

Gamification in Accounting Education- Evidence From Logistic Course Experience

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Abstract. *The study's main goal is to indicate the possibility of using gamification in teaching the basics of accounting at a university. The authors implement the gamification model among logistics students at one of the universities in Lodz. The experiment involved the introduction of gamification during the pandemic in 2020 and 2021. The classes were conducted using MS Teams and the Moodle platform. The study is theoretical and empirical. The first part presents the basic theoretical issue related to gamification and gamification in education; the second part shows a case study. The results of the implementation of gamification in teaching accounting are positive. The students showed higher commitment, assessed the classes better, gained additional knowledge, established better interpersonal relationships.*

Keywords: *Gamification, education, accounting*

1. Introduction

The process of teaching accounting is a challenge, especially with students of non-economic faculties. The lecturer and his skills play an essential role here. It is necessary to activate students with the use of new teaching methods, techniques, and tools. Gamification is one tool that maintains students' motivation. It means using the game to encourage them. Gamification is a great tool for developing competencies, awakening the spirit of competition, and guaranteeing scientific progress. Additionally, it enables both individual and group work, which improves

interpersonal relationships. The paper aims to present the role of gamification in teaching accounting to logistics students. The first part of the chapter shows the theoretical problem of gamification and its use in education. The second part of the paper presents two case studies related to individual work and group work. In the conclusions, the authors present the advantages of these models and their differences.

2. Gamification in education – selected problems

The term “gamification” was introduced by the programmer N. Pelling in 2002. This concept was quickly adopted in business and education [1]. In business practice and education, gamification aims to combine real games, advertising games, and games related to changes into a coherent system. This system uses the tools of behavioural psychology and social game success analysis [2]. In other words, gamification is the transfer of a computer game to real life, business, science, where fun is combined with social interactions, and the goal is to achieve a competitive advantage, develop, increase efficiency and effectiveness [3].

The term gamification is defined in various ways, including:

- “The mechanics of gaming to non-game activities to change people’s behavior” [4].
- “The use of game design elements in non-game contexts” [5]
- “The use of game mechanics, dynamics, and frameworks to promote desired behaviors” [6].
- “A business practice. . . a management method. . . [it] does not aim at making real-time business processes a playful game” [7].
- “Gamification engages users and changes their behaviour with the best ideas from games, loyalty, and behavioural economics” [8].
- “In gamification, the elements of games (which are their mechanics) and their design principles (which are their dynamics) are used to solve problems that are not games in themselves but are directed at many different business and non-business processes” [9].
- gamification is “a method of improving employee potential management processes by strengthening their commitment, which has a direct impact on achieving the assumed long-term goals” [10].

Gamification is a broader category than a regular computer game because it is intended for fun and self-development. Moreover, it does not have to be only digital [11]. It should include the description and analysis of the behaviour of gamification participants. Gamification relates to social engineering, and it can be used to change negative habits and routines. It is a useful tool to achieve company goals, including increasing sales, retaining customers, building relationships with suppliers [12].

People used game and gamification methods in the educational process for thousands of years. Elements of gamification, such as competition or teamwork, are the mechanisms that drive people to action. Moreover, the modern grading system derives from ancient mechanisms that allowed students to compare themselves and efficiently provide information about their progress. Gamification motivates pupils and students, encourages them to develop; moreover, its basic benefits include cost-effectiveness, low risk, standardized assessment, increasing student involvement, the appropriate pace of work, faster data and information flow, knowledge transfer, commitment to students and teachers [13].

The components of gamification in education are [14]:

- points which are a type of reward awarded for progress and desired activities along with feedback indicating the reaction of the environment to the player's actions,
- levels, which are an indicator of the player's status (ranking position).

The effectiveness of gamification depends on providing quick and positive feedback, adapting tasks to the level of competencies of participants, giving the possibility of repeating tasks, defining operational goals, defining many ways to reach the goal, using various elements of game mechanics, and encouraging further actions despite ongoing failures [15].

The participants of the gamification can be divided into different groups. One of the typologies includes [16]:

- achievers, players focused on getting how best results and gaining new trophies: points, treasures, badges,
- explorers, or players focused on the exploration of the game, its mechanics, and points rather not them they are interested,
- socializers, players for whom they count the most relationships, contacts with other players. The only manifestation of violence with them the parties may become exposed to when defending someone else,
- killers, players for whom a sense of power over other players is of key importance. They often introduce chaos and profanity to games.

