

Beyond the Game: Linking Game-Based Learning, Emotional Intelligence, and Student Engagement in Inclusive Higher Education

Munirah Mohamed^{1*}, Nurhaslinda Hashim^{2*}

^{1&2}Faculty of Business and Management, UiTM Kampus Bandaraya Melaka, Malaysia

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ABSTRACT

Game-based learning (GBL) is often used in higher education to encourage active participation. Yet students do not all respond to game-based activities in the same way. This conceptual paper brings together GBL, student engagement, and emotional intelligence (EI) in inclusive higher education. It views engagement as behavioural, emotional, and cognitive involvement in learning. In the proposed framework, GBL is the independent variable, student engagement is the dependent variable, and EI is a potential moderator. Students' ability to recognise, understand, and manage emotions may affect how they respond to challenge, feedback, teamwork, competition, success, and failure in a game. EI may therefore help explain when GBL supports engagement and for whom it works best. This perspective adds an emotional dimension to inclusive GBL alongside cognitive, behavioural, and accessibility differences. Empirical studies are needed to test the proposed relationships across student groups, disciplines, and types of game-based activity.

Keywords: game-based learning; student engagement; emotional intelligence; inclusive higher education; educational technology

INTRODUCTION

Higher education serves students with different abilities, identities, emotional characteristics, and ways of participating. Teaching should be academically effective while responding to this diversity. Engagement is important because learning involves more than visible participation; it includes behavioural, emotional, and cognitive involvement (Fredricks et al., 2004). Kahu (2013) describes engagement as a process shaped by the interaction between students and their educational settings, not as a fixed personal trait. Recent work also asks institutions to consider diverse identities and educational pathways (Baldwin & Rankin, 2025; Orr & Weiner, 2025). GBL may help by giving students active roles. Its benefits still depend on careful design, as game features that do not fit the learning goals can weaken the experience (Camilleri, 2023). Students are unlikely to experience GBL in identical ways. This matters in inclusive education, where the same activity may support one learner but create difficulty for another. EI offers one way to understand these differences. It broadly concerns the ability to recognise, understand, and manage emotions (Schutte et al., 1998). Studies connect EI with responses to inclusive education (Abellán & López, 2026; Nwosu et al., 2023) and with teaching effectiveness and educational performance (Kaur et al., 2019; Ramírez-Asís et al., 2020). Games can include challenge, feedback, teamwork, competition, and failure, each prompting different emotions. A student's ability to handle those responses could affect engagement. The framework therefore asks both whether GBL supports engagement and whether EI helps explain when, and for whom, that effect is stronger.

LITERATURE REVIEW

Game-Based Learning

GBL can make higher education more active, but a game or digital tool is not educational in itself. In this

'paper, GBL refers to learning organised around a complete game or a game-centred activity in which rules, goals, challenge, feedback, and learner decisions support the intended learning outcomes. Gamification is different: it adds selected game elements, such as points, badges, rankings, or quizzes, to an activity that is not itself a full game. Quizizz and student-response systems may therefore represent gamification or gameful learning unless they are used within a broader game structure. Benefits depend on what students do within the activity and how closely it is aligned with course objectives. Educational games have been associated with engagement, enjoyment, and learning success (Rose et al., 2025), while students have responded favourably to Quizizz (Sitompul et al., 2023). These related forms of evidence are useful, but they are not treated as conceptually identical.

GBL can be useful when students learn with and from one another. Titus and Ng'Ambi (2023), for instance, found that digital gaming supported cross-cultural learning through social interaction and shared knowledge building. Engagement may therefore come from social participation as well as personal enjoyment. During a game, students may act, react emotionally, and think through problems at the same time. Outcomes still vary. Preferences, confidence with technology, emotional responses, and willingness to participate shape the experience. The question is not simply whether GBL works, but which conditions help particular students engage. This is central to inclusive higher education, where one activity cannot be assumed to work equally well for everyone.

Student Engagement

Student engagement is the main outcome in the framework. It should not be reduced to attendance or classroom participation. Fredricks et al. (2004) distinguish behavioural, emotional, and cognitive engagement. These concern participation, feelings and reactions, and the effort used to understand a task. The dimensions are related but do not always occur together. A student may complete a game without being interested or thinking deeply about its content. Participation, enjoyment, or completion alone therefore gives only a partial view of GBL's educational value.

