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EVALUATING GAMIFICATION ASSESSMENT IN HIGHER EDUCATION: THE CASE OF QUIZIZZ WITH BLOOM'S TAXONOMY

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Abstract:

Educators are increasingly using games to enhance student participation during classes. This study examines the application of Quizizz, a game-based tool in a finance class utilizing Bloom's Taxonomy framework to collect students' perceptions regarding its effect on their participation, thinking skills, and learning outcomes. Face-to-face online forms were filled out by thirty-two university undergraduates and analyzed for

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responses. The general mean results were quite positive at between 4.13 and 4.50 with standard deviations ranging from .81 to 1.07, which means about 90% to 100% of the responses falling in between neutral and positive responses. Students stated that it made them stay alert as well as enhanced their understanding of financial concepts hence more active participation leading also to critical thinking. Such results prove that teachers have an opportunity through assessment design to inspire learners. Game-based learning can make lessons fun and at the same time very challenging. This study may not have covered a large scope but it can help teachers conduct college courses in an interactive manner such that they would also become more effective.

Keyword:

Bloom's Taxonomy, Gamification, Quizizz, Higher Education, Student Perception

Introduction

In higher education, we are questioning if old-school teaching like lectures is the best way to get through to students. Gen Z grew up with tech, changing how they learn. Teachers are looking for new ways to connect with them (Zainuddin et al., 2020). One method that is catching on is gamification. Platforms like Quizizz make learning interactive and fun by giving students right-away feedback. It uses game elements to make learning more interesting (Zainuddin et al., 2020). In schools, this can get students going, increase involvement, and help them understand the material better by making learning more interactive (Zainuddin et al., 2020; Fitria, 2023). Tools like Quizizz and Kahoot! are liked because they look good, are easy to use, and give quick feedback, pushing people to join in (Razali et al., 2020; Pitoyo et al., 2020). Though it is popular, evidence suggests that most game-based learning activities in higher education have not been well integrated with teaching. They may be classes of mere attentiveness and not thinking classes of students (Zainuddin et al., 2020). Experts recommended the formulation of gamification with learning models such as Bloom's Taxonomy. Bloom's Taxonomy classifies learning objectives from remembering to different levels of thinking skills, analyzing and creating (Zainuddin et al., 2020). Support may be provided by game-based learning for this level of thought through exercises requiring recall, application, problem-solving, and critical thinking.

Platforms such as Quizizz present how digital applications may supplement education. A series of timed recall questions add to memory, quick feedback enhances reflection, points and leaderboards motivate students and sustain their interest in learning (Martin et al., 2020; Taskin et al., 2022). Students often think very quickly in different scenarios to make decisions hence

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involving several levels of Bloom's Taxonomy (Anderson & Krathwohl, 2001). The applications support self-paced learning and error-based learning which will support the development of better thinking skills. Immediate feedback inspires learners to correct errors and do better hence helping skills like evaluation and creation (Yaacob et al., 2024; Ghoulam et al., 2024). Normal game-based tools involve fewer physical skills as indicated in Figure 1 (Harrow, 1972). Also, affective and values (Krathwohl et al., 1964), may be enhanced by gamification, but will not develop through rewards alone. This typically requires conversation, which is outside the scope of what most online tools offer.

Figure 1: Harrow's Taxonomy (Harrow, 1972)

The best way of using game-like in learning is in agreement with developing the ability to think. Teachers are able to design active, involving classrooms where students will be able to learn and develop on complex tasks. Games are capable of enhancing cognitive skills, self-regulation, and long-term memory when performed in the correct manner (Dichev & Dicheva, 2017; Castillo et al., 2022).

Games have been successful in language courses, health courses, and general education (Fitria, 2023). But there is very little information on their application in finance university courses. Finance topics may be challenging because they demand such skills as critical thinking, assessment, and problem-solving. Fundamental understanding is inadequate when it comes to issues of monetary policy and central banking. As per one study, Quizizz is capable of enhancing student satisfaction and facilitating easy tests (Pitoyo et al., 2020; Razali, 2020). Further data is needed to comprehend the perceptions of finance students regarding its value especially when education is to be conducted on equipping multiple cognitive skills. It is imperative to learn how games can be altered to enhance learning in difficult subjects.

