EduLine: Journal of Education and Learning Innovation *ISSN: 2775-6173 (online)*
Vol. 5 No. 1 (2025)
https://doi.org/10.35877/454RI.eduline3574

Innovation of Non-Formal Education Platform Features in Indonesian Fashion

Elma Khoiru Juzma*, Djoko Murdowo, Andreas Rio Adriyanto

Faculty of Creative Industries, Telkom University, Bandung, Indonesia

Abstract

Creating innovation to increase students' interest in improving soft skills and hard skills in various circles of society, so that they are able to create a new business in the fashion sector and improve the community's economy is the purpose of this research. Education is a process of changing people's attitudes, both individuals and groups, to improve knowledge and skills through learning, development and training both formally and non-formally. This study discusses the low public interest in non-formal education in Indonesia, especially non-formal education in the fashion sector. The research method used is the design thinking method to help the process of creating innovation which begins with conducting research on various types of products including websites and applications that will help fashion education. The results of the study are in the form of an innovation in talent/career channeling features, Project sharing and modules with complete content materials according to class level/level which are packaged in a low-fidelity prototype which has a low level of precision and does not yet describe the final product.

Keywords: Innovation, Feature Platform, Fashion, Non-formal Education.

1. Introduction

Education is an essential element for a nation and its people, as it forms the foundation for individuals and efforts to produce high-quality human resources (Ahmad et al., 2022). Education is a process of transforming the attitudes of individuals and groups to enhance their knowledge, skills, and values through learning, development, and training, both formal and informal. Non-formal education, not only the oldest form, has also played the most active and influential role throughout history, thus reaching a wide scope. However, in a society with a complex division of labor, non-formal education does not meet the educational needs of those who receive or require it (Hidayat et al., 2017). Several factors underlie the low interest in non-formal education in Indonesia, including low per capita income of parents or society, which prevents them from attending or completing school. Public awareness of the importance of education has not yet spread widely, so not all school-age children are attending school, and many parents do not send their children to school. Additionally, there is an imbalance in educational facilities, such as the number of classrooms, teachers, and textbooks (Duriyanti, 2015).

The fashion industry is one of the sectors that continues to grow in line with changing trends, consumer preferences, and technological advancements. According to data from CNBC Indonesia in 2019, the fashion industry contributed a growth of about 18.01% or around IDR 116 trillion, and fashion design has had a significant impact in helping potential consumers decide on product purchases (Andrea, 2019). The growth of the industry and the increasing number of fashion enthusiasts who want to delve into fashion is not enough to develop the fashion world in Indonesia. Supporting materials and new information are greatly needed to assist fashion enthusiasts.

Non-formal education in the fashion field is one of the essential tools required to support the development of constantly changing fashion trends. Along with technological advancements, both soft and hard skill learning methods have also evolved. The relationship between fashion and education is closely interconnected for those who truly understand fashion or work in the fashion world. Becoming a fashion designer requires a learning process until one becomes a true expert in practicing fashion activities. The same applies to fashion photographers. Experts argue that

* Corresponding author.
E-mail address: elmakhoirujuzma@student.telkomuniversity.ac.id

fashion education institutions are crucial in shaping the personality of fashion enthusiasts to improve the quality and maturity of fashion knowledge in Indonesia (Ikhsan & Saphiranti, 2012). Various soft skill development platforms based on e-learning, such as Skillshare, Kelas.com, Udemy, and Domestika, are now increasingly popular among creative skill developers. Each platform has its own character and learning methods, such as face-to-face learning, watching training videos, using modules or manuals, practical training through live videos, and discussion forums, making it easy to interact with other members.

The ability to develop both soft and hard skills is one of the goals of art education. Soft and hard skills cannot be developed through theory alone. This needs to be done effectively, with better courses and new facilities, with the right support from professional trainers so that students can fully develop their abilities. One of the methods used in delivery is to offer attractive services through features/tools that are tailored to the users' needs. Designing digital learning features/tools suitable for creative education platforms in fashion, such as Game Education, learning through easily understood games, stimulating cognitive abilities, enhancing concentration, and solving problems. E-books provide guides or manuals for readers to carry out procedures and support students in learning without spatial or temporal limitations. Augmented Reality combines the real and virtual worlds in two or three dimensions, simultaneously projected into the real environment, and can be used in entertainment, medicine, mechanics, learning media, and more. Video Conference allows for online learning between instructors and learners, with more flexible timing and locations. Learning video materials allow students to easily access all available video content on the platform. Virtual Laboratories develop computer technology as an interactive multimedia object for simulating laboratory experiments on computers.

