

IEE Acarya Training to Enhance Learning Motivation and Life Skills: A Design-Based Research Approach

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Abstract

This study aims to develop and evaluate the feasibility of the IEE Acarya training model as an alternative learning approach to enhance high school students' learning motivation and life skills. The research employs a Design-Based Research (DBR) methodology integrated with the Design Thinking framework, consisting of empathize, define, ideate, prototype, and test stages. The study involved 32 high school students and 6 teachers from two schools in Jakarta, selected through purposive sampling. Data were collected through observations, semi-structured interviews, and pilot training evaluations. To strengthen methodological rigor, pre-test and post-test self-assessments were conducted using a 5-point Likert scale to measure changes in creativity, collaboration, and problem-solving skills. The findings indicate that the IEE Acarya model enhances student engagement, creativity, and collaborative problem-solving. The average self-assessment score increased from 3.1 to 4.2 following the intervention. Furthermore, the Business Model Canvas (BMC) analysis demonstrates the feasibility of the model from educational, technological, and financial perspectives. This study contributes to entrepreneurship education by proposing a hybrid learning model that integrates design thinking, experiential learning, and game-based pedagogy with measurable learning outcomes.

Keywords: Design Thinking, Experiential Learning, Entrepreneurship Education, Game-Based Learning, Life Skills

JEL Classification: I21, I25, M13, O31, L26

INTRODUCTION

Education plays a critical role in developing adaptive human resources capable of responding to global challenges and future societal transformations. In the context of Industry 4.0 and Society 5.0, competencies such as creativity, innovation, and complex problem-solving have become essential for active participation in modern economies. However, evidence from the Programme for International Student Assessment (PISA) 2022 reveals that only 5% of Indonesian students demonstrate creative thinking skills, with none achieving proficiency in interpreting complex contextual information. This indicates a significant gap between current educational practices and the competencies required for the future workforce. Conventional teaching methods in Indonesia continue to emphasize knowledge reproduction rather than exploration, critical discussion, and contextual problem-solving. As a result, students often lack opportunities to develop higher-order thinking and life skills (Arainru, 2022; Iskamto et al., 2025; Nasfi et al., 2022; Wijaya et al., 2022). This gap is further reinforced by the limited availability of non-formal education programs that specifically focus on creativity and innovation development. At the same time, the World Economic Forum identifies creativity, analytical thinking, and

problem-solving as core competencies for the future. This highlights the urgent need for innovative learning models that move beyond traditional instruction and foster experiential, student-centered learning .

This study introduces the IEE Acarya model as an innovative training approach that integrates design thinking, experiential learning, and entrepreneurship education through a game-based framework. Unlike conventional gamified learning approaches, the model emphasizes iterative problem-solving, real-world application, and value creation within a structured yet interactive learning environment.

Therefore, this study aims to develop and evaluate the feasibility of the IEE Acarya model as an alternative educational solution to enhance students' learning motivation and life skills.

LITERATURE REVIEW

Education plays a pivotal role in shaping adaptive and competitive human resources in the 21st century. However, Indonesia continues to face challenges in fostering students' creative and critical thinking skills. The Programme for International Student Assessment (PISA) results published by the OECD (2024) revealed that only 5% of Indonesian students demonstrate creative thinking abilities, and none are categorized as proficient in reading complex contextual information. This reflects the persistent dominance of rote learning methods in Indonesian schools, where one-way instruction and memorization still prevail (Kementerian Pendidikan dan Kebudayaan Republik Indonesia, 2021). According to UNESCO (2020), life skills education encompasses not only cognitive development but also social and emotional competencies, which are essential for students to adapt and function effectively in daily life. Despite this, many educational institutions in Indonesia continue to prioritize academic achievements over the holistic development of life skills. This misalignment between educational practices and future skill demands underscores the need for innovative learning models that encourage students to think critically, creatively, and collaboratively (Ansori, 2021; Basriani et al., 2021; Febrianty et al., 2023; Iskanto, 2022).

