SELF-DISCLOSURE AS A HERMENEUTIC MODERATOR IN TELISIK'S GAMIFIED LEARNING TRAJECTORY

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ABSTRACT

This study investigates the contribution of gamified learning and self-disclosure counselling within the TELISIK digital ecosystem in enhancing students' readiness for higher education, proxied by UTBK scores. Using a quantitative design, data from 82 participants in South Sumatra were collected through structured questionnaires and analysed with regression modelling. The results demonstrate that gamified learning significantly improves academic performance by strengthening motivation, engagement, and persistence, while self-disclosure counselling also contributes positively by fostering reflection, psychological safety, and resilience. However, the interaction between the two was not statistically significant, indicating that gamification and counselling function effectively in parallel rather than synergistically. These findings provide theoretical support for constructivist learning, illustrating how behavioural stimulation and reflective practice independently enhance outcomes. They also align with SDGs 4 (Quality Education), emphasising TELISIK's potential as a community-driven platform to expand access to higher education in disadvantaged regions. The study offers practical insights for policymakers and edtech developers in optimising digital ecosystems to strengthen academic readiness. Limitations include the modest sample size, reliance on UTBK scores as a single performance indicator, and the absence of formally trained counsellors in TELISIK. Future research should broaden samples, adopt longitudinal designs, and incorporate multidimensional learning outcomes to enrich theory and practice.

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1. INTRODUCTION

Globally, higher education attainment continues to contend with the dual pressures of diminishing learner engagement and escalating demands for pedagogical innovation (Bakar, 2021). In response, gamified learning defined as the integration of game mechanics such as points, badges, and leaderboards into instructional design has experienced exponential growth. The global market for educational gamification was valued at approximately USD 1.14 billion in 2024 and is projected to reach USD 1.55 billion in 2025, with forecasts of USD 18.63 billion by 2033 (CAGR ≈ 36.4%) (Market Data Forecast, 2024). This trajectory reflects a rapidly expanding appetite for e-learning platforms and interactive pedagogical content that promote immersion and responsiveness in an

increasingly digitalised era (Rana, 2024). Concurrently, the proliferation of online learning communities has coincided with the rising prominence of counselling approaches (Blayone et al., 2017) particularly those centred on self-disclosure as mechanisms for strengthening motivational resilience and fostering psychological safety in learning environments.

In Southeast Asia, and Indonesia in particular, the adoption of gamified learning has intensified alongside accelerating digitalisation and widespread smartphone penetration (Vadivel et al., 2021; Dhamanti & Salsabila, 2025). While comprehensive revenue data remain limited, emerging studies indicate a marked increase in the experimentation with gamification across both educational and commercial domains. A recent Asia focused meta analysis demonstrates that the efficacy of gamification is highly contingent upon contextual, regional, and delivery specific factors, thereby reflecting the distinctive educational dynamics of Southeast Asia (Supasa et al., 2024). Within Indonesia, quasi experimental research conducted during the post-pandemic "new normal" revealed measurable gains in academic reading comprehension when contrasted with traditional rote learning(Atmowardoyo & Sakkir, 2023). These outcomes are reinforced by qualitative analyses of user engagement in gamified e-commerce platforms, which highlight a wider cultural receptivity to game based approaches (Tobondo & Putra, 2021).

In 2024, Indonesia's Gross Enrolment Ratio (GER) for tertiary education stood at 32.00%, indicating that only one-third of the university-age population was enrolled (BPS, 2024). The disparity is more pronounced in South Sumatra, where the GER reached just 26.41%, around 5.6 percentage points lower than the national average, underscoring significant regional inequities in access (BPS, 2024). Thus, while literacy development initiatives continue to progress, enduring structural and motivational barriers: such as financial constraints, uneven institutional provision, and varying degrees of academic readiness, still hinder equitable pathways into higher education.

Interestingly, these participation gaps persist even amid encouraging literacy indicators. The Community Literacy Development Index (IPLM) has reached 72.24 (medium category) and the Reading Interest Level stands at 69.62 (high category), yet public participation in higher education remains at only 26.41%, or about 5.6 points below the national average. According to the National Library Regulation No. 8 of 2025 on the National Library Strategic Plan for 2025–2029, there are 108 libraries in South Sumatra that have received the Social Inclusion-Based Library Transformation (TPBIS) program. This fact indicates that high reading interest and basic literacy skills do not automatically translate into increased access to higher education. In fact, strong literacy potential should be optimized to enhance university participation. This is particularly important because the UTBK, as the national university entrance examination, emphasizes literacy in four out

of seven test components: literacy in Indonesian, literacy in English, reading and writing comprehension, as well as general knowledge and understanding. This shows that literacy is not merely the ability to read, but also includes critical thinking, contextual understanding, and the ability to process information deeply.