The low interest in non-formal education in Indonesia is one of the reasons why the researcher aims to create an innovative feature for a non-formal learning platform in the fashion sector, which continues to evolve. After conducting a survey through questionnaires distributed to 15 fashion industry players, the researcher identified several challenges in learning, such as difficulties in determining the right learning time, finding effective methods to monitor and report learning outcomes, lack of motivation to learn, and wasted time due to a lack of focus in learning and teaching. The researcher hopes that the findings of this study can provide innovations to enhance learners' interest in developing both soft and hard skills across various segments of society, thus enabling the creation of new businesses in the fashion sector and improving the economic conditions of society.

2. Research Methods

In this study, the researcher uses the design thinking method to implement a human-centered innovation approach by utilizing a toolkit commonly used by designers that integrates three aspects: human needs, their ability to use technology, and the need to generate business profits. Design thinking is a creative way of solving problems based on empathy and human needs. In addressing problems, design thinking is very useful for re-framing human-centered issues, brainstorming to generate multiple ideas, and adopting a prototype and testing approach (Swarnadwitya, 2020). Creating something by combining human desires and needs (desirable) with suitable (feasible) and affordable (viable) technologies is a key component of design thinking. Having a design thinking mindset can change the sensitivity and approach of designers in developing or creating viable product and service innovations in the contexts of technology, business, and society (Brown, 2008).

In the innovation creation process, a business strategy is used to target specific consumer segments to avoid competition. This method is applied in fashion education to assist in the creation of innovations, starting with research on various types of products, including websites and applications that will support fashion education. According to d.school, there are five stages in Design Thinking (as shown in Figure 1), which include: Empathize, researching user needs; Define, defining user needs and problems; Ideate, creating assumptions and ideas; Prototype, beginning to design solutions for users; and finally, the Test stage, where solutions are tested (Dam, n.d.).

Figure 1. The Five Stages in Design Thinking

Sumber : Dam, R. F. (n.d.). The 5 Stages in the Design Thinking Process. (Interaction Design Foundation) Retrieved 12 1, 2024, from https://www.interaction-design.org/literature/article/5-stages-in-the-design-thinking-process

3. Results and Discussion

In the innovation creation phase, the researcher follows several stages of design thinking required to create a solution for a design. In the empathize stage, the researcher solves a problem by conducting observations, literature studies, and surveys, which help understand the characteristics of fashion learning styles and explore the needs of fashion students in more depth. This is followed by the ideate stage, where new features are created or existing ones are enhanced. After innovations in features are obtained during the ideate process, the researcher creates a prototype and measures the platform's usability using the System Usability Scale (SUS) method.

3.1. Empathize (Researching User Needs)

The first stage in design thinking is empathize. This stage is at the core of the process of solving a problem experienced by users by seeking solutions. To find the solution, the researcher conducts several activities, including observations, literature studies, and surveys.

Observations are made to analyze the characteristics and learning styles in fashion, analyze fashion education, and define personas. In this process, fashion education has various styles and characteristics. Following the development of the times, face-to-face online learning (e-learning) or distance learning is now widely applied in educational institutions, either through websites or applications. This method has advantages, one of which is its flexibility, allowing access anywhere and anytime. Online learning is a method where students have access to the internet network, providing flexibility in terms of space and time. As devices become more portable, students can easily switch from one device to another to access different information (Adriyanto et al., 2019). This will certainly support the character of fashion students, who work in creative fields and tend to have more flexible schedules, do not want to be controlled, and are imaginative. In addition to using online face-to-face methods, students can also watch training videos, use modules or manuals, practice training through live videos, and engage in discussion forums to interact easily with other members.

In this study, the researcher identified several industries in fashion education, such as Raffles College of Higher Education (universal), Islamic Fashion Institute Bandung, and Parson School of Design (Coursera). Each industry has different scopes. Raffles College offers three study programs: Fashion Communication and Journalism, Fashion Marketing, and Retail Management. The Islamic Fashion Institute focuses specifically on Muslim fashion design, while Parson School of Design has a broader scope in fashion education, both general and specific. These three fashion education industries share a similar learning system: online learning (e-learning) with various online courses/classes for independent study, interactive video practices, and case studies.

