Volume: 10 Issues: 79 Special Issue [December, 2025] pp. 807 – 816
Journal of Islamic, Social, Economics and Development (JISED)
eISSN: 0128-1755
Journal website: www.academicinspired.com/jised
DOI: 10.55573/JISED.107963

GAMIFICATION AS A CATALYST: A LONGITUDINAL ANALYSIS OF CYBERBULLYING KNOWLEDGE, MOTIVATIONAL REGULATION, AND ACTIVE PARTICIPATION IN MALAYSIAN PRIMARY SCHOOLS

Syamsol Azhar Zulkafli[1*]
Ramdzan Ali Saibon[2]
Jamalsafri Saibon[3]

[1]Centre For Instructional Technology & Multimedia, 11800, Universiti Sains Malaysia (azharzulkafli93@yahoo.com)
[2] Faculty of Management and Economics, Universiti Pendidikan Sultan Idris, Tanjung Malim, Perak (ramdzan@fpe.upsi.edu.my)
[3]School of Education, 11800, Universiti Sains Malaysia (jamalsafri@usm.my)
*Corresponding author: azharzulkafli93@yahoo.com

Article history
Received date : 7-11-2025
Revised date : 8-11-2025
Accepted date : 24-12-2025
Published date : 30-12-2025

To cite this document:
Zulkafli, S. A., Saibon, R. A., & Saibon, J. (2024). Gamification as a catalyst: A longitudinal analysis of cyberbullying knowledge, motivational regulation, and active participation in Malaysian primary schools. *Journal of Islamic, Social, Economics and Development (JISED),* 10 (79), 807 – 816.

Abstract: *Purpose: Malaysia records some of the highest rates of cyberbullying victimization and perpetration among youth in Asia. Traditional didactic interventions often fail to engage "digital native" primary school students or foster long-term behavioral change. This study evaluates the efficacy of a culturally responsive gamified intervention, "Cyber-Wira," compared to traditional instruction in enhancing cyberbullying knowledge, shifting motivational regulation, and promoting active bystander participation. Methodology: The study employs a quasi-experimental longitudinal design with a pre-test, post-test, and delayed post-test (4-week follow-up). A total of 300 students (ages 10-12) from selected Malaysian primary schools will be assigned to either an experimental group (gamified module) or a control group (didactic lecture). The intervention is grounded in Self-Determination Theory (SDT), utilizing game mechanics to satisfy needs for autonomy, competence, and relatedness. Data will be analyzed using Mixed-Design Repeated Measures ANOVA and mediation analysis to examine the role of active participation. Findings: It is hypothesized that while both groups will show immediate knowledge gains, the gamified group will demonstrate significantly higher knowledge retention at the delayed post-test. Furthermore, the gamified group is expected to exhibit a motivational shift from external regulation (fear of punishment) to autonomous motivation (internal value) to defend victims, mediated by higher levels of active participation during the learning process. Significance: This research contributes to the Malaysia Education Blueprint 2013-2025 by validating a scalable, evidence-based digital intervention tool. It offers empirical insight into the psychological mechanisms, specifically motivation and participation, that drive effective cyber-safety education in a collectivist cultural context.*

Keywords: *Cyberbullying, Gamification, Primary Education, Self-Determination Theory, Active Participation, Malaysia.*

Volume: 10 Issues: 79 Special Issue [December, 2025] pp. 807 – 816
Journal of Islamic, Social, Economics and Development (JISED)
eISSN: 0128-1755
Journal website: www.academicinspired.com/jised
DOI: 10.55573/JISED.107963

Introduction

The Urgency of Digital Safety in Malaysia

The digital transformation of education and social interaction in the 21st century has precipitated a parallel rise in online aggression, presenting a complex public health challenge that is particularly acute in the Southeast Asian context. While the internet offers unprecedented opportunities for learning and connectivity, it simultaneously exposes young users to the risks of cyberbullying—a phenomenon characterized by wilful and repeated harm inflicted through the use of computers, cell phones, and other electronic devices. In the Malaysian context, the statistics are not merely concerning; they are alarmingly indicative of a systemic vulnerability. Recent systematic reviews and empirical studies indicate that Malaysia reports the highest prevalence of verbal violence victimization among young people, reaching 47.5% (Samsudin, E. Z., et al., 2023). This figure significantly outstrips rates observed in other nations, such as China (32%) and Israel (ranging from 3.4% to 18%), highlighting a specific, localized crisis that demands immediate and culturally responsive intervention. (Samsudin, E. Z., et al., 2023).