Exacerbating these barriers is the extreme competition embedded within national admission mechanisms. The 2025 SNBP selection cycle recorded 745,579 applicants to academic state universities, with only 150,547 admitted (20.19%). For vocational institutions, 73,792 students applied, yet only 22,481 (30.47%) were accepted (Kemdiktisaintek, 2025). Such figures reveal that rejection often stems less from academic inadequacy than from systemic constraints in programme capacity. Students who succeed are typically those with consistent academic records and judicious programme choices, while many others are compelled to pursue entry through SNBT or institutional pathways (Lakilaki et al., 2024). Accordingly, admission outcomes are shaped not only by individual merit but also by external determinants such as quota allocations, programme selectivity, and applicants' strategic decision making.

The high attrition rates inherent in these systems inevitably weaken students' motivation to pursue tertiary education, a phenomenon particularly visible in South Sumatra where participation already trails national benchmarks. Contributory factors include restricted access to preparatory resources among lower socio economic groups, entrenched perceptions of admission bureaucracy as prohibitively complex, and limited dissemination of critical information regarding UTBK preparation, schedules, and subject-alignment strategies (Lakilaki et al., 2024). Left unaddressed, these obstacles threaten to leave significant human capital potential unrealised.

Against this backdrop, TELISIK (*Teras Belajar Asik*) has emerged as a community-based initiative designed to mitigate systemic shortcomings by providing free online learning support for prospective university entrants. Established on 22 May 2021 by Eogenie Lakilaki, a graduate of Universitas Sriwijaya, TELISIK employs an integrative pedagogical model that combines online instruction, counselling provision, and gamified learning to cultivate engaging and inclusive learning environments. Its programmes encompass outreach on national selection mechanisms (SNPMB), regular UTBK trial examinations, educational modules incorporating gamification and counselling, systematic problem solving sessions, and mentorship during UTBK participation (Lakilaki et al., 2025). TELISIK's visibility, consolidated through its social media presence (@telisik.go) and its official platform (www.telisik-go.my.id/), demonstrates how grassroots initiatives can galvanise learner motivation and preparedness, particularly in socio educational contexts characterised by structural

disadvantage and subdued participation in higher education.

Previous research has consistently demonstrated that both counselling services and gamified approaches contribute significantly to improvements in academic attainment. Amanda & Mahidin (2023) reported that tutoring interventions enhanced students' performance at the junior secondary level, while Rusmiyati et al. (2021) highlighted the effectiveness of counselling in helping students overcome academic difficulties. Similar findings were presented by Apriyanti et al., (2023), who showed that counselling interventions improved mathematics achievement, and by Aini et al. (2024), who confirmed the role of counselling in supporting academic success among secondary school students. In parallel, empirical studies on gamification in education have yielded convergent results. Kartini et al. (2024) demonstrated that the use of Quizizz based gamification produced more favourable outcomes than conventional methods, whereas Luh et al. (2025), Azizah et al. (2025), Lampropoulos & Sidiropoulos (2024) confirmed that game based media fostered stronger learner engagement. At the international level, Alsadoon et al. (2022) found that gamification in e-learning environments enhanced learners' motivation and satisfaction, albeit without always translating directly into academic achievement. Complementing this, Sheng & Montgomery (2025) showed that gamification in language learning improved outcomes through the mediating role of intrinsic motivation and the moderating influence of learning style preferences. Furthermore, Zeng et al. (2024), writing in the British Journal of Educational Technology, provided robust evidence that gamification exerts a consistent positive influence on academic performance across diverse educational contexts.

