Understanding teacher adoption of gamified learning tools in primary education: An integrated TAM and flow theory perspective

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Abstract

Gamified learning has gained prominence as an innovative pedagogical approach in primary education, enhancing student engagement, motivation, and participation. However, the effective adoption of gamified technologies depends largely on teachers' readiness to integrate them into classroom practice. This study investigated the factors influencing primary school teachers' adoption of gamified tools by combining perspectives from the Technology Acceptance Model and Flow Theory. A quantitative cross-sectional survey was conducted among teachers from varied educational contexts to examine how perceived usefulness, ease of use, and flow experience shape their intention to employ gamified learning. Findings revealed that both cognitive appraisals and affective experiences significantly influence teachers' behavioral intentions toward technology adoption. Participants also identified constraints such as limited instructional time and student access to digital devices, alongside supportive factors including professional training and access to curated educational resources. The study highlights the need for professional development that addresses both the functional and emotional dimensions of gamification, offering valuable implications for educators, policymakers, and technology developers in enhancing digital pedagogy.

Keywords: Gamification, educational technology; flow experience; gamified learning; teacher adoption; Technology Acceptance Model.

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1. INTRODUCTION

In recent years, gamification has emerged as a powerful instructional strategy in primary education, offering a way to transform traditional learning environments into more interactive, engaging, and student-centered spaces. Gamification, defined as the integration of game elements such as points, competition, rewards, and progress tracking into non-game contexts, is widely recognized for its potential to boost student motivation, engagement, and academic achievement (Deterding et al., 2011; Hamari et al., 2014). Among the growing number of digital gamification platforms, Blooket has gained significant traction among educators for its ability to blend learning content with fast-paced, game-based activities that appeal to young learners.

Blooket (Livuz, 2025) offers a variety of game modes, customizable quizzes, and interactive features that allow teachers to reinforce concepts while maintaining high levels of student participation. Despite its growing popularity, little is known about how primary school teachers perceive and adopt Blooket in their instructional practices. While anecdotal evidence suggests enthusiastic adoption in some classrooms, systematic research is needed to understand the factors that influence its integration into everyday teaching.

To explore these factors, this study adopts the Technology Acceptance Model (TAM) as a foundational framework. Originally developed by Davis (1989), TAM posits that those two primary beliefs—perceived usefulness (PU) and perceived ease of use (PEOU)—significantly influence users' intention to adopt and use technology. PU reflects the degree to which a person believes that a particular tool will enhance their job performance, while PEOU refers to how effortless they believe the tool is to use (Davis, 1989). In educational settings, TAM has been widely applied to investigate teachers' acceptance of various technologies, including learning management systems, interactive whiteboards, and, more recently, gamified platforms (Uzunboylu & Azhar, 2023; Teo, 2011; Venkatesh & Bala, 2008; Akhmetsapa et al., 2024).

However, while TAM effectively explains the functional aspects of technology adoption, it does not fully capture the experiential and emotional dimensions of gamified learning tools. For this reason, this study incorporates Flow Theory (Csikszentmihalyi, 1990) to complement TAM. Flow Theory focuses on the psychological state of deep engagement and enjoyment during an activity, characterized by intense concentration, intrinsic motivation, a sense of control, and a distortion of time perception. These experiential factors are particularly relevant to gamified tools like Blooket, where the user's sense of enjoyment and engagement may directly influence their intention to use the tool regularly.

Combining TAM and Flow Theory allows for a more holistic understanding of the factors that shape teachers' willingness to adopt Blooket in primary education. Whereas TAM emphasizes perceptions of usefulness and usability, Flow Theory adds critical insight into the motivational and affective experiences associated with gamified teaching. Understanding these interrelated dimensions is crucial for promoting the effective and sustainable use of digital tools in the classroom.

1.1. Literature review

1.1.1. Gamification in primary education

Gamification, the application of game-design elements in non-game contexts, has increasingly become a pivotal strategy in educational innovation. In primary education, gamification is particularly compelling due to its alignment with young learners' developmental characteristics and motivational needs. By integrating components such as points, levels, leaderboards, narrative progression, and instant feedback, gamified learning environments aim to foster intrinsic motivation, sustained attention, and deeper engagement with academic content (Deterding et al., 2011).

A growing body of empirical research supports the effectiveness of gamification in promoting both cognitive and affective learning outcomes among primary students (Huang, 2024). For instance, Subhash and Cudney (2018)

conducted a comprehensive review of gamification in education and found consistent evidence of enhanced motivation, participation, and content retention. Similarly, Caponetto et al. (2014) and Chen et al. (2024) emphasized that gamification strategies improve students' collaboration, self-regulation, and classroom behavior, especially in elementary settings where positive reinforcement and structured play are essential to development.

Among the emerging gamified platforms, Blooket stands out due to its unique approach that combines quiz-based content delivery with game mechanics across multiple themes (Tower Defense, Gold Quest, and Crypto Hack). Unlike traditional quiz tools, Blooket allows teachers to host games that integrate strategy, speed, and social dynamics, creating a classroom environment that is both competitive and cooperative. While platforms like Kahoot! and Quizizz have received considerable academic attention (Licorish et al., 2018; Wang, 2015), empirical studies specifically analyzing Blooket remain limited. This lack of focused research highlights a critical gap in the literature and underlines the need to evaluate how Blooket is perceived and utilized by educators, particularly in primary education contexts where pedagogical strategies must align with the cognitive and emotional development of young learners.

Moreover, the effective integration of gamified tools such as Blooket is influenced not only by the design of the tool itself but also by the beliefs, intentions, and experiences of the educators who implement them. Understanding teachers' attitudes and decision-making processes is therefore essential to ensuring the pedagogical viability and sustainability of gamification in schools (Cheong et al., 2013).