Furthermore, the perpetration rates in Malaysia are equally disturbing, recorded at 31.8%, which stands in stark contrast to countries like Spain, where perpetration rates are as low as 3.2% to 6.4% (Zhu, C et al., 2021). This high prevalence of both victimization and perpetration suggests a normalization of digital aggression within the youth culture, potentially driven by a lack of digital citizenship education during the formative years. The gravity of this situation is underscored by the correlation between cyberbullying involvement and severe mental health outcomes. An alarming number of adolescents in Peninsular Malaysia who are involved in cyberbullying—either as victims or perpetrators—demonstrate a significant association with suicidal behavior (Mohd Fadhli et al.,2022). This link between online harassment and suicidality transforms cyberbullying from a disciplinary issue into a critical life-and-death matter, necessitating robust prevention strategies that go beyond superficial awareness campaigns.

Despite these urgent indicators, the response in terms of evidence-based interventions for primary school-aged children remains insufficient. Most existing research and intervention programs have focused on adolescent populations in secondary schools, leaving a significant gap in the primary education sector (ages 7-12).4 This is a critical oversight, as behavioural patterns and moral frameworks regarding digital interaction are often established during these early developmental stages. Research suggests that interventions are most effective when implemented during the behavioural and cognitive development phases of elementary school, when children are most receptive to changes in attitudes and behaviors. However, Malaysian primary school teachers frequently report a lack of preparedness, training, and resources to effectively address cyberbullying, often relying on traditional lecture-based methods that fail to engage "digital native" students. ((Shi, Y et al., 2025).

The Failure of Traditional Pedagogies

The reliance on traditional, didactic pedagogical models—often characterized by passive listening and rote memorization of rules—has proven largely ineffective in changing complex social behaviours like bullying. Studies indicate that lecture-based methods used to teach bullying awareness often result in boredom and disengagement among students, thereby reducing their ability to comprehend and internalize anti-bullying messages. This disengagement is particularly problematic in the context of cyberbullying, which occurs in dynamic, interactive digital spaces. Teaching digital safety through static, analogue methods

Volume: 10 Issues: 79 Special Issue [December, 2025] pp. 807 – 816
Journal of Islamic, Social, Economics and Development (JISED)
eISSN: 0128-1755
Journal website: www.academicinspired.com/jised
DOI: 10.55573/JISED.107963

create a disconnect between the learning environment and the real-world context of the problem (Shao, J., Abdul Rabu, S. N., & Chen, C, 2025).

To address this pedagogical misalignment, there is a growing global interest in gamification—the application of game-design elements and game principles in non-game contexts. Gamified learning environments, which incorporate mechanics such as points, leaderboards, narratives, and immediate feedback, have shown potential to enhance motivation and active participation (Shao, J., Abdul Rabu, S. N., & Chen, C, 2025). By transforming the learning process into an interactive experience, gamification can satisfy students' psychological needs for autonomy, competence, and relatedness, thereby fostering intrinsic motivation to learn and—crucially—to act as defenders rather than passive bystanders (Legate, N et al., 2022).

Research Imperative and Objectives

Against this backdrop, this research plan proposes a rigorous, longitudinal study to evaluate the efficacy of a gamified intervention—specifically, a Gamified Interactive Module (GIM)—on Malaysian primary school students. The study aims to move beyond simple prevalence studies to explore the mechanisms of change. It seeks to understand not just if gamification works, but how it works by analyzing the interplay between Knowledge Acquisition, Motivational Regulation (based on Self-Determination Theory), and Active Participation.

