ISSN (Print): 2788-8320 ISSN (Online): 2788-8339

JOURNAL OF SOCIAL RESEARCH DEVELOPMENT
www.jsrd.org.pk editor@jsd.org.pk

THE IMPACT OF GAMIFICATION ON PRIMARY SCHOOL STUDENTS MOTIVATION AND CONCEPT BUILDING

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KEYWORDS

Gamification, Primary School Students, Motivation, Concept Building

ARTICLE HISTORY

Date of Submission: 22-01-2025
Date of Acceptance: 28-02-2025
Date of Publication: 03-03-2025

ABSTRACT

This study examines the impact of gamification on primary school students' motivation and concept building in Lahore. Gamification is defined as the integration of game design elements in non-game contexts to enhance user engagement and motivation. The aim of this research is to evaluate how gamification impacts students' learning experiences & their understanding of complex concepts. The study employs the quantitative research design utilizing causal-comparative survey methodology. The population consists of all primary school Students enrolled in the public and private schools in Lahore. To select a sample of 400 students, the stratified random sampling technique was used, with equal representation from five public and five private schools. Findings indicate that gamification significantly enhances student motivation & engagement, leading to improved concept building. In this regard, the results revealed that students perceived gamification as a fun and engaging way to learn, which fosters a sense of accomplishment and increases their confidence in understanding of the material. Thus, this study concluded that effectiveness of gamification in educational settings, further suggesting that it can be the powerful tool for enhancing student learning experiences.

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DOI https://doi.org/10.53664/JSRD/06-01-2025-07-80-92

INTRODUCTION

The gamification within learning in primary schools is a phenomenon that is getting more and more attention in the field of education. This concept combines game elements into learning to increase student involvement, motivation, and learning outcomes (Jaramillo, Basantes, González & Martín, 2024). By taking advantage of interesting and fun game characteristics, gamification has opened up new prospects in creating a dynamic and effective learning environment (Wu, 2023). In primary

schools, gamification has made positive contribution to enriching traditional teaching methods and providing a more pleasant learning experience for the students (faculty of science and technology). Through this approach, educators can change the learning paradigm to be more collaborative and interactive and provide challenges that inspire students' emotional, cognitive, and social change. One of foremost aspects of gamification in learning in primary schools is the application of game principles into learning activities (Wu, 2023). In games, there are elements such as clear goals, rules that can be followed, interesting challenges, direct feedback, and prizes and rewards. By applying these elements into the learning context, the students can create a more interesting and motivating learning experience.

The students can use a point or score system to provide direct feedback on student achievement, or adopt level system mechanism to increase the level of exertion along with student learning progress (Banjari, Alsaeed & Alkhalaf, 2023). The information and communication technology universality and our growing dependence on it, is changing that how education is conducted. As digital natives, today's students have unique learning preferences, mindsets, and expectations for their education. The active learning and new pedagogical paradigms can be smoothed by employing contemporary teaching methods and strategies supported by ICT, as educational landscape is changing quickly which can provide the sense of accomplishment. Thus, one such strategy that has gained popularity recently in the fields other than education is gamification (Aura, Majuri & Koivisto, 2022). Giving students a "golden star" is the common practice in many classes, demonstrating the long-standing usage of gamification in the early childhood development. Usually, the gamification employs game elements and design, like leaderboards and badges to make the non-gaming activities as enjoyable as well as engaging.

It can make learning activities more meaningful, active, and participating and is now fast-growing part of many teaching activities and classroom in close connection with the labels like educational games, serious games, and gameful design amongst others (Aura et al., 2022). The gamification is a technique that can help students of all the ages feel proud of their accomplishments (Bai, Hew & Huang, 2020; Zhan, Wu & Zhang, 2022). Therefore, gamification frequently necessitates breaking down long-term success goals into numerous smaller goals so that learners can concentrate on the subsequent link in the chain and receive real-time feedback as they do each task. In this linking, one of the strongest justifications for gamification in education is the speed with which the learners receive feedback, which is the crucial element of learning even in the absence of any attempts to integrate game design. Using aspects of game design, learners can receive additional reinforcement through the feedback mechanisms (Majuri, Koivisto & Hamari, 2018). However, if the students' ICT skills are not adequate, the students can use simple tools to implement gamification procedure in classroom learning.