According to this paper, games have the potential to be congruent with the Taxonomy developed by Bloom to facilitate cognitive development. Earlier literature tends to talk of how games motivate individuals to learn. This paper suggests that even they could support teaching in cases when they correspond to the learning goals. The study integrates Quizizz with the Bloom cognitive domain to offer a way of developing game-based tests that transcend the introductory engagement to extensive studying. The paper contributes to existing literature on the application of games in the education sector, and this is that it helps in boosting passion and advanced cognitive abilities.

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Research Objectives:

1.To understand the undergraduate students' views on using Quizizz as a fun learning tool in finance.
2. To investigate how Quizizz questions based on Bloom's Taxonomy relate to student participation and thinking skills.
3. To assess how structured gamification impacts what students feel they learn in finance.

Research Questions:

1. What do students think about using Quizizz to learn finance?
2. How does matching Quizizz content to Bloom's Taxonomy affect students' involvement and thinking skills?
3. How does organized, game-based learning affect what students think they've learned in finance?

Research Hypotheses:

H_{01}: Students perceive the use of Quizizz in finance class.
H_{02}: Students likely think that matching Quizizz to Bloom's Taxonomy helps them engage and develop their thinking.
H_{03}: Students are expected to think that organized gamification improves their learning results in finance.

Methodology

This study used a quantitative descriptive design to check what students think about Quizizz as a way to learn and test themselves in higher education, based on Bloom's Taxonomy. This study used a survey to gather students' views on different thinking levels, like remembering, understanding, applying, analyzing, evaluating, and creating.

Study Design

This study was assessed on 32 business students in their third semester at a Malaysian public university. Right after a lecture on the Federal Reserve and Monetary Policy, the class played a learning game. We designed the Quizizz game to match what the course was trying to teach, using Bloom's Taxonomy. Wahid's gamification model from 2018, which includes the Quizizz app, was used in the study. The learning model is shown in Figure 2, and it's made up of Mechanics, Measurement, Behavior, and Rewards.

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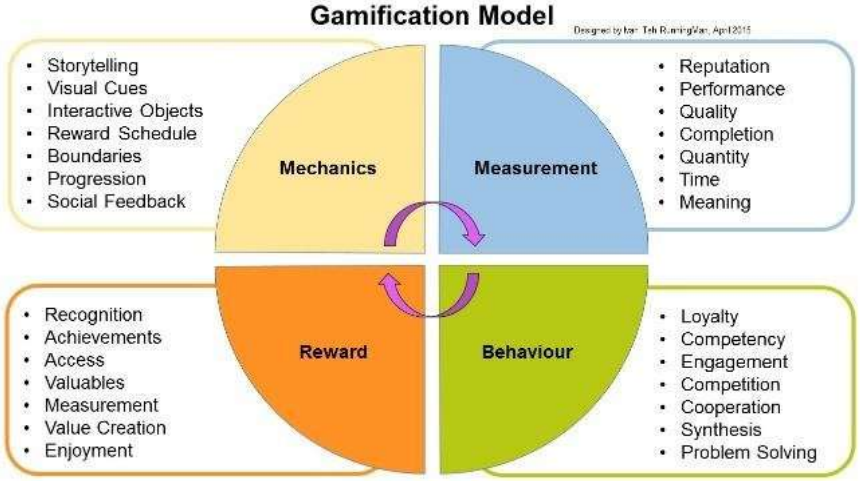

Figure 2: Gamification Model of Learning (Wahid, 2018)

Designing the Quizizz Activity

The Quizizz questions were prepared to match what students should learn in the course. These learning goals were linked to different levels of Bloom's Taxonomy, going from simple memorization to using what they learn. This matching helped the lecturer make questions and teach the class (Table 1).