The World Economic Forum (2023) identifies creativity, analytical thinking, and complex problem-solving as the top three skills required in the future workforce. To address this need, modern pedagogical frameworks emphasize experiential learning and project-based learning, which actively engage learners through real-world problem-solving and reflective collaboration. These methods encourage learners to apply theoretical knowledge in practical contexts, promoting higher-order thinking and emotional engagement. However, existing educational platforms in Indonesia, such as Ruangguru, Brainly, and Udemy, tend to focus on content delivery rather than experiential engagement. While these platforms provide flexible and accessible learning opportunities, they often remain passive and individualized, limiting opportunities for social interaction and creativity development. Similarly, training institutions such as the Merry Riana Learning Centre primarily focus on motivational and achievement-oriented programs without systematically integrating creative and innovative learning components. This creates a market gap for an integrated, experiential, and creativity-focused education system (Barsulai, 2022).

Consumer behavior in the education sector has also evolved significantly. Generation Z and Generation Alpha, who dominate the current student demographic, exhibit variety-seeking behavior (Kotler & Keller, 2016), preferring dynamic, visual, and interactive learning environments. These learners respond more positively to collaborative and technology-driven approaches, such as gamification, digital simulations, and multimedia-based instruction (Seemiller & Grace, 2016; EdTech Indonesia, 2023). Consequently, educational innovation should incorporate both physical and digital media to align with their learning styles.

Previous studies indicate that experiential learning and project-based learning models significantly improve students' engagement, problem-solving capacity, and creative thinking (OECD, 2020). The integration of interactive educational media, such as educational board games, modular training materials, and blended digital platforms, can effectively enhance learning outcomes and motivation. These findings support the conceptual foundation of the IEE Acarya training program, which aims to bridge the gap between formal education and real-world skill demands through innovative, participatory, and context-driven learning.

In summary, the reviewed literature highlights the critical need for transformative educational practices that move beyond rote memorization toward experiential and creativity-oriented learning. The IEE Acarya model responds to this gap by promoting a hybrid ecosystem that integrates physical, digital, and social learning dimensions. This approach aligns with global education trends and provides an alternative pathway to enhance students' motivation, creativity, and life skills in preparation for future societal and professional challenges.

METHOD

Research Design

This study adopts a qualitative Design-Based Research (DBR) approach to develop and evaluate the IEE Acarya learning model. DBR integrates theory and practice through iterative cycles of design, implementation, analysis, and refinement. The research is guided by the Design Thinking framework, consisting of five stages: empathize, define, ideate, prototype, and test. This approach ensures that the learning model is grounded in real user needs while promoting creativity and innovation .

Participants and Sampling

The study involved 32 high school students (aged 15–17) and 6 teachers from two private schools in Jakarta. Participants were selected using purposive sampling to ensure diverse academic backgrounds and learning experiences.

Data Collection

Data were collected through both primary and secondary sources. Primary data were obtained through classroom observations, semi-structured interviews, and pilot training evaluations conducted with high school students, teachers, and educational practitioners in Jakarta and surrounding urban regions. These sessions explored challenges in current learning systems, levels of student engagement, and expectations for creative and participatory learning experiences.

Secondary data were collected from reputable sources, including reports and databases from the OECD (2024), UNESCO (2020), the Indonesian Ministry of Education and Culture (Kemendikbud, 2021), and the Central of Statistics (BPS, 2022). In addition, academic journals, EdTech market analyses, and case studies from digital learning platforms such as Ruangguru, Brainly, and Merry Riana Learning Centre were reviewed to provide comparative insights and strengthen the contextual basis of the study.

Research Procedure

The research process was conducted in three major phases: empathizing and defining, the researchers explored the learning experiences of students and educators to identify key problems in conventional education, such as low engagement, one-directional instruction, and a lack of creative learning tools. Ideate and prototype, based on the identified needs, the IEE Acarya model was conceptualized. The model combined experiential learning and project-based learning approaches to create interactive and context-based modules. Two prototypes were developed: (a) a training module focusing on design thinking, collaboration, and innovation, and (b) a workshop module emphasizing real-world problem-solving and creative teamwork. Testing and validation of the prototypes were conducted through short training sessions and creative workshops. Participant feedback, facilitator evaluations, and expert reviews were collected to assess the desirability, feasibility, and viability of the learning model. The iterative feedback loop ensured continuous refinement of content, delivery methods, and digital integration.