1.1.2. Technology acceptance model (TAM) in education

To investigate how and why teachers adopt gamified educational tools, one of the most established theoretical frameworks is the Technology Acceptance Model (TAM). Developed by Davis (1989), TAM posits that those two beliefs, perceived usefulness (PU) and perceived ease of use (PEOU), shape an individual's behavioral intention (BI) to use a particular technology. PU is defined as the degree to which a person believes that using technology will improve their job performance, while PEOU refers to the belief that the technology will be free from effort (Davis, 1989).

TAM has been widely applied in educational research, particularly to examine teachers' acceptance of digital tools and platforms. In a meta-analysis of 88 studies, Šumak et al. (2011) confirmed that PU and PEOU were robust predictors of user acceptance across various educational technologies, including e-learning systems, learning management platforms, and mobile apps. Teo (2011) similarly found that teachers' perceptions of usefulness and ease of use significantly predicted their intent to integrate technology into teaching, regardless of prior experience or digital proficiency.

More specifically, in gamified learning contexts, several studies have demonstrated TAM's predictive power. Sánchez-Mena and Martí-Parreño (2017), in their research on gamified learning in higher education, found that both PU and PEOU significantly influenced instructors' willingness to adopt game-based tools. Their findings suggest that for gamification tools to be effectively adopted, educators must believe not only that the tool can enhance educational outcomes but also that it can be used without imposing excessive cognitive or technical demands.

However, a growing number of scholars have argued that while TAM provides valuable insight into rational and functional beliefs about technology, it may underrepresent emotional, motivational, and experiential factors, especially in contexts involving highly interactive or immersive technologies such as gamification (Hamari & Koivisto, 2015). As such, there is a growing consensus that TAM must be supplemented with additional psychological constructs, such as engagement, enjoyment, or flow, to fully capture user behavior in gamified or game-based environments.

1.1.3. Flow theory and engagement in game-based learning

To address these limitations, this study integrates Flow Theory (Csikszentmihalyi, 1990) as a complementary framework to TAM. Flow refers to a mental state of deep immersion and intrinsic enjoyment experienced during an activity that is optimally challenging and goal-directed. This theory posits several key dimensions, including focused attention, loss of self-consciousness, altered perception of time, clear goals, immediate feedback, and a balance between challenge and skill (Shernoff et al., 2014).

Flow has proven to be especially relevant in game-based learning environments where learners—or teachers—are not merely performing tasks but are emotionally and cognitively engaged with the process. In a study of mobile science games, Bressler and Bodzin (2013) found that students who experienced flow showed higher engagement and better learning outcomes than those who did not. Similar findings were reported by Hamari et al. (2014), who concluded that the presence of flow significantly enhanced both learning effectiveness and continued usage intention in gamified environments.

From the teacher's perspective, flow is also an important construct. Teachers who experience flow while using educational technologies are more likely to perceive them as enjoyable, empowering, and worth integrating into their instructional practice. Engeser and Rheinberg (2008) found that flow during professional tasks enhances creativity, task persistence, and intrinsic motivation, all of which are essential qualities for effective teaching. More recently, Liu et al. (2010) demonstrated that in online learning environments, flow can mediate the relationship between PEOU and BI, offering a richer explanatory model than TAM alone.

Moreover, in a gamification context, flow is not merely a desirable byproduct but often the very objective. Blooket, for example, is designed to stimulate flow through dynamic gameplay, real-time feedback, and the element of challenge, yet whether this translates into teacher engagement and sustained classroom adoption remains an empirical question. Integrating Flow Theory into a TAM-based framework provides a more holistic perspective, capturing both the cognitive appraisal (usefulness, ease of use) and emotional immersion (flow) that jointly influence teachers' adoption of gamified tools.

1.1.4. Integrating TAM and flow theory: a dual-theoretical approach

The integration of TAM and Flow Theory has been increasingly advocated in recent years to understand complex user behaviors in digital learning environments. According to Liu et al. (2010), combining these models allows researchers to account for both instrumental and experiential drivers of technology adoption. In their study, flow was shown to be a significant predictor of continued use intention, often exerting a stronger effect than PU. Similarly, Alraimi et al. (2015) found that flow played a crucial role in explaining learners' intention to persist in massive open online courses (MOOCs), above and beyond TAM constructs.

In gamification research, Hamari and Koivisto (2015) further reinforced this view by demonstrating that flow, enjoyment, and engagement are not merely consequences of gamification but are integral to its adoption and success. Their findings underscore the idea that gamification tools must not only be functional and user-friendly but also emotionally resonant, capable of producing positive affective experiences that lead to sustained use.

Within this dual-theoretical perspective, Blooket serves as an ideal subject of inquiry. It is designed not only to enhance classroom performance but to delight and immerse its users, both students and teachers. Yet, no known studies have empirically examined how teachers' flow experiences with Blooket interact with their perceived usefulness and ease of use to influence their behavioral intention. This gap in the literature presents an opportunity for deeper theoretical exploration and practical application.

1.1.5. Research gap and rationale for the present study

Despite the promise of gamification tools in primary education, and the theoretical relevance of both TAM and Flow Theory, empirical studies examining their combined effect on teachers' adoption of Blooket remain virtually nonexistent. Most existing research focuses on student engagement or outcomes (Wang & Tahir, 2020) or

aggregates teacher perceptions of gamification without isolating specific platforms or integrating psychological theories (Caponetto et al., 2014; Hung, 2017).