Table 1: Learning Outcomes, Bloom's Levels, and Example Quizizz Questions

Learning Outcome	Bloom's Level	Sample Question
Define central banking	Remember	"Which best defines a central bank?" (Multiple choice)
Explain functions of central banks	Understand	"Which is a function of a central bank?" (True/False)
Describe monetary policy	Understand	"What does monetary policy aim to influence?" (MCQ)
Apply monetary policy tools in scenarios	Apply	"If inflation rises, which policy tool should be used?" (Scenario MCQ)

Source: Author's Own

The lecturer created questions that were multiple-choice or true/false. To make students think harder, some questions had example situations where students had to break down and use ideas. Images and diagrams were included to make things clearer. Each question was carefully matched with Bloom's level to keep the teaching focused.

Using Bloom's Taxonomy in Quizizz

The Quizizz quiz was made to test different thinking skills, from remembering facts to more involved analysis and assessment. Because Quizizz cannot do open-ended questions, students were given a short writing assignment after the quiz. They had to come up with their own plans about monetary policy strategies based on what was taught. Table 2 shows how the questions lined up with Bloom's Taxonomy levels.

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Table 2: Mapping Bloom's Taxonomy to Quizizz Question Formats

Bloom's Level	Objective Description	Quizizz Question Example
Creating	Coming up with new ideas	Quizizz cannot support this directly, so a short-written reflection was added afterward
Evaluating	Making judgments and decisions	Questions where students had to judge central bank decisions
Analyzing	Breaking things down and comparing	Questions that asked students to compare different monetary policies
Applying	Using what they've learned	Scenario questions where students applied policy tools
Understanding	Explaining ideas in their own words	True/False questions about how monetary policy works
Remembering	Simply recalling facts	Multiple-choice questions on Federal Reserve functions

Source: Adapted from Bloom (1956) and Anderson & Krathwohl (2001)

Conducting Quizizz Activity

In the Quizizz activity, the time limit was set on the per question basis in order to prevent the students rushing through. And it changed the sequence of the questions, this served to prevent excess guessing on the part of people. In there, there were power-ups and leaderboards those gamified aspects. They made it interesting, it seems. It was done in real time within the classroom. In that manner, the students remained alert. The students were given a special code to be a member. The lecturer was observing the progress and responded to all the questions that appeared in the quiz. The instant feedback immediately followed to drive the key points of the lesson home.

Data Collection and Analysis

The reports were immediately generated after the Quizizz session was completed. They demonstrated the performance of all people, bringing out the positive aspects and the areas that students could improve upon. A brief survey was provided to get the opinion of the students regarding it all. It consisted of ten questions, which were distributed on Microsoft Forms. The scale ranged between strongly disagree to strongly agree, which was five points. Some studies in gamification included those questions (Bicen et al., 2018; Humairoh et al., 2022) but changed them slightly to align with business courses and the functionality of Quizizz. The responses were then analysed by using Microsoft tools. Primarily descriptive statistics to learn the levels of engagement, how it improved thinking, and what it did to learning within the finance course in general.

Results and Discussion

The analysis demonstrates that students usually enjoyed using Quizizz to teach and test in higher education. Simple statistics indicated good average scores in all six Bloom levels of cognitive, suggesting Quizizz was effective in assisting them to learn. All this leads to the fact that Quizizz can be a good digital tool to attract students and assist them in learning at any level of all levels of Taxonomy of Bloom used in the college environment. The positive feeling of the lower and mid-levels correlates with the previous studies that have revealed that game-

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based learning enhances the level of retention of facts and the ability to grasp the idea. The results suggest the advantage of a mixed assessment: combining the usage of digital game-based instruments such as Quizizz with the use of papers to achieve complete learning outcomes. This manner of doing it increases the student motivation and addresses all aspects of the Taxonomy of Bloom.

Students' Perceptions of Quizizz's Effectiveness

Data was gathered from all 32 participating students. A large number of them (80%) had used Quizizz before, which probably helped them participate and stay interested. Table 3 shows the average student ratings on the 5-point Likert scale.