Data Analysis

Data were analyzed using thematic analysis to identify patterns related to student engagement, creativity, and collaboration. Triangulation and member checking were applied to ensure validity. Data saturation was achieved when no new themes emerged.

To strengthen rigor, pre-test and post-test self-assessments were conducted using a 5-point Likert scale.

Implementation Framework



Figure 1. IEE Acarya Experiential Learning Framework
Source: Authors' design (2025)

Figure 1 illustrates the IEE Acarya Experiential Learning Framework, which integrates design thinking, experiential learning, and entrepreneurship education within a game-based learning environment. The framework is structured as an iterative cycle consisting of five key stages: empathize, define, ideate, prototype, and test. These stages are interconnected and continuously repeated to foster reflective and adaptive learning processes.

At the core of the framework lies *game-based entrepreneurship*, which serves as the central learning mechanism. This component emphasizes active participation, problem-based scenarios, and value creation, enabling students to engage in meaningful and contextual learning experiences. Through this approach, learners are not only exposed to theoretical concepts but are also encouraged to apply them in simulated real-world situations. The first stage, *empathize*, focuses on understanding user needs and contextual challenges through observation and inquiry. This stage develops students' awareness and sensitivity toward real-life problems. The second stage, *define*, involves synthesizing insights gathered during the empathize phase to formulate clear and relevant problem statements. In the *ideate* stage, students generate creative solutions through collaborative brainstorming and divergent thinking processes. This stage promotes creativity and openness to multiple perspectives. The *prototype* stage translates ideas into tangible forms, allowing students to experiment, design, and construct potential solutions in a hands-on manner. Finally, the *test* stage involves evaluating and refining solutions through feedback and reflection, reinforcing iterative learning and continuous improvement. Surrounding the central cycle are three key learning outcomes: creativity, collaboration, and problem-solving. These competencies represent the primary skills developed through the framework. Creativity is fostered through ideation and innovation activities, collaboration emerges from team-based interactions, and problem-solving is strengthened through iterative testing and reflection.

Overall, the IEE Acarya framework provides a holistic learning ecosystem that bridges cognitive, social, and experiential dimensions of education. By combining structured design thinking processes with engaging game-

based activities, the model offers a scalable and impactful approach to enhancing students' life skills and learning motivation in contemporary educational contexts.

The implementation of IEE Acarya integrates blended learning, combining physical and digital learning environments to enhance accessibility and engagement. The model utilizes an interactive Learning Management System (LMS) for monitoring student progress, supporting teacher facilitation, and extending learning beyond in-person sessions. This digital component complements the physical tools, such as educational board games and thematic learning modules, to create a holistic and experiential learning ecosystem. The approach aligns with the principles of experiential learning theory (Kolb, 1984) and 21st-century education frameworks that emphasize creativity, collaboration, and critical thinking.

RESULT AND DISCUSSION

The IEE Acarya training program was developed through a design thinking framework, consisting of the stages of empathize, define, ideate, prototype, and test. The program was designed as an alternative learning method and medium that integrates experiential learning, innovation, and entrepreneurship education to strengthen students' creativity and life skills.

The results from the pilot implementation indicate that IEE Acarya can enhance student engagement, participation, and enthusiasm in the learning process. Students were more active in expressing ideas, working collaboratively in teams, and reflecting on their learning experiences. Teachers also reported that the program fostered a more positive classroom atmosphere by encouraging interactive and student-centered learning.



Figure 2. Prototype of the IEE Acarya Board Game
Source: Authors' design (2025)

Figure 2 illustrates the prototype of the IEE Acarya Board Game, designed as an interactive learning medium that integrates design thinking principles with experiential learning. The board structure guides students through problem identification, ideation, and solution development in a collaborative environment.