The primary objectives of this proposed research are:

1. To profile the current baseline of cyberbullying knowledge, motivational orientations, and participation levels among Malaysian primary school students using descriptive statistics.
2. To evaluate the effectiveness of a Gamified Interactive Module (GIM) compared to traditional instruction in improving cyberbullying knowledge and, crucially, the retention of that knowledge over time.
3. To examine the impact of the intervention on students' motivation to defend victims, specifically looking for shifts from controlled (extrinsic) to autonomous (intrinsic) motivation.
4. To investigate the mediating role of Active Participation in the relationship between the intervention and learning outcomes.

The Malaysian Context: Policy, Culture, and Technology

The Policy Landscape: The Malaysia Education Blueprint

The proposed research is strategically aligned with national priorities outlined in the Malaysia Education Blueprint 2013-2025. Specifically, shift 7 of the Blueprint focuses on "Leveraging ICT to Scale Up Quality Learning Across Malaysia". This shift recognizes that technology is not merely a tool for content delivery but a catalyst for transforming the learning ecosystem. However, the Blueprint also acknowledges the necessity of ensuring that digital usage is safe and responsible. The integration of cyberbullying prevention into the curriculum supports the Blueprint's holistic goal of developing well-rounded students who possess both ilmu (knowledge) and akhlak (morality/ethics) (Malaysia, K. P., 2013).

Furthermore, the Malaysia Cyber Security Strategy (MCSS) 2020-2024 explicitly calls for the implementation of awareness and education programs to foster a secure digital environment (Omar et al.,2024). The MCSS emphasizes the need for cross-agency collaboration and the development of curricula that address cyber risks, including cyberbullying, identity fraud, and

Volume: 10 Issues: 79 Special Issue [December, 2025] pp. 807 – 816
Journal of Islamic, Social, Economics and Development (JISED)
eISSN: 0128-1755
Journal website: www.academicinspired.com/jised
DOI: 10.55573/JISED.107963

online harassment. Despite these high-level policy directives, the translation into classroom practice remains uneven. Reviews of teacher preparedness indicate that while awareness of policy exists, the practical skills to implement effective cyber-safety education are lacking (Adey et al., 2025). Teachers often cite gaps in intervention strategies and psychological training, leaving them ill-equipped to handle the nuances of online aggression.

Cultural Nuances: Collectivism and Digital Behavior

Understanding the cultural context is vital for designing effective interventions. Malaysia is a society characterized by high collectivism, where group harmony and social cohesion are deeply valued. In such contexts, bullying behaviours—and the motivation to intervene—may operate differently than in individualistic Western societies. While collectivism can promote prosocial behaviours, it can also lead to "moral disengagement" if the bullying is seen as a group norm or if intervening threatens group harmony (Myers, C.-A., & Cowie, H., 2019).

Research indicates that specific game mechanics, such as public leaderboards, can occasionally foster negative behaviours like social exclusion or cyberbullying if they trigger hyper-competitiveness that clashes with collectivist values (Zakaria, M. A. B et al., 2025). Conversely, collaborative gamification strategies that emphasize team goals and collective success may be more culturally congruent and effective in the Malaysian context (Bell, M. et al, 2025). Therefore, the proposed intervention must be sensitive to these dynamics, utilizing game mechanics that reinforce positive relatedness and cooperation rather than individual dominance.

The Digital Divide and School Infrastructure

The feasibility of gamified interventions relies heavily on the technological capacity of schools. The Ministry of Education has invested over RM6 billion in ICT initiatives, such as the Smart Schools program. However, disparities remain between urban and rural schools regarding internet connectivity and device access. The Malaysia Education Blueprint aims to bridge this divide, but any proposed intervention must be designed with scalability and accessibility in mind. A modular, web-based or tablet-based intervention that does not require high-end gaming hardware is essential to ensure equitable access across diverse school settings.

