What's what PSPM

- EXTREME EVENT ANALYSIS: ESTIMATING BOUNDARIES FOR DATA EXTREMITY

- ROBOTICS, STEM & IOT: LEADING THE MALAYSIAN STUDENT GENERATION TOWARDS A SUSTAINABLE FUTURE

- ARE WE EATING PLASTIC?

- MASTERING VIDEO PRODUCTION: TECHNIQUES, TOOLS, AND THE CREATIVE PROCESS

- BRIDGING TECHNO-DIVIDE IN TAHFIZ EDUCATION WITH DIGITAL SKILL TRAINING

A Jigsaw Approach to Engaging STEM Education for Learning and Teaching Programming

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3 Opportunity

Develop a gamified approach to teaching and learning programming within STEM education that caters to individual student preferences and enhances learning outcomes:

- **Explore a variety of game design elements** suitable for teaching programming concepts effectively

- Tailor the gamified approach to **accommodate different learning styles and preferences**

- **Integrate hands-on coding projects and challenges** to reinforce programming skills

2 Insights

- Gamification in education has shown potential **to increase motivation, engagement,** and **learning outcomes**.

- Effects of gamification vary based on **students' personality traits** and **gamer types.**

- Limited research on how different gamification elements **impact engagement in programming education.**

1 Innovation Questions

Considering students' diverse personality traits and gamer types, **how can we leverage gamification to enhance engagement, motivation, and learning outcomes in teaching and learning programming within STEM education**?

4 a. Prototype

- **Create a prototype** of the gamified programming education platform

- **Design sample programming activities** with gamification elements

- **Develop a user feedback system** to **gather insights** on engagement and learning effectiveness

4 b. Experiments

- **Test the prototype** with a group of students learning programming within STEM education.

- **Collect feedback** on the gamification elements, user experience, and learning outcomes

- **Conduct assessments** to measure the impact of gamification on student engagement and programming proficiency

5 Pitch

- By incorporating tailored game design elements, personalised learning experiences, and hands-on coding projects, we aim **to enhance student engagement, motivation, and learning outcomes**.
- Our approach **considers individual student preferences, personality traits, and gamer** types to create a dynamic and effective learning environment that fosters programming skills and creativity.
- With a strong emphasis on research-based design and user feedback, Gamification: A Jigsaw Approach to Engaging STEM Education for Learning and Teaching Programming is **poised to transform programming education and empower students to succeed in STEM fields**.