In addition, the IEE Acarya model successfully combines the elements of board game-based learning and entrepreneurial problem-solving. This combination provides students with practical experiences that stimulate curiosity, empathy, and creativity, consistent with the goals of 21st-century education.

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Table 1. Observed Improvements in Students' Learning Outcomes After IEE Acarya Training

Learning Aspect	Observed Improvement	Description
Learning Motivation	Increased	Students showed higher enthusiasm and curiosity during learning sessions.
Collaboration	Improved	Participants demonstrated effective teamwork and communication skills.
Creativity	Enhanced	Students generated more diverse and innovative ideas.
Problem-solving	Strengthened	Learners exhibited improved analytical and reflective thinking skills.

Source: Authors' observation (2025)

As shown in Table 1, the IEE Acarya training program led to observable improvements across multiple learning dimensions, including motivation, collaboration, creativity, and problem-solving. The evaluation metrics used in this study include creativity, collaboration, and problem-solving, measured through self-assessment indicators.

From a business model perspective, the IEE Acarya project was assessed using the Business Model Canvas (BMC) framework proposed by Osterwalder and Pigneur (2010). The analysis shows that the business model is feasible and sustainable across nine key dimensions: value proposition, customer segments, channels, customer relationships, key resources, key activities, key partnerships, cost structure, and revenue streams.

The main value proposition lies in providing an innovative educational experience through gamification and design thinking, supported by strategic partnerships with schools, creative learning institutions, and CSR-based educational programs.

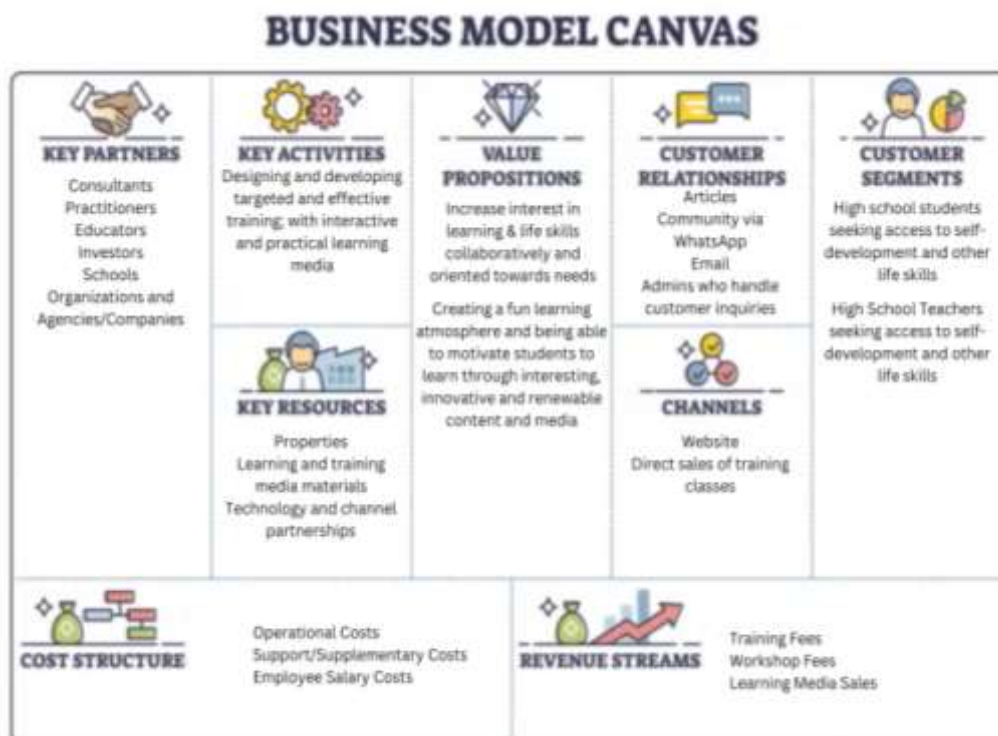


Figure 3. Business Model Canvas of the IEE Acarya Model

Source: Authors' analysis (2025)

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Figure 3 presents the Business Model Canvas (BMC) of the IEE Acarya model, outlining its key components, including value proposition, customer segments, channels, and revenue streams. The model demonstrates the feasibility and scalability of the program from an educational and entrepreneurial perspective.