Table 3: Students' Perceptions of Quizizz Activity Based on Likert Scale Responses (n=32)

No.	Statement	Average Rating	% (3 to 5)	Mean	Std. Deviation
Section A: Student Engagement					
1	Using Quizizz during lessons made me more engaged and motivated.	4.6	100 %	4.38	0.83
2	I enjoy learning more when quizzes have features like timers, points, or leaderboards.	4.7	100 %	4.28	1.01
3	The gamified nature of Quizizz helped me stay focused during lessons.	4.5	97%	4.34	0.94
4	I am interested in using gamified platforms like Quizizz for future learning.	4.8	100 %	4.50	0.81
Section B: Cognitive Development					
5	Quizizz helped me recall and understand key business concepts better.	4.4	94%	4.13	1.01
6	The Quizizz tasks encouraged me to apply what I learned to real world situations.	4.3	91%	4.13	1.07
7	I was able to analyze and compare different concepts through the quiz questions.	4.2	90%	4.00	1.05
Section C: Topic Learning Outcomes					

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8	The Quizizz activity helped me understand the basic concept and role of central banking.	4.5	97%	4.25	0.95
9	Quizizz helped me explain how monetary policy works and its role in the economy.	4.4	94%	4.19	0.97
10	The quiz questions helped me apply monetary policy tools to different economic scenarios.	4.3	94%	4.16	1.00

The survey data suggests students are receptive to using Quizizz as a game-based learning tool in finance. Average ratings for ten statements ranged from 4.00 to 4.50, with positive responses between 90% and 100%. Students were most keen on using Quizizz in future learning (M = 4.50, SD = 0.81, 100% positive), which points engagement and motivation. These results back H_{01} and answer Research Objective 1, showing students have a good view of Quizizz, as Zainuddin et al. (2020) and Fitria (2023) found that game-based methods raise motivation and involvement.

On cognitive growth, students agreed Quizizz helped them remember and get finance ideas (M = 4.13, SD = 1.01, 94% positive), use them in real situations (M = 4.13, SD = 1.07, 91% positive), and look at different concepts (M = 4.00, SD = 1.05, 90% positive). This shows that using Quizizz with Bloom's Taxonomy boosts involvement and advanced thinking, answering Research Objective 2 and RQ2 and backing H_{02}. These results echo Bloom's (1956) cognitive levels and the revised taxonomy by Anderson and Krathwohl (2001), and match past work by Martin et al. (2020), Taşkın and Kılıç Çakmak (2022), and Yaacob et al. (2024).

About perceived learning results, students gave high marks to understanding central banking (M = 4.25, SD = 0.95, 97% positive), describing monetary policy (M = 4.19, SD = 0.97, 94% positive), and using monetary tools in situations (M = 4.16, SD = 1.00, 94% positive). This confirms that organized game-based learning betters understanding and real use of finance topics, answering Research Objective 3, RQ3, and backing H_{03}, in line with Ghoulam et al. (2024), Dichev and Dicheva (2017), Harrow (1972), and Krathwohl et al. (1964). The results show Quizizz is not just liked by students but also bolsters cognitive growth and learning results, giving proof that fits with earlier studies on game-based learning (Castillo Parra et al., 2022).

Activity Performance

To give insight, student performance in Quizizz was reviewed along with their opinions. This study focused on perceived value using Bloom's Taxonomy, but looking at performance helps understand the survey results. Table 4 shows results by gender. Of 32 students, 24 (75%) were female and 8 (25%) were male. Females had a higher average accuracy (89.58%) than males (77.38%). They also had a higher average total score (M = 11,628.33) compared to males (M = 10,142.50). The difference in performance was less for females (SD = 5.92 for accuracy) than for males (SD = 16.48), which means females were more alike in their accuracy on the Quizizz questions.

