomes of prototype testing must be interpreted with caution. Second, the number of participants in the testing remains limited and comes from a relatively homogeneous user context, so the generalizability of the findings to a broader user population still needs further testing. Third, this study emphasizes the assessment of users' perceptions of ease of use and satisfaction, so it does not yet include more objective behavioral indicators, such as task completion rate, time on task, error rate, and long-term usage. Given these limitations, future research should focus on developing the prototype into a functional application, involving a more diverse group of participants, and employing more comprehensive evaluation methods to

provide a stronger understanding of usability quality, user experience, and the feasibility of implementing the application within the digital creative industry ecosystem. Thus, the limitations of this study not only reflect academic caution but also open the door to a clear and relevant agenda for further research.

CONCLUSIONS AND RECOMMENDATIONS

Based on the research findings, it can be concluded that the application of the Design Thinking method in the design of the Photolio app resulted in a user centered UI/UX design. During the empathize phase, it was found that users require an app that is simple, lightweight, secure, and capable of integrating portfolio and transaction functions into a single platform. These findings were then formulated during the define phase into the need for an integrated platform for sellers and buyers, ease of product search, variety of payment methods, and transaction security guarantees. During the ideate and prototype phases, these needs were translated into key features such as image filters by theme, local bank and QRIS payment methods, integration of sellers and buyers within a single app, transaction security systems, help features, editorial and commercial options, watermarks, a feature for submitting work, and an earning feature for creators. Thus, this study demonstrates that Design Thinking is effective for designing a photography portfolio app that is not only visually appealing but also functionally relevant.

Prototype testing results also indicate that Photolio offers a high level of usability. The majority of respondents rated the app's navigation as easy, the information as easy to understand, the visual layout as comfortable to read, the content as easily accessible, and the app's visual design as intuitive. Additionally, overall user satisfaction levels also yielded positive results, indicating that Photolio's interface design has effectively supported the user experience. These findings confirm that a simple, structured, and user centered design can enhance an application's usability, particularly regarding learnability, efficiency, and user satisfaction.

Based on these findings, the implementation recommendations from this study are as follows. First, the Photolio prototype needs to be developed into a functional application so it can be used in real world contexts by freelance photographers and potential buyers. Second, theme based search features, local payment systems, and transaction security should be prioritized during the development phase as they are core user needs. Third, further development should strengthen community features and user interaction so that the application functions not only as a portfolio and transaction platform but also as a digital creative ecosystem. Fourth, the results of this study can serve as a reference for UI/UX designers and application developers in designing creative platforms that are simple, secure, and support the monetization of digital works.

ADVANCED RESEARCH

This study still has several limitations. First, the evaluation was conducted at the prototype stage, so the results do not fully reflect the user experience in real-world operational situations. Second, the number of test participants was

limited and they came from a relatively homogeneous user context, so the generalizability of the results to a broader user population requires further testing. Third, this study's evaluation focuses more on users' perceptions of ease of use, information clarity, efficiency, and satisfaction, and thus does not yet include more objective behavioral indicators such as task completion rate, time on task, error rate, and long term usage.

Therefore, further research is recommended to develop Photolio into a fully functional application and then test it in real world use by involving a more diverse group of participants, in terms of background, photography experience, and usage needs. Future research should also employ a more comprehensive evaluation method by combining user perception measurements with task performance metrics to provide a stronger understanding of the application's usability, user experience, and suitability for implementation within the digital creative industry ecosystem. Additionally, further studies could focus on the development of more in depth community features, personal branding, and monetization to enhance Photolio's practical value for freelance photographers.

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