Interactive learning can affect several dimensions of engagement at once. A game may prompt action through tasks, interest through enjoyment or challenge, and deeper thought through problems and decisions (Rose et al., 2025; Titus & Ng'Ambi, 2023). Engagement also reflects what students bring to the activity. Those who understand and manage their emotions may stay mentally and emotionally involved more easily (Maguire et al., 2017; Zhoc et al., 2023). EI and resilience have also been linked with sustained engagement (Pandey et al., 2025). Engagement is therefore not an automatic response to a new method. It develops through an encounter between learner and environment, which helps explain different outcomes from the same GBL activity.

Emotional Intelligence

EI adds an emotional dimension to the framework. The paper adopts an ability-based view derived from Salovey and Mayer (1990): EI concerns the capacity to perceive, understand, use, and regulate emotional information. Schutte et al. (1998) is retained as evidence that individual differences in emotional functioning can be measured, but its self-report approach should not be treated as interchangeable with an ability model. An empirical test of this framework should therefore use a measure that matches the selected ability-based conceptualisation. This choice is relevant because students must manage motivation, relationships, pressure, frustration, and feedback as well as academic content. Recent work presents EI as a resource for student development and learning in technology-rich settings (Reis da Silva, 2024; Santos et al., 2023).

Research provides a sound basis for including EI in a model of engagement. EI has been associated with cognitive and emotional engagement (Maguire et al., 2017), and with academic buoyancy, learning, and achievement (Thomas & Allen, 2021; Zhoc et al., 2023). More recent evidence connects EI with academic motivation and places it alongside resilience as a resource for engagement (Lin, 2025; Pandey et al., 2025). EI is not a complete explanation of educational success. A meta-analysis found a relationship between trait EI and performance while showing that outcomes depend on several influences (Perera & DiGiacomo,

2013). Here, EI is considered both as a direct correlate of engagement and as a possible condition shaping responses to GBL.

The proposed moderation rests on a specific psychological mechanism. Game characteristics create emotionally demanding moments through challenge, competition, uncertainty, feedback, collaboration, success, and failure. Ability EI may influence how students identify those emotions, interpret their causes, regulate frustration or anxiety, and choose whether to persist, seek help, collaborate, or disengage. Emotionally adaptive learning research supports the broader premise that feelings influence learning and can inform digital design (Ho, 2026). The expected interaction is conditional rather than automatic: strong EI cannot compensate for a poorly aligned or inaccessible game, and different emotional abilities may matter more in competitive than collaborative activities. EI is therefore expected to alter the translation of game experiences into engagement, subject to game design and inclusive accommodations.

Inclusive Higher Education

Inclusive higher education is not merely the location of the proposed relationships. It requires learning arrangements that anticipate differences in disability and accessibility, neurodiversity, socioeconomic circumstances, language and culture, gender identity, first-generation status, and preferred ways of participating. These categories should not be treated as homogeneous groups; students may experience several dimensions of diversity at once and may need different forms of access or support. The reviewed studies approach inclusion from varied settings, including teachers, schools, special education, identity awareness, and language learning. They therefore offer theoretical or design insights rather than uniform direct evidence about inclusive higher-education students. Emotional and relational conditions remain relevant: EI can shape educators' responses to unequal learning circumstances (Wu et al., 2025), and supportive social and emotional environments are associated with classroom processes and student outcomes (Jennings & Greenberg, 2009).

GBL may widen the ways students participate, communicate, and construct knowledge together (Titus & Ng'Ambi, 2023). In this framework, a GBL activity is inclusive when students can access its content and technology, understand its rules and feedback, choose suitable ways to participate, and receive reasonable support for sensory, cognitive, linguistic, social, or emotional needs. A feature that helps one student may hinder another. Competition may motivate some learners but discourage others; group play may support social learning while creating interpersonal difficulty; and digital access alone does not guarantee equivalent participation. Inclusion therefore operates through game design and contextual accommodations. These conditions can influence the strength of the GBL-engagement relationship and prevent EI from being treated as a substitute for accessible teaching.