Despite this extensive and convergent body of evidence, a notable research gap remains. Prior studies have typically examined counselling and gamification as separate educational interventions, with limited attention to how these two approaches might interact within a unified learning ecosystem. Moreover, while most findings originate from either formal classroom settings or controlled experimental environments, the integration of reflective counselling practices and gamified learning within community-based digital ecosystems, particularly in the Indonesian context, remains underexplored. The absence of studies linking counselling-based self-disclosure with gamified learning dynamics in relation to high-stakes academic preparation, such as UTBK readiness, indicates a theoretical and empirical gap that this study seeks to address. In examining these conditions, this study focuses on two interrelated variables: gamified learning and self-disclosure-based counselling. While Southeast Asian research on self-disclosure remains limited, global literature consistently corroborates its positive relationship with learning outcomes. However, no prior studies have attempted to explicitly bridge gamification and academic performance through counselling

delivered directly by communitybased learning initiatives. This represents a critical urgency, as such integration has the potential to create sustainable, culturally grounded pathways to strengthen higher education participation in disadvantaged regions.

The theoretical orientation of this investigation is grounded in constructivist learning theory, which posits that knowledge is actively co-constructed through experience, social interaction, and reflection (Suparlan, 2019; Suryana et al., 2022; Ulya, 2024; Saputra & Muqowim, 2024). Gamification fosters immersive experiential environments that reinforce meaning making, while self-disclosure promotes reflective practices and interpersonal depth (Ke et al., 2025; Stepanova et al., 2022) . Their convergence cultivates a constructivist dynamic wherein learners internalise concepts, negotiate shared understandings, and develop autonomy and intrinsic motivation requisite for progression to higher education.
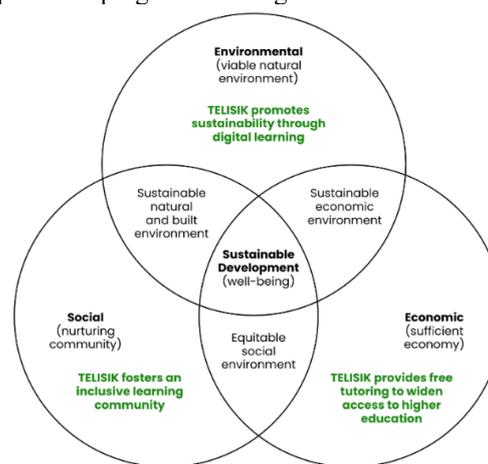

Figure 1. Three pillars of sustainable development and TELISIK's position within them
Source: Rogers et al. (2008) and has been adjusted

In this regard (see Figure 1), TELISIK's role can also be interpreted within the three pillars of sustainability: socially, it fosters an inclusive learning community; environmentally, it promotes sustainability through digital learning; and economically, it provides free tutoring to widen access to higher education. this research is situated within the broader framework of the United Nations Sustainable Development Goal 4:Quality Education, which emphasises equitable, inclusive, and lifelong access to learning (Ozili, 2025; Shi et al., 2019). The integration of gamification and self-disclosure counselling is thus conceptualised as an innovative trajectory for promoting higher education participation and addressing disparities in engagement. Anchored in sustainable development theory, which underscores the interdependence of social, environment, and economic dimensions in human capability expansion (Rogers et al., 2008), TELISIK is framed not solely as a platform for individual advancement but as a digital ecosystem that enhances collective resilience and contributes to sustainable educational transformation.

H1: Gamified Learning is associated with improvements in students' UTBK Performance

Gamified learning, operationalised through the integration of game mechanics such as points, badges, and leaderboards, is posited to enhance academic outcomes, including UTBK scores. Empirical studies confirm that gamification fosters stronger engagement and learning achievement. Kartini et al. (2024) demonstrated that Quizizz-based gamification produced more favourable outcomes than conventional methods, while whereas Luh et al. (2025), Azizah et al. (2025), Lampropoulos & Sidiropoulos (2024) further confirmed that game-based media significantly strengthened learner engagement. At the international level, Zeng et al. (2024) provided robust evidence that gamification consistently supports academic performance across contexts. Accordingly, gamified learning is expected to have a positive and significant effect on UTBK results.

H2: Increases in Self-Disclosure Counselling correspond with improvements in learners' UTBK scores.

Self-disclosure counselling, defined as the voluntary sharing of emotions, thoughts, and personal challenges in a learning context, is hypothesised to enhance academic performance, proxied by UTBK scores. Rusmiyati et al. (2021) and Putri Amanda & Mahidin (2023) emphasise that self-disclosure facilitates deeper reflection and builds psychological safety, which are crucial for sustaining learning motivation. Theoretically, this aligns with educational psychology perspectives which argue that openness fosters self-regulation, resilience, and collaborative learning (Apriyanti et al., 2023; Aini et al., 2024).