Theoretical Framework

To elevate the research from a descriptive study to a significant theoretical contribution suitable for the study is underpinned by Self-Determination Theory (SDT) and the concept of Active Participation.

Self-Determination Theory (SDT)

Self-Determination Theory provides a robust macro-theory of human motivation that explains why individuals act. In the context of cyberbullying, SDT is instrumental in distinguishing between students who defend victims because they have to (external regulation) and those who defend because they want to (autonomous motivation) (Doty, J. L.et al., 2024).

SDT posits that three basic psychological needs must be satisfied to foster autonomous motivation and well-being:

Autonomy: The need to feel that one is the origin of one's actions; the sense of volition and choice. In traditional lecture-based learning, autonomy is often thwarted as students are passive recipients of information. Gamification supports autonomy by offering choices (e.g., avatar selection, branching narrative paths) (Montero-Carretero et al., 2019).

Volume: 10 Issues: 79 Special Issue [December, 2025] pp. 807 – 816
Journal of Islamic, Social, Economics and Development (JISED)
eISSN: 0128-1755
Journal website: www.academicinspired.com/jised
DOI: 10.55573/JISED.107963

Competence: The need to feel effective in one's interactions with the environment and to experience opportunities to exercise and express one's capacities. Cyberbullying education often fails here if it focuses solely on "don'ts" without teaching the "how-tos" of defense and reporting. Gamified modules support competence through immediate feedback, "leveling up," and scaffolding challenges that match the learner's skill level (Pektaş, M., & Kepceoğlu, İ., 2019).

Relatedness: The need to feel connected to others, to care and be cared for, and to belong to a community. Bullying is fundamentally a relational issue. Interventions that build a sense of community—even a virtual one through narrative characters—can satisfy this need. Gamification supports relatedness through team-based challenges and narratives that evoke empathy (Doty, J. L et al, 2024)

Table 1: The Continuum of Motivation in Cyberbullying Defense (Adapted from SDT)

Motivation Type	Regulatory Style	Description in Bullying Context	Intervention Goal
Amotivation	Non-Regulation	"I don't do anything because I don't care or don't know what to do."	Convert to Regulation
Extrinsic	External Regulation	"I defend/report because the teacher will punish me if I don't."	Shift to Internal
Extrinsic	Introjected Regulation	"I defend because I would feel guilty if I didn't."	Shift to Internal
Extrinsic	Identified Regulation	"I defend because I think it is important to have a safe class."	Target State
Intrinsic	Intrinsic Regulation	"I defend because I find it inherently satisfying to help others."	Target State

The hypothesis is that traditional instruction largely targets External Regulation (rules and punishment), whereas gamification targets Identified and Intrinsic Regulation by satisfying the three basic needs (Jungert T et al, 2021).

The Construct of Active Participation

Participation in educational research is often ill-defined, frequently conflated with mere attendance. However, for deep learning to occur, Active Participation is required. This involves the active engagement of the student in the learning process, characterized by behavioural, cognitive, and emotional involvement (Department of Education and Youth, 2025).

In this study, active participation is conceptualized not just as presence, but as the frequency and quality of interaction with the learning materials and peers. It is the behavioural manifestation of motivation. The literature suggests that active participation mediates the relationship between the learning environment (intervention) and the outcomes (knowledge retention) (Manrique Molina LF,2025). Gamification is hypothesized to increase active participation by providing constant "calls to action" (e.g., quizzes, drag-and-drop activities, decision points) that prevent the passivity associated with lectures (Zou, W et al., 2024).

Volume: 10 Issues: 79 Special Issue [December, 2025] pp. 807 – 816
Journal of Islamic, Social, Economics and Development (JISED)
eISSN: 0128-1755
Journal website: www.academicinspired.com/jised
DOI: 10.55573/JISED.107963

Literature Review: Identifying the Gaps

Efficacy of Cyberbullying Interventions

A systematic review of school-based interventions reveals mixed results. While interventions generally reduce perpetration and victimization, the effect sizes are often small to moderate (Shi, Y et al., 2025). Notably, traditional interventions often fail to impact bystander behavior or attitudes significantly (Kamaruddin et al.,2023). This suggests that while students may know the rules (Knowledge), they are not motivated to act (Behavior).

