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From Question Bank to PEKA Cards: Developing an Educational Game to Train Vocational Students' Business-Opportunity Sensitivity

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Abstract
PEKA Cards are an educational card-game teaching aid developed as an output of the Lantip (Teacher Professional Practice) program at SMK Negeri 9 Semarang. The media emerged from an evaluation of a previous output, a question bank that was considered static and insufficient for training students to respond sensitively to authentic business situations. Through discussions with the supervising teacher, the question bank was transformed into a case-based card game covering growth mindset, entrepreneurial character, and business opportunities, and was designed as an alternative format for assessment in the Creativity, Innovation, and Entrepreneurship (KIK) subject at vocational high school level. This article describes the development process, including idea generation, content and game-mechanism design, visual design in Canva, production constraints, and an initial classroom try-out. The try-out focused on playability rather than pre–post effectiveness; it revealed the need for clearer rule briefing, detected an item-writing error that was subsequently revised, and informed reprinting at the correct card size. The discussion connects these findings with recent literature on gamification, educational cards, experiential entrepreneurship education, peer assessment, and growth mindset. PEKA Cards show practical promise as a low-technology, case-based assessment medium, while stronger claims require systematic content validation, scoring-reliability checks, and controlled effectiveness studies.

Keywords: *educational teaching aid; educational cards; entrepreneurship; growth mindset; Lantip*

INTRODUCTION

The Creativity, Innovation, and Entrepreneurship (KIK) subject in vocational high schools requires students not only to memorize concepts of business opportunities but also to read real situations and make appropriate decisions within them. Such capability is difficult to assess solely through one-way written questions because students may answer from remembered material without being genuinely trained to analyze the context of the case before them. In the previous Lantip activity, the output produced was a question bank for the KIK subject. The question bank supported the evaluation process, yet its presentation remained conventional: a collection of written questions completed individually without interaction or time constraints approximating the pressure of decision making in real business settings. This condition became a point of evaluation with the supervising teacher in the subsequent Lantip implementation.

From discussions with the supervising teacher came the idea of developing the existing question bank into a more interactive form: a case-based educational card game. The idea was realized as PEKA Cards, a teaching aid designed not only as a practice medium but also as an alternative format for classroom assessment. Assessment media in vocational education need alignment between the form of the task and the competency being developed. In KIK, identifying opportunities, weighing

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consequences, and explaining the reasoning behind decisions are closer to open situational problems than to simple reproduction of definitions. Accordingly, the change from a question bank to PEKA Cards was not merely a visual redesign; it altered how students interacted with questions through cases, time limits, card rotation, and accountable decisions. Li et al. (2023) found that gamification can improve learning outcomes overall, but its effects depend substantially on design, context, duration, and the type of gameful experience. Game elements therefore cannot replace sound instructional design.

PEKA Cards also differ from much of the digital gamification literature because they use a low-technology physical medium. This makes them easy to reproduce and less dependent on individual devices, while still requiring carefully structured play. Li et al. (2024) reported that gamification can support intrinsic motivation, particularly perceived autonomy and relatedness, but may have only limited effects on perceived competence. For PEKA Cards, this means that time pressure and competition should be balanced by clear directions, appropriate difficulty, and post-game discussion.

This article therefore aims to describe the transformation of the question bank into PEKA Cards, explain the design decisions underlying its content and game mechanism, report findings from an initial classroom try-out, and discuss its potential and limitations as both a teaching aid and an alternative KIK assessment format. Its practical novelty lies in combining entrepreneurship cases, a physical card game, time constraints, item rotation, and a referee role that manages play and scores responses with an answer key in a vocational-school context. The article does not claim causal effectiveness for learning outcomes, growth mindset, or entrepreneurial readiness; it documents media development and initial playability before more rigorous effectiveness testing.