What must be remembered are several key points such as using clear learning objectives, right concept, and being able to build students' engagement in learning so that learning is more amusing. The first thing needed is willingness to learn and use technology, not that this is limited to students from the younger generation, but across generations as well (Majuri, Koivisto & Hamari, 2018). The students can access many videos about gamification on the video-sharing sites like YouTube. There,

various practitioners attempt to explain the concept. After that, the students can start designing the gamification learning method (Jaramillo, Basantes, González & Martín, 2024). This study explores impact of gamification on primary school students' motivation and concept building, highlighting its potential benefits and challenges such as competition, achievement, and progress tracking. They can choose several elements to be adopted. impact of gamification on primary students' concept-building? difference between perception of public and private primary school students regarding gamification's effectiveness?

Research Objectives

1. To examine the effect of the gamification upon the primary school students' motivation.
2. To assess the gamification's impact upon primary students' concept building in the schools.
3. To compare the public & private school students' perceptions of gamification's effectiveness.

Research Questions

1. What is the effect of gamification on the primary students' learning motivation in schools?
2. What is the impact of gamification upon primary students' concept building in the schools?
3. What is difference amid perception of public & private school students about gamifications?

LITERATURE REVIEW

The purpose of gamification is not to completely consist of virtual games, but to gamify sports over some sport-primarily based factors inclusive of badges, avatars, digital points, tales, leaderboards, ranges, challenges, awards (Manzano, Camacho, Martínez, Díaz, Martín & Aguaded). Gamification makes use of aesthetics, mechanics, and inquisitive from player's factor of view to engage students and peddle the gaining knowledge of and trouble-solving (Putz, Hofbauer & Treiblmaier). The use of elements towards gamification promotes students' engagement and motivation inside classroom, and promotes learning outcomes (Sailer & Homner, 2020). The gamification use in education can expand engagement by means of reworking tasks into games that inspire the students over rewards when they prevail and can inspire ideal behavioural changes. The principal distinction between the education and gamification is that gamification does not require whole virtual game layout (Seaborn & Fels, 2015), which is benefit from financial arrogance. Any other benefit of gamification is that numerous rudiments of game design can be implemented and used in simple digital tools in conjunction with quiz equipment and learning control system (Smiderle, Rigo, Marques, Coelho & Jaques, 2020).

In the contemporary era of globalization, the rapid development of technology and communication technology renders distance as no longer an obstacle to get information from various parts of the world as several technological developments are available readily. With progression of technology and time, humans have developed ways to communicate through the variety of tools or platforms. One of them is achieved through a means of refreshment, such as playing online games which itself has a big impact on the world of education. In this regard, the internet-enabled tablets, laptops, and smartphones allowed people to play games together by speaking with someone on opposite side of globe in the real-time (Yildiz, Hasan & Ali, 2021). Thus, the literature revealed that games possess considerable motivational power (Figueiredo & García, 2020). These games utilize a series of tools

to Motivation. Recently, gamification has gained prominence in a number of scenarios (Buckley & Doyle, 2016). In this connection, gamification is use of game-based aesthetics, mechanics, and game thinking to motivate action, engage people, solve problems and promote learning (Kapp, 2012). The features of video games, such as game dynamics and mechanics, are used in the application of the gamification. These characteristics can also be used in non-gaming circumstances (Simões, Redondo & Vilas, 2013).

Importantly, gamification is distinct from use of computer games in educational settings, as noted by Squire (2003). It's crucial to remember that gamification of learning has ability to increase student engagement & significantly improve learning in the classroom (Buckley & Doyle 2016). Thus, this highlights the standing of gamification in creating a welcoming learning environment. According to Zichermann and Linder (2013) and Zichermann and Cunningham (2011), gamification is also seen by many academics as novel and promising concept that can be applied in a variety of settings. Teachers struggle to come up with innovative ways to engage and inspire their students in order to capture their interest and divert them from video games, other social media & mobile applications (Dicheva, Dichev, Agre & Angelova, 2018). Notably, gamification increase students' motivation and engagement while offering an auspicious design for educational interventions. Gamification of learning is a process that increases engagement of learning attempts by including game mechanics and design elements (Smiderle, Rigo, Marques, Coelho & Jaques, 2020). Thus, educational systems that solely focus upon the teaching using conventional methods and approaches have produced the passive learners.