Gamification in education can help to support learning activity [17], increase student involvement [18], encourage homework [19], increase engagement in learning [20].

3. Gamification in accounting education- the case of logistic students

Accounting is one of those subjects that is insufficient in the opinion of many logistics students. On the other hand, accounting education requires from the lecturer knowledge and involvement. Teaching accounting remotely during the Covid pandemic is a particular challenge. Especially when accounting is in the first year of study and the students do not know each other. In 2020 and 2021, we introduced an experiment with teaching accounting to logistics students. We implement gamification both during the lecture and exercises. The gamification met with some anxiety among students and required explaining the advantages of such classes (Fig.1). Gamification was introduced for full-time and part-time students. The long-term students were divided into groups of five, and the part-time students were to work individually. A different approach to these two groups of students was to check whether gamification works better in a group or single work.

We use the MS Teams and Moodle platform. The condition for passing the course was getting a certain number of points during all meetings. In addition, special prizes are provided for the best students and groups of students (the opportunity to participate in additional training in accounting or the opportunity to cooperate in writing a scientific article).

The classes were as follows:

- In the case of full-time students: each class was associated with presenting the purpose of the classes, a short theoretical introduction, and an explanation of examples. Students were given specific theoretical and empirical tasks to be performed in groups. Finally, they presented their research results.
- In part-time students, the classes were conducted similarly, but students worked independently instead of remote work in groups. It was possible to gain a certain number of points during each class, the sum of which gave a specific final grade and position in the ranking. Furthermore, a remote test was carried out to check students' knowledge at the end of the class, including theoretical and empirical parts (Fig.2). Interestingly, the test results: part-time and part-time students were on average 10% better than during classes conducted traditionally. The students' knowledge is not checked regularly, and there is no cooperation, competition, and adequate motivation.

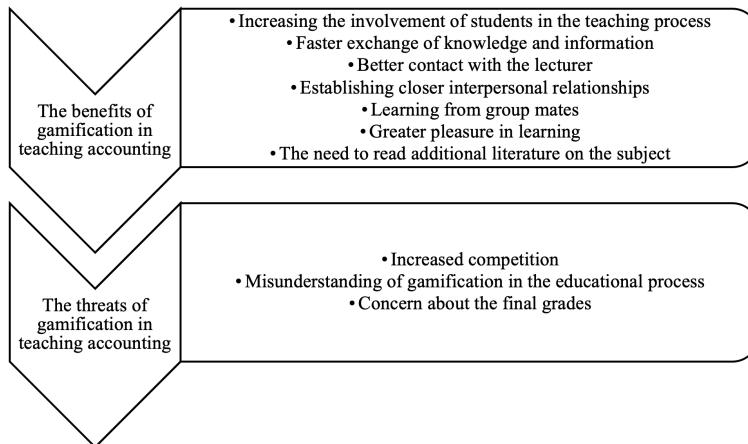


Figure 1. Benefits and threats from the implementation of gamification in the science of accounting in the opinion of students (based on own research).

A questionnaire was conducted at the end of the class to assess how the lecturer conducted the classes. As it turned out, the average grade was higher than in the years in which the classes were conducted traditionally. In addition, the students assessed the better organization of the classes, found that the requirements for students were more readable, there was better contact with the teacher, nobody disturbed anyone during the classes, and participation in the classes contributed to the achievement of the learning outcomes, which were defined and presented to the students during the first classes. In addition, students working in groups were forced to get to know each other and cooperate better, which they also assessed positively. At the same time, they noticed that thanks to cooperation and competition, they were somehow forced to become more involved, to read additional literature on the subject. Moreover, the weaker students took advantage of the knowledge of their colleagues and thus also raised their classifications.

4. Model of gamification implementation in learning the basics of accounting

The experience from the implementation of gamification in accounting classes shows that it is an effective tool for educating students. However, it is necessary to meet certain conditions, ensure the flow of information and knowledge, and thoroughly familiarize students with the mechanism of gamification during teaching. It is necessary to plan the classes and indicate the requirements for students carefully. An example of a gamification model in accounting education is shown in Fig. 3.