METHOD

Development Design and Context

This article adopts a descriptive practice-based approach to document the development of PEKA Cards during Lantip. The sequence reflects the process that actually occurred: evaluation of the previous question bank, discussion with the supervising teacher, transformation of content into cases, design of game mechanisms, visual design using Canva, initial production, a Grade XI classroom try-out, revision of content and print size, and reprinting. The process is iterative because information from one stage informed changes in the next. Tinoca et al. (2022) identify design–implementation–reflection–revision cycles as a central feature of design-based educational work. Nevertheless, this project is not presented as a full design-based research study because it did not begin with a formal research protocol, standardized validation instruments, or multiple structured cycles of testing.

Materials and Analytical Focus

The evidence available for this report consisted of the previously developed KIK question bank, the rewritten case scripts, situation and reminder cards, rule cards, answer-key cards, packaging design, records of production problems, discussions with the supervising teacher, and feedback arising during classroom use. The material was analyzed descriptively by tracing the relationship between the initial problem, design decisions, events in the try-out, and subsequent revisions. The analytical focus was not student achievement scores but four practical dimensions: whether the game mechanism could be implemented, whether the rules were understood, whether item content was accurate, and whether the physical product matched the intended design.

Initial Classroom Try-out

The try-out was conducted in a Grade XI class as an initial playability check. Students played in groups of five participants and one referee. Each participant had two minutes to respond to one situation card before the card rotated. The referee managed timing, collected answers, and checked participant responses using a separate answer key, while the referee's own special questions were scored by the teacher. Observation centered on whether the sequence of play could be followed, whether participants understood card functions and rotation, and whether item-writing problems appeared. Because no pretest, posttest, control group, standardized questionnaire, or psychological measure of growth mindset was used, the findings are interpreted as playability evidence and revision input rather than proof of learning gains.

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Interpretive Caution

Interpretation is deliberately limited to information available from the development process. Students' impressions that the game was exciting and tense are treated as user feedback, not as a validated measure of motivation. Likewise, one detected item error is important for revision but cannot establish the quality of all items. This distinction prevents a development report from making claims beyond its design. No personal identities or individual student scores are reported. Future studies that measure achievement or psychological constructs should use appropriate ethical procedures, validated instruments, and analysis designs aligned with their intended claims.

From Question Bank to a Card-Game Idea

The starting point for PEKA Cards was an evaluation of the question bank produced in the previous Lantip activity. The question bank was judged insufficient to train students' sensitivity because it positioned them only as respondents to questions without competition or time pressure. Together with the supervising teacher, the developers considered that growth mindset, entrepreneurial character, and business-opportunity material could be trained more appropriately through situations that require students to read cases and take a position quickly, as occurs in everyday entrepreneurial practice. A card game was therefore selected because it could combine case studies, time limits, and group work within one medium.

Developing Content and Game Mechanics

After the card-game concept was agreed upon, the next stage was to rewrite the question-bank material into case scripts covering three themes: growth mindset, entrepreneurial character, and business opportunities. Each case included several statements whose correctness had to be judged by students. Answers therefore moved beyond memorizing one correct option toward analyzing multiple statements within a situation. The game mechanism was also designed to function as an alternative to an ordinary written test. Students were divided into small groups with one member acting as referee, responsible for managing time, collecting answers, and scoring them using an answer-key card kept separate from the question cards. The referee also answered special questions scored directly by the teacher, providing an additional safeguard for objectivity while the game retained its competitive atmosphere.

Designing the Card Appearance

The visual design of PEKA Cards was created in Canva, including the question cards, reminder side, rule cards, answer keys, and box packaging. The entire process from discussing the output with the supervising teacher to producing the completed product took approximately one month and included case writing, game-mechanism design, and visual design.

Production Constraint

An early production problem was a mismatch between the printed card size and the original design because of miscommunication with the printing service. The problem became a concrete lesson that print specifications, including dimensions, need to be communicated in detail from the outset so the final product matches the design. In summary, PEKA Cards developed through five linked decisions: identifying the limitation of the old question bank, converting questions into cases, designing rules that created interaction and time constraints, visualizing the components as an integrated card set, and testing and revising the product based on actual classroom events. The value of the process lies in the connection among stages. The initial problem of static assessment was addressed not merely through visual redesign but by changing student activity. At the final stage, an item error and inaccurate print size became concrete design information for the next revision cycle.