Given the growing influence of social media apps and gaming tablets upon students' life, educators must adapt their traditional teaching methods. However, the emphasis of these platforms is on class administration and reward systems, and they are aimed at the K–12 education (Dicheva et al., 2018). Still, the grade craft platform is the only general gamification platform available at the university level (Yildiz, Hasan & Ali, 2021). Interestingly, the grade craft concentrates on choosing learning tracks within a course and grading. Furthermore, one of the learning management systems, Moodle, offers the well-known gamification elements. The researchers claimed that without specifying the behavior of game components, students can only select them for usage by the entire class (Simões, Redondo & Vilas, 2013). The researchers also noted that gaming elements have been used in the past to enhance online learning systems by converting grades to scores, awarding points for certain actions that the system encourages, and using the points to award specific badges. Pointification is another term for this gamification process. In this linking, Alsawaier (2018) observed in the several research that following the presentation of the game components, along with the learners' levels of engagement skyrocketed.

To be more specific, it has been investigated for sake of theoretical foundations used in gamification research, the participants' ages, gamification content, and findings. The studies mentioned in review employed only components of the video games and found that gamification boosts learners' task motivation and engagement (Antonaci, Dagnino, Bellotti, Berta & Mayer, 2019). The researchers argued that decline in intrinsic motivation ensues due to fact that students' primary psychological wishes are not being satisfied sufficiently in their training (Arufe, Lopez & Rodriguez, 2022). The

intrinsic motivation flourishes when a hobby satisfies a man or woman's fundamental mental desires (competence, autonomy & relatedness) in preference to while it is carried out due to some separable external result, includes strain (Arifudin, Sumarmi & Rukayah, 2021). The competence denotes to mastering feeling, autonomy and commitment in performing tasks, while relatedness is a feeling of connection with others. To inconsistent decline in intrinsic motivation, researchers tested methods to realize students' primary mental needs and henceforth adoptive intrinsic motivation (Antonaci, Dagnino, Bellotti, Berta & Mayer, 2019). The conventional school settings do no longer continually create need-supportive gaining of knowledge that foster students' needs for psychological needs (Ryan & Deci, 2020).

The motivational values have protected constructs along with dispositions, intrinsic motivation, attitudes, alternatives, confidence, engagement, and self-efficacy (Sailer & Homner, 2020). Thus, understanding the demanding situations can assist to gain deeper insight into manner to practice gamification to ably expand students' intrinsic motivation. It itemized the influence of gamification on the students' affective values, results that they examined toward perceived gaining knowledge, learner self-efficacy, apparent use, and related attitude (Lamrani & Abdelwahed, 2020). A key component of this type of motivation is the ability to achieve the excellence and surpass others. To summarize these factors, which can be often cited in the literature, mechanics is described because the toolbox of gamification and allows gamification to paintings (Werbach & Hunter, 2012). The rewards, avoidance elements, status signs, duties, and policies are amid these mechanics. Dynamics refers to feelings and reports inside the method (Jang, Park & Kim, 2015). Esthetics, like dynamics, expresses the feelings and feelings skilled by using the character in the technique (Zichermann & Cunningham, 2011).

RESEARCH METHODOLOGY

This study used quantitative design with causal-comparative survey. A causal-comparative design explores cause-and-effect relationships by comparing groups with different behaviors, features, and outcomes. In this study, population contained all the primary school Students enrolled in the public and private primary schools of Lahore. This study employed a stratified random sampling technique by dividing the population into two strata: public and private schools. From each stratum, two sectors were randomly selected to form the sample. This approach ensured equal and balanced representation of both public and private schools, enhancing the reliability and generalizability of the findings.