Customer relationships are maintained through online communities, articles, and direct communication via digital platforms, while delivery channels include websites and direct training sessions. The customer segments target high school students and teachers seeking self-development and life skill enrichment. The business generates revenue from training programs, workshops, and educational product sales, with primary costs covering operations, support, and personnel expenses.

Financial analysis further indicates that the business can operate sustainably with manageable investment and a clear revenue model derived from training services, educational products, and institutional collaborations. The IEE Acarya initiative, therefore, meets both academic and entrepreneurial feasibility criteria.

The findings indicate that the IEE Acarya model enhances student engagement, participation, and collaborative learning. Students demonstrated increased confidence in expressing ideas and working in teams.

Quantitative results show measurable improvement:

Table 2. Pre-test and Post-Test Results of Student Self-Assessment

Learning Outcome	Pre-test Mean	Post-test Mean	Improvement
Creativity	3.0	4.3	+1.3
Collaboration	3.2	4.4	+1.2
Problem-solving	3.1	4.0	+0.9

Source: Authors' observation during IEE Acarya pilot sessions (2025)

Furthermore, Table 2 presents quantitative evidence supporting these findings. The pre-test and post-test results indicate a consistent increase in students' perceived competencies, particularly in creativity and collaboration. These results reinforce the effectiveness of the model in generating both qualitative and measurable learning outcomes.

Discussion

The IEE Acarya program blends design thinking (empathize, define, ideate, prototype, and test) with experiential, game-based learning to shift learners from passive knowledge reception to active problem framing and solution building. In practice, the empathize/define stages externalize students' tacit difficulties into shared problem statements; ideation lowers the affective barrier to creativity through playful constraints; prototyping/testing converts abstract ideas into tangible artifacts that invite feedback. This cycle operationalizes learning by doing and reflecting, the core mechanism behind gains in motivation, collaboration, creative fluency, and problem-solving. While the current study focuses on conceptual feasibility, future research should incorporate detailed financial projections and cost-benefit analysis to strengthen the economic validation of the model. The observed improvements map cleanly to Kolb's Experiential Learning: concrete experience (game scenarios), reflective observation (debriefs), abstract conceptualization (linking outcomes to principles), and active experimentation (iterating rules/strategies). In parallel, the design-thinking loop provides a structured creativity scaffold that reduces cognitive load and fear of failure, conditions known to unlock divergent thinking in adolescent learners. Together, the two frameworks supply both process (iteration, reflection) and purpose (value creation for users), explaining why skills transfer beyond a single session.

Compared with conventional lecture-centric approaches, IEE Acarya's playful constraints and role-based simulation address two gaps commonly reported in secondary education: low engagement and limited opportunities to practice complex problem-solving. Relative to one-off workshops, the program's iterative structure and artifact production (prototypes, canvases, reflections) create assessment moments and feedback loops that strengthen retention and near-transfer. Compared with pure digital platforms, the hybrid physical-digital experience (board game, facilitation, and online follow-ups) supports social presence and accountability, which are critical for sustained participation among Gen-Z learners. Life skills (e.g., self-management,

collaboration, communication, opportunity recognition) are best developed when tasks are authentic, social, and consequential. The program's team-based missions create interdependence (requiring coordination), the game economy introduces trade-offs (requiring planning), and post-game debriefs demand evidence-based justification (requiring communication). These conditions jointly cultivate the meta-skills, reflection, agency, and resilience that underwrite longer-term academic and vocational outcomes.

From an implementation standpoint, the program is modular (can be slotted into co-curricular periods), facilitator-guided (teachers act as coaches rather than lecturers), and resource-balanced (physical game is reusable; digital content supports pre/post work). These attributes reduce marginal costs and make the model portable across schools. The associated Business Model Canvas further clarifies pathways to scale (school partnerships, CSR programs, training packages), aligning pedagogical impact with sustainable unit economics, a prerequisite for wide adoption.