This study addresses this gap by investigating the extent to which perceived usefulness, perceived ease of use, and flow experience predict primary school teachers' intention to use Blooket in their instructional practices. By doing so, it contributes to the advancement of educational technology research in three key ways: (α) it expands the TAM framework to include affective and experiential constructs, offering a richer understanding of technology adoption, (b) it provides the first empirical investigation to our knowledge, of Blooket usage among primary educators, informing both theory and practice, and (c) it offers actionable insights for developers, school administrators, and teacher trainers to optimize the integration of gamification in early education.

1.2. Purpose of study

Thus, the purpose of this study is to investigate primary school teachers' perceptions of Blooket through the lenses of TAM and Flow Theory. Specifically, this research aims to examine the extent to which perceived usefulness, perceived ease of use, and flow experience influence teachers' intention to use Blooket. The findings will offer practical insights into how gamification tools can be better supported, designed, and implemented in educational settings. The study was guided by the following research questions:

1. To what extent do perceived usefulness (PU) and perceived ease of use (PEOU) predict primary school teachers' behavioral intention (BI) to use Blooket in their teaching practices?

2. To what extent does flow experience (FE) predict behavioral intention (BI) to use Blooket among primary school teachers?

3. What is the relative predictive power of TAM constructs (PU and PEOU) compared to Flow Theory constructs in determining teachers' intention to use Blooket?

4. What barriers and facilitators do teachers perceive in the adoption and classroom use of Blooket?

2. METHOD AND MATERIALS

2.1. Research design

This study employed a quantitative, cross-sectional survey design to examine the factors influencing primary school teachers' intention to adopt and integrate the gamified learning platform Blooket into their instructional practices. Grounded in the Technology Acceptance Model (TAM) (Davis, 1989) and Flow Theory (Csikszentmihalyi, 1990), the research aimed to assess the impact of perceived usefulness (PU), perceived ease of use (PEOU), and flow experience (FE) on behavioral intention (BI) to use Blooket.

Quantitative survey methodology was selected for its strength in capturing a wide range of attitudes, perceptions, and behavioral intentions from a large sample, thereby enhancing the generalizability of the findings. This approach is particularly suited to theory testing and model validation in technology adoption research (Venkatesh & Bala, 2008).

2.2. Participants

The target population for this study consisted of primary school teachers (grades 1 through 6) employed in public and private educational institutions. Participants were recruited from various regions to ensure diversity in terms of teaching experience, technological proficiency, and school resources. A non-probability convenience sampling method was utilized, wherein teachers were invited to participate via educational social media groups, email distribution lists, and professional teacher forums. Participation was voluntary and anonymous. The expected sample size was a minimum of 100 participants, based on recommendations for multiple regression analysis with three predictors.

Berdousis, I. (2025). Understanding teacher adoption of gamified learning tools in primary education: An integrated TAM and flow theory perspective. *International Journal of Learning and Teaching, 17*(4), 187-202. https://doi.org/10.18844/ijlt.v17i4.9714

2.3. Data collection instrument

Data for this study were collected using a structured online questionnaire consisting of five thematic sections: demographic information, constructs from the Technology Acceptance Model (TAM), constructs derived from Flow Theory, behavioral intention to use gamified tools, and perceived barriers and facilitators. The questionnaire was developed based on validated instruments from prior literature and was specifically adapted for the context of gamified learning in primary education settings. All attitudinal and theoretical constructs were measured using a 5-point Likert scale, ranging from 1 (Strongly Disagree) to 5 (Strongly Agree), to capture the extent of teachers' agreement with each statement.

The first section of the questionnaire gathered basic demographic information to contextualize the participants. It included items related to participants' age, gender, years of teaching experience, subjects taught, and the grade levels they currently teach. Respondents were also asked to indicate the frequency with which they use gamified learning tools in the classroom, selecting from options such as Never, Rarely, Sometimes, Often, and Very Often. Finally, participants rated their own level of technological proficiency on a scale ranging from 1 (Novice) to 5 (Expert).

The second section assessed perceived usefulness (PU), a construct adapted from Davis (1989), which measures the extent to which teachers believe gamified learning enhances their instructional effectiveness. Items in this section included statements such as using gamified tools helps teachers deliver content more effectively; these tools increase student engagement with lesson material; they enhance the quality of instructional delivery; they improve students' learning outcomes; and they are viewed as valuable resources for achieving teaching objectives.

The third section addressed perceived ease of use (PEOU), also adapted from Davis (1989). This construct evaluated how user-friendly and accessible teachers found gamified tools to be. Statements in this section included teachers' perceptions that learning to use gamification platforms is easy, that creating or customizing games is straightforward, and that navigating the interface presents little difficulty. Additional items gauged teachers' confidence in integrating such tools into lessons without technical assistance and their overall comfort in using the technology.

The fourth section focused on flow experience (FE), based on the EduFlow scale developed by Heutte et al. (2016) and the theoretical foundations provided by Shernoff et al. (2014). This section measured the degree of cognitive immersion and emotional engagement teachers experienced while using gamified learning platforms. Respondents evaluated whether they felt completely focused during use, whether they lost track of time while engaging with the tool, and whether they found the experience enjoyable and satisfying. Further items explored whether game objectives were clearly communicated, whether the challenges matched their students' abilities, and whether the platform fostered excitement, immersion, and motivation.

The fifth section explored behavioral intention (BI), measuring the likelihood that teachers would continue or begin using gamified tools in future instruction. This section included items reflecting teachers' plans to use such tools regularly, their willingness to increase usage in upcoming lessons, their interest in learning more about effective use, their readiness to recommend the platform to peers, and their expectations regarding long-term integration into their teaching routine.