To further explore the characteristics and needs of fashion students, the researcher conducted a survey through a questionnaire distributed to 15 fashion industry players. Based on the survey results, most graduates from fashion schools work in non-education sectors, such as entrepreneurs and patternmakers. Students need instructors, curricula, features, or facilities such as face-to-face learning methods, better video and module materials, and more practical time compared to theory in order to improve their soft and hard skills. Additionally, students also need media that can help build and expand their connections and networks to continue their business in the fashion sector.

In the learning process, students face several challenges and problems, including:

a. Time Management: Users (teachers and students) have difficulty determining the right learning time.
b. Monitoring and Reporting Learning Outcomes: Effective learning progress can be obtained through transparent and regular monitoring and reporting of learning outcomes. However, there is confusion about how to comprehensively assess students' understanding beyond task completion.
c. Distractions, Motivation, and Discipline: Students often feel bored with learning, or teachers complain about teaching results. These are two common problems often encountered.
d. Infrastructure: The wide variety of learning media helps users explore alternatives for delivering the learning process, but on the other hand, this can reduce focus and consume more time.

3.2. 3.2 Define (Defining User Needs)

In this define stage, analysis and understanding are conducted based on the results of the empathize stage. Based on the results of observations, literature studies, and surveys from the empathize stage, a platform is needed that focuses on user problems and needs, which is then formulated into personas. Personas are representations of target users, summarizing their characteristics, experiences, goals, tasks, pain points, and environmental conditions. One approach to explore user personas is using Human-Computer Interaction (HCI) techniques to obtain detailed information about the psychological characteristics of users. The main goal of using user personas is to identify or analyze user (customer) needs. By using user personas technology, it is expected to analyze and understand the strengths and weaknesses of customers. Since each person has different energy standards, this research aims to create features and functions on a platform that align with the users' abilities and behavior (W. A. Kusuma et al., 2020). The persona created for the target users can be seen in Figure 2.

Figure 2. Persona Education Platform (in Indonesia)

3.3. Ideate (Creating Assumptions and Ideas)

The third stage of design thinking is ideate. Referring to the define stage, one of the ideas in creating this platform is how to design features that align with the problems and needs of the persona. The process of creating these features involves eliminating common features from similar industries, raising features that should be reduced, improving features that need enhancement, and creating new features that have never been offered in similar industries. Based on the previous explanation, there are several advantages of digital learning media that have already been implemented, including:

- Online learning through face-to-face/mentoring, video learning, module materials, practical simulations, and self-paced training.
- Learning products such as courses, webinars, boot camps, certifications, and institutional training.
- Purchasing options, either as bundled packages or individual units, with time limits based on subscriptions or permanence.
- Supportive media such as discussion forums and leaderboards.

In the design of a feature, there are several innovations that can be implemented in digital learning media, such as:

- Leveling Learning: Learning topics are arranged and ordered based on the continuity of material and difficulty levels, addressing the lack of basic understanding in previous levels and the disconnection between various topics.
- Wizard Recommendation: A system to match material types that are suitable for users. It starts from a lack of basic understanding at previous levels and the user's interest in something but not knowing what to study.
- Mentor Scheduling: Arranging meetings, discussions, and intensive private sessions with mentors to enhance understanding. This addresses the issue of short learning periods and difficulties in validating knowledge acquired from learning.
- Mentor Forum & Parents Forum: Community ecosystems dedicated specifically to mentors and parents.
- Multi-tools Learning: Performing all learning activities in one platform without needing to access other platforms, addressing the issue of needing multiple tools for a specific activity.
- Multi-purchasing Options: Access to learning topics based on the user's needs, either in bundles or based on time limits (subscriptions or permanent).

Based on the explanation provided earlier, innovation is created through four steps: eliminate, raise, reduce, and create. The innovations produced during this process are shown in Table 1.

Table 1. Platform Facility Innovation Results

Eliminate	Raise	Reduce	Create
Cost for Basic Skill Training Access	1. Mentorship Scheduling2. Talent Mapping3. Mentor Feedback & Follow-Up4. Phenomenal Skills and Skill Linkage focused on fashion business development5. Multitools for learning support	1. Theory Learning Duration2. Basic and General Materials	1. Student Sharing Forums2. Talent/Career Channeling3. Project Sharing4. Modules with complete content materials according to class level5. Project/Production-based Learning

The next step in the ideate stage is the design of the service blueprint. According to IRW Kusuma, a Service Blueprint is a depiction of a flow used as a guide for service procedures (I. R. W. Kusuma, 2018). This flow will describe the roles of users and products, providing detailed steps of activities to create alignment in usage and developing standard operating procedures. In the learning process, starting from the physical evidence trial page, customers will try a learning trial. In this action, customers will be given several questions that they need to answer to determine course recommendations. If the customer is interested in the recommended course, they can proceed with registration. After registration, customers will select a class according to the recommendation and fill out a registration form for data verification. Once the data is successfully verified, customers can make a payment and then start the learning process by accessing the class, playing the learning video, and using other platform features. For further details, the learning service blueprint can be seen in Figure 3.