H3: Self-Disclosure Counselling shapes the linkage between Gamified Learning and learners' UTBK performance.

While gamified learning and self-disclosure counselling independently improve academic outcomes, their interaction is hypothesised to produce a synergistic effect. Gamification drives behavioural engagement, while self-disclosure enhances emotional and cognitive support (Kwak et al., 2025). Theoretically, sustainable development and constructivist learning frameworks suggest that combining behavioural stimulation with reflective practice can generate stronger and more resilient learning outcomes (Alam, 2022). Accordingly, it is hypothesised that self-disclosure counselling strengthens the positive relationship between gamified learning and UTBK performance.

2. METHODOLOGY

This study adopts a quantitative research design, characterised by clarity, objectivity, measurability, rationality, and a systematic procedure (Sekaran & Bougie, 2017; Vialtsev & Komarov, 2024; Ghozali, 2018). The analytical framework comprises one dependent variable, namely academic performance proxied by UTBK scores (Y), independent variables: gamified learning (X) and moderating variable: self-disclosure counselling (M), with their interaction term (XM) tested as a potential moderator. All constructs were operationalised through structured questionnaires designed with a four-point *Likert* scale: responses of Very Appropriate were scored 4, Appropriate scored 3, Not Appropriate scored 2, and Very Inappropriate scored 1 (Sugiyono, 2018). Gamified learning (GAM) was assessed using eight indicators, while self-disclosure counselling (COUNS) was measured using three indicators. The target population consisted of participants actively engaged in the TELISIK digital learning ecosystem, and purposive sampling was employed to ensure that only relevant respondents were included.

Purposive sampling was employed to ensure that only respondents with direct exposure to the TELISIK digital ecosystem, specifically those who had actively participated in its learning modules and counselling sessions, were included, as these individuals possessed the experiential relevance needed to evaluate gamified learning and self-disclosure accurately. The respondents were TELISIK members aged 18-20 years, predominantly high-school students from diverse socio-economic and educational backgrounds across South Sumatra, representing 14 districts/cities. A total of 82 questionnaires were distributed and fully returned, producing a 100 per cent response rate.

The primary data were collected entirely through these questionnaires, capturing students' perceptions of gamification, their self-disclosure practices, and their UTBK scores. UTBK scores were verified through a single step procedure: respondents were instructed to manual input. The dataset: covering students' perceptions of gamified learning, their self-disclosure practices, and their verified UTBK results was subsequently analysed using descriptive statistics, validity and reliability testing, and classical assumption diagnostics (normality, heteroscedasticity, and multicollinearity), followed by regression modelling to examine both direct and moderating effects (Ghozali, 2018).

A detailed exposition of the variables and their respective proxies is presented in Table 1.

Table 1: Variable Measurement

Type	Name	Formula/Indicator	References
Independent	Gamification Learning	Students are more motivated to learn when using the gamification method Students find it easier to understand material when the teacher uses the gamification method Students enjoy learning through gamification Learning using the gamification method makes the learning process	Irnawati et al. (2024) Tyaningsih et al. (2022) Satriawan & Abdullah (2016)

		more enjoyable		
		Students are enthusiastic about completing exercises when using the gamification		
		The use of the gamification method makes students more eager to solve difficult things		
		The use of the gamification method encourages students to be more actively engaged in classroom learning		
		The use of the gamification method helps students improve their knowledge and ability beyond the previous level		
Dependent	Academic Achievement	UTBK score based on official certificate	UTBK certificate issued by the Ministry of Research, Technology, and Higher Education	
Moderating	Self-Disclosure Counseling	Openness about emotions	Sivagurunathan et al. (2021)	
		Openness about personal problems experienced	Putra & Mudjiran (2023)	
		Openness about thoughts or perception	Luo & Hancock (2020)	

Source: Previous Study, 2025

3. RESULTS AND DISCUSSION

During the course of the study, a total of 82 questionnaires were distributed. All respondents were returned and deemed usable, representing a response rate of 100 per cent.

Descriptive Statistical Analysis

Table 2 presents a descriptive statistical synthesis of the observed dataset, encapsulating the central tendencies and dispersions of the measured constructs. The gamified learning variable (GAM) registers a mean of 20.00 (SD = 7.76), with values ranging from 8 to 32, indicating a moderately high adoption of gamification elements across participants, while the relatively wide standard deviation suggests considerable heterogeneity in engagement levels. The counselling variable (COUNS), measured through self-disclosure, yields a mean of 7.50 (SD = 2.84), bounded between 3 and 12, reflecting a generally positive but variably distributed propensity among students to engage in reflective counselling processes. Finally, the UTBK performance scores, employed as a proxy for academic achievement, report a mean of 579.06 (SD = 73.52), spanning from 454 to 717, signalling a reasonably competitive performance level relative to national standards, though variation remains evident across the sample.

