Online Activity No. 8 and 9: Applying the User-Centred System Design Process

Chapter I. Introduction

Background of the study

In recent years, financial literacy has emerged as a critical skill necessary for personal and professional success. Despite its importance, a significant portion of the population lacks the knowledge needed to make informed financial decisions. This gap in financial literacy can lead to poor financial management, increased debt, and a lower quality of life. Traditional financial education methods often fail to engage learners, especially younger audiences, due to their static and non-interactive nature.

In response to these challenges, there has been a growing interest in leveraging technology and innovative teaching methods to enhance financial education. Gamification, the application of game-design elements in non-game contexts, has proven effective in increasing engagement and motivation in various educational settings. By making learning interactive and rewarding, gamification can transform how financial literacy is taught and absorbed. Pinans was with this in mind, aiming to revolutionize financial education through a gamified approach.

This study explores the effectiveness of Pinans in improving financial literacy among its users. It examines how the app's gamified elements and community features contribute to enhanced learning outcomes and user engagement. By understanding the impact of these innovative approaches, the study aims to provide insights into the potential of gamified financial education and identify best practices for future development in this field.

Statement of the problem

There is a lack of motivation in attaining financial information.

Financial literacy has been a concerning issue in the Philippines. Surveys and studies consistently indicate that a large portion of the Filipino population lacks basic financial knowledge. According to the Bangko Sentral ng Pilipinas (BSP), only about 25% of Filipino adults are financially literate. This low rate of financial literacy translates to a limited understanding of basic financial concepts such as budgeting, saving, investing, and managing debt. Filipinos taking a passive stance despite the abundance of financial opportunities can strain the growth of the economy. One of the factors that limits the financial literacy is the lack of financial education. So, in order to bridge this gap, an engaging financial learning interface is necessary so that users are incentivized and motivated to learn about financial topics and education is the first step to financial literacy.

Assumption of the study

In order to develop an engaging financial interface, the team has decided to gamify the process. With this as a goal, we have developed Pinans: a financial education application that provides users with a gamified approach to acquiring financial literacy. The app offers educational modules with expert-curated video lectures and quizzes that empower users with tailored financial knowledge. Users are also

able to earn reward points to redeem rewards after completing modules, fostering learning motivation and transforming financial learning into an engaging, interactive experience.

Significance of the study

The significance of the Pinans financial education application is underscored by its potential impact on various stakeholders, ranked from the highest position to the lowest. Each beneficiary stands to gain from the insights and improvements driven by this study, enhancing their roles and tasks within the ecosystem of financial literacy and education.

- **Financial Education Institutions**

  Financial education institutions, including schools and colleges, can integrate Pinans into their curricula to offer an innovative and engaging learning tool. The app's gamified approach can increase student motivation and retention, leading to better financial literacy outcomes.

- **Policy Makers and Government Agencies**

  Policy makers and government agencies focused on financial literacy can leverage the study's findings to promote the adoption of gamified learning tools like Pinans. This can help in crafting policies and initiatives aimed at improving financial literacy at a national or regional level.

- **Employers and HR Professionals**

  Employers can incorporate Pinans into their employee training programs to enhance financial wellness among staff. By improving employees' financial literacy, companies can contribute to a more financially stable and productive workforce.

- **Financial Advisors and Consultants**

  Financial advisors and consultants can recommend Pinans to clients as a supplementary educational resource. This can help clients develop a stronger foundation in financial literacy, making them more informed and confident in their financial decisions.

- **Educators and Instructors**

  Educators can utilize Pinans to supplement their teaching methods, providing students with interactive and practical financial education resources. The app's modules and quizzes can serve as valuable teaching aids, facilitating more effective learning experiences.

- **Students and Learners**

Ultimately, the primary beneficiaries are the students and learners using Pinans. The app's engaging and interactive design can make financial education more accessible and enjoyable, leading to better knowledge retention and practical financial skills.

By addressing the needs and enhancing the capabilities of these beneficiaries, the study on Pinans can contribute significantly to the broader mission of improving financial literacy and fostering economic well-being across various sectors of society.