Before proceeding to the prototype creation stage, the author designed a components library needed for the design process. The components library is created to facilitate interaction between designers and developers, as well as to maintain the visual concept of the application. It is a specific part of the design system that can be reused. Components libraries are also known as modules, fragments, portlets, widgets, blocks, or other labels that depend on each other and are typically combined to create entire pages or views (Dasiran, 2021). Before designing the components library, the author determined the typography and color palette as the foundation for the prototype design, based on the persona created during the define stage. The typography used is Poppins. Poppins is a popular design tool for creating mobile applications or websites with a geometric sans-serif font, suitable for headings and body text. Besides typography, the color palette is also important to guide the color choices for the prototype. The chosen color palette is based on the persona's character and needs. In this case, the researcher chose lavender purple (#C9A1DD) as the primary color and blue (#6495ED) as the secondary color. The lavender purple color is chosen for its character of being sensitive, energetic, optimistic about life stages, creative thinking, and vitality during youth (Braam, 2024). The secondary color, blue, is selected for its character of promoting calmness and order. The supporting characteristics of this secondary color are confidence, introversion, loyalty, and calmness (Purbasari & Jakti, 2014). The typography, color palette, and components library can be seen in Figure 4.

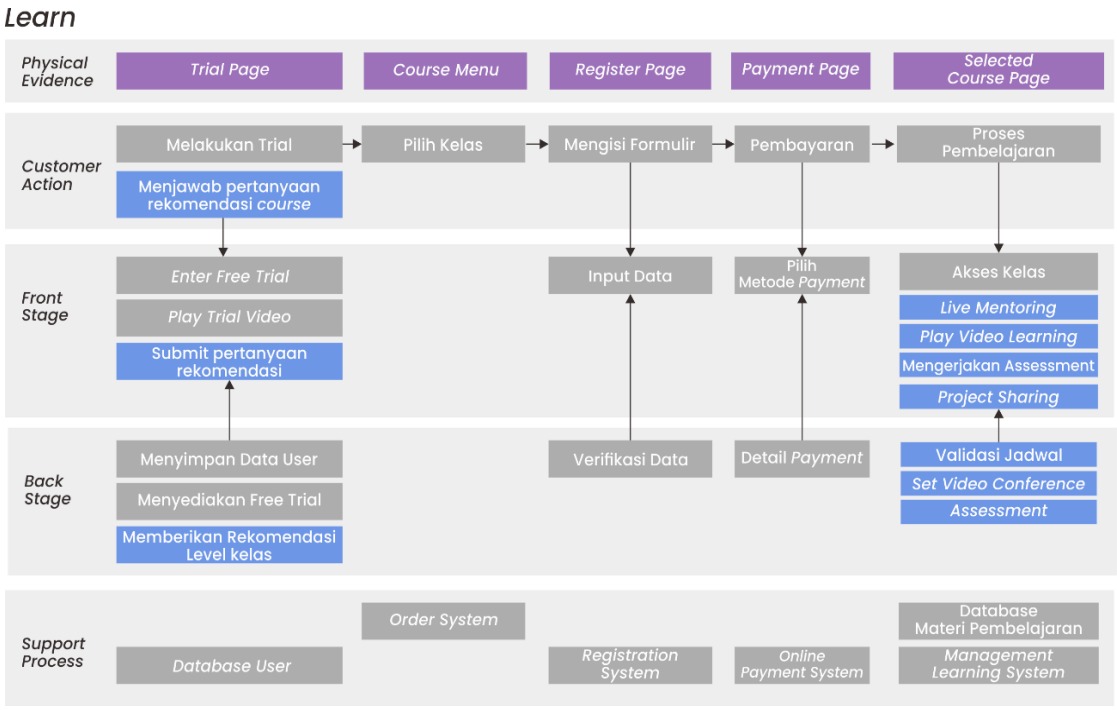


Figure 3. Learning Service Blueprint (in Indonesia)