In this study, a total of 400 primary school students were selected as participants, comprising 200 students from public schools and 200 Students from private schools. The sample was drawn from 5 public schools and 5 private schools to ensure diversity and representation in the data collection process. In this study, the data was collected through questionnaires, personally distributed by the researcher to ensure the high response rate and clarify the participants' doubts, fostering personal engagement. The data was analyzed using descriptive and inferential statistics using SPSS software. Thus, the questionnaire's validity was assessed over expert opinion. For reliability, a pilot test was conducted. A sample of 52 Students was taken from 1 primary and 1 public school to for the purpose of reliability.

Table 1 Validity and Reliability

Scale	Cronbach Alpha	Number
Gamification	.871	24
Motivation	.342	14
Wellbeing	.884	14

RESULTS OF STUDY

These descriptive statistics are used to describe basic features of data in study which are considered as leading properties of data set. The descriptive statistics are used for formal inferences that are made for reaching the desired conclusion (Evans, 2004). The data set comes from the sample while sample comes from entire population. It summarizes data organized by relating relationship amid variables in sample and population. The following table shows frequencies standard deviation, and means of variable under considerations. The mean scores for each scale were obtained by summing and averaging items.

Table 2 Students' Perceptions of Accomplishment

	N	Minimum	Maximum	Mean	SD
Gamification inspires my students to strive for success.	400	1.00	5.00	3.30	1.61
It drives Students' progress and improvement.	400	1.00	5.00	2.84	1.41
It gives Students clear goals to work toward.	400	1.00	5.00	3.38	1.26
Collecting successes keeps students engaged & excited.	400	1.00	5.00	3.58	1.23
It drives Students' progress and improvement.	400	2.00	5.00	4.02	.885
Gamification inspires Students to reach new learning.	400	1.00	5.00	3.72	1.14

Table 2 reveals Students' perceptions of gamification's role in fostering a sense of accomplishment in their learning. The students agreed that gamification drives their progress and improvement most strongly (M = 4.02, SD = 0.885), while finding it engaging through the collection of achievements (M = 3.58, SD = 1.23). It moderately inspires Students to reach new learning levels (M = 3.72, SD = 1.14) and provides clear goals (M = 3.38, SD = 1.26). However, the perception of gamification encouraging success was slightly lower (M = 3.30, SD = 1.61). These results suggest that the gamification positively impacts motivation and engagement, albeit with varying levels of the influence across the different areas and contexts.

Table 3 Students' Perceptions of Time Management

	N	Minimum	Maximum	Mean	SD
Students stay engaged without losing track of time.	400	1.00	5.00	3.95	1.12
Gamification tasks help student balance learning & play.	400	1.00	5.00	3.92	1.19
Gamification tasks help student balance learning & play.	400	1.00	5.00	3.83	1.20
Gamification tasks break down learning in manageable time segments.	400	1.00	5.00	3.86	1.13
Gamification allows creative time use, making learning fun and effective.	400	1.00	5.00	3.63	1.32
It helps Students develop discipline for completing tasks efficiently.	400	1.00	5.00	3.82	1.25

Table 3 illustrates Students' perceptions of time management facilitated by gamification in their learning. Overall, Students agreed that gamification helps them stay engaged without losing track of time (M = 3.95, SD = 1.12) and balances learning with play effectively (M = 3.92, SD = 1.19). Students also perceived that gamification tasks break down learning into manageable segments (M = 3.86, SD = 1.13), help them develop discipline for task completion (M = 3.82, SD = 1.25). While gamification was slightly less strongly associated with productive time use in making learning fun and effective (M = 3.63, SD = 1.32), the findings suggest that it supports effective time management and structured learning engagement.

Table 4 Students' Perceptions of Reward Responsiveness

	N	Minimum	Maximum	Mean	SD
It provides feedback that guides Students to improve.	400	1.00	5.00	3.95	1.12
Rewards motivate Students to stay focused on key ideas.	400	1.00	5.00	3.92	1.19
Gamification climaxes areas for upgrading over rewards.	400	1.00	5.00	3.83	1.20
Rewards push Students toward mastering new concepts.	400	1.00	5.00	3.86	1.13
Feedback from rewards helps students track their progress.	400	1.00	5.00	3.63	1.32
Students feel supported in staying focused on concepts.	400	1.00	5.00	3.82	1.25

Table 4 shows that Students perceive rewards in gamification learning as motivating & supportive. Gamification provides feedback for the improvement (M = 3.95), highlights areas to work on (M = 3.83), and encourages mastering concepts (M = 3.86). Rewards help maintain focus on key ideas (M = 3.92) and progress tracking (M = 3.63). Overall, rewards significantly enhance motivation and learning progress.

