

E-BOOK OF EXTENDED ABSTRACT

THE 14TH INTERNATIONAL INVENTION, INNOVATION & DESIGN COMPETITION 2025



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INVENTION, INNOVATION &
DESIGN COMPETITION 2025

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PLAY TO PLACE PHYSICAL GAMEBOARDS AS TOOLS FOR SITE EXPLORATION: P2P – SERI ISKANDAR

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ABSTRACT

Incorporating gamification into architecture education, as exemplified by the Play to Place Physical Gameboards – Seri Iskandar (P2P-SI), has demonstrated significant potential in boosting student engagement and intrinsic motivation while fostering spatial literacy and participatory placemaking principles. The research engaged 99 second-year architectural undergraduates who applied Ludo King-inspired ludic design mechanics to analyze sites, integrating community storytelling elements that reflect local cultural narratives. Grounded in self-determination theory, the methodology emphasized fostering relatedness, competence, and autonomy, aligning gameplay with goals of urban resilience through collaborative problem-solving. Results highlighted that students' intrinsic motivation was most strongly driven by perceived value/usefulness, effort/importance, and interest/enjoyment. Participants praised the innovative, experiential learning method for making lessons more interactive and memorable, particularly in contextualizing complex urban challenges. Overall feedback indicated that gamification simplifies complex subjects, enhancing accessibility and enjoyment, which in turn improves educational outcomes. The study underscores how strategically crafted extrinsic elements in studio-based learning can cultivate intrinsic motivation effectively, bridging design pedagogy with real-world community-driven priorities.

Keyword: participatory placemaking, ludic urbanism, spatial literacy, community storytelling, urban resilience

1. INTRODUCTION

Integrating gamification into architectural design education enhances student engagement and learning outcomes by transforming the educational process into a more dynamic and immersive experience. Platforms such as Kahoot, App Quitectura, and digital game-based learning (DGBL) promote active learning by integrating game elements that foster behavioral, emotional, cognitive, and social engagement among students (Albano et al., 2024). By embedding game design principles, augmented reality, and narrative-driven approaches, gamification holds the potential to redefine foundational architectural pedagogy, fostering better retention of advanced technical skills. However, experimentation is crucial for generating innovative architectural ideas, with hands-on techniques like physical modeling enhancing students' understanding of form and function (Sarkisian et al., 2023). This study introduces an interactive board game for site analysis, integrating psychomotor engagement into a second-year undergraduate architectural studio. The initial excitement surrounding gamification often wanes, leading to a decline in motivation and engagement after a few weeks (Rodrigues et al., 2022). This suggests that while gamification can be effective in the short term, its impact may not be sustainable. Critics argue that reliance on gamification may foster extrinsic rather than intrinsic motivation, potentially undermining deeper learning and critical thinking skills (Hung, 2017). Despite enthusiasm for gamified learning, research on its capacity to intrinsically motivate learners remains

limited. Consequently, this study adapts the self-determination theory framework (Ryan & Deci, 2020) proposed by Luarn et al. (2023) to develop a gamified learning module tailored to architectural education.

2. METHODOLOGY

The framework for the gamification-based site analysis learning module is illustrated in Figure 1. Rooted in Ryan and Deci’s (2020) self-determination theory and informed by Luarn et al. (2023), the Play to Place Physical Gameboards – Seri Iskandar (P2P-SI) was developed as an innovative pedagogical tool. This module integrates gamification elements such as sociability, achievement, and immersion, alongside psychological needs like relatedness, competence, and autonomy, to enhance intrinsic motivation. Inspired by Ludo King, the P2P-SI combines traditional handicraft as the main theme, incorporating their design brief and a scale model of the site. The study involved 99 architecture students, contrasting traditional site analysis methods (depicted in blue) with the gamified redesign (highlighted in red), where students collaboratively built site models. Throughout the semester, participants submitted site analysis inputs to instructors and engaged with the P2P-SI to deepen their understanding of the project’s spatial and contextual dimensions.