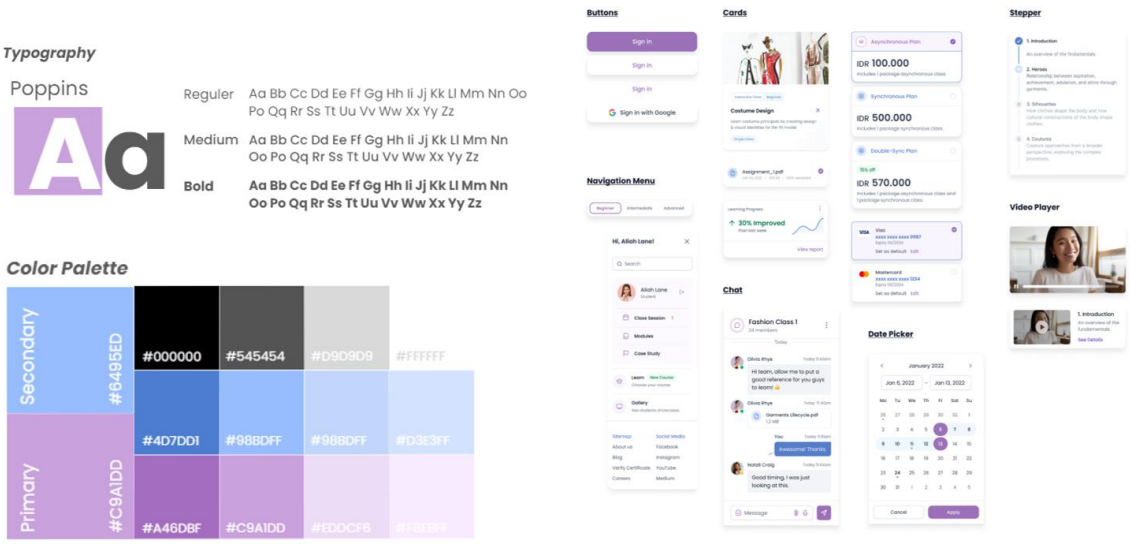
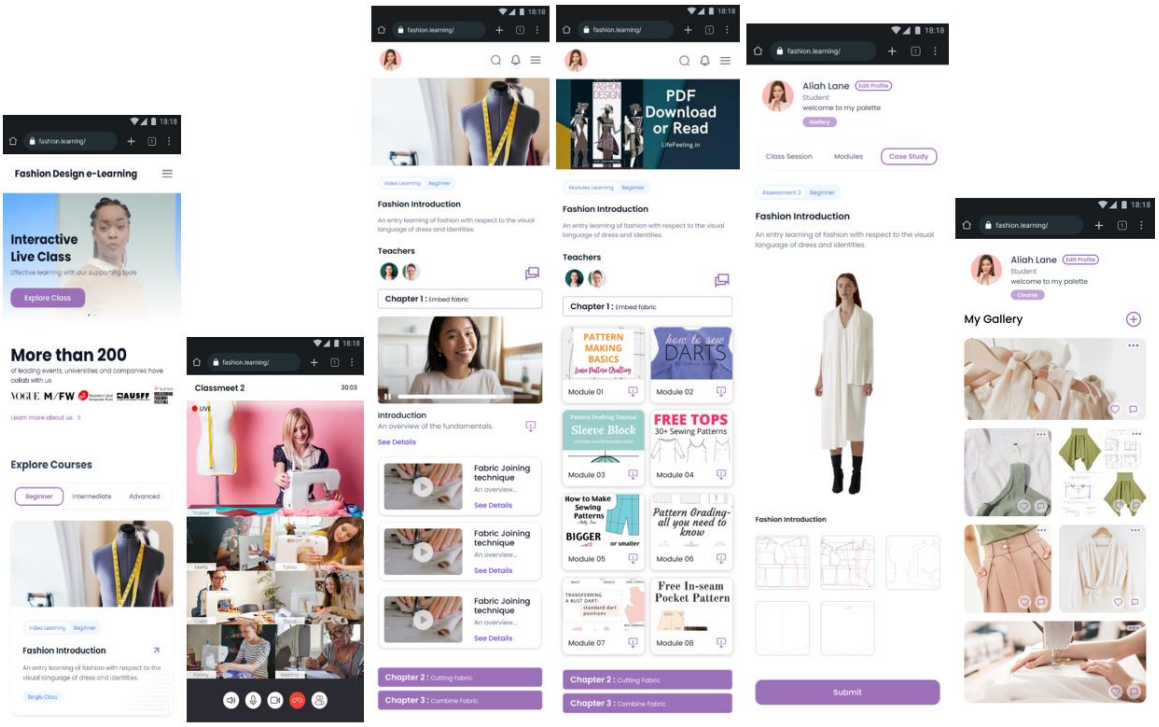