RESULTS AND DISCUSSION

PEKA Card Product

The final PEKA Card product consists of five situation cards for participants, three special situation cards for the referee, rule cards for participants and the referee, answer-key cards for the referee and teacher, and a box package. Each question card has two sides: a case narrative with answer options and an illustrated reminder side. The game is played in groups of five participants and one

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referee. Each participant answers one situation card within two minutes before the card is rotated to the next participant. The double-sided format is consistent with other educational-card developments, such as the digital-safety quartet cards reported by Alfian et al. (2026) and the interactive science education cards developed by Aulia and Aufa (2024), both of which combine task content and visual cues across card surfaces.



Fig. 1. Situation card (question side and reminder side)

During the Grade XI classroom try-out, the game could be implemented according to the plan, although several students were initially confused until the rules were explained again in greater detail. The try-out was not intended to compare before-and-after outcomes; it was intended to determine whether the mechanism could run as designed. It also generated direct user feedback. A student in one class identified an error in one of the question scripts, which was then revised before the cards were reprinted at the correct size with corrected content. Students described the game as both exciting and tense because of the time limit, and play proceeded smoothly once the rules were understood.

From a playability perspective, the try-out yielded three actionable findings. First, initial confusion suggests that a rule card alone may not be sufficient; a brief teacher briefing and one demonstration round should precede scored play. Second, the item error detected by a student shows that user-level readability testing can identify problems missed during drafting. Third, the combination of excitement and tension indicates that time limits do shape the intended game atmosphere, but they must be managed so that pressure does not undermine comprehension. The principal result of the try-out is therefore operational information that directly informed revision of rules, content, and production not a quantified learning effect.



Fig. 2. PEKA Card packaging (box net)

The shift from a conventional question bank to PEKA Cards is consistent with studies suggesting that card-based learning media and gamification can increase student interest, motivation, and learning outcomes compared with conventional approaches. Setyati et al. (2025) and Hardina (2024)

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reported that educational aids and card games stimulated learning interest at elementary level, while Akhmadi et al. (2025) and Putri and Trisnawati (2024) reported improved motivation and learning outcomes in vocational high-school contexts through gamified media. The systematic review by Dahalan et al. (2024) on gamification and game-based learning in vocational education likewise found generally positive effects on academic performance, engagement, and motivation, providing a conceptual basis for replacing a static question bank with a card-game format. Conceptually, PEKA Cards are best understood as a combination of game-based learning and gamified assessment elements. The learning task is embedded in the game through situation cards, whereas time limits, rotation, competition, and differentiated roles make the experience gameful. This distinction matters because benefits do not arise from the 'game' label itself. Li et al. (2023) found positive aggregate effects of gamification but also important moderation by design and context. The quality of PEKA Cards should therefore be judged by how well cases, rules, timing, feedback, and reflection support KIK objectives, not by entertainment value alone.

From a motivational perspective, group play and card rotation may support relatedness because students participate in a shared activity and depend on a common sequence. Yet time pressure and competition may reduce perceived competence for students who need more time to understand a case. Li et al. (2024) found positive effects of gamification on autonomy and relatedness but a more limited effect on perceived competence. Teachers can therefore retain time limits as a defining feature while offering an unscored practice round, ensuring legible card text, and conducting reflection after all cards have been completed. The growth-mindset content in PEKA Cards is based on the idea that openness to failure and willingness to adapt can be discussed through concrete situations rather than memorized as concepts. Rissanen et al. (2021) found that classroom implementation of growth-mindset pedagogy depends substantially on how teachers themselves enact the mindset in guiding student reflection. This makes the role of the supervising teacher, classroom teacher, and referee important in discussing answers after the game. At the same time, Zrudlo (2026) cautions that empirical evidence on growth-mindset interventions is mixed and highly context-dependent. Any claim that PEKA Cards train growth mindset should therefore be treated as a conceptual potential observed qualitatively in an initial try-out, not as a systematically measured effect.