Chapter II. Research Design

User – Centered System Design Process

A. **Task Analysis**

This task analysis will focus on the key user tasks involved in using the Pinans app, particularly from a prototype perspective. It will cover the main functionalities including creating an account, completing quizzes, and earning/redeeming reward points. The prototype will only be limited to the frontend aspect and will not delve into backend or database interactions. This analysis provides a structured breakdown of the key tasks users will perform within the Pinans app, highlighting the steps required to achieve their goals.

1. Creating an account
   1.1. Open the app
   1.2. Select “Start an account”
   1.3. Input Name and email address and click “Continue”
   1.4. Enter contact number and password and click “Continue”

2. Complete Quizzes
   2.1. Open the app
   2.2. Navigate to the "Courses" or “Progress” section
   2.3. Select a course
   2.4. Take the course quiz
   2.5. View quiz results

3. Earn and Redeem Reward Points
   3.1. Open the app
   3.2. Navigate to the “Redeem Shop”
   3.3. Claim a reward.
   3.4. Go to “My Coupons”

B. **Requirements Gathering**

The evaluation will be using three different techniques: the participant survey, usability specification, and the heuristic evaluation.

Technique	**Description**
Participant Survey	The team will be conducting the participant survey by sharing the app's Figma link to evaluators and ask them questions regarding the prototype. We will then gather their feedback which will be used to assess the prototype's performance. The survey will be conducted through the use of Google Forms as it helps close the distance for between the team and the evaluators and evaluation can be conducted anytime and anywhere.
Usability Specification	In the usability specification, we will be measuring the usability of our prototype by recording how long a participant takes to perform specific tasks. This shall be conducted on Discord with the participant streaming their screen in order for the team to see how long a participant took to finish a task. We have assigned three tasks for participants to perform: Account Creation, Quiz Taking, and Reward Redemption. These tasks were chosen as they are at the core of what Pinans is trying to accomplish; a personalized learning platform that incentivizes learning.
Heuristic Evaluation	We will use the Heuristic evaluation technique in order to evaluate the UX design of the prototype. The technique inspects the usability of an interface using 10 heuristics which will then be used to analyze flaws in the system.

Table 1. Evaluation Techniques

Through this evaluation process, the team aims to comprehensively assess the effectiveness of the Pinans app in enhancing financial literacy through an engaging, gamified approach. By evaluating the user's feedback, the findings will provide actionable insights to optimize the app and better serve its users.

User Requirements

Minimum Requirements	Processor Cores	Single Core
	Android OS	Version12 Snow Cone
	iOS	Version 16
	RAM	2GB
Recommended Requirements	Processor Cores	Quad Core
	Android OS	Version 14 Upside Down Cake
	iOS	Version 17
	RAM	4GB

Table 2. User Requirements Table

Functional Requirements

The prototype should be able to give feedback to the answers of users in quizzes, telling them if their answers are correct or incorrect. The final score should be displayed when the user finishes the quiz, and the score should be accurate. The quizzes should also have a functional life point system wherein a user is given 3 lives per quiz and if they commit a mistake, they lose a life point. Once the life point reaches 0, the quiz ends prematurely, and the user fails the quiz.

Data Requirements

If the prototype developed into a fully functional application, we would require data such as the courses taken to personalize the user experience. This helps users target more aspects of finance that they want to work on.

Environmental Requirements

The application is designed to be taken anywhere at any time. If the user is in an environment that allows him access to a stable internet connection, they have the ability to access modules without the need to download them prior to using it. However, if they are in an environment without a connection, they are still able to access modules as long as said modules are downloaded prior to the loss of connection.

Usability Requirements

At the heart of Pinans are its educational modules. Each module is complemented by quizzes that help users test their understanding and reinforce their learning. To cater to individual learning needs, the content is tailored based on user progress, ensuring a personalized educational journey. Each quiz should have a functional life point system that indicates how many incorrect answers a user can have before failing the quiz. Each answer should also have feedback from the system that indicates whether it is correct or incorrect in order to let users understand their mistakes and encourage them to improve their

financial knowledge. Lastly, there should be a section in the application dedicated to redeeming rewards in order to incentivize financial learning.