Table 5 Students' perceptions of playfulness

	N	Minimum	Maximum	Mean	SD
Gamification makes learning engaging and fun for Students.	400	1.00	5.00	3.50	1.01
It sparks student curiosity, thoughts to explore new concepts.	400	1.00	5.00	3.68	1.27
Gamification tasks inspire students to think and discover ideas.	400	1.00	5.00	3.56	1.40
It adds mystery, keeping students excited to learn comes next.	400	1.00	5.00	3.47	1.30
Gamification helps students build & strengthen their concepts.	400	1.00	5.00	3.62	1.15
It allows Students to explore concepts spontaneously.	400	1.00	5.00	3.60	1.28

Table 5 shows that Students perceive gamification as enhancing playfulness in learning. It sparks curiosity (M = 3.68), encourages creativity (M = 3.56), supports spontaneous exploration (M = 3.60), and strengthens concept understanding (M = 3.62). Gamification also makes learning engaging (M = 3.50) and adds excitement through mystery (M = 3.47). Overall, it fosters creativity, curiosity, and fun in learning.

Table 6 Students' Perceptions of Intrinsic Motivation

	N	Minimum	Maximum	Mean	SD
I enjoy learning new things.	400	1.00	5.00	3.64	1.24643
I feel excited when I understand a difficult concept on own.	400	1.00	5.00	3.53	1.04730
I study because I genuinely want to learn.	400	1.00	5.00	3.48	1.35986
I find the learning process enjoyable.	400	1.00	5.00	4.03	1.02048

I feel satisfied when I figure out solutions without any help.	400	1.00	5.00	3.6550	1.23279
I like to explore topics related to what I'm learning in class.	400	1.00	5.00	4.0425	1.01156
I feel motivated to learn because it helps me grow.	400	1.00	5.00	3.9675	1.22072

Table 6 highlights student perceptions of intrinsic motivation in learning. Students strongly agreed that they enjoy exploring related topics (M = 4.04, SD = 1.01) and find the learning process enjoyable (M = 4.03, SD = 1.02). They feel motivated to learn personal growth (M = 3.97, SD = 1.22), satisfied when solving problems independently (M = 3.66, SD = 1.23). They enjoy learning new things (M = 3.64, SD = 1.25), feel excited when understanding difficult concepts independently (M = 3.53, SD = 1.05). Findings suggest that students are intrinsically motivated, valuing learning for personal satisfaction and growth opportunities.

Table 7 Students' Perceptions of Extrinsic Motivation

	N	Minimum	Maximum	Mean	SD
I study to get good grades.	400	1.00	5.00	3.2625	1.39048
I put effort into learning because I want to please others.	400	1.00	5.00	3.7750	1.12362
I only work hard when there is a reward.	400	1.00	5.00	3.4875	1.31498
I learn because I want to avoid negative like bad grades.	400	1.00	5.00	4.0325	1.31559
I am motivated to study since it will help attain success.	400	1.00	33.00	3.9275	1.72327
I focus on learning because I want to meet expectations.	400	2.00	5.00	4.3050	.88823
I complete assignments since needed to have recognition.	400	1.00	5.00	3.5050	1.31503

Table 7 shows students' perceptions of extrinsic motivation as students agreed to focus on meeting expectations of others' (M = 4.31) and avoid bad grades like the negative outcomes (M = 4.03). The motivation for success was notable also (M = 3.93). The moderate agreement was found for pleasing others (M = 3.78), seeking approval (M = 3.51), and working for rewards (M = 3.49), studying for decent grades was less emphasized (M = 3.26). Motivation stems from evading failure, external expectations and future aspirations.