Collectively, these statistics provide a robust empirical baseline, revealing both the average tendencies and the degree of dispersion across the key variables. This foundational profile underscores the necessity of examining how gamification and counselling interact in shaping academic performance, thereby offering a critical platform for the subsequent inferential analyses of moderating and mediating effects.

Table 2: Descriptive Statistical Results

Variable	Min	Max	Mean	Std. Deviaton
GAM	8	32	20,00	7,75552
COUNS	3	12	7,5	2,84258
UTBK	454	717	579,0610	73,51532

Source: SPSS's Output, 2025

Validity and Reliability Test

Table 3 provides an evaluation of the validity and reliability of the research instruments used to measure the variables GAM (Gamified Learning) and COUNS (Counselling/Self-Disclosure). The validity test results demonstrate that all questionnaire items for both variables attained significance values of 0.000, which fall below the 0.05 threshold, thereby confirming that every item is statistically valid and appropriately measures the intended construct. In terms of reliability, the *Cronbach's Alpha* coefficients indicate strong internal consistency. The GAM construct achieved a coefficient of 0.951, which far exceeds the minimum recommended threshold of 0.70, reflecting excellent reliability across all eight items. Similarly, the COUNS construct recorded a *Cronbach's Alpha* of 0.782, surpassing the acceptability benchmark and confirming that the items consistently represent the underlying self-disclosure dimension. Taken together, these results affirm that the instruments used in this study are both valid and reliable, thereby ensuring measurement accuracy and internal consistency. Consequently, the dataset derived from these instruments is robust and suitable for subsequent regression and hypothesis testing procedures.

Table 3: Validity and Reliability Results

Question	GAM				COUNS			
	Value of Validity	Results	*Cronbach Alpha*	Results	Value of Validity	Results	*Cronbach Alpha*	Results
1	0,000	Valid	0,951	Reliable	0,000	Valid	0,782	Reliable
2	0,000	Valid	0,951	Reliable	0,000	Valid	0,782	Reliable
3	0,000	Valid	0,951	Reliable	0,000	Valid	0,782	Reliable
4	0,000	Valid	0,951	Reliable				
5	0,000	Valid	0,951	Reliable				
6	0,000	Valid	0,951	Reliable				
7	0,000	Valid	0,951	Reliable				
8	0,000	Valid	0,951	Reliable				

Source: SPSS's Output, 2025

Classical Assumption Testing

To ensure the empirical adequacy of the dataset, a comprehensive series of classical

assumption diagnostics was undertaken to safeguard the robustness of the regression analysis. As shown in Table 4, the *Kolmogorov Smirnov* normality test produced a significance value of 0.200, comfortably above the 0.05 threshold and thereby confirming the absence of normality violations. In parallel, the heteroscedasticity assessment conducted through the *Glejser test* yielded significance values of 0.050 for GAM and 0.925 for COUNS, both of which exceeded the critical cut-off, thus validating the homogeneity of variances within the model. Complementing these results, the multicollinearity diagnostics indicated *tolerance* coefficients of 0.966 for both variables alongside *Variance Inflation Factor* (VIF) scores of 1.035, well below the conventional ceiling of 10, thereby eliminating concerns of collinearity among predictors. Collectively, these outcomes attest to the statistical soundness of the dataset and confirm its suitability for subsequent hypothesis testing and inferential regression procedures, providing a robust empirical foundation for the analyses that follow.