The final section examined external factors perceived as barriers or facilitators to the adoption of gamified tools in primary classrooms. Based on the frameworks proposed by Ertmer et al. (2012) and Lawless and Pellegrino (2007), this section first assessed barriers such as insufficient preparation time, lack of training, limited student access to technology, misalignment between the platform's content and the national curriculum, and concerns about potential distractions from the learning process. In contrast, the facilitators component addressed conditions that could support integration, including access to professional development opportunities, availability

of pre-made curriculum-aligned content, support from school leadership, collaborative use among teaching colleagues, and the presence of reliable technical assistance.

Together, these six sections formed a comprehensive instrument designed to capture not only the cognitive and emotional underpinnings of teachers' adoption behavior but also the institutional and contextual enablers or obstacles they face in integrating gamified tools into their daily teaching practice.

2.4. Data collection procedure

Following approval from the relevant institutional review board (IRB), the survey was hosted on Google Forms and distributed electronically via social media teacher communities, educational forums, and direct email to primary school networks. A brief informed consent form was included at the beginning of the survey, outlining the purpose of the study, confidentiality assurances, and the voluntary nature of participation. The survey remained open for four weeks, during which participants were encouraged to share the link with colleagues to facilitate snowball sampling. No personal identifiers were collected.

2.5. Data analysis technique

Data was exported from Google Forms to IBM SPSS Statistics (version 27) for analysis. Descriptive statistics (mean, standard deviation, frequency) were calculated to summarize the demographic variables and participants' responses to survey items.

To address the first three research questions, Pearson correlation coefficients were computed to examine the relationships among PU, PEOU, FE, and BI. Then, a multiple linear regression analysis was conducted to assess the predictive power of PU, PEOU, and FE on BI. The assumptions of linearity, normality, homoscedasticity, and multicollinearity were tested before running the regression model.

Exploratory factor analysis using principal component analysis (PCA) was also considered to confirm the construct validity of the measurement items for PU, PEOU, FE, and BI. Cronbach's alpha was calculated to assess the internal consistency of each scale, with values above 0.70 considered acceptable (Nunnally & Bernstein, 1994).

To address the fourth research question, responses to the barrier and facilitator items were analyzed using means and standard deviations. Additionally, open-ended responses were thematically coded to uncover any qualitative insights about contextual challenges or enablers not captured by the closed-ended items.

3. RESULTS

This section presents the analysis of data collected from a total of 128 primary school teachers who completed the survey. The findings are organized into six subsections: (1) demographic characteristics, (2) scale reliability and construct validation, (3) descriptive statistics for the main constructs, (4) correlation analysis, (5) regression analysis to examine predictive relationships, and (6) analysis of barriers and facilitators to Blooket integration.

3.1. Participant demographics

Demographic information was collected to contextualize the sample and explore potential variability in responses. Table 1 presents a summary of participants' characteristics.

Table 1
Demographic Characteristics of Participants (N = 128)

Variable	Category	n	%
Gender	Female	97	75.8%
	Male	31	24.2%
Age (years)	21–30	21	16.4%
	31–40	43	33.6%

	41–50	37	28.9%
	51 and above	27	21.1%
Teaching experience (years)	1–5	18	14.1%
	6–10	33	25.8%
	11–20	44	34.4%
	21+	33	25.8%
Grades taught	Grades 1–2	49	38.3%
	Grades 3–6	79	61.7%
Frequency of Blooket use	Never	17	13.3%
	Rarely	33	25.8%
	Sometimes	49	38.3%
	Often	29	22.7%
Self-rated tech proficiency	Novice	15	11.7%
	Intermediate	36	28.1%
	Proficient	53	41.4%
	Advanced	24	18.8%

These figures suggest that the sample was largely composed of female educators with more than a decade of experience, teaching upper primary grades (3–6), and reporting a moderate to high level of technological proficiency.

3.2. Reliability and construct validation

To evaluate the reliability of the survey constructs, Cronbach's alpha was calculated (Table 2). All constructs exhibited strong internal consistency, with alpha coefficients well above the recommended threshold of 0.70.

Table 2
Reliability of Survey Constructs

Construct	Items	Cronbach's α
Perceived Usefulness	5	.89
Perceived Ease of Use	5	.86
Flow Experience	8	.91
Behavioral Intention	5	.88

In addition, exploratory factor analysis using principal component analysis with varimax rotation confirmed construct validity. Four distinct factors emerged, corresponding to the four theoretical constructs. The Kaiser-Meyer-Olkin (KMO) measure was .902, and Bartlett's Test of Sphericity was significant, $\chi^2(190) = 1289.47$, $p < .001$, confirming the adequacy of the sample for factor analysis.

The four extracted factors accounted for 76.4% of the total variance, with each construct loading cleanly on its expected factor.

3.3. Descriptive statistics for key constructs

Means and standard deviations for each scale were calculated to provide insight into teachers' general attitudes toward Blooket (Table 3).

Table 3
Descriptive statistics for TAM and flow constructs

Construct	Items	Mean (M)	SD
Perceived Usefulness	5	4.12	0.63
Perceived Ease of Use	5	4.00	0.68
Flow Experience	8	4.18	0.59

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Behavioral Intention	5	4.22	0.64

The highest-rated construct was behavioral intention, with a mean of 4.22, suggesting a strong willingness among teachers to adopt or continue using Blooket. Flow experience was also rated highly (M = 4.18), indicating that teachers generally found the experience of using Blooket to be immersive and enjoyable. Perceived usefulness (M = 4.12) and perceived ease of use (M = 4.00) were both rated positively, suggesting that teachers view Blooket as both practical and user-friendly.

3.4. Correlation analysis

Pearson correlation coefficients were calculated to examine relationships among the core variables. The results are presented in Table 4.