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Table 4: Gender Differences in Activity Performance

Gender	N	Mean Accuracy (%)	Std. Deviation Accuracy	Mean Total Score	Std. Deviation Total Score
Female	24	89.58	5.92	11628.33	1310.26
Male	8	77.38	16.48	10142.50	2210.54

Table 5 shows females did better on the Quizizz activity, scoring (89.58%) on average, while males averaged (77.38%). Even though females performed better, both groups had similar positive opinions about the platform. Females rated it (4.56) on average, and males rated it (4.51). This means both genders found Quizizz useful, engaging, and in line with learning goals.

Table 5: Comparison of Activity Performance and Perception Scores by Gender

Gender	N	Mean Accuracy (%)	Mean Perception Score (1–5)
Female	24	89.58	4.56
Male	8	77.38	4.51

Practice Implication

Educators can bring new energy into their classrooms by incorporating game-based quizzes, and a few practical strategies make these tools even more effective. As educators construct quizzes at Quizizz, match the questions with Bloom's Taxonomy. Begin with easy questions that solidify simple memory then increase in challenge with real life situations that allow students to practice the acquired knowledge. Add some tasks that will provoke them to compare and judge their decisions and reasons. Since the Quizizz cannot support an open-ended question, educators can have the quizzes paired with small writing tasks or group discussions to reach the level of the highest order.

Combining quizzes with game activities with reflective or writing activities makes students plunge deeper into the process and allows them to form meaningful connections to be able to memorize. Arrange the activities in a stepwise process of recall, application, and reflection, and bring the learner along a line of simple knowledge to deeper reasoning. It is exactly what the Bloom model does.

Conclusion

The study revealed that students in the university preferred to use Quizizz in their finance course. Quizizz kept them engaged. Assisted them with their learning objectives. The students reported that Quizizz was entertaining, as well as it made them remain motivated. This is what other people discovered (Zainuddin et al., 2020; Fitria, 2023) that highlighted the fact that games are motivational. It was also established by other researchers (Razali et al., 2020; Pitoyo et al., 2020) that things that are fun that people pay attention to. An example of this is Quizizz since it involves game-like functionality as a method of keeping students at the university concentrated in their finance course. The paper examined the ways in which Quizizz can be related to the Blooms Taxonomy. It discovered that game-based learning assists students to get

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smarter. It assists them in getting out of memory to thinking about things. This concept is comparable to that of Bloom in 1956 and that of Anderson and Krathwohl (2001). It is also evidenced by (Martin et al., 2020; Taskin et al., 2022) that students think about things when they play games. The Quizizz can also be viewed as one of its examples since it is a game that allows students to learn and think about Quizizz.

Students also reported that playing games with rules assisted them in learning about money such as how the how monetary policy of central banking works. What they mentioned is not different to what other individuals discovered such as (Ghoulam et al., 2024; Dichev and Dicheva, 2017) who said that well-made games can indeed assist people in understanding and memorizing things. The students who are experienced as well concur with Castillo et al. (2022) about the fact that people can learn things through games. Be entertaining simultaneously, which is what finance games, such as these are attempting to do with finance issues.

Meanwhile, the research had significant weaknesses. It was conducted among 32 financial students in one institution which is not easy to generalize the findings. The study was conducted on a single topic, and therefore, it is not clear whether Quizizz would be as effective in other disciplines. Besides, the use of surveys to give only perceptions on the results of the learning and the period of time a study took restricted the conclusion to any long-term effects.

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Author Contribution Statement: Author 1 led the conceptualization of the study, developed the research framework, and drafted Chapter for Introduction and Chapter 3 Methodology. Author 2 carried out the literature review and drafted Chapter 2 (Literature Review). Author 5 was responsible for data collection, data preparation, and drafting Chapter 4 for Results. Author 3 conducted the data analysis and contributed to Chapter 4 (Results) and Chapter 5 (Discussion). Author 4 integrated all chapters, refined the discussion and conclusions, and performed critical revisions of the full manuscript. Author 6 provided industry insights and supported the interpretation of findings, particularly for Chapter 5.