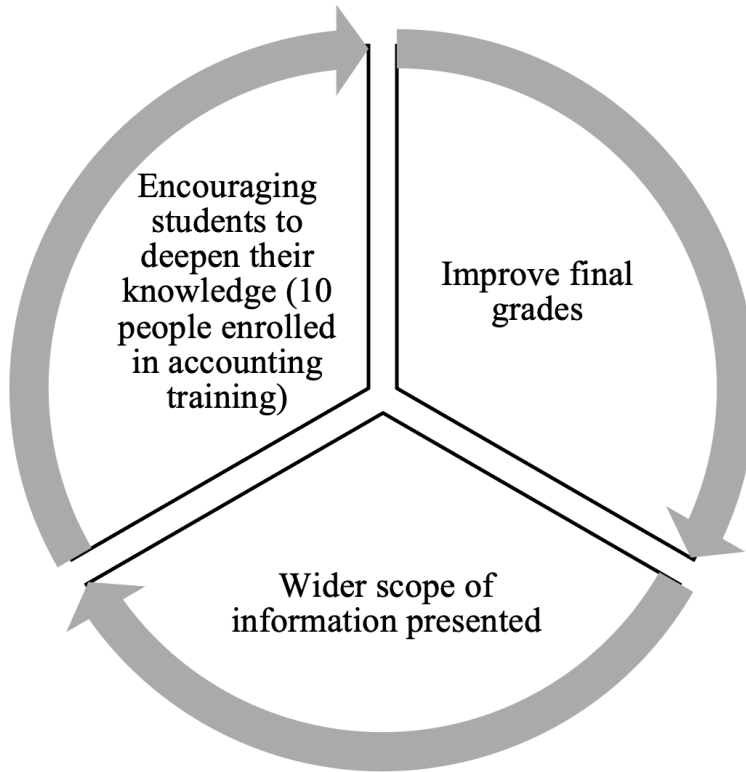


Figure 2. Three key advantages of gamification in teaching accounting based on students' final results (based on own research).

The gamification accounting model should consist of three steps. In the first stage, it is necessary to discuss the content of education, the objectives of the subject, ways of achieving the goal and indicate the advantages of gamification in the education of the subject.

In the second stage, practical use of gamification, classes should be divided into thematic blocks (introduction to accounting, financial statements, accounting operations, cost accounting). Each thematic block should be preceded by a knowledge test, solving practical classes or a case study.

In the third stage, the classes should be summarized, and students should be evaluated. People or groups with the highest ranking should be presented and get the highest grades. It seems that after giving the grades, it is good to talk to students about the course and advantages of such classes.

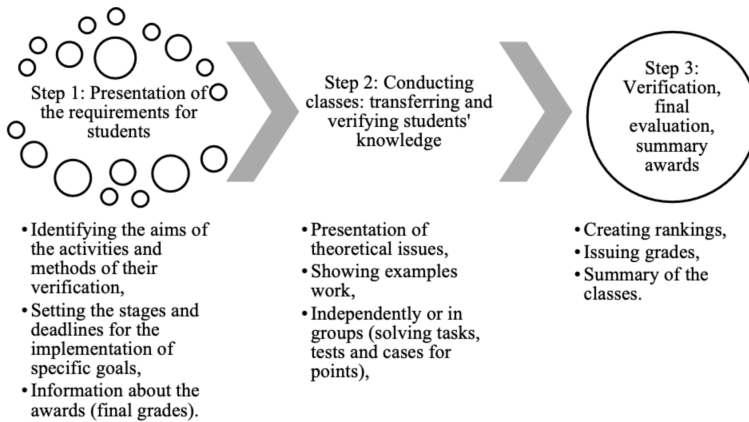


Figure 3. Model of gamification implementation in learning the basics of accounting (based on own research).

5. Summary

Gamification is a modern tool to achieve specific tasks and goals in business and education. Gamification is the use of positive incentives in the form of points and prizes to encourage challenges. The application of elements games is wide, and the positive effects are visible in business, finance, marketing and sales, education, medicine, human resource management, social and ecological programs. Gamification is widely used in education, and it is a motivational tool for learning and broadening horizons. Gamification in education has several advantages, including increasing student involvement, faster knowledge and information, better contact with the lecturer. Moreover, an important element of gamification, especially implemented in group work, is establishing deeper social relations, getting to know colleagues, and exchanging views. Gamification is used in teaching various subjects, including more mathematical subjects, such as accounting. Effective gamification involves setting clear requirements, organising classes, indicating goals, and properly motivating. Well-implemented gamification favours the deepening of knowledge, arouses interest in the subject, and encourages reading additional literature. Undoubtedly, gamification is a tool that is still poorly used at Polish universities. However, it seems to be effective and, despite its disadvantages, increases student involvement. From academic teachers, it also requires meticulousness, greater reliability and is associated with the need to check the knowledge and achievements of students more often.

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