Recent evidence also supports caution in using growth mindset as an outcome claim. Macnamara and Burgoyne (2023) reported that growth-mindset interventions had very small effects on academic achievement and that effects were not convincing under the strictest methodological-quality criteria. Bardach et al. (2024), focusing on teachers, likewise found generally small associations and no significant relationship between teacher growth mindset and student achievement. For PEKA Cards, this evidence supports a restrained interpretation: the cards can prompt discussion about failure, effort, strategy, and adaptation, but a single game session cannot be treated as evidence that students' growth mindsets have changed.

The requirement to read cases and make decisions within limited time is also related to entrepreneurial character and critical thinking. Zharifah and Sukmadewi (2024) found a positive relationship between critical thinking and entrepreneurial mindset among university students, which is relevant to the requirement in PEKA Cards to judge several statements within each situation. Mugiarto (2023) and Manalu et al. (2024) likewise emphasize that entrepreneurial character and skills are better developed through concrete experience and practice than through theoretical delivery alone, while Nafiati et al. (2026) report that learning-by-doing approaches contribute to vocational students' entrepreneurial interest. Sunarti et al. (2025), in examining entrepreneurial readiness among Grade XII vocational students, further reinforce the importance of learning experiences that approximate real business situations while students are still at school.

The entrepreneurship cases have a stronger rationale when understood as active decision-making experiences. Motta and Galina (2023) describe experiential entrepreneurship education as learning by doing that can contribute to entrepreneurial skills, competencies, and intentions, although activities and implementation challenges vary. PEKA Cards cannot replace authentic business practice, but they can serve as a preparatory bridge in which students identify relevant information, compare alternatives, and respond to scenarios before engaging with more complex business decisions in projects or teaching-factory settings. The case-study content in PEKA Cards, including the pricing-strategy case in Situation 2, also has a basis in applied entrepreneurship learning. Widiastuti et al. (2025) reported that case-based training on pricing strategy improved participants' understanding of basic pricing principles, indicating that similar scenarios can provide useful conceptual practice for vocational students.

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The referee's role in scoring participant responses with an answer key introduces a peer-assessment element. Verdiyanti (2025) reports that peer assessment in collaborative learning can strengthen responsibility and motivation to contribute, but can also create objectivity and interpersonal-conflict concerns. PEKA Cards anticipate part of this risk by separating roles: the referee scores participants using a provided answer key, while the referee's own answers are scored directly by the teacher, retaining peer involvement without relying completely on student subjectivity. The referee mechanism should be treated not merely as a faster scoring arrangement but as a peer-assessment design that requires safeguards. Senden and Coertjens (2024) show that peer assessment can support learning yet also raise issues of trust, fairness, and discomfort; training and clearer guidance tend to reduce interpersonal problems. The PEKA answer key and teacher scoring of referee responses already provide an initial control. Future versions should add scoring examples, a procedure for disputed answers, and teacher confirmation for ambiguous cases so that reliability does not depend on a single student assessor.

Because PEKA Cards are intended as an alternative test format, assessment quality must be considered alongside media attractiveness. An enjoyable game does not automatically produce valid measurement. Each situation card should map to a clear learning indicator, difficulty should be balanced across cards, and answer keys should include brief rationales to support consistent scoring. The item error identified during the try-out underscores the need for review before formal use. Further development should include content and media expert review, readability testing, alignment checks between indicators and items, and agreement checks between referee and teacher scores. If the resulting score is used summatively, item analysis and reliability evidence become particularly important.