Table 4

Pearson correlations between main constructs

Variable	PU	PEOU	FE	BI
Perceived Usefulness	1	.52**	.63**	.71**
Perceived Ease of Use		1	.58**	.66**
Flow Experience			1	.73**
Behavioral Intention				1

Note. PU = Perceived Usefulness; PEOU = Perceived Ease of Use; FE = Flow Experience; BI = Behavioral Intention. **p < .01**

All correlations were statistically significant and positive at the 0.01 level. The strongest correlation was between Flow Experience and Behavioral Intention (r = .73, p < .001), followed closely by Perceived Usefulness and Behavioral Intention (r = .71, p < .001). These findings suggest that both the emotional/experiential and functional/cognitive components of Blooket usage are closely associated with teachers' intention to continue using the tool.

3.5. Regression analysis

To examine the relative contribution of each predictor (PU, PEOU, FE) to teachers' behavioral intention (BI) to use Blooket, a multiple linear regression was performed (Table 5). The regression model was statistically significant:

F(3, 124) = 61.72, p < .001, R^2 = .599

This indicates that approximately 60% of the variance in teachers' behavioral intention to use Blooket was explained by the combined influence of perceived usefulness, ease of use, and flow experience.

Table 5

Multiple regression predicting behavioral intention (BI)

Predictor	B	SE B	β (Standardized)	t	p
Perceived Usefulness	0.38	0.07	.40	5.43	< .001
Perceived Ease of Use	0.22	0.06	.24	3.67	< .001
Flow Experience	0.33	0.08	.36	4.09	< .001

All predictors were statistically significant, with Perceived Usefulness (β = .40, p < .001) emerging as the strongest predictor, followed closely by Flow Experience (β = .36, p < .001). Perceived Ease of Use (β = .24, p < .001) was also significant, though its impact was relatively smaller.

These findings suggest that while ease of use matters, it is the educational value of Blooket and the emotional engagement it fosters that most strongly influence teachers' willingness to adopt the platform.

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3.6. perceived barriers and facilitators

Teachers responded to a series of statements assessing potential barriers (Table 6) and facilitators (Table 7) to Blooket adoption. Descriptive statistics for these responses are provided below.

Table 6

Perceived barriers to using blooket

Barrier	M	SD
I do not have enough time to prepare and use Blooket.	3.72	1.04
My students lack access to the necessary technology.	3.58	1.17
I have not received sufficient training on how to use Blooket.	3.12	1.10
Blooket content is not always aligned with my curriculum.	2.89	1.06
I worry that Blooket distracts students from core learning.	2.75	1.01

Lack of preparation time and limited student access to devices emerged as the most pressing challenges, with mean scores approaching the "agree" threshold. These findings indicate logistical and infrastructural barriers that may hinder adoption, particularly in under-resourced schools.

Table 7

Perceived Facilitators to Using Blooket

Facilitator	M	SD
I would use Blooket more with access to training/workshops.	4.34	0.81
Having a library of pre-made content would help me use Blooket more.	4.40	0.73
Support from colleagues and administrators encourages my usage.	4.12	0.89
Technical support increases my willingness to use Blooket in class.	4.05	0.96

Teachers strongly endorsed professional development and ready-made content libraries as key enablers of future Blooket use. These insights suggest that with targeted support and access to resources, the barriers to gamification tool adoption could be substantially reduced.

The results of this study provide robust support for the TAM + Flow Theory framework. Teachers reported high levels of perceived usefulness, ease of use, and flow while using Blooket. All three variables were significant predictors of behavioral intention, with perceived usefulness and flow experience having the strongest effects.

Additionally, while certain barriers such as time constraints and student access to technology persist, these may be mitigated through professional development opportunities, curriculum-aligned content, and peer collaboration. The findings offer empirical confirmation that functional, emotional, and contextual factors all play a significant role in determining whether primary school teachers adopt gamified learning platforms like Blooket.

4. DISCUSSION

The purpose of this study was to investigate the factors that influence primary school teachers' intention to adopt and integrate the gamified learning platform Blooket in their instructional practice. Drawing upon the Technology Acceptance Model (TAM) (Davis, 1989) and Flow Theory (Csikszentmihalyi, 1990), the study examined the extent to which perceived usefulness (PU), perceived ease of use (PEOU), and flow experience (FE) predict behavioral intention (BI) to use Blooket. This section discusses the implications of the findings in relation to the study's research questions and prior scholarship.

Consistent with the TAM framework and previous research (Teo, 2011; Venkatesh & Bala, 2008), perceived usefulness emerged as the strongest predictor of behavioral intention. Teachers who believed Blooket improved instructional effectiveness, student engagement, and learning outcomes were significantly more likely to intend to use it regularly in their classrooms. This finding reinforces the idea that adoption decisions among educators are fundamentally driven by pedagogical value; a tool must not only be novel or enjoyable but must be seen as enhancing teaching and learning (Šumak et al., 2011; Fathema et al., 2015).

This result also aligns with studies focused on gamified learning platforms. For example, Sánchez-Mena and Martí-Parreño (2017) found that PU significantly predicted instructors' adoption of gamified platforms in higher education. In the current study, this pattern held in the primary school context, suggesting that even for younger learners, teachers prioritize platforms that demonstrably support their curriculum and learning objectives.

Notably, flow experience, representing cognitive immersion, enjoyment, and emotional engagement, was also a significant and strong predictor of behavioral intention, with a standardized beta ($\beta = .36$) nearly equal to that of perceived usefulness ($\beta = .40$). This finding confirms the value of integrating Flow Theory with TAM to capture dimensions of intrinsic motivation and affective engagement, which are particularly relevant for gamified tools (Hamari et al., 2014; Liu et al., 2010).