C. **Storyboarding and Prototyping**

Storyboard (Based on Scenarios):

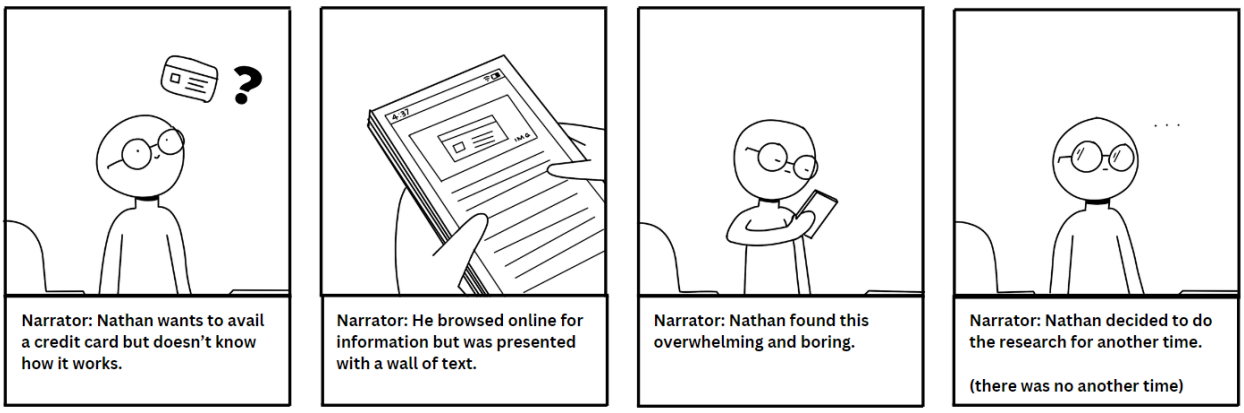

Image 1. Storyboard 1

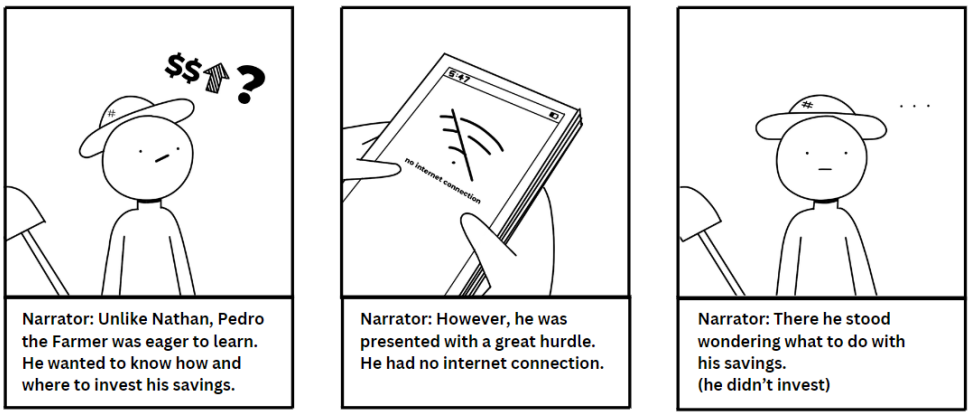

Image 2. Storyboard 2

Prototype Flow:

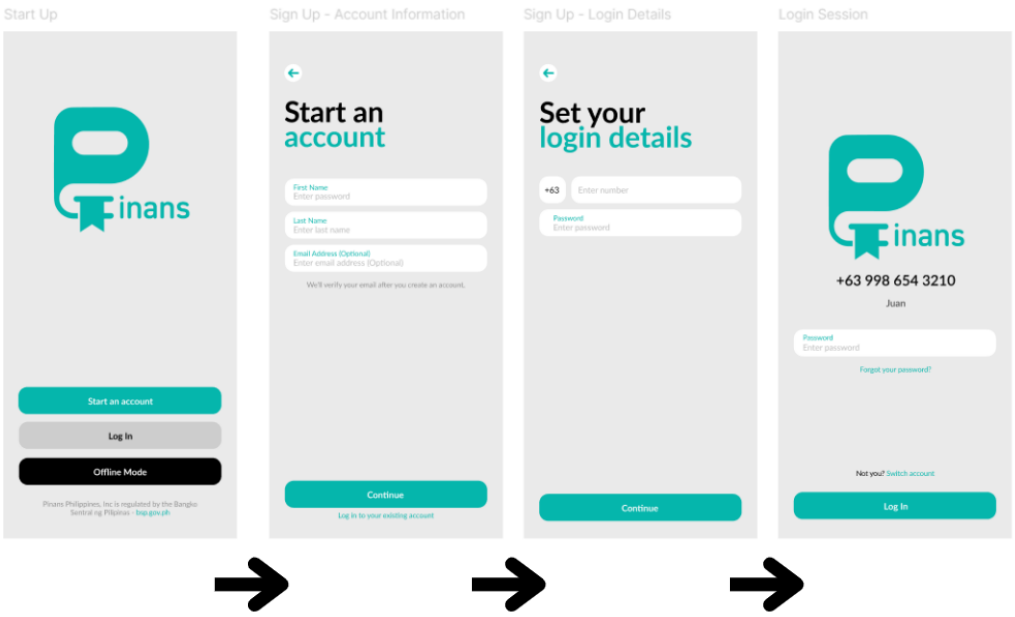

Figure 1: Protype Sign-up

Figure 1 shows the sign-up flow for the application prototype all the way to the login screen before you have access to the content proper.

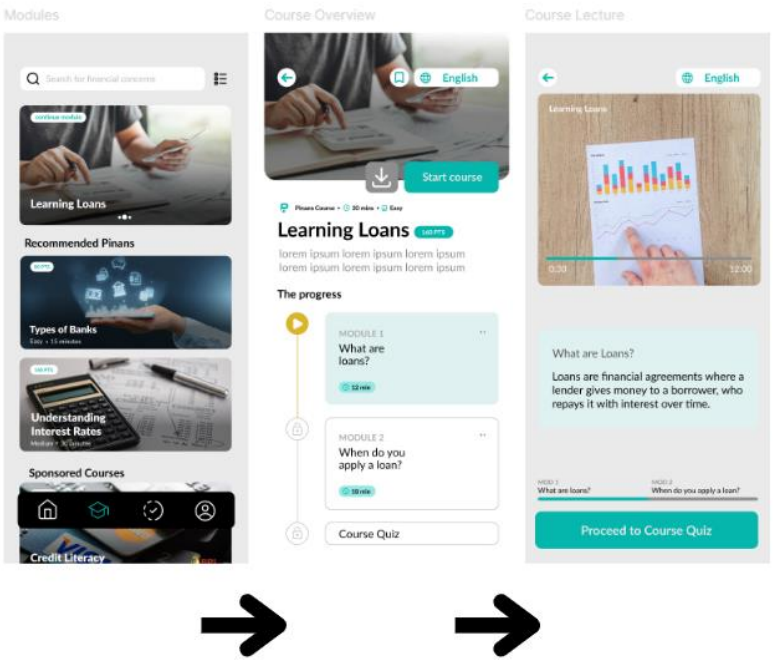

Figure 2.1: Accessing Module Courses

Figure 2.1 show how to access module courses from the modules tab.