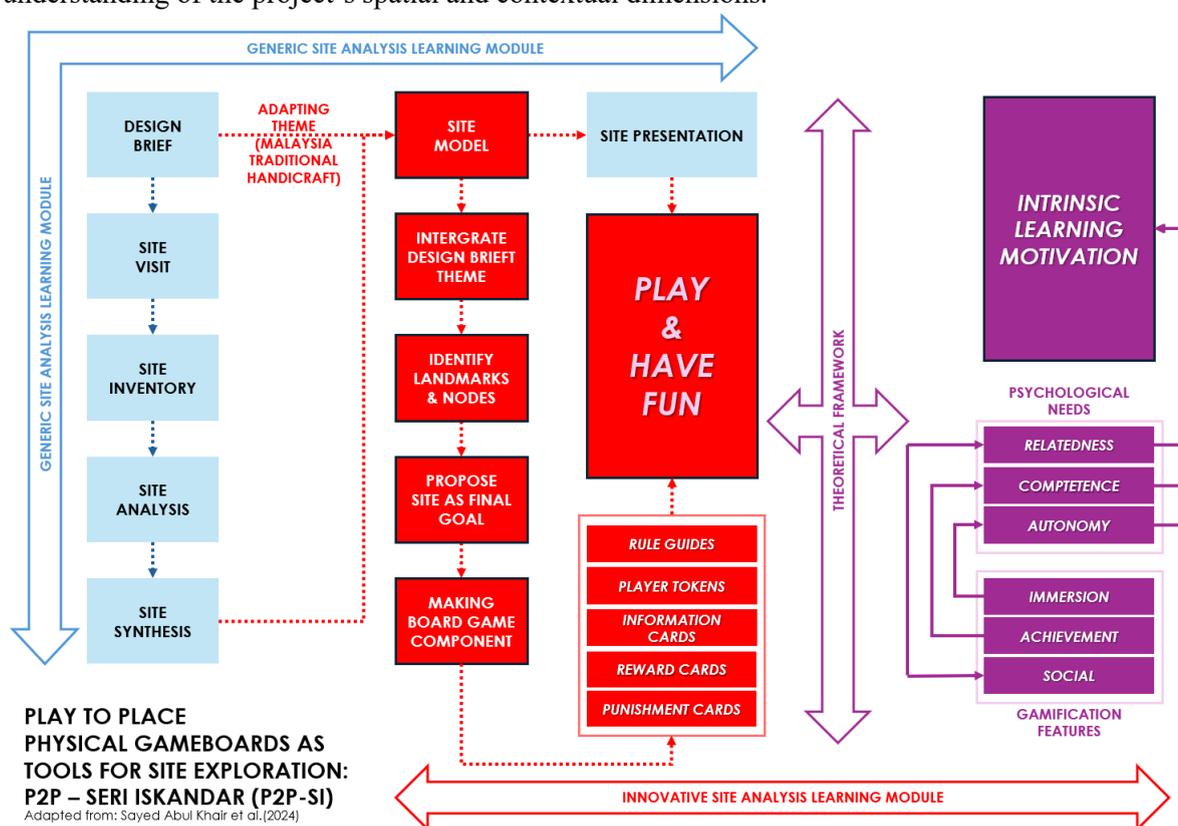


Figure 1: Proposed Framework of Play to Place Physical Gameboards as Tools for Site Exploration: P2P - Seri Iskandar (P2P-SI) adopted from Khair S. A., et al., (2024)

3. FINDINGS

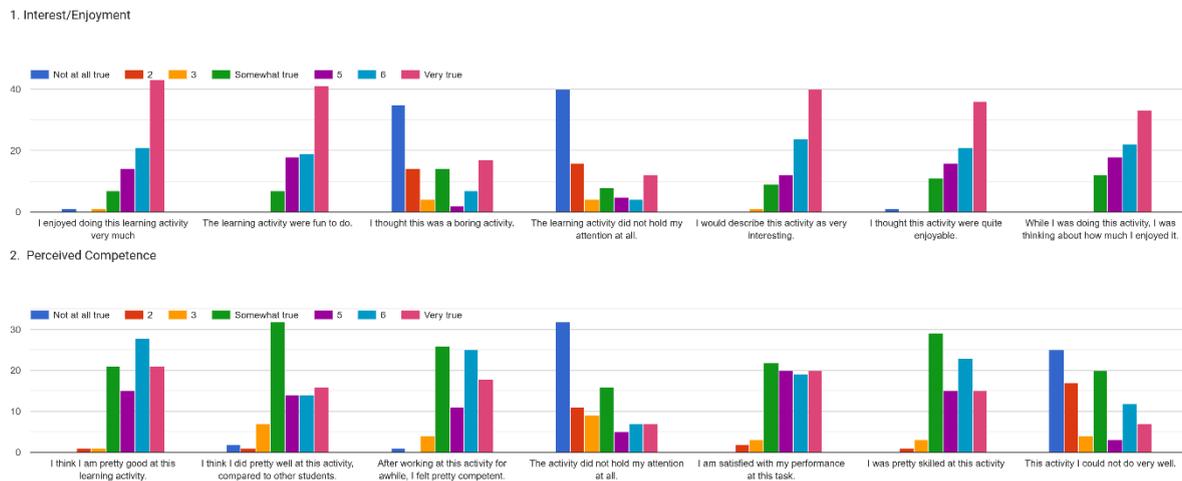
The site analysis process is shown in Figure 2. Following a field visit to Seri Iskandar, where students gathered site inventory data, the P2P-SI module, modeled after Ludo King, was developed utilizing this information. The game incorporates 13 key landmarks and nodes from Seri Iskandar, represented as mini destinations before reaching their final goal, which is the proposed site based on the design brief. Additional components include player tokens, information cards, reward cards, punishment

cards, and rule guides, mirroring classic board game mechanics while integrating with Malaysian traditional handicraft as the theme.