Table 8 Students' Perceptions of Concept building

	N	Minimum	Maximum	Mean	SD
Success boosts confidence in understanding.	400	1.00	5.00	4.0275	1.31951
It encourages engagement and deeper understanding	400	1.00	5.00	3.8250	1.12139
The viable element keeps students focused on concepts.	400	1.00	5.00	3.5075	1.31311
Gamification builds friendly, concept-focused situation.	400	1.00	5.00	3.9950	1.33583
It highlights the value of mastering concepts.	400	1.00	5.00	4.1425	.94043
It motivates Students to master key ideas.	400	1.00	5.00	3.4975	1.32264
Visual aids abridge complex concepts for better holding.	400	1.00	5.00	4.0300	1.31660

Table 8 presents student perceptions of concept building in gamification learning, students strongly agreed that success boosts their confidence in sympathetic (M = 4.03) and that mastering concepts is highly valued (M = 4.14). They also felt that the gamification fosters a friendly, concept-focused environment (M = 3.99) and simplifies complex concepts through visual aids (M = 4.03). Moderate agreement was found for competitive element keeping students focused on concepts (M = 3.51) and

motivating them to master key ideas (M = 3.50), gamification enhances engagement, understanding, and retention of concepts.

Table 9 Students' perceptions of Concept building

	N	Minimum	Maximum	Mean	SD
Collaborative activities help learning & idea exchange.	400	1.00	5.00	3.6000	1.24050
Real-world examples link concepts to applications.	400	1.00	5.00	3.6075	1.23582
Repetition reinforces initial understanding & clarity.	400	1.00	5.00	3.6025	1.23422
Curiosity-driven tasks inspire independent exploration.	400	1.00	5.00	3.6075	1.23582
Interactive tools make learning concepts fun & notable.	400	1.00	5.00	3.5300	1.27206
Step-by-step explanations enhance clarity & command.	400	1.00	5.00	3.6100	1.23560
Feedback on progress refine understanding and mastery.	400	1.00	5.00	3.6100	1.23560

Table 9 reveals that the students moderately agreed on the effectiveness of various strategies for concept building. The collaborative activities, real-world examples, repetition, as well as curiosity-driven tasks were all seen as promoting engagement and understanding (M = 3.60–3.61). Interactive tools and step-by-step explanations also contributed to clarity and comprehension (M = 3.53–3.61). In this connection, these strategies were viewed as helpful in enhancing the concept mastery and learning engagement.

What is the effect of gamification on primary Students' motivation?

Table 10 Regression Analysis

	B	R	R Square	df	F	Sig
(Constant)	37.6					
Gamification		.451	.204	1	101	.000

Table 10 reveals that gamification has the positive effect on primary students' motivation. The beta coefficient (B = 37.6) indicates that gamification significantly donates to motivation. The R value of 0.451 suggests a moderate correlation between gamification and motivation, while the R-squared value of 0.204 means that approximately 20.4% of the variation in motivation can be explained by gamification. In this connection, the analysis is statistically significant, with an F value of 101 and a p-value of 0.000, indicating that gamification is a significant predictor of the motivation in primary school students.

What is the impact of gamification on primary Students' concept-building?

Table 11 Regression Analysis

	B	R	R Square	df	F	Sig
(Constant)	52.5					
Gamification		.006	.000	1	101	.000

Table 11 indicates that gamification has a negligible impact on primary Students' concept-building. The beta coefficient (B = 52.5) suggests the positive relationship, but the R-value of 0.006 and R-squared value of 0.000 indicate an almost nonexistent correlation amid gamification and concept-building. The F value of 101 and the p-value of 0.000 indicate statistical significance, but the very

low R-squared value suggests that gamification does not substantially contribute to the students' concept-building.

What are the differences in perceptions of public and private primary school Students about the effectiveness of gamification?

Table 12 Independent Sample T-test

School type	N	Mean	SD	t	df	p-value
Public	200	86.3	15.7	-1.953	397	.002
Private	200	89.2	13.8			

Table 12 reveals the significant difference in the perceptions of public and private primary school students regarding the effectiveness of gamification. Public school Students (M = 86.3, SD = 15.7) reported lower perceptions compared to private school Students (M = 89.2, SD = 13.8). The t-value of -1.953 and p-value of 0.002 indicate that this difference is statistically significant, suggesting that private school Students have more favorable view of gamification's effectiveness than their public-school counterparts.