Overall, the PEKA Card development process resembles patterns found in other card and gamified media developments: selecting a game form to increase engagement and using cycles of trial and revision before formal use. Similar practices appear in the digital-safety quartet cards of Alfian et al. (2026) and the interactive science cards of Aulia and Aufa (2024), which used more structured expert validation. The PEKA try-out remains informal and was limited to an initial classroom use without standardized validation instruments. Further development should therefore use more systematic validation and testing so that the effectiveness of PEKA Cards as an assessment tool can be evaluated more convincingly. Production specifications also have pedagogical consequences. Cards that are too small may reduce readability, while cards that are too large may be difficult to rotate and store. The initial print-size mismatch demonstrates that technical specifications belong within instructional design rather than at the end of it. A full-size prototype, bleed and cutting-margin checks, minimum font-size checks, text-background contrast checks, and table-top simulations can be completed before mass printing. These steps reduce reprinting costs and help preserve the intended user experience.

Practical Implications

Practically, PEKA Cards can be adapted for structured practice, enrichment, group discussion, or formative assessment, provided that the teacher adjusts procedures to the purpose. In practice sessions, discussion of reasoning can be expanded and timing relaxed. In assessment use, scoring procedures should be more standardized, assistance between participants limited, and card difficulty checked. A short pre-game briefing, one demonstration round, clarification of the referee role, and a procedure for scoring disagreements are recommended. A post-game debriefing is equally important so the rapid decisions made during play are converted into explicit conceptual understanding.

Limitations and Further Development

This report has important limitations. The try-out represents an initial classroom use rather than an experiment. It does not report pretest–posttest data, a control group, a systematically documented sample size, standardized motivation questionnaires, a growth-mindset instrument, or structured expert validation. Consequently, no effect size can be claimed for learning, motivation, growth mindset, or entrepreneurial readiness. Future work should include content and media expert validation, multi-class practicality testing, inter-rater scoring reliability, and quasi-experimental or mixed-method studies. Replication across vocational programs is also needed to test whether the cases and game mechanism remain relevant for students with different disciplinary backgrounds.

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CONCLUSION

The journey of PEKA Cards from a static question bank to a card-game teaching aid used directly as an alternative assessment format demonstrates that educational media do not always emerge from a perfect design at the outset. Discussion with the supervising teacher initiated the idea, while printing problems and direct student feedback during the try-out became part of the process that strengthened the final product before formal classroom use. The experience provides a basis for reflection on future KIK teaching-aid development, especially media that are more interactive while remaining defensible as assessment instruments. At the current stage, the main contribution of PEKA Cards is a game-based assessment prototype that has passed through a problem–design–try-out–revision cycle and is supported conceptually by recent literature. Its publishable value lies not in a causal claim of effectiveness but in transparent documentation of the design process, playability findings, and a clear agenda for systematic validation.

DECLARATION OF GENERATIVE AI

The authors declare that no generative AI or AI-assisted technologies were used in the writing process of this manuscript.

CONFLICTING INTEREST STATEMENT

The author declares that there is no conflict of interest in the publication of this article.

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REFERENCES

Akhmadi, A. S., Sugiarti, Y., & Rahayu, D. L. (2025). Pengembangan media pembelajaran gamifikasi untuk meningkatkan motivasi dan hasil belajar siswa pada pembelajaran elemen olahan hasil hewani. *JIPTEK: Jurnal Ilmiah Pendidikan Teknik dan Kejuruan, 18*(2), 225–238. https://doi.org/10.20961/jiptek.v18i2.92714

Alfian, H. N., Herwanto, H. W., & Fikriati, H. A. (2026). Pengembangan media kartu kuartet berbasis unplugged untuk materi keamanan digital SMP. *Jurnal Basicedu, 10*(4), 1885–1892. https://doi.org/10.31004/basicedu.v10i4.13055

Aulia, R., & Aufa, A. (2024). Pengembangan kartu edukasi interaktif untuk meningkatkan pemahaman materi ilmu pengetahuan alam di sekolah dasar. *Jurnal Educatio: Jurnal Pendidikan Indonesia, 10*(1), 700–711. https://doi.org/10.29210/1202424497