Figure 4. Typography, Color Palette, and Components Library

3.4. Prototype (Creating Solutions for Users)

The prototype stage is the process of designing solutions and implementing ideas or innovations in visual form. A prototype is an initial design of a product created to allow the researcher to detect errors early and discover new possibilities. Based on the innovation search in the previous stage, the researcher concluded several feature ideas for the fashion learning platform, including class recommendation features according to class levels, synchronous and asynchronous video class features, downloadable module collection features, student portfolio features, and case study features. In this study, a low-fidelity prototype was created, with a design precision level that is still low. This level of precision can be seen in terms of color, text size, buttons, and spacing between elements, which do not yet represent the final product. The prototype used in this platform development is a website prototype for mobile phone

usage. Mobile phones are highly relevant and suitable for mobile learning, as the use of mobile phones is now ubiquitous, especially among younger generations (Murdowo et al., 2021).



(a) (b) (c) (d) (e) (f)

Figure 5. Low Fidelity Prototype of the Education Platform

The class recommendation feature (Figure 5a), according to class levels, is an innovation in the fashion education platform industry. With this feature, students will be required to take an initial assessment to determine the class level recommended by the organizer. This assessment aims to determine the student's understanding and mastery of fashion design. There are three class levels in this learning platform: beginner class, aimed at students who are new to fashion learning and have no prior knowledge; intermediate class, for students who already have basic knowledge and wish to develop their skills; and advanced class, which is an extension of the intermediate class.

The synchronous and asynchronous video class features (Figure 5b) are methods used in this education. The synchronous video class is conducted through video conferences, making it easier for students to interact directly with trainers and participate in experience-sharing forums with other students. Additionally, the platform provides video features (Figure 5c) and a downloadable module collection feature (Figure 5d), allowing students to access and download content at their convenience. The case study feature (Figure 5e) is used to assess students' understanding after completing the lessons. An innovation in this feature is that students can freely express ideas into the platform, which will then be displayed through a digital mannequin. The student portfolio feature (Figure 5f) functions similarly to a learning progress tracking and reporting system. Additionally, this feature serves as a repository for students' works, which is expected to attract business professionals, expand business networks, and be used for project sharing.

3.5. Test (Testing the Created Solutions)

The final stage of design thinking is test. To measure the usability of the platform, the researcher evaluates the platform using the System Usability Scale (SUS) method, which is one of the questionnaire methods used to measure users' subjective opinions on the usability aspects of a system (Brooke, 2013). The researcher uses this method to answer the research question about the end user's satisfaction in evaluating whether the platform is viable. The System Usability Scale is a usability testing technique that provides quick and reliable measurement tools. SUS can be used to evaluate the usability of various products and services. SUS was chosen because it allows respondents to quickly and easily fill out a questionnaire with 10 statements, as shown in Table 2, using a Likert scale of 1-5

("Strongly Disagree," "Disagree," "Neutral," "Agree," and "Strongly Agree"), with a final score range of 0-100, which is relatively easy to understand for the development team (Pradini et al., 2019).

Table 2. System Usability Scale (SUS) Statements with Scale 1-5

No	Statement
1	I would like to use this platform again.
2	I think this platform is difficult to use.
3	I think this platform is easy to use.
4	I need help from others or a technician to use this platform.
5	I believe this platform works well.
6	I feel there are many inconsistencies (lack of alignment in the platform).
7	I feel others will quickly figure out how to use this platform.
8	I think this platform is difficult to understand.
9	I feel there are no obstacles in using this platform.
10	I need to get used to this platform before using it.