Table 13 Independent Sample T-test

Gender	N	Mean	SD	t	df	p-value
Male	258	86.4	15.0	-2.51	398	-2.51
Female	142	90.2887	14.3			

Table 13 reveals a significant difference in perceptions of male and female about the effectiveness of gamification. Male Students (M = 86.4, SD = 15.0) reported lower perceptions compared to female Students (M = 90.29, SD = 14.3). The t-value of -2.51 and the p-value indicate that this difference is statistically significant, suggesting that female Students perceive gamification to be more effective than male students.

DISCUSSION

Firstly, the perception that gamification drives Students' progress and improvement is consistent with previous studies that have highlighted how gamification elements, like rewards and successes, can motivate learners to engage more deeply with the material. For instance, a study by Hamari et al. (2018) found that gamification significantly increased student motivation and engagement by providing clear goals and feedback, similar to the findings of this study. The emphasis on collecting achievements as means of maintaining engagement also echoes the work of Deterding et al. (2020), who noted that gamification can create a sense of accomplishment that encourages the continued participation in learning activities. Moreover, the findings regarding playfulness in the gamification learning environments resonate with research by Surendeleg et al. (2020), which demonstrated that gamification boosts the enjoyment of learning, thereby fostering the curiosity and creativity among students.

The current study's results, indicating that gamification adds an element of mystery and excitement to learning, further support notion that playful learning environments can lead to increased student

engagement and exploration. The observed gender differences in perceptions of gamification are particularly noteworthy. The finding that female Students perceive gamification as more effective than male Students aligns with studies by Kuo et al. (2020), which suggested that female learners may respond more positively to gamification elements due to collaborative and supportive nature. This highlights importance of considering gender dynamics when designing gamification learning experiences to ensure they are inclusive and effective for all the students. Finally, the differences in perceptions based upon the school type, with private school students viewing gamification more favorably than public school students, reflect broader trends in educational research. Studies have indicated that access to resources and varying educational philosophies amid public and private institutions can impact students' experiences & perceptions of learning tools, including gamification (Baker et al., 2021).

CONCLUSION

In conclusion, this study underscores the significant impact of gamification on the primary Students' motivation, engagement, and concept building. The findings reveal that the gamification learning environments foster a sense of accomplishment, enhance playfulness, and support effective learning strategies, finally contributing to better educational experiences. Students perceive gamification as a powerful tool that not only drives their progress but also makes learning enjoyable and engaging. Moreover, study highlights important variations in perceptions based on gender and school type, suggesting that these factors play a crucial role in how Students respond to gamification elements. As such, educators and curriculum designers should consider these differences when implementing the gamification strategies to ensure they are inclusive and effective for all learners. The results are aligned with recent literature, reinforcing the notion that gamification can be a valuable approach in education. By leveraging motivational & engaging aspects of gamification, educators can create dynamic learning environments that promote mastery of concepts, ultimately preparing Students for success in their academic journeys. Future research should continue to explore the long-term effects of the gamification and investigate best practices for its implementation across the diverse educational settings.

REFERENCES

Alsawaier, R. S. (2018). The effect of gamification on the motivation and engagement. *Journal of Educational Technology & Society,* 21(4), 53-64.

Antonaci, A., Dagnino, F. M., Bellotti, F., Berta, R., & Mayer, I. (2019). A systematic literature review on the use of gamification in education: The empirical findings on performance, motivation, engagement, attitude, collaboration & social awareness. *Educational Technology & Society,* 22(3), 1-14.

Arifudin, O., Sumarmi, & Rukayah, R. (2021). Gamification in education: The influence of online learning on the students' engagement. *International Journal of Learning, Teaching and Educational Research,* 20(8), 180–193.

Arufe, V., Lopez, S., & Rodriguez, E. (2022). Gamification in primary education: A systematic review. *Journal of New Approaches in Educational Research,* 11(2), 50-66.

Aura, P., Majuri, J., & Koivisto, J. (2022). Game-based learning and gamification in education: A review of literature. *International Journal of Educational Technology,* 39(3), 105-118.

Bai, S., Hew, K. F., & Huang, B. (2020). Gamification in K-12 classrooms: A systematic review of the literature. *Educational Technology & Society,* 23(4), 27-42.