Integration of Game-Based Learning, Emotional Intelligence and Student Engagement

The three bodies of literature are related, although they have often developed separately. GBL studies describe how interactive and social learning can support participation (Rose et al., 2025; Sitompul et al., 2023; Titus & Ng'Ambi, 2023). Engagement research distinguishes behavioural, emotional, and cognitive involvement (Fredricks et al., 2004). EI studies show differences in how students process and regulate emotions, with links to motivation, resilience, learning, engagement, and achievement (Lin, 2025; Pandey et al., 2025; Zhoc et al., 2023). Read together, the findings indicate that neither teaching design nor learner characteristics alone fully explain engagement. What matters is how the activity's demands meet the student's way of responding.

The structured review found substantial separate evidence for GBL-engagement and EI-engagement relationships, but limited direct testing of EI as a moderator between GBL and student engagement. Evidence that EI predicts engagement is treated here as support for P2, not as proof of P3. The moderation argument instead rests on the mechanism by which emotionally demanding game events are appraised and regulated. Challenge, feedback, collaboration, achievement, uncertainty, and frustration may lead to persistence for some students and withdrawal for others. EI may influence this conversion, while

accessibility, participation options, instructional alignment, and game design define the conditions within which it can occur (Ho, 2026).

The framework shifts attention from whether games increase engagement to when, for whom, and under which design conditions GBL supports engagement. GBL is the independent variable, student engagement is the dependent variable, and behavioural, emotional, and cognitive engagement are its dimensions. EI is the proposed moderator. Inclusive higher education is specified through accessibility, learner diversity, flexible participation, and contextual accommodations rather than used only as a setting label. These conditions surround and shape the focal relationship. Because direct evidence for moderation remains limited, P3 is a theoretically grounded proposition for empirical testing rather than an established causal finding.

REVIEW METHODOLOGY

This conceptual paper is supported by a structured narrative review. The literature search was conducted in Scopus and supplemented by foundational sources already established in the three fields. The review covered publications from 1990 to August 2026 so that early definitions of engagement and emotional intelligence could be considered alongside recent work on game-based and technology-supported learning. Searches combined terms related to 'game-based learning', 'educational games', 'gamification', 'student response systems', 'student engagement', 'behavioural engagement', 'emotional engagement', 'cognitive engagement', 'emotional intelligence', 'emotion regulation', 'inclusive higher education', 'accessibility', and 'learner diversity'. Additional combinations examined GBL and emotion, EI and engagement, and EI as a moderator in technology-supported learning. Sources were included when they provided conceptual definitions or empirical evidence relevant to at least one proposed link: GBL-engagement, EI-engagement, emotional experiences in GBL, or moderation by EI in a technology-supported setting. Studies with no clear connection to higher education, inclusion, engagement, emotion, or game-related learning were excluded. Titles and abstracts were reviewed for relevance, followed by full-text conceptual comparison. The synthesis distinguishes direct evidence for a proposed relationship from evidence that only supports its theoretical plausibility. This procedure identified substantial separate evidence on GBL and engagement and on EI and engagement, but limited direct testing of EI as a moderator of the GBL-engagement relationship.

CONCEPTUAL FRAMEWORK AND PROPOSITIONS

Game-Based Learning and Student Engagement

Bringing GBL, EI, and engagement into one framework gives a more realistic account of game-based teaching in inclusive higher education. GBL is commonly linked with engagement when games offer purposeful interaction, challenge, feedback, and opportunities to build knowledge (Matthew et al., 2025; Rose et al., 2025; Titus & Ng'Ambi, 2023). Benefits also appear in settings involving socialisation, cross-cultural learning, and students needing additional support (Elsom et al., 2023; Hunt et al., 2025). This does not mean any game will engage any learner. Design, instructional fit, context, and learner characteristics still matter (Camilleri, 2023; Squire, 2023).

Proposition 1 (P1): Game-based learning is positively associated with student engagement in inclusive higher education.

Emotional Intelligence and Student Engagement

EI helps explain some of this variation. Students who recognise and regulate emotions tend to show stronger engagement and educational functioning (Maguire et al., 2017; Thomas & Allen, 2021; Zhoc et al., 2020). EI has also been linked to emotional engagement in generative-AI-assisted learning, while digital support can shape its relationship with academic engagement (Falola et al., 2026; Zhang & Wang, 2026). Emotionally adaptive learning likewise treats feelings as part of instructional design (Ho, 2026). This evidence supports a direct association while suggesting that emotional skills also work in relation to the environment.