Effects are likely strongest when: (i) class sizes allow meaningful facilitation; (ii) teachers receive a brief onboarding in debrief techniques; and (iii) schools permit project-based assessment alongside tests. Potential threats include novelty effects (initial enthusiasm that fades), facilitator variance (inconsistent debrief quality), and selection bias (schools opting in may already be innovation-oriented). Mitigation strategies include a facilitator playbook, short micro-credential modules for teachers, and a pre-registered evaluation design in future studies.

For schools, the program can anchor a term-length creativity/life-skills strand: three cycles (Discover, Design, and Deliver) with rubrics for creativity, collaboration, and reflective writing. For teachers, using "think-aloud" debrief prompts ("What assumption failed?" "What would you prototype next?") deepens conceptual transfer. For policy and CSR actors, the model provides a scalable, evidence-informed intervention that complements existing curricula without heavy infrastructure.

Three priorities can strengthen generalizability and publishability:

1. Causal Inference: Run a cluster-randomized or stepped-wedge trial comparing IEE Acarya to business-as-usual, with pre-post measures of motivation, creative thinking, and problem-solving (plus 6–12 week follow-up).
2. Mechanism Testing: Include mediators (e.g., psychological safety, perceived relevance) to test how engagement translates into skill gains.
3. Equity Lens: Examine heterogeneous effects by prior achievement, gender, and school resources; adapt the game mechanics for low-resource contexts to test robustness.

The findings support the effectiveness of integrating design thinking and experiential learning in fostering student engagement and higher-order thinking skills. The iterative nature of the IEE Acarya model enables students to actively construct knowledge through reflection and experimentation.

Compared to previous studies focusing on digital gamification, the IEE Acarya model introduces a hybrid physical-digital approach that strengthens social interaction and collaborative learning. This addresses limitations of purely digital platforms, which often lack interpersonal engagement.

CONCLUSION

This study concludes that the IEE Acarya training model is a feasible and innovative learning approach that integrates design thinking, experiential learning, and entrepreneurship education for high school students. The model's implementation indicates potential to enhance students' learning motivation, creativity, collaboration, and life skills through engaging, game-based learning experiences. The Business Model Canvas analysis indicates that the model has the potential to be sustainable and scalable within the educational context. It creates value for both students and institutions by offering interactive learning media and training services that align with current educational trends, emphasizing active and meaningful learning. From a technological perspective, the integration of online and offline learning systems, supported by digital tools, facilitates broader accessibility and engagement among participants. Meanwhile, From a financial perspective, the model shows potential

economic feasibility and scalability, although further empirical validation is required. Overall, the IEE Acarya model contributes to the advancement of creative education in Indonesia by promoting an interactive and student-centered approach that aligns with national educational transformation goals and sustainable learning practices.

Future research is encouraged to extend the current findings by focusing on several key areas. First, market segmentation and expansion should be explored more deeply to identify new target audiences, such as junior high school students, university students, or teacher training programs, as well as potential geographic expansion beyond the pilot areas. Second, future studies should investigate technological innovation and digital integration, including the use of mobile applications, gamification platforms, and integration with school-based Learning Management Systems (LMS) to enhance scalability and effectiveness. Third, attention should be given to sustainability and environmental impact, particularly in evaluating the ecological footprint of physical learning media and identifying eco-friendly alternatives to support the Sustainable Development Goals (SDG 4 and SDG 10). Lastly, further research should analyze student behavior and learning experience through qualitative methods such as interviews or focus group discussions (FGD) to refine the program's pedagogical design and ensure a more inclusive, engaging, and effective learning process. From a business perspective, the model demonstrates feasibility through the Business Model Canvas framework. However, further research is required to validate its effectiveness through experimental studies and larger sample sizes. Future research should incorporate quantitative evaluation methods, longitudinal analysis, and broader implementation contexts to strengthen the generalizability of the findings.

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