Table 4: Classical Assumption Test Results

Normality Test	Variable	Heteroscedasticity Test	Multicolinearity Test	
Kolmogorov Smirnov		Glejser Test	Tolerance	VIF
0,200	GAM	0,050	0,966	1,035
	COUNS	0,925	0,966	1,035

Source: SPSS's Output, 2025

Hypothesis Testing
Coefficient of Determination Analysis

The coefficient of determination, as indicated by the Adjusted R-Square, constitutes a pivotal index for assessing the explanatory capacity of the regression model by quantifying the proportion of variance in the dependent variable accounted for by the set of independent predictors, while simultaneously accommodating residual variance attributable to unobserved or uncontrolled influences. As reported in Table 5, the model achieved an exceptionally high Adjusted R-Square of 1.000, signifying that the explanatory variables incorporated in the regression collectively account for the entirety of the variation in the dependent construct. Correspondingly, the standard error of the estimate, recorded at 0.24989, reflects a remarkably low level of prediction error, further reinforcing the precision of the model's estimations. These results underscore the formidable explanatory power and robustness of the regression specification, whilst simultaneously suggesting that the relationship between the predictors and the outcome variable is both highly stable and empirically reliable.

Table 5: Determination Coefficient Test Results

R	R Square	Adjusted Square	R Std. Error of the Estimate
1,000	1,000	1,000	0,24989

Source: SPSS's Output, 2025

Partial t-test and Moderation Regression Analysis

The mathematical equation that can be drawn based on the following table 5 is:

$$UTBK = 338{,}503 + 9{,}624 GAM + 0{,}001 GAMCOUNS + \varepsilon \quad (1)$$

In this equation, the constant coefficient of 338.503 indicates that, in the absence of the explanatory variables (i.e., when both GAM and the interaction term GAMCOUNS are set to zero), the baseline UTBK score would assume a value of 338.503. The regression coefficient for GAM (9.624) suggests that a one-unit increase in gamified learning corresponds to an increase of 9.624 points in UTBK performance, thereby underscoring the positive influence of gamification on academic outcomes. Furthermore, the coefficient of 0.001 for the interaction term GAMCOUNS implies that the moderating effect of counselling through self-disclosure marginally enhances the positive relationship between gamified learning and UTBK performance, albeit with a relatively modest effect size. Collectively, these results demonstrate that gamification exerts a substantive direct effect on academic achievement, while its synergy with self disclosure counselling provides an incremental but supportive contribution to improving student performance in university entrance examinations.

Table 6: Partial t Test Results and Moderation Regression Analysis

	B	Standard error	t	Sig.	Result
Constant	338,503	0,247	1.372,213	0,000	
GAM	9,624	0,011	877,303	0,000	Has a positive and significant impact
COUNS	6,401	0,029	217,960	0,000	Has a positive and significant impact
GAMCOUNS	0,001	0,001	0,392	0,696	Not moderating and strengthning

Source: SPSS's Output, 2025

Further insights derived from the regression output yield the following hypothesis validation outcomes: (1) the constant value is significant at 0.000 (<5%), confirming that the baseline model provides a valid starting point for prediction; (2) the coefficient for GAM records a significance level of 0.000 (<5%), thereby supporting the acceptance of H1 and affirming that gamified learning exerts a statistically significant positive effect on UTBK performance; (3) the coefficient for COUNS also attains a significance value of 0.000 (<5%), substantiating the acceptance of H2 and indicating that self-disclosure counselling significantly enhances academic outcomes; (4) by contrast, the interaction term GAMCOUNS demonstrates a significance level of 0.696 (>5%), leading to the rejection of H3 and suggesting that counselling through self-disclosure does not significantly

moderate the relationship between gamification and UTBK scores.

Gamified Learning and UTBK Performance

The findings demonstrate that increased exposure to gamified learning directly enhances students' UTBK performance, a pattern that aligns with constructivist theory, where knowledge is built through active engagement and meaningful interaction. Gamified elements, such as points, challenges, and leaderboards, stimulate cognitive involvement and sustain learner motivation, thereby strengthening performance on demanding tasks. However, when compared with previous studies such as Kartini et al. (2024) and Luh et al. (2025), which examined gamification in short-term, classroom based activities, the present results reveal a broader effect. Unlike immediate academic tasks, UTBK is a cumulative and high stakes examination requiring long term cognitive discipline. The continued significance of gamification in this extended timeframe suggests that its influence can exceed short term engagement outcomes, providing evidence that gamified learning can shape learning behaviours more deeply than some earlier research implied.

These findings also challenge the generalisability of Alsadoon et al. (2022), who argued that increased motivation in gamified e-learning systems does not always lead to improved academic achievement. Within the TELISIK ecosystem, a structured, student led digital learning platform, gamification appears to function not merely as a motivational tool but as a behavioural driver that reinforces consistency, practice, and perseverance. In the post COVID Indonesian context, where digital learning habits are more entrenched, students are increasingly accustomed to game like interfaces and performance tracking features, making gamification more impactful than in pre pandemic educational settings. Thus, the results offer a refined perspective: gamification can meaningfully enhance high stakes academic readiness when embedded within a cohesive digital learning environment that integrates behavioural engagement and long term learning goals.