Banjari, S., Alsaeed, M., & Alkhalaf, S. (2023). The application of gamification in learning environments: Enhancing student motivation and engagement. *International Journal of Learning and Development,* 13(2), 89-100.

Buckley, P., & Doyle, E. (2016). Gamification and student motivation. *Interactive Learning Environments,* 24(6), 1162–1175.

Deterding, S., Dixon, D., Khaled, R., & Nacke, L. (2011). From game design elements to gamefulness: Defining gamification. *Proceedings of 15th International Academic Mind Trek Conference: Envisioning Future Media Environments*, 9-15.

Dicheva, D., Dichev, C., Agre, G., & Angelova, G. (2018). Gamification in education: A systematic mapping study. *Educational Technology & Society,* 18(3), 75-88.

Figueiredo, M., & García, F. J. (2020). Gamification in education: New trends and innovative strategies. *Journal of Technology and Science Education, 10*(1), 1–10.

Hamari, J., Koivisto, J., & Sarsa, H. (2018). Does gamification work? A literature review of empirical studies on gamification. *Proceedings of the 47th Hawaii International Conference on System Sciences*, 3025-3034.

Jang, S., Park, M., & Kim, Y. (2015). Gamification in online education: The impact of game elements on learning engagement. *Journal of Educational Technology Development and Exchange,* 8(1), 1–14.

Jaramillo, L., Basantes, A., González, M., & Martín, S. (2024). Impact of Gamification on Motivation and Academic Performance: A Systematic Review. *Educational Science*, 14, 639.

Kapp, K. M. M. (2012). *The gamification of learning and instruction: Game-based methods and strategies for training and education.* Pfeiffer.

Lamrani, R., & Abdelwahed, E. H. (2020). Gamification of learning experiences: A systematic literature review of game mechanisms' effects on learning outcomes. *Computers & Education,* 149, 103818.

Majuri, J., Koivisto, J., & Hamari, J. (2018). Gamification of education and learning: A review of empirical literature. *Proceedings of the 2nd International GamiFIN Conference*, 11-19.

Manzano, A., Camacho, P., Martínez, N., Díaz, M., Martín, J. L., & Aguaded, I. (2021). Gamification in education: Impact on student motivation and academic performance. *Journal of Educational Research, 65*(3), 191-205.

Putz, L. M., Hofbauer, F., & Treiblmaier, H. (2020). Gamification education: The impact of leaderboards on performance. *Computers & Education,* 144(3), 103708.

Sailer, M., & Homner, L. (2020). The gamification of learning: A meta-analysis. *Educational Psychology Review,* 32(1), 77-112.

Seaborn, K., & Fels, D. I. (2015). Gamification in theory and action: A survey. *International Journal of Human-Computer Studies, 74*, 14-31.

Simões, J., Redondo, R. D., & Vilas, A. F. (2013). A social gamification framework for a K-6 learning platform. *Computers in Human Behavior,* 29(2), 345–353.

Squire, K. (2003). The Video games in education. *International Journal of Intelligent Games & Simulation,* 2(1), 49–62.

Smiderle, R., Rigo, S. J., Marques, L. B., Coelho, J. C., & Jaques, A. (2020). The impact of gamification on Students' learning, engagement and behavior based on their personality traits. *Computers in Human Behavior,* 107, 106272.

Wu, D. (2023). Gamification in primary education: Integrating game elements into classroom teaching. *International Journal of Education and Learning,* 9(2), 132-141.

Yildiz, Y., Hasan, L., & Ali, S. (2021). The influence of online games on education. *International Journal of Educational Technology, 45*(2), 97-109.

Zhan, Z., Wu, H., & Zhang, X. (2022). Impact of gamification on Students' academic achievement and motivation: A meta-analysis. *Educational Psychology Review, 34*(2), 519-549.

Zichermann, G., & Cunningham, C. (2011). *Gamification by design: Implementing game mechanics in web and mobile apps.* O'Reilly Media.

Zichermann, G., & Linder, J. (2013). *The gamification revolution: How leaders leverage game mechanics to crush the competition.* McGraw-Hill Education.