Furthermore, the effectiveness of interventions appears to decay over time. Follow-up assessments at 6 months often show a reduction in efficacy, highlighting the need for interventions that promote retention through deep engagement. The majority of successful interventions share common characteristics: longer duration, active learning components, and a focus on social skills (Kamaruddin et al.,2023).

Gamification in the Asian Context

Evidence from the Asia-Pacific region supports the potential of gamification. A study involving Chinese primary school students found that a Gamified Interactive E-Book (GIEB) significantly improved motivation and bullying knowledge compared to traditional methods. The modular structure of the GIEB—incorporating role-play, feedback, and narrative—was key to its success (Shao, J et al., 2025).

However, research also highlights the "double-edged sword" of gamification. In Malaysia, where face-saving and group harmony are paramount, competitive leaderboards must be implemented with caution to avoid shaming those with lower scores. Successful regional implementations often incorporate local language, cultural symbolism, and family-inclusive narratives to build trust and engagement (Zakaria et al., 2025).

The Gap: Descriptive Baselines and Mechanisms

While some efficacy studies exist, there is a dearth of research that starts with a detailed descriptive profile of the target population's knowledge and motivation types before intervening. Most studies jump straight to outcomes. Understanding the baseline "Knowledge Gap" (what specifically do they not know?) and "Motivation Gap" (why are they not acting?) is crucial for tailoring the intervention. Additionally, few studies in Malaysia have rigorously measured Active Participation as a distinct variable to explain why the intervention works (Zou, W et al., 2024).

Research Methodology

This section outlines a rigorous Quasi-Experimental Pre-test/Post-test/Delayed Post-test Control Group Design. This design is selected to provide the causal evidence required by top-tier journals while accommodating the practical constraints of school settings (where randomizing individuals is often impossible, necessitating class-level randomization).

Population and Sampling

- Target Population: Primary school students in Standard 4, 5, and 6 (ages 10-12) in Malaysia. This age range is critical as it precedes the transition to secondary school and coincides with increased independent internet access.
- Sampling Strategy: A multi-stage cluster sampling technique will be employed.

Volume: 10 Issues: 79 Special Issue [December, 2025] pp. 807 – 816
Journal of Islamic, Social, Economics and Development (JISED)
eISSN: 0128-1755
Journal website: www.academicinspired.com/jised
DOI: 10.55573/JISED.107963

Stage1: Selection of states to represent diverse regions (e.g., Central, Northern, Southern Peninsular Malaysia).
Stage 2: Selection of schools within districts, stratified by urban/rural status to address the digital divide and ensure generalizability (Sae-Koew et al., 2024).
Stage 3: Random selection of intact classes within schools to be assigned to either the Experimental Group (GIM) or Control Group (Traditional).

- Sample Size Calculation: Based on G*Power analysis for a Repeated Measures ANOVA (within-between interaction), with an effect size of 0.25, alpha of 0.05, and power of 0.95, a minimum sample of 120 students per group is required. To account for a potential attrition rate of 20% (common in longitudinal school studies), the target recruitment is N = 300 (150 per group) (Kamaruddin et al., 2023).

The Intervention: "Cegah Buli Siber" (CBS) Gamified Module

The experimental group will engage with "CBS," a custom-developed gamified web application designed based on the Theory of Gamified Learning and SDT.

Module Structure: The intervention consists of four 45-minute weekly sessions, aligning with the standard lesson duration in Malaysian schools (Shao, J et al., 2025).

Week 1: The Call to Action (Knowledge & Awareness). Students create an avatar and enter a virtual school. They encounter "NPCs" (non-Player Characters) dealing with cyberbullying. Mechanic: Quizzes to define bullying vs. teasing. Goal: Establish baseline definitions.