Self-Disclosure Counselling and UTBK Performance

The results also confirm that students who engage in emotional reflection and open communication tend to achieve higher UTBK scores. This aligns with counselling and educational psychology theories, which highlight the role of emotional processing, reduced anxiety, and improved self regulation in shaping academic performance. Prior research by Apriyanti et al., (2023) and Aini et al. (2024) underscores similar benefits but was conducted in formal school environments with structured guidance programmes. By contrast, the present study assesses self-disclosure within a

Community based digital platform supported by peer tutors and volunteers rather than certified counsellors. This distinction is important because it suggests that the effectiveness of self-disclosure may not depend solely on professional expertise but also on the availability of a psychologically safe, supportive space, even if informal, where students can articulate personal concerns and reorganise their thoughts.

However, the strength of this effect should be interpreted with caution. Although TELISIK provides a supportive digital environment, the absence of professional counselling expertise could limit the depth of cognitive restructuring normally facilitated by trained counsellors. The findings extend the work of Rusmiyati et al. (2021) by demonstrating that self-disclosure can support not just emotional relief but also high stakes academic outcomes when embedded within peer driven digital communities. Yet, because peer based counselling may lack diagnostic precision or advanced therapeutic strategies, its long term influence may differ from outcomes reported in more formal counselling settings. Therefore, while the positive effect highlights the potential of community driven platforms to support students' emotional and academic needs, it also points to the need for further refinement and professionalisation to optimise its impact for UTBK preparation.

Gamified Learning with Self-Disclosure Counselling and UTBK Performance

Unlike H1 and H2, the interaction term between gamified learning and self-disclosure counselling. This necessitates rejecting H3 and indicates that counselling does not strengthen or weaken the influence of gamification on UTBK outcomes. Critically comparing this result with prior literature reveals an important inconsistency: studies such as Sheng & Montgomery (2025) and Zeng et al. (2024) found that the effects of gamification could be enhanced by motivational or emotional mechanisms, including intrinsic motivation and learning preference. However, these studies were conducted in structured environments with tightly integrated learning interventions. In contrast, the TELISIK ecosystem operates in a voluntary, community based setting in which engagement with gamified learning and counselling activities does not always overlap. This structural separation diverges from the assumptions underlying previous moderation findings and helps explain why emotional disclosure does not amplify behavioural engagement here. Furthermore, Indonesian cultural norms that discourage open emotional expression, especially in academic contexts, reduce the likelihood that counselling will meaningfully interact with gamified features. This contrasts with the international contexts examined by Alsadoon et al. (2022), where learners displayed fewer barriers to emotional engagement. The present findings therefore suggest that the integration of emotional and behavioural interventions may not be

universally effective; rather, their interaction is highly contingent on cultural norms, counselling quality, and ecological coherence of the learning platform. Consequently, the non significant moderation underscores that while gamification and counselling independently improve UTBK performance, their combined effect cannot be assumed and remains context dependent.

The absence of a significant moderating effect of self-disclosure counselling on the relationship between gamified learning and UTBK performance can be understood more clearly when viewed through cultural, local community, and ecological perspectives. Statistically, the interaction term produced a negligible coefficient and an insignificant *p-value*, indicating that the two constructs operate independently rather than synergistically. Conceptually, this pattern aligns with several contextual explanations.

First, cultural factors play a substantial role. Indonesian learners, especially those at the high school level, tend to exhibit emotional restraint and a reluctance to share personal or sensitive information with peers or tutors. Self-disclosure is culturally moderated by norms of modesty (*tepa selira*), deference to authority, and a strong boundary between academic and personal life. As a result, even when counselling sessions are available, students may engage only superficially, limiting the depth of emotional processing that could interact meaningfully with the motivational impulses generated by gamification. Without rich or authentic disclosure, counselling cannot produce the cognitive emotional shifts necessary to enhance the effects of gamification on academic performance.

Second, the counselling services within the TELISIK ecosystem are still developing, particularly in terms of professional expertise. The counsellors are volunteer tutors without formal training in guidance and counselling. While they provide valuable support, the absence of specialised competencies in facilitating structured self-disclosure, such as active listening, reflective questioning, or affect labelling reduces the likelihood that counselling will produce strong psychological transformations. Since the moderating effect depends on high quality emotional activation and reflection, limited counselling depth naturally weakens the interaction between the two interventions.