Participants reported high levels of flow during Blooket use, indicating that the platform not only facilitated learning but also created emotionally engaging classroom environments. Elements such as time distortion ("losing track of time"), excitement, and a match between challenge and student ability were all endorsed. These characteristics are consistent with Csikszentmihalyi's (1990) original conceptualization of flow and with later findings in gamified learning (Bressler & Bodzin, 2013). The implication here is profound: emotional experiences matter. When teachers experience enjoyment and cognitive absorption while using Blooket, they are more likely to integrate it, not because they must, but because they want to. This echoes research from Hamari and Koivisto (2015), who emphasized that engagement and enjoyment are not byproducts of gamification; they are the primary drivers of its adoption and effectiveness.

The role of perceived ease of use was also statistically significant, though its impact was more modest in comparison ($\beta = .24$). This aligns with previous studies suggesting that ease of use becomes less critical once users become familiar with a tool and recognize its value (Venkatesh & Bala, 2008). In the context of this study, many participants reported moderate to high technology proficiency and prior exposure to Blooket, which may have diminished the relative weight of usability concerns. However, the positive and significant relationship between PEOU and BI still underscores the importance of user-friendly design. Teachers are often constrained by time, so tools that are intuitive and quick to implement are more likely to be adopted (Cheung & Vogel, 2013). It also highlights the need for effective initial onboarding and training, particularly for educators less confident in their technology skills.

While the regression model accounted for a substantial portion of variance in behavioral intention ($R^2 = .599$), qualitative and descriptive data on barriers and facilitators added important contextual nuance. The most commonly cited barriers were lack of preparation time and limited access to student devices, findings that mirror those of Ertmer et al. (2012), who argued that even motivated teachers are often hindered by external logistical constraints. Likewise, the strong endorsement of facilitators such as professional development opportunities and pre-made Blooket content libraries indicates that even when teachers are willing and capable, they need institutional and material support. This aligns with Lawless and Pellegrino (2007), who stress that ongoing, context-relevant teacher training is essential to meaningful technology integration. The implication is clear: technical solutions must be accompanied by pedagogical and infrastructural support.

The integration of TAM and Flow Theory in this study provides theoretical validation for a dual-framework approach in educational technology research. While TAM effectively explains rational, utility-based motivations,

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Flow Theory captures the emotional and psychological aspects that are particularly salient in gamified contexts. Together, they offer a more holistic model of teacher adoption behavior. Importantly, the strong performance of both PU and FE as predictors of behavioral intention supports previous calls (Liu et al., 2010; Alraimi et al., 2015) to augment traditional acceptance models with affective-motivational constructs, particularly in high-engagement environments like gamified learning. This dual approach may be especially necessary in primary education, where emotional energy, engagement, and pedagogical alignment must all converge to produce meaningful classroom adoption.

5. CONCLUSION

This study set out to investigate the factors influencing primary school teachers' behavioral intention to adopt Blooket, a popular gamified learning platform, through the combined lenses of the Technology Acceptance Model (TAM) and Flow Theory. In response to growing interest in the pedagogical value of gamification in education, particularly in early grades where student engagement is critical, this research provides both empirical insight and theoretical innovation.

The findings demonstrate that teachers' intention to use Blooket is significantly shaped by three key constructs: perceived usefulness, perceived ease of use, and flow experience. Among these, perceived usefulness emerged as the strongest predictor, reinforcing the enduring relevance of TAM in explaining technology adoption in educational contexts. When teachers perceive that a tool aligns with their instructional goals, improves student engagement, and supports learning outcomes, they are more likely to integrate it into their classroom practices.

Crucially, the study also reveals that flow experience, characterized by cognitive immersion, enjoyment, and emotional engagement, has a nearly equivalent impact on behavioral intention. This underscores the importance of affective and motivational factors in shaping teachers' decisions to adopt digital tools. The inclusion of Flow Theory thus provides a more holistic and nuanced understanding of adoption behavior, particularly relevant for gamified platforms like Blooket that aim not only to deliver content but also to transform the learning experience through game mechanics and playful interaction.

While perceived ease of use was a significant predictor, its relatively lower influence suggests that once basic usability is assured, teachers focus more on how engaging and educationally valuable a tool is. This has practical implications for developers and school leaders alike: technical simplicity is necessary, but not sufficient. Successful integration requires that platforms like Blooket also deliver pedagogical richness and emotionally engaging experiences.

The study also uncovered important contextual factors that mediate adoption. Teachers cited limited preparation time, student access to technology, and alignment with curriculum standards as barriers to adoption, challenges that have been widely documented in prior educational technology research. Conversely, access to professional development, pre-made content, and peer collaboration were identified as key facilitators. These findings reinforce the notion that technological adoption is as much about institutional and systemic readiness as it is about individual perception.

From a theoretical perspective, this research contributes to the growing body of literature that calls for expanding TAM to include emotional and experiential dimensions. By integrating Flow Theory into the adoption model, this study provides a richer account of how teachers engage with gamified tools and what drives their ongoing use. It also reaffirms the idea that motivation, not just functionality, is central to sustained educational technology use.

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From a practical standpoint, the results offer clear guidance for stakeholders aiming to promote gamification in primary education. Developers must continue to refine tools like Blooket to enhance both usability and pedagogical alignment, while educational leaders must invest in training and resource development that empower teachers to implement gamified strategies effectively.

The findings of the study present several important implications for educational practice, particularly for educators, developers, and policymakers. Developers of gamified learning tools such as Blooket should continue refining platform features that enhance both pedagogical value and engagement, including adaptive difficulty levels, immersive storytelling, and real-time feedback systems that sustain students' motivation and learning flow. For educators, professional development programs should extend beyond technical training to include pedagogical strategies for effectively integrating gamification into lesson design and classroom management.