Figure 2: The making of Play to Place Physical Gameboards – Seri Iskandar (P2P-SI)

Figure 3 illustrates the finalized P2P-SI design process. Students exhibited high levels of enthusiasm and effective collaboration to achieve the study’s objectives. Figure 4 displays feedback from the intrinsic motivation inventory, which measured student responses. The research revealed that integrating gamification theory and interactive board games into site analysis education influenced architecture students’ intrinsic motivation in distinct ways.



3. Effort/Importance

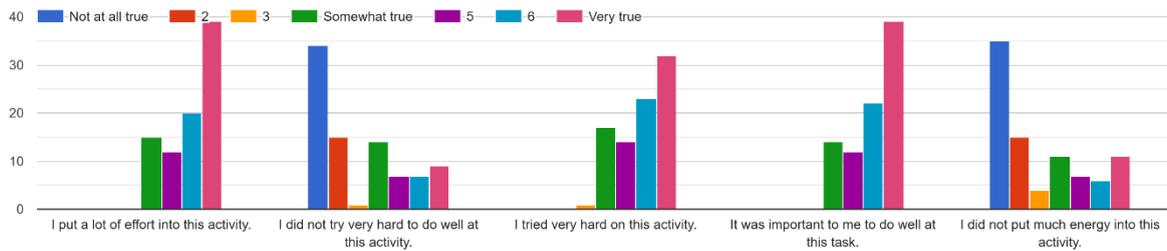


Figure 4: Findings on Intrinsic Motivation Inventory

4. CONCLUSION

Feedback from 89 architecture students underscores the positive educational impact of the interactive site analysis board game. Most participants described the activity as "fun" and intellectually stimulating, praising its unique, hands-on approach for transforming learning into an engaging experience. Comments highlighted that gamified learning improved retention of site-specific constraints and contextual details, while the collaborative nature of the game deepened their comprehension of site analysis. The interactive task not only encouraged active participation but also strengthened teamwork skills. These results suggest that gamification enhances student engagement and academic performance by making complex subjects more approachable and enjoyable.



Figure 5: Qualitative Feedback from The Students

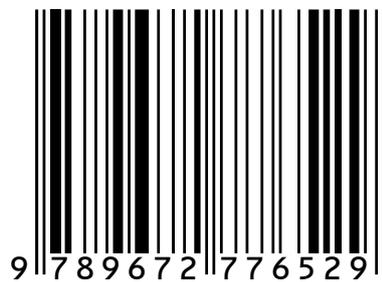
REFERENCES

- Albano, S., Meng, W., Xu, W., & Li, N. (2024). Challenges and opportunities in using digital pedagogy for game-based architecture education: A case in China (pp. 95–102). *Springer Nature*. https://doi.org/10.1007/978-981-97-0621-1_12
- Luarn, P., Chen, C. C., & Chiu, Y. P. (2023). Enhancing intrinsic learning motivation through gamification: A self-determination theory perspective. *International Journal of Information and Learning Technology*, 40(5), 413–424. <https://doi.org/10.1108/ijilt-07-2022-0145>
- Rodrigues, L. F. S., Pereira, F., Toda, A. M., Palomino, P. T., Pessoa, M., Galvão de Carvalho, L. S., Fernandes, D., Teixeira de Oliveira, E. H., Cristea, A. I., & Isotani, S. (2022). Gamification suffers from the novelty effect but benefits from the familiarization effect: Findings from a longitudinal study. *International Journal of Educational Technology in Higher Education*, 19(1), 1–25. <https://doi.org/10.1186/s41239-021-00314-6>

- Ryan, R. M., & Deci, E. L. (2020). Intrinsic and extrinsic motivation from a self-determination theory perspective: Definitions, theory, practices, and future directions. *Contemporary Educational Psychology*
- Sarkisian, M., Cervera Sardá, M. R., Duşoiu, E.-C., Mohonea, A., & Lascu, T. N. (2023). *Experimental bionics workshops* (pp. 233–274). https://doi.org/10.1007/978-3-031-33144-2_21

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