Third, the community based nature of TELISIK creates a unique ecological dynamic. Students participate voluntarily and at varying intensities. Not all individuals who are highly engaged with gamified learning are equally active in counselling sessions, and vice versa. This participation asymmetry dilutes the overlap between the two experiences at the individual level, reducing the probability that counselling will amplify or reshape the behavioural engagement triggered by gamification. In statistical terms, the non uniform exposure creates a structural barrier that weakens the potential for an interaction effect to appear.

Fourth, the objectives of the two interventions may not align temporally or psychologically. Gamification targets short-term behavioural engagement, such as motivation, persistence, and enjoyment, whereas self-disclosure counselling encourages longer-term emotional regulation and reflective decision-making. These effects move on different timelines: gamification produces immediate spikes in activity, while counselling operates through gradual internalisation. Because their mechanisms unfold asynchronously, the two may fail to reinforce each other in a way that impacts UTBK scores, which are themselves influenced by prolonged and intensive study behaviours.

Taken together, these cultural, organisational, and ecological explanations provide a coherent rationale for why the moderating effect did not materialise empirically. Rather than indicating a failure of either intervention, the non significant interaction reflects structural realities, cultural norms that discourage open sharing, limited counselling expertise, unequal participation patterns, asynchronous psychological mechanisms, and the intense academic demands of UTBK preparation.

4. CONCLUSION

This study provides comprehensive evidence on the role of gamified learning and self-disclosure counselling within the TELISIK digital ecosystem in enhancing academic performance, proxied by UTBK scores. The results confirm that gamified learning significantly improves academic outcomes by fostering motivation, engagement, and persistence, while self-disclosure counselling contributes positively by encouraging reflection, psychological safety, and resilience. However, the moderating effect of self-disclosure was not statistically significant, indicating that gamification and counselling work effectively in parallel rather than interactively. These findings not only affirm the relevance of constructivist learning theory and sustainable development frameworks, but also highlight TELISIK's potential contribution to SDG 4 (Quality Education) by promoting wider access to higher education and strengthening student readiness for high-stakes examinations. Practically, this research offers insights for policymakers, educators, and edtech developers to further leverage digital platforms for inclusive and sustainable educational transformation.

This study is not without limitations. First, the relatively small sample size of 82 respondents may restrict the generalisability of the findings beyond the immediate TELISIK community. Second, the focus on UTBK scores as the sole proxy of academic achievement may not capture broader dimensions of learning outcomes such as critical thinking, creativity, or digital literacy. In addition, TELISIK

currently lacks tutors with formal counselling backgrounds, which constrains the depth and quality of its counselling services and may partially explain the absence of moderating effects in H3. Future research should therefore broaden the sample across regions, adopt longitudinal designs to examine changes over time, and include multiple indicators of learning outcomes. Further exploration of cultural factors, the professionalisation of counselling roles in community-based learning, and the integration of behavioural and emotional engagement mechanisms could provide richer theoretical insights and practical recommendations for optimising gamified digital ecosystems like TELISIK.

Community based learning organizations such as TELISIK should expand peer-mentoring and reflective storytelling programs that nurture self-disclosure as a literacy-based soft skill. Integrating gamified reading and writing challenges can strengthen motivation and foster a sense of belonging among learners, while collaboration with local libraries participating in the Social Inclusion-Based Library Transformation program can enhance digital literacy access, ensuring that gamified learning remains inclusive and contextually relevant. At the local level, provincial and district education offices should incorporate digital literacy and gamification frameworks into education innovation policies by providing funding incentives, training programs for volunteer tutors, and partnerships with universities to scale up models like TELISIK and improve tertiary participation rates. Local public libraries should also function as community learning hubs that connect digital ecosystems with empowerment initiatives. At the national level, the Ministry of Higher Education, Science, and Technology: together with the National Library and the Ministry of Communication and Digital should develop a national roadmap for gamified literacy and digital learning ecosystems that supports research collaborations, establishes certification pathways for community-based tutors, and promotes inclusive digital pedagogies aligned with SDG 4. Integrating these ecosystems into the Merdeka Belajar framework would ensure long-term sustainability, equitable access, and measurable impacts on higher education participation.

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