Week 2: The Shield of Empathy (Relatedness). Students navigate a branching narrative where they play as a victim. Mechanic: Decision points ("How does this message make you feel?"). Goal: foster empathy and understand impact.

Week 3: The Guardian's Choice (Autonomy & Bystander Intervention). Students play as bystanders. They must choose interventions (e.g., "Report," "Comfort," "Confront"). Mechanic: Safe/fail simulation. Goal: Practice defending strategies without real-world risk.

Week 4: The CBL (Competence & Reporting). A collaborative class challenge to identify safe reporting channels (e.g., Talian Kasih, MCMC). Mechanic: Badges and Team Leaderboards. Goal: Consolidate knowledge of support systems.

Control Group: The control group will receive the same educational content delivered via traditional didactic methods (PowerPoint slides, worksheets, and lectures) by the same teachers to control for instructor effects. This ensures that any difference found is due to the method (gamification), not the content.

The "Knowledge-Retention" Gap

We anticipate that while both groups will show improvement at Post-test (T1), the Control group will show a steeper decline in scores at Delayed Post-test (T2). The Gamified group, benefiting from the "testing effect" (retrieval practice via quizzes) and emotional engagement (narrative), is expected to maintain higher retention. This aligns with findings from medical education and other domains where gamification aids long-term memory (Larsen et al., 2015).

Volume: 10 Issues: 79 Special Issue [December, 2025] pp. 807 – 816
Journal of Islamic, Social, Economics and Development (JISED)
eISSN: 0128-1755
Journal website: www.academicinspired.com/jised
DOI: 10.55573/JISED.107963

Table 2: Hypothesized Knowledge Scores over Time

Group	Pre-test (Mean)	Post-test (Mean)	Delayed Post-test (Mean)	% Retention (T2/T1)
Control (Lecture)	45.0	75.0	55.0	~73%
Experimental (Gamified)	45.5	82.0	78.0	~95%

The Motivational Shift

Descriptive analysis of the motivation scale is expected to show that pre-intervention, most students defend victims due to External Regulation (fear of punishment). The Gamified intervention, by offering Autonomy (choice) and Relatedness (empathy for characters), should correlate with a statistically significant increase in Identified and Intrinsic regulation scores. This supports the SDT hypothesis that satisfying basic needs promotes internalization of values (Montero-Carretero et al., 2019).

The Mediation Mechanism

The structural equation model (SEM) is expected to confirm that the intervention's effect on knowledge retention is partially mediated by active participation. In other words, gamification works because it makes students participate more actively (click, decide, solve), not just because the content is "fun." This finding would provide a critical theoretical contribution to the literature on "Active Learning" (Manrique Molina LF, 2025).

Conclusion

This comprehensive research plan presents a strategic roadmap for addressing one of Malaysia's most pressing educational challenges: the high prevalence of cyberbullying among primary school students. By moving beyond mere awareness campaigns to a scientifically rigorous, theory-driven gamified intervention, this study aims to provide the empirical evidence needed to transform national policy and classroom practice.

The integration of Self-Determination Theory provides the necessary psychological depth, explaining the motivation behind behaviour change. The focus on Active Participation and Knowledge Retention ensures the study addresses the pedagogical mechanisms of learning.
Ultimately, this research aspires to do more than just publish data; it aims to validate a scalable, culturally responsive tool—"CBS"—that can empower the next generation of Malaysian digital citizens with the competence, autonomy, and motivation to create a safer online world.

Acknowledgements

We would like to express our sincere gratitude to my supervisor, PM Dr Jamalsafri Sainbon, and my co-supervisor, Dr Ramdzan Ali Saibon, for their valuable guidance and support throughout the research process. His expertise and insights were invaluable in shaping our research and helping us to overcome challenges.