Each statement item has a contribution score from 0 to 4. For statements 1, 3, 5, 7, and 9, the score contribution is the scale position minus 1. For statements 2, 4, 6, 8, and 10, the score contribution is 5 minus the scale position. After obtaining the total contribution score, it is multiplied by 2.5 to get the overall system usability score. The overall SUS score is obtained from the average of the individual SUS scores (Brooke, 2013). The SUS score calculation formula is as follows:

$$Skor\ SUS = ((R1 - 1) + (5 - R2) + (R3 - 1) + (5 - R4) + (R5 - 1) + (5 - R6) + (R7 - 1) + (5 - R8) + (R9 - 1) + (5 - R10)) * 2.5)$$

In this testing stage, users were tasked with running the prototype to evaluate the usability results, covering effectiveness, efficiency, and customer satisfaction. The tasks given to users included accessing online classes, viewing videos and learning modules, submitting assessments, and opening a gallery containing completed projects. The questionnaire results were calculated using the formula above to derive the SUS score. The SUS score results are displayed in Table 3.

Table 3. SUS Score Calculation Results

Respondent	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	SUS Score
1	4	2	4	2	4	2	3	2	4	2	72.5
2	4	2	4	2	4	2	4	2	4	3	72.5
3	4	4	4	4	4	4	4	4	4	4	50
4	3	3	4	1	4	2	1	1	5	2	70
5	4	2	4	2	4	2	4	2	4	2	75
6	4	2	5	2	4	3	2	3	4	4	62.5
7	4	2	4	2	4	2	4	2	4	2	75
8	4	3	4	3	4	3	4	4	4	4	57.5
9	3	2	4	1	4	3	4	2	4	4	67.5
10	3	2	5	3	4	3	5	2	3	3	67.5
11	4	2	4	3	4	3	4	2	4	4	65
12	4	3	3	2	4	4	5	3	3	1	65
13	5	2	4	2	4	2	3	2	4	3	72.5
14	4	3	5	4	4	4	3	3	3	4	52.5
15	4	2	5	2	4	4	3	2	3	4	62.5
Average SUS Score											**65.833**

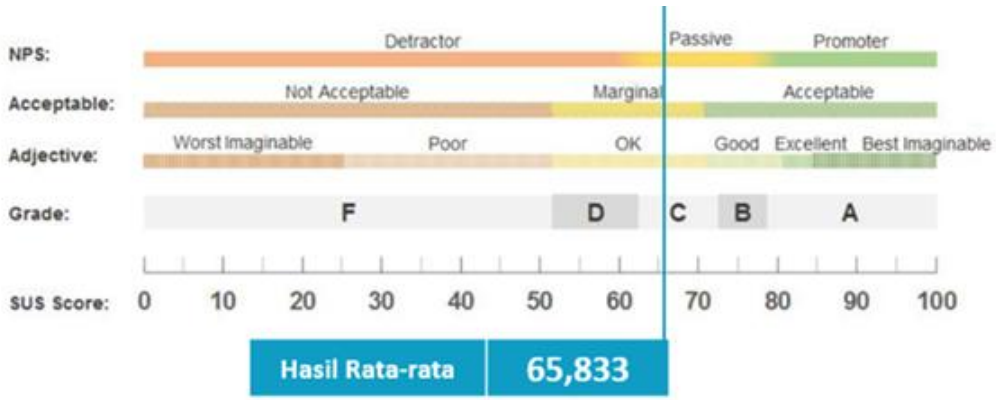


Figure 6. System Usability Scale (SUS) Results

Based on the results of the System Usability Scale (SUS) testing shown in Figure 6, conducted with 15 respondents using this prototype, the average SUS score is 65.833, indicating a Grade C score. The adjective scale obtained is OK, which is associated with the user experience feeling that the prototype is useful but somewhat ordinary, without an exceptional experience. On the acceptable scale, the score shows that the prototype is on the borderline between being acceptable or not by users, though it leans more towards being accepted. The Net Promoter Score (NPS) or user loyalty classification is passive, indicating that users may use the app without taking action to recommend it to others.

4. Conclusion

Based on the results of the research, the researcher can conclude several stages of the design thinking process, from empathize to testing. Based on observations, literature studies, and questionnaire surveys in the empathize stage, students need instructors, curricula, features, or facilities such as face-to-face learning methods, better video and module materials, as well as more practical time compared to theory to improve their soft skills and hard skills. Additionally, students also need a platform that can help build and expand their connections and networks to further their business in the fashion industry. In the define stage, it can be concluded that a platform is needed that focuses on the persona or target user representation, which includes characteristics, experiences, goals, pain points, conditions, user environments, and so on.