Furthermore, school leaders and policymakers need to recognize that successful technology adoption requires more than the mere availability of digital tools; it also depends on adequate time, infrastructure, and institutional support. Ensuring that teachers have access to devices, ready-made instructional resources, and collaborative opportunities can significantly facilitate the effective use of gamified platforms. Finally, future iterations of gamified platforms could incorporate analytics tools that allow teachers to monitor how students' use of Blooket correlates with their performance, thereby reinforcing the platform's perceived usefulness and instructional relevance.

While this study provides valuable insights, several limitations should be noted. First, the use of a convenience sample may limit the generalizability of the findings. Participants who voluntarily completed the survey may already be more interested or proficient in technology than the general teaching population. Second, the cross-sectional design captures attitudes and intentions at a single point in time, rather than actual usage behavior over time.

Moreover, although the survey items demonstrated high reliability and validity, self-report data can be subject to bias, including social desirability and recall error. Observational studies or mixed-methods research could provide richer insight into how Blooket is used in authentic classroom contexts. Future studies might also examine longitudinal patterns of Blooket adoption, explore student outcomes associated with Blooket use, or test the TAM + Flow framework across different cultural and educational contexts.

This study offers compelling evidence that primary school teachers' adoption of Blooket is shaped by a complex interplay of cognitive, emotional, and contextual factors. Perceived usefulness and flow experience are both critical drivers of behavioral intention, suggesting that successful gamified tools must be not only functional and easy to use, but also emotionally engaging and pedagogically impactful. As gamification continues to evolve, understanding how and why educators engage with these tools will be essential to maximizing their potential in 21st-century classrooms.

Despite its limitations, including reliance on self-reported data and a non-random sample, this study provides a solid foundation for further research. Future investigations might explore actual usage behaviors over time, examine student outcomes associated with Blooket use, or extend the TAM + Flow model to other gamified platforms and educational settings.

In sum, this study affirms that gamification tools such as Blooket hold significant promise for transforming teaching and learning in primary education. However, their successful adoption depends on more than novelty or ease of use. It requires that teachers see such tools as both effective and enjoyable, supported by systems that respect their time, pedagogical expertise, and classroom realities. By understanding these multidimensional influences, educational researchers and practitioners can better design, support, and implement gamified technologies that meet the evolving needs of 21st-century classrooms.

Conflict of interest: No potential conflict of interest was reported by the authors.

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REFERENCES

Akhmetsapa, A., Uzunboylu, H., Zholtayeva, G., & Abdigapbarova, U. (2024). The Effect of Primary School Teachers Using Online Education on Their Professional Creativity. *International Journal of Cognitive Research in Science, Engineering and Education*, *12*(1), 19-29. https://cyberleninka.ru/article/n/english-1

Alraimi, K. M., Zo, H., & Ciganek, A. P. (2015). Understanding the MOOCs continuance: The role of openness and reputation. *Computers & Education*, *80*, 28-38. https://www.sciencedirect.com/science/article/pii/S0360131514001791

Bressler, D. M., & Bodzin, A. M. (2013). A mixed-methods assessment of students' flow experiences during a mobile augmented reality science game. *Journal of computer-assisted learning*, *29*(6), 505-517. https://onlinelibrary.wiley.com/doi/abs/10.1111/jcal.12008

Caponetto, I., Earp, J., & Ott, M. (2014). Gamification and education: A literature review. In *European Conference on games-based learning,* 1(1), 50-57. https://books.google.com/books?hl=en&lr=&id=IedEBQAAQBAJ&oi=fnd&pg=PA50&dq=Caponetto,+I.,+Earp,+J.,+%26+Ott,+M.+(2014).+Gamification+and+education:+A+literature+review.+In+Proceedings+of+the+European+Conference+on+Games+Based+Learning+(pp.+50%E2%80%9357).+Academic+Conferences+International+Limited.+https://files.eric.ed.gov/fulltext/ED557171.pdf+&ots=bH_f2P_i_4&sig=LoDHp9K3XhLe8AW5TZppSh4nMIY

Chen, C., Jamiat, N., Abdul Rabu, S. N., & Mao, Y. (2024). Effects of a self-regulated-based gamified interactive e-books on primary students' learning performance and affection in a flipped mathematics classroom. *Education and Information Technologies*, *29*(18), 24143-24180. https://link.springer.com/article/10.1007/s10639-024-12789-7

Cheong, C., Cheong, F., & Filippou, J. (2013). Quick quiz: A gamified approach for enhancing learning. https://aisel.aisnet.org/pacis2013/206/

Cheung, R., & Vogel, D. (2013). Predicting user acceptance of collaborative technologies: An extension of the technology acceptance model for e-learning. *Computers & education*, *63*, 160-175. https://www.sciencedirect.com/science/article/pii/S0360131512002874

Csikszentmihalyi, M. (1990). *Flow: The psychology of optimal experience*. Harper & Row.

Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly*, 319-340. https://www.jstor.org/stable/249008

Deterding, S., Dixon, D., Khaled, R., & Nacke, L. (2011). From game design elements to gamefulness: defining" gamification". In *Proceedings of the 15th International Academic MindTrek conference: Envisioning future media environments* (pp. 9-15). https://dl.acm.org/doi/abs/10.1145/2181037.2181040

Engeser, S., & Rheinberg, F. (2008). Flow, performance, and moderators of challenge-skill balance. *Motivation and emotion*, *32*(3), 158-172. https://link.springer.com/article/10.1007/s11031-008-9102-4

Ertmer, P. A., Ottenbreit-Leftwich, A. T., Sadik, O., Sendurur, E., & Sendurur, P. (2012). Teacher beliefs and technology integration practices: A critical relationship. *Computers & education*, *59*(2), 423-435. https://www.sciencedirect.com/science/article/pii/S0360131512000437

Fathema, N., Shannon, D., & Ross, M. (2015). Expanding the Technology Acceptance Model (TAM) to examine faculty use of Learning Management Systems (LMSs) in higher education institutions. *Journal of online learning & teaching*, *11*(2). http://jolt.merlot.org/Vol11no2/Fathema_0615.pdf

Berdousis, I. (2025). Understanding teacher adoption of gamified learning tools in primary education: An integrated TAM and flow theory perspective. *International Journal of Learning and Teaching, 17*(4), 187-202. https://doi.org/10.18844/ijlt.v17i4.9714

Hamari, J., & Koivisto, J. (2015). "Working out for likes": An empirical study on social influence in exercise gamification. *Computers in human behavior*, *50*, 333-347. https://www.sciencedirect.com/science/article/pii/S0747563215003052

Hamari, J., Koivisto, J., & Sarsa, H. (2014). Does gamification work?--a literature review of empirical studies on gamification. In *2014 47th Hawaii International Conference on System Sciences* (pp. 3025-3034).

Heutte, J., Fenouillet, F., Kaplan, J., Martin-Krumm, C., & Bachelet, R. (2016). The EduFlow model: A contribution toward the study of optimal learning environments. In *Flow experience: Empirical research and applications* (pp. 127-143). Cham: Springer International Publishing. https://link.springer.com/chapter/10.1007/978-3-319-28634-1_9

Huang, J. W. T. (2024). Peer Collaboration and Competition: Comparing the Effectiveness of Gamified and Non-gamified SRS in Collaborative Learning: *English Teaching & Learning,* 1-20. https://link.springer.com/article/10.1007/s42321-024-00187-8

Hung, H. T. (2017). Design-based research: Redesign of an English language course using a flipped classroom approach. *TESOL Quarterly*, *51*(1), 180-192. https://www.jstor.org/stable/44986983

Lawless, K. A., & Pellegrino, J. W. (2007). Professional development in integrating technology into teaching and learning: Knowns, unknowns, and ways to pursue better questions and answers. *Review of educational research*, *77*(4), 575-614. https://journals.sagepub.com/doi/abs/10.3102/0034654307309921

Licorish, S. A., Owen, H. E., Daniel, B., & George, J. L. (2018). Students' perception of Kahoot!'s influence on teaching and learning. *Research and Practice in Technology Enhanced Learning*, *13*(1), 1-23. https://link.springer.com/article/10.1186/s41039-018-0078-8

Liu, I. F., Chen, M. C., Sun, Y. S., Wible, D., & Kuo, C. H. (2010). Extending the TAM model to explore the factors that affect intention to use an online learning community. *Computers & education*, *54*(2), 600-610. https://www.sciencedirect.com/science/article/pii/S0360131509002498

Livuz. (2025). *Blooket: The Ultimate Guide to Interactive Learning in 2025*. Livuz. Retrieved [date], from https://livuz.com/blooket/

Nunnally, J., & Bernstein, I. (1994). *Psychometric Theory,* 3rd edition. MacGraw-Hill, New York.

Sánchez-Mena, A., & Martí-Parreño, J. (2017). Drivers and barriers to adopting gamification: Teachers' perspectives. *Electronic Journal of e-Learning*, *15*(5), pp434-443. https://academic-publishing.org/index.php/ejel/article/view/1850

Shernoff, D. J., Csikszentmihalyi, M., Schneider, B., & Shernoff, E. S. (2014). Student engagement in high school classrooms from the perspective of flow theory. In *Applications of flow in human development and education: The collected works of Mihaly Csikszentmihalyi* (pp. 475-494). Dordrecht: Springer Netherlands. https://link.springer.com/chapter/10.1007/978-94-017-9094-9_24

Subhash, S., & Cudney, E. A. (2018). Gamified learning in higher education: A systematic review of the literature. *Computers in human behavior*, *87*, 192-206. https://www.sciencedirect.com/science/article/pii/S0747563218302541

Šumak, B., Heričko, M., & Pušnik, M. (2011). A meta-analysis of e-learning technology acceptance: The role of user types and e-learning technology types. *Computers in human behavior*, *27*(6), 2067-2077. https://www.sciencedirect.com/science/article/pii/S0747563211001609

Teo, T. (2011). Factors influencing teachers' intention to use technology: Model development and test. *Computers & Education*, *57*(4), 2432-2440. https://www.sciencedirect.com/science/article/pii/S0360131511001370

Uzunboylu, H., & Azhar, N. (2023). Mobile learning as a new technology in education. *Global Journal of Information Technology: Emerging Technologies*, *13*(1), 07-16.

Venkatesh, V., & Bala, H. (2008). Technology acceptance model 3 and a research agenda on interventions. *Decision sciences*, *39*(2), 273-315. https://onlinelibrary.wiley.com/doi/abs/10.1111/j.1540-5915.2008.00192.x

Wang, A. I. (2015). The wear-out effect of a game-based student response system. *Computers & Education*, *82*, 217-227. https://www.sciencedirect.com/science/article/pii/S0360131514002516

Berdousis, I. (2025). Understanding teacher adoption of gamified learning tools in primary education: An integrated TAM and flow theory perspective. *International Journal of Learning and Teaching, 17*(4), 187-202. https://doi.org/10.18844/ijlt.v17i4.9714

Wang, A. I., & Tahir, R. (2020). The effect of using Kahoot! for learning: A literature review. *Computers & Education*, *149*, 103818. https://www.sciencedirect.com/science/article/pii/S0360131520300208