Volume: 10 Issues: 79 Special Issue [December, 2025] pp. 807 – 816
Journal of Islamic, Social, Economics and Development (JISED)
eISSN: 0128-1755
Journal website: www.academicinspired.com/jised
DOI: 10.55573/JISED.107963

References

Adey, N. H., Mee, S. K. S., & Ading, C. E. (2025). Exploring Teachers Awareness and Preparedness for Cyberbullying in Malaysia: A Systematic Review (2018-2024). International Journal of Research and Innovation in Social Science, 9(1), 3895-3913.

Bell, M., Keles, S., Furenes Klippen, M. I., Caravita, S. C. S., & Fandrem, H. (2025). Cooperation within the school community to overcome cyberbullying: a systematic scoping review. Scandinavian Journal of Educational Research, 1-16.

Department of Education and Youth. (2025, November 17). Perspectives on bullying behaviour (2024). Gov.ie. https://www.gov.ie/en/department-of-education/publications/perspectives-on-bullying-behaviour-2024/

Doty, J. L., Barlett, C. P., Gabrielli, J., Yourell, J. L., Su, Y. W., & Waasdorp, T. E. (2024). A model of personal relationships and cyberbullying perpetration among adolescents: A person* environment model. Journal of Social and Personal Relationships, 41(7), 1980-2005.

Fadhli, S. A. M., Yan, J. L. S., Ab Halim, A. S., Ab Razak, A., & Ab Rahman, A. (2022, May). Finding the link between cyberbullying and suicidal behaviour among adolescents in Peninsular Malaysia. In Healthcare (Vol. 10, No. 5, p. 856).

Jungert, T., Karataş, P., Iotti, N. O., & Perrin, S. (2021). Direct bullying and cyberbullying: Experimental study of bystanders' motivation to defend victims and the role of anxiety and identification with the bully. Frontiers in psychology, 11, 616572.

Kamaruddin, I. K., Ma'rof, A. M., Mohd Nazan, A. I. N., & Ab Jalil, H. (2023). A systematic review and meta-analysis of interventions to decrease cyberbullying perpetration and victimization: An in-depth analysis within the Asia Pacific region. Frontiers in psychiatry, 14, 1014258. https://doi.org/10.3389/fpsyt.2023.1014258

Larsen, D. P., Butler, A. C., Aung, W. Y., Corboy, J. R., Friedman, D. I., & Sperling, M. R. (2015). The effects of test-enhanced learning on long-term retention in AAN annual meeting courses. Neurology, 84(7), 748-754.

Legate, N., Ngyuen, T. V., Weinstein, N., Moller, A., Legault, L., Vally, Z., ... & Ogbonnaya, C. E. (2022). A global experiment on motivating social distancing during the COVID-19 pandemic. Proceedings of the National Academy of Sciences, 119(22).

Lukács J, Á., Takács, J., Soósné Kiss, Z., Kapitány-Fövény, M., Falus, A., & Feith, H. J. (2023). The Effects of a Cyberbullying Intervention Programme Among Primary School Students. Child & youth care forum, 52(4), 893–911. https://doi.org/10.1007/s10566-022-09714-9

Malaysia, K. P. (2013). Malaysia education blueprint 2013-2025. Education, 27(1), 1-268.

Manrique Molina LF (2025;), "Intrinsic motivation as a mediator between acceptance of blended research-based learning environments and knowledge and skills acquisition in business education". Journal of International Education in Business, Vol. ahead-of-print No. ahead-of-print. https://doi.org/10.1108/JIEB-05-2024-0048

Mohd Fadhli, S. A., Liew Suet Yan, J., Ab Halim, A. S., Ab Razak, A., & Ab Rahman, A. (2022). Finding the Link between Cyberbullying and Suicidal Behaviour among Adolescents in Peninsular Malaysia. Healthcare, 10(5), 856. https://doi.org/10.3390/healthcare10050856

Montero-Carretero, C., Barbado, D., & Cervelló, E. (2019). Predicting Bullying through Motivation and Teaching Styles in Physical Education. International journal of environmental research and public health, 17(1), 87. https://doi.org/10.3390/ijerph17010087

Montero-Carretero, C., Roldan, A., Zandonai, T., & Cervelló, E. (2021). A-Judo: an innovative intervention programme to prevent bullying based on self-determination theory—a pilot study. Sustainability, 13(5), 2727.