In the ideate stage, several features were identified that need improvement, such as learning duration and basic or general materials. Additionally, new features were created, including a sharing forum for students, talent/career channeling, project sharing, modules with complete content according to class levels, and project/production-based learning. From these research results, a low-fidelity prototype was created and tested using the System Usability Scale (SUS) method, which resulted in an average SUS score of 65.833, indicating that the score falls into grade C. The adjective scale obtained was OK, which is associated with user experience feeling that the prototype is useful enough and accepted but is rather ordinary, not providing an exceptional experience.

References

Ahmad, Sari, A. J. T., Wardana, A. H., Rosyid, M. I. N., Widianto, E., & Rasyad, A. (2022). Literatur Review: Tren Perkembangan Pendidikan Non-Formal di Indonesia. *Jurnal Pendidikan*, *7*(2), 76–82.

Andrea, M. (2019, July 14). *Gairah Industri Fashion Indonesia*. https://www.cnbcindonesia.com/lifestyle/20190712155341-35-84555/gairah-industri-fashion-indonesia

Adriyanto, A. R., Santosa, I., & Syarief, A. (2019). Memahami Perilaku Generasi Z sebagai Dasar Pengembangan Materi Pembelajaran Daring. *Seminar Nasional: Seni, Teknologi, Dan Masyarakat*, *2*, 165–173. https://doi.org/10.33153/semhas.v2i0.116

Braam, H. Van. (2024, February 15). *Color Psychology*. https://www.colorpsychology.org/about/

Brooke, J. (2013). SUS: a retrospective. *Journal of Usability Studies*, *8*(2), 29–40.

Brown, T. (2008). Design Thinking. *Harvard Business Review*, 1–10. www.hbr.org

Dam, R. F. (n.d.). *The 5 Stages in the Design Thinking Process*. Retrieved December 1, 2024, from https://www.interaction-design.org/literature/article/5-stages-in-the-design-thinking-process

Dasiran. (2021, December 12). *Component & Pattern*. https://medium.com/@diaziranian/component-pattern-d44b0e42bb46

Duriyanti, S. (2015). *The Function of Non Formal Education ; Studi Kasus di Sanggar Kegiatan Belajar (SKB) Rokan Hulu Kabupaten Rokan Hulu*. *2*(2), 1–13.

Hidayat, M. A., Anwar, A., & Hidayah, N. (2017). Pendidikan Non Formal dalam Meningkatkan Keterampilan Anak Jalanan. *Edudeena*, *1*(1), 31–42.

Ikhsan, H. E., & Saphiranti, D. (2012). Desain Interior Fasilitas Pendidikan Fashion sebagai Penunjang Industri Mode di Bandung. *Jurnal Tingkat Sarjana Senirupa Dan Desain*, *1*, 1–6.

Kusuma, I. R. W. (2018). Service Blueprint Sebagai Penunjang Loyalitas Customer. *Jurnal Manajemen Pelayanan Hotel Akademi Komunitas Manajemen Perhotelan Indonesia*, *2*(1), 28–32.

Kusuma, W. A., Ghufron, K. M., & Fauzan. (2020). Penggunaan User Pesona untuk Evaluasi dan Meningkatkan Ekspektasi Pengguna dalam Kebutuhan Sistem Informasi Akademik. *SINTECH (Science and Information Technology) Journal*, *3*(2), 90–99. https://doi.org/10.31598/sintechjournal.v3i2.587

Murdowo, D., Rachmawati, R., Prahara, G. A., & Adriyanto, A. R. (2021). Perancangan Prototipe Mobile Learning "Wawasan Kebangsaan" berbasis Android bagi Milenial sebagai Solusi Pembelajaran Situasi Pandemi. *ANDHARUPA: Jurnal Desain Komunikasi Visual & Multimedia*, *7*(2), 375–388. https://doi.org/10.33633/andharupa.v7i2.4517

Pradini, R. S., Kriswibowo, R., & Ramdani, F. (2019). Usability Evaluation on the SIPR Website Uses the System Usability Scale and Net Promoter Score. *2019 International Conference on Sustainable Information Engineering and Technology (SIET)*, 280–284.

Purbasari, M., & Jakti, R. A. D. R. I. K. (2014). Warna Dingin si Pemberi Nyaman. *Humaniora*, *5*(1), 357–366.

Swarnadwitya, A. (2020, March 17). *Design Thinking: Pengertian, Tahapan dan Contoh Penerapannya*. https://sis.binus.ac.id/2020/03/17/design-thinking-pengertian-tahapan-dan-contoh-penerapannya/