

Using gamification to promote financial literacy and consumer education among future generations

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Abstract

This paper presents the development and implementation of a gamification initiative aimed at promoting financial literacy and consumer education among basic and secondary school students. Designed to engage students aged between 12 and 18 years old, the game addresses key financial and consumption concepts through interactive gameplay. Originally conceived for students visiting the university, the initiative has garnered interest from both educators and parents, highlighting the growing demand for financial education. In the future, efforts will focus on refining game mechanics, improving material quality, and empowering high school teachers to independently facilitate the game in their classrooms. This inclusive approach aims to equip future generations with essential financial skills to navigate personal finance confidently. This paper also aims to share this experience with other educators interested in the topic, providing insights and guidance for replicating similar initiatives in their contexts.

Keywords: *Financial literacy; consumer education; gamification; financial games; game-based learning.*

1. Introduction

The themes of financial literacy and consumer education are currently at the forefront of societal discussions due to their relevance. Recognizing the impact of financial decisions on individuals and their surroundings there is an increasing emphasis on instilling the notion that informed choices are crucial.

Some authors (e.g. Remnova & Shtyrkhun, 2020, p. 70) suggest that “individuals retain nearly 80 per cent of information through visual perception and practical application, 20 per cent through reading, and merely 10 per cent through listening alone”. As prime examples of active learning methods (Kalmi & Sihvonen, 2021), one of the ways to promote more effective learning is through gamification. These methods involve learning new material through gaming

actions and applying acquired knowledge to real-world situations, with some relevant studies giving special emphasis on the effectiveness of gamification in promoting financial literacy (Ahmed, 2023; Bayuk & Altobello, 2019; Hidajat et al., 2022; Kalmi & Sihvonen, 2021).

This paper explores and presents an initiative of gamification promoted at a Portuguese University. Leveraging the National Plan for Financial Education: 2021-2025, (2022) and drawing upon the expertise in accounting, finance, and marketing, the goal of this game is to contribute to enhanced financial awareness and responsible consumption among the future generation of decision-makers. This initiative, called “*ISCA Family Game*”, was first implemented during the university’s summer academy. Motivated by the need to share these concepts and themes with young individuals, and potential future university candidates, the development of the activity began, aiming to enable them to acquire knowledge through a playful endeavor. The result was a game that aimed to alert young participants to the importance of making intelligent choices in managing finances.

Lifted by the positive reaction and efficacy of the initial experience, the authors, have embarked on an endeavour to expand upon the materials and devise a structured game encompassing fundamental financial literacy concepts and a focus on fostering responsible consumption. This article presents the experience, offering it as an example for other educators or schools interested in implementing similar activities.

2. Development and Operationalization of the Game

This section describes the entire process that led to the implementation of the activity, especially targeted towards youth aged between 12 and 18 years old.

2.1. Conceptualization

The initial phase involved brainstorming sessions to outline the game's name, objectives, mechanics, and educational components. The core financial literacy concepts to be covered were identified and the gameplay elements were designed to reinforce these concepts engagingly and interactively. It was also decided that the name would be ISCA Family Game, ISCA because it's the acronym of the department, and 'Family Game' because we wanted the name to reflect the idea that participants would work on the budget of a family, allowing them to feel related with a real-life situation. With the game's framework established, we proceeded to develop the content, including scenario descriptions, personas representing diverse family dynamics, and financial scenarios. Each element was meticulously crafted to align with the National Plan for Financial Education objectives and ensure relevance to participants.

The game's structure and mechanics were carefully designed to facilitate learning while maintaining an enjoyable experience. We incorporated elements of competition, collaboration,

and decision-making to keep participants engaged throughout the game. Additionally, we ensured that the game progression mirrored real-world financial challenges, providing participants with relatable family examples.

A crucial step involved testing the game successively to evaluate its effectiveness and identify areas for improvement. As we had the first groups participating, feedback was collected and used to refine the game mechanics, clarify instructions, and enhance the overall game experience.

2.2. Implementation

Phase 1. The activity begins with an exploratory quiz (using Kahoot), consolidating essential concepts such as income, fixed and variable expenses, credit, savings, and financial planning. As the participants respond, a teacher—specialist in the field of finance—explains the concepts and addresses any doubts that arise.

Phase 2. Participants, organized into teams, assume the roles of personas (Figure 1) representing diverse family scenarios. These personas encompass various demographics, economic statuses, cultural backgrounds, health conditions, and lifestyle preferences.

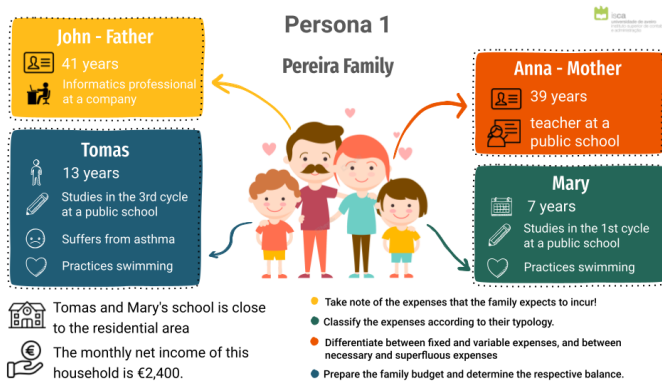


Figure 1. Example of a game's persona.