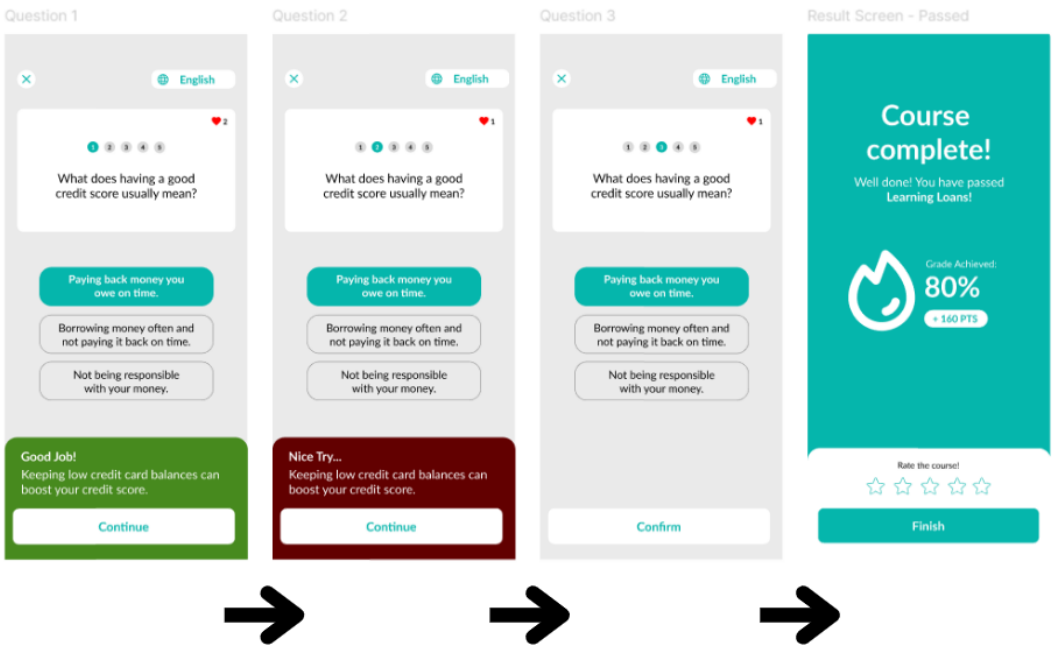

Figure 2.2: Taking Course Quizzes

Figure 2.2 shows the flow of what happens when a user takes a course quiz.

Figure 3: Redeem Rewards

Figure 3 shows the steps a user takes to redeem their rewards in the redeem shop and how to access redeemed rewards in the “my coupons” tab.

D. **Evaluation of prototype**

Evaluation Criteria (Based on the 10 heuristics of design evaluation)

Area of Evaluation	5	4	3	2	1
A. Visibility of System Status - The system design provides appropriate feedback like message prompts in response to user actions.	✓				
- The message prompts are clear, visible and understandable.	✓				
B. Match between the system and the real world - Used words, phrases and concepts according to users' language rather than system oriented words and computer jargons.	✓				
C. User control and freedom - The system design provides ways of allowing users to easily "get in" and "get out" if they find themselves in unfamiliar parts of the system.		✓			
D. Consistency and Standards - The colors, text, labels, buttons and other elements in the design are uniform from start to finish**.**	✓				
- Text and icons are not too small or too big.		✓			
- Menus and other features of the system are arranged and positioned in a consistent way. (For ex. If your website has navigation buttons on the top under the page title on one page, the users will automatically look there for the same features on other pages.	✓				
E. **Error Prevention** - The system design provides an automatic detection of errors and preventing them to occur in the first place.		✓			
- Idiot proofing mechanisms are applied		✓			
F. Help users recognize, diagnose and recover from errors **-** Error messages and the terms used are recognizable, familiar and understandable for the users.		✓			
G. Recognition rather than recall **-** Objects, icons, actions and options are visible for the user. - Objects are labeled well with text and icons that can immediately be spotted by the user and matched with what they want to do.	✓				
H. Flexibility and efficiency of use - The system design provides easy to navigate menus. - the system does not make wasteful time of system resources.	✓				
I. Aesthetic and minimalist design **-**Graphics and animations used are not difficult to look at and does not clutter (mess) up the screen. - Information provided is relevant and needed for the system design.	✓				

J. Help and Documentation -the system design provides information that can be easily searched and provides help in a set of concrete steps that can easily be followed.	✓				

Table 3. Heuristic Evaluation

Chapter III. Conclusion and Recommendation

In conclusion, Pinans is an application that provides motivation for users who wants to gain financial knowledge. Through the reward system within the application, the prototype incentivizes learning and gives users a reason to use the app. The life point system also encourages users to make as little mistakes as possible in order to pass the course and not retake it. A functional quiz that provides feedback to answers is important as users should retain information they gained from courses.

It is worth noting that the prototype does not have a functional backend and database. We would therefore recommend future developers of this application to add these features in order to further personalize the user experience by gathering relevant data.