Proposition 2 (P2): Emotional intelligence is positively associated with student engagement in inclusive higher education.

The Moderating Role of Emotional Intelligence

A game's emotional experience can be positive or negative. Learners may feel curious, confident, frustrated, uncertain, or disappointed as difficulty changes. Studies show that emotion is part of digital GBL and changes as students think and act (Chen et al., 2021; Ketonen et al., 2026; Mardiana, 2026). This variation helps explain why the same design may hold one student's attention and weaken another's persistence. Diversity includes emotional responses as well as cognitive, social, and educational needs. Games may reduce barriers in inclusive classrooms, but they still need to be designed around learner variability (Yeniasır & Tekman, 2026). Access is only a starting point.

The framework's main claim is that ability EI may change how strongly GBL relates to engagement. Games create changing emotions, and students differ in how well they perceive, understand, and regulate them (Chen et al., 2021; Ketonen et al., 2026; Zhoc et al., 2020). A student with stronger ability EI may manage frustration, interpret feedback constructively, and persist during uncertainty. Another student may find the same demands harder to regulate. Gaming and emotional development can intersect (Pek et al., 2025), but this does not establish moderation. Poor alignment or inaccessible design may also weaken engagement regardless of EI.

Proposition 3 (P3): Emotional intelligence moderates the positive relationship between game-based learning and student engagement, such that the relationship is stronger among students with higher emotional intelligence.

Proposed Conceptual Framework

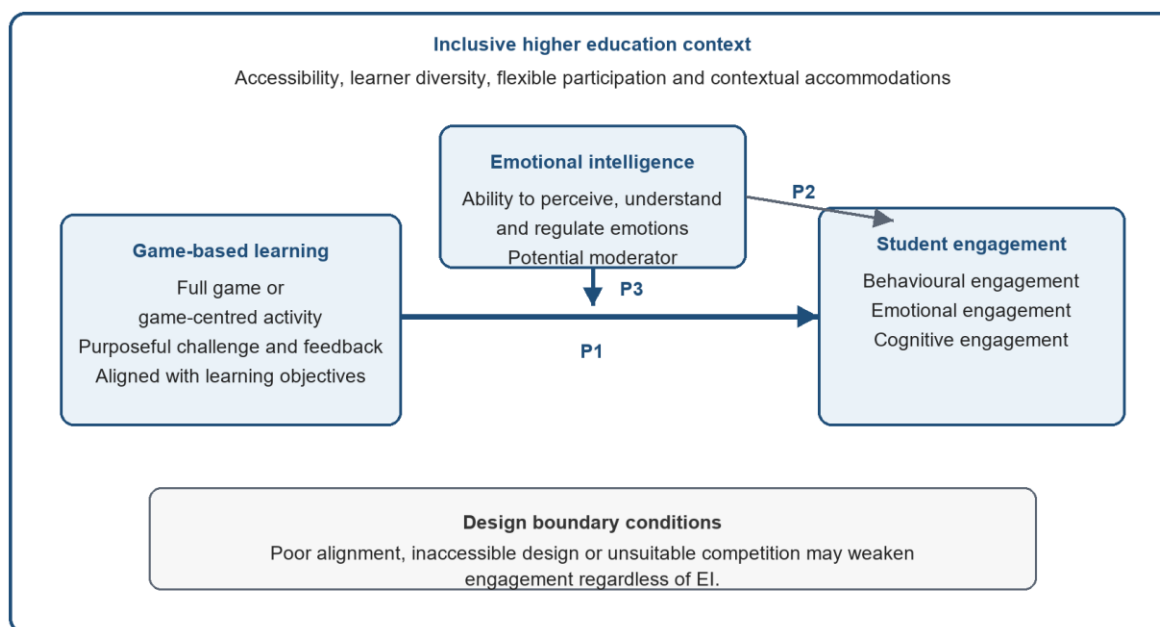


Figure 1. Proposed conceptual framework for inclusive game-based learning and student engagement

DISCUSSION

The proposed framework connects GBL, EI, and student engagement. Previous studies have often examined these concepts separately. Evidence supporting P1 shows that GBL can improve student engagement when games include clear goals, suitable challenges, useful feedback, and meaningful interaction (Matthew et al., 2025; Rose et al., 2025; Titus & Ng'Ambi, 2023). Games may encourage students to participate, become

interested, and think more deeply about learning tasks. However, using a game does not automatically lead to engagement. The result also depends on the quality of the game, its connection with the learning objectives, and the needs of the students (Camilleri, 2023; Squire, 2023).