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IJMOE
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References

Anderson, L. W., & Krathwohl, D. R. (Eds.). (2001). A taxonomy for learning, teaching, and assessing: A revision of Bloom's taxonomy of educational objectives. Longman.

Bloom, B. S. (1956). Taxonomy of educational objectives, handbook: The cognitive domain. David McKay.

Bicen, H., & Kocakoyun, Ş. (2018). Perceptions of students for gamification approach: Kahoot as a case study. International Journal of Emerging Technologies in Learning (iJET), 13(2), 72. https://doi.org/10.3991/ijet.v13i02.7467.

Castillo-Parra, B., Hidalgo-Cajo, B. G., Vásconez-Barrera, M., & Oleas-López, J. (2022). Gamification in higher education: A review of the literature. World Journal on Educational Technology: Current Issues, 14(3), 797–816.

Dichev, C., & Dicheva, D. (2017). Gamifying education: What is known, what is believed and what remains uncertain: A critical review. International Journal of Educational Technology in Higher Education, 14(1), 9. https://doi.org/10.1186/s41239-017-0042-5.

Fitria, T. N. (2023). The impact of gamification on students' motivation: A systematic literature review. LingTera, 9(2), 47–61. https://doi.org/10.21831/lt.v9i2.56616.

Ghoulam, K., & Bouikhalene, B. (2024). Evaluating the impact of gamification on cognitive skills development in higher education: A case study electronics and sensors learners. International

Research Journal of Science, Technology, Education, and Management, 4(2), 96–109. https://doi.org/10.5281/zenodo.12730409.

Harrow, A. J. (1972). A taxonomy of the psychomotor domain: A guide for developing behavioral objectives. McKay.

Humairoh, M., & Hakiki, N. (2022). Junior high school students' engagement in gamified learning experiences through Quizizz. CLLiENT (Culture, Literature, Linguistics, and English Teaching), 4(1), 17–40. https://ojs.unsiq.ac.id/index.php/cllient/article/view/3389.

Krathwohl, D. R., Bloom, B. S., & Masia, B. B. (1964). Taxonomy of educational objectives: The classification of educational goals. Handbook II: Affective domain. David McKay Company.

Martin, F., Wang, C., & Sadaf, A. (2020). Facilitation matters: Instructor perception of helpfulness of facilitation strategies in online courses. Online Learning, 24(1), 28–49. https://doi.org/10.24059/olj.v24i1.1980.

Pitoyo, M. D., Sumardi, & Asib, A. (2020). Gamification-based assessment: The washback effect of Quizizz on students' learning in higher education. International Journal of Language Education, 4(1), 1–10.

Razali, N., Nasir, N. A., Ismail, M. E., Sari, N. M., & Salleh, K. M. (2020). Gamification elements in Quizizz applications: Evaluating the impact on intrinsic and extrinsic student's motivation. IOP Conference Series: Materials Science and Engineering, 917(1), 012024.

Taşkın, N., & Kılıç Çakmak, E. (2022). Effects of gamification on behavioral and cognitive engagement of students in the online learning environment. International Journal of Human–Computer Interaction, 39(17), 3334–3345. https://doi.org/10.1080/10447318.2022.2096190.

Wahid, Siti & Wahid, Binti. (2018). The Effectiveness of Gamification in Improving Student Performance for Programming Lesson.

International Journal of Modern Education
IJMOE
EISSN: 2637-0905
Volume: 8 Issue: 29 (March 2026) PP. 66-78
Yaacob, M. H., Zainuddin, N. A. F., & Rohani, N. H. (2024). Exploring gamification as a tool to enhance financial literacy and improve financial behavior. Jurnal Pengurusan, 72. https://doi.org/10.17576/pengurusan-2024-72-5.

Zainuddin, Z., Shujahat, M., Haruna, H., & Chu, S. K. W. (2020). The role of gamified e-quizzes on student learning and engagement: An interactive gamification solution for a formative assessment system. Computers & Education, 145, 103729. https://doi.org/10.1016/j.compedu.2019.103729.