Volume: 10 Issues: 79 Special Issue [December, 2025] pp. 807 – 816
Journal of Islamic, Social, Economics and Development (JISED)
eISSN: 0128-1755
Journal website: www.academicinspired.com/jised
DOI: 10.55573/JISED.107963

Myers, C.-A., & Cowie, H. (2019). Cyberbullying across the Lifespan of Education: Issues and Interventions from School to University. International Journal of Environmental Research and Public Health, 16(7), 1217. https://doi.org/10.3390/ijerph16071217

Pektaş, M., & Kepceoğlu, İ. (2019). What do prospective teachers think about educational gamification?. Science Education International, 30(1).

Rohani M.M., & Yusoff, A. S. (2015). Tahap Kesediaan Pelajar Dalam Penggunaan Teknologi, Pedagogi, Dan Kandungan (TPACK) Dalam Pembelajaran Kurikulum di IPT. *Proceeding of the 3rd International Conference on Artificial Intelligence and Computer Science*, Pulau Pinang.

Sae-Koew, J., Gonsalkorale, K., & Cross, D. (2024). Protecting children and adolescents from cyberbullying: An evidence review of risk and protective factors and effective interventions. New South Wales Education Standards Authority. https://www. nsw. gov. au/sites/default/files/2024-08/protecting-children-and-adolescents-from-cyberbullying. pdf.

Samsudin, E. Z., Yaacob, S. S., Wee, C. X., Ruzlin, A. N. M., Azzani, M., Jamil, A. T., ... & Mohamad, M. (2023). Prevalence of cyberbullying victimisation and its association with family dysfunction, health behaviour and psychological distress among young adults in urban Selangor, Malaysia: a cross-sectional study. BMJ open, 13(11), e072801.

Shao, J., Abdul Rabu, S. N., & Chen, C. (2025). Gamified interactive e-books for bullying prevention: enhancing knowledge and motivation in Chinese primary schools. Frontiers in psychology, 16, 1509549. https://doi.org/10.3389/fpsyg.2025.1509549

Shi, Y., Lau, Y., Chan, H. H. H., Choi, J. K. K., Calvo-Morata, A., & Wong, S. H. (2025). School-Based Intervention on Cyberbullying-Related Outcomes and Psycho-Social Well-Being in Children and Adolescents: A Systematic Review and Meta-Analysis. Trauma, Violence, & Abuse, 15248380251375480.

Wiggins, B. L., Eddy, S. L., Wener-Fligner, L., Freisem, K., Grunspan, D. Z., Theobald, E. J., Timbrook, J., & Crowe, A. J. (2017). ASPECT: A Survey to Assess Student Perspective of Engagement in an Active-Learning Classroom. CBE life sciences education, 16(2), ar32. https://doi.org/10.1187/cbe.16-08-0244

Zakaria, M. A. B., Hui, K. O., Subramaniam, H., Mat Rosly, M. B., Gill, J. S., En, L. Y., Sheng, Y. Z., Wong Joon Ip, J., Shanmugam, H., Soon Ken, C., & Francis, B. (2025). Exploring the Implementation of Gamification as a Treatment Modality for Adults with Depression in Malaysia. Medicina (Kaunas, Lithuania), 61(8), 1404. https://doi.org/10.3390/medicina61081404

Zhu, C., Huang, S., Evans, R., & Zhang, W. (2021). Cyberbullying among adolescents and children: A comprehensive review of the global situation, risk factors, and preventive measures. Frontiers in public health, 9, 634909.

Zou, W., Purington Drake, A., Masur, P. K., Whitlock, J., & Bazarova, N. N. (2024). Examining learners' engagement patterns and knowledge outcome in an experiential learning intervention for youth's social media literacy. Computers and Education, 216, Article 105046. https://doi.org/10.1016/j.compedu.2024.105046