P2 proposes that EI is positively related to student engagement. Students with stronger emotional abilities may be better able to understand their feelings, manage academic pressure, and remain involved when learning becomes difficult (Maguire et al., 2017; Thomas & Allen, 2021; Zhoc et al., 2020). EI has also been linked with motivation, resilience, learning, and achievement (Lin, 2025; Pandey et al., 2025; Zhoc et al., 2023). These findings support a direct relationship between EI and engagement. Nevertheless, EI is not the only factor that affects engagement. Teaching methods, learning conditions, and student needs are also important.

P3 presents the main theoretical contribution of the framework. Game-based activities can create different emotions through challenge, competition, teamwork, feedback, success, and failure. Research shows that students' emotions can change during GBL and may affect how they think and learn (Chen et al., 2021; Ketonen et al., 2026; Mardiana, 2026). EI may influence how students respond to these experiences. For example, a student who can manage frustration may continue playing, use feedback, or ask for help. Another student may lose interest or stop participating. EI may therefore change the strength of the relationship between GBL and engagement. However, this moderating effect still needs to be tested directly.

The influence of EI may also depend on the design of the game. High EI cannot make a poorly designed or inaccessible game effective. Different emotional abilities may also be important in different situations. Emotion regulation may be useful when students face failure, difficult feedback, or time pressure. The ability to understand emotions may be more important during teamwork. Therefore, the relationship proposed in P3 is more likely to be positive when the game is accessible, linked to the learning objectives, and supported by clear instructions and flexible participation.

The framework is especially relevant to inclusive higher education. Giving every student access to the same game does not always create an inclusive learning experience. Students have different abilities, backgrounds, emotional responses, and participation needs. Inclusive GBL should provide accessible content, clear rules, suitable levels of difficulty, and different ways to participate. Alternatives may also be needed when competition or group work creates a barrier. Studies suggest that carefully designed games can improve engagement and reduce learning barriers (Hunt et al., 2025; Rodríguez-Ferrer et al., 2023; Yeniasır & Tekman, 2026). EI should therefore be used to understand students' different emotional responses, not to label or exclude them.

The framework also has practical value for educators. Teachers should begin with the learning objectives and student needs before choosing a game. Feedback should help students learn from mistakes rather than make them feel discouraged. The level of difficulty should be challenging but manageable. Teachers should also provide flexible ways for students to take part. In addition, GBL should be distinguished from gamification. Adding points, rankings, badges, or quizzes does not always create a complete game-based learning experience (Sitompul et al., 2023; Squire, 2023). A clear distinction will help educators and researchers understand which game features support engagement.

This paper has several limitations. It uses a structured narrative review rather than a full systematic review. The studies also differ in their disciplines, student groups, game designs, and measures of engagement. Some evidence on inclusion comes from schools, teacher research, special education, identity-awareness programmes, or language classrooms. It may not apply directly to every higher-education setting. Future studies should therefore test P1–P3 with different student groups and types of GBL. They should also measure behavioural, emotional, and cognitive engagement separately and use an EI measure that matches the ability-based approach adopted in this paper.

CONCLUSION

This paper proposes that GBL can support student engagement in inclusive higher education. Well-designed games may encourage students to participate, become emotionally involved, and think more deeply about learning tasks. However, GBL does not affect every student in the same way. Its effectiveness depends on the quality of the game, its connection with the learning objectives, its accessibility, and the support provided to students (Camilleri, 2023; Squire, 2023). The main contribution of the paper is the inclusion of EI as a potential moderator between GBL and student engagement. EI may help students manage emotions caused by challenge, feedback, competition, teamwork, success, and failure. Students with stronger EI may be more able to manage frustration, use feedback, and remain involved in the activity. This may explain why the same game produces different levels of engagement among students. Inclusive GBL should provide accessible content, clear instructions, suitable challenges, and flexible ways to participate. EI should not be used to label or exclude students. It should help educators understand that students may respond differently to the emotional demands of a game. The proposed moderating role of EI has not yet been established. Future research should test the framework to determine whether EI helps explain when and for whom GBL is most effective in inclusive higher education.

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