Then each team is assigned a monthly income and specific expenses, ranging from loan payments and insurance to education, health, transportation, personal, and other relevant categories. Expenses must be classified by type, characterized as fixed or variable, necessary or discretionary, and their periodicity is examined, allowing for monthly and annual analyses (Figure 2). The culmination involves creating a family budget, determining the corresponding balance, and calculating the debt-to-income ratio.



Figure 2. Examples of expenses for a persona.

Phase 3. The game introduces an additional challenge focused on managing a common expense—grocery shopping. Teams are tasked with making conscious choices within a given spending limit, navigating factors such as unit prices, brand differentials, and the impact of promotions on the overall shopping basket. During this phase of the game, one of the marketing instructors engages with the participants, discussing various precautions to consider while shopping. These include always making a list, avoiding shopping on an empty stomach, exercising caution with promotions and package sizes, being mindful of prices by checking the price per kilogram, and verifying the weight of the packaging. These pieces of advice aim to promote conscientious consumer behavior among the participants.

Phase 4. In a subsequent phase, teams evaluate the relationship between income and expenses, identifying potential overlooked costs based on their family characteristics. Unforeseen situations, such as a car breakdown or unexpected medical expenses, add complexity to the decision-making process (Figure 3). The personas are crafted to yield diverse budgetary outcomes, prompting teams to revisit their expenses and make informed choices, whether adjusting consumption habits, selling assets, obtaining credit, or utilizing savings.

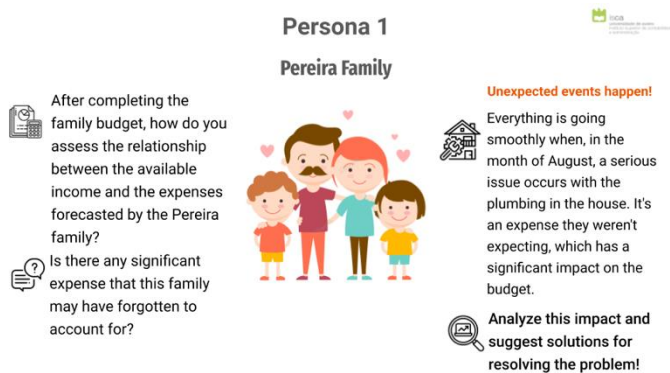


Figure 3. Example of a phase 3 part of the game.

Phase 5. After completing the budgetary exercises, each team is allowed to present their assigned personas and delve into the financial decisions they made during the game. They

discuss the choices they faced, the trade-offs they considered, and the strategies they employed to manage their family's finances effectively. Teams may highlight successful budgeting tactics, challenges they encountered, and any lessons learned throughout the game. This presentation allows participants to reflect on their financial decision-making skills, share insights with their peers and the team, and gain a deeper understanding of personal finance concepts in a collaborative setting.

3. Conclusion

The ISCA Family Game, crafted to be approachable yet closely connected to common family dynamics, stands as a valuable resource for fostering awareness among participants. It provides them with practical knowledge to nurture a more balanced and informed approach to finances and consumption in the years ahead.

The game, initially designed for students visiting our campus, has since last year started receiving requests from basic and secondary schools to implement the activity. In response to these requests, we have begun visiting schools, and to date, we have already impacted more than 300 school students with this awareness activity. Indeed, it seems that there is a growing interest among parents and educators in financial literacy and responsible consumption, and the game makes perfect sense and deserves to continue being developed.

In the future, we envision a comprehensive evolution of this activity. This entails refining the game mechanics to offer a more engaging and immersive experience for participants. We plan to invest in enhancing the quality of materials, focusing particularly on professional design standards to ensure clarity and visual appeal.

Moreover, we aspire to democratize access to financial literacy and consumer education by empowering high school teachers to independently administer the game in their classrooms. By providing comprehensive training and resources, we aim to equip educators with the necessary tools to effectively facilitate meaningful discussions around financial topics.

University professors will transition into a role of providing technical and scientific expertise, collaborating with teachers to develop tailored content that aligns with curriculum objectives and student needs. This shift will foster a more inclusive and sustainable approach to financial education, empowering educators at all levels to cultivate a future generation of financially literate individuals equipped to navigate the complexities of personal finance more confidently.

In terms of scientific research, in the future, comparative studies can be conducted to evaluate the effectiveness of different educational approaches and interventions in promoting financial literacy among youth. This could involve comparing the outcomes of gamified learning experiences like the ISCA Family Game with traditional classroom-based instruction or online financial education courses.

Furthermore, qualitative research methods, such as interviews and focus groups, can be employed to gain deeper insights into participants' perceptions and experiences with financial education initiatives. This could help identify barriers to learning and inform the development of more tailored and effective interventions. Overall, future research in this area can contribute to our understanding of the most effective strategies for promoting financial literacy and consumer education among young people.

Acknowledgements.

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