Bardach, L., Bostwick, K. C. P., Fütterer, T., Kopatz, M., Memarpour Hobbi, D., Klassen, R. M., & Pietschnig, J. (2024). A meta-analysis on teachers' growth mindset. *Educational Psychology Review, 36*, 84. https://doi.org/10.1007/s10648-024-09925-7

Dahalan, F., Alias, N., & Shaharom, M. S. N. (2024). Gamification and game based learning for vocational education and training: A systematic literature review. *Education and Information Technologies, 29*(2), 1279–1317. https://doi.org/10.1007/s10639-022-11548-w

Hardina, R. (2024). Permainan edukatif berbasis kartu dalam meningkatkan minat belajar IPS siswa di sekolah dasar. *Jurnal Penelitian Tindakan Kelas, 2*(2), 67–76. https://doi.org/10.61650/jptk.v2i2.260

Li, L., Hew, K. F., & Du, J. (2024). Gamification enhances student intrinsic motivation, perceptions of autonomy and relatedness, but minimal impact on competency: A meta-analysis and systematic review. *Educational Technology Research and Development, 72*, 765–796. https://doi.org/10.1007/s11423-023-10337-7

Li, M., Ma, S., & Shi, Y. (2023). Examining the effectiveness of gamification as a tool promoting teaching and learning in educational settings: A meta-analysis. *Frontiers in Psychology, 14*, 1253549. https://doi.org/10.3389/fpsyg.2023.1253549

Macnamara, B. N., & Burgoyne, A. P. (2023). Do growth mindset interventions impact students' academic achievement? A systematic review and meta-analysis with recommendations for best practices. *Psychological Bulletin, 149*(3–4), 133–173. https://doi.org/10.1037/bul0000352

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Manalu, C. L. N., Marpaung, D. T., Siagian, I., Limbong, N., Tampubolon, N. C., Hutasuhut, S., & Tarigan, S. W. B. (2024). Pengembangan keterampilan kewirausahaan di sekolah menengah. *Future Academia: The Journal of Multidisciplinary Research on Scientific and Advanced, 2*(4), 585–600. https://doi.org/10.61579/future.v2i4.265

Motta, V. F., & Galina, S. V. R. (2023). Experiential learning in entrepreneurship education: A systematic literature review. *Teaching and Teacher Education, 121*, 103919. https://doi.org/10.1016/j.tate.2022.103919

Mugiarto. (2023). Pembentukan karakter kewirausahaan siswa SMK melalui implementasi manajemen edupreneurship. *Jurnal Kridatama Sains dan Teknologi, 5*(2), 241–254. https://doi.org/10.53863/kst.v5i02.915

Nafiati, D. A., Putri, K. A., Nisa, N. K., & Haryani, A. (2026). Learning by doing dalam pendidikan kewirausahaan: Studi literatur terhadap peningkatan minat berwirausaha siswa menengah kejuruan. *JPEK (Jurnal Pendidikan Ekonomi dan Kewirausahaan), 10*(2), 432–445. https://doi.org/10.29408/jpek.v10i2.35158

Putri, L. A. I., & Trisnawati, N. (2024). Pengaruh media pembelajaran berbasis Educandy game terhadap motivasi dan hasil belajar siswa SMK. *Edukatif: Jurnal Ilmu Pendidikan, 6*(4), 3059–3070. https://doi.org/10.31004/edukatif.v6i4.7204

Rissanen, I., Laine, S., Puusepp, I., Kuusisto, E., & Tirri, K. (2021). Implementing and evaluating growth mindset pedagogy: A study of Finnish elementary school teachers. *Frontiers in Education, 6*, Article 753698. https://doi.org/10.3389/feduc.2021.753698

Senden, M., & Coertjens, L. (2024). The impact of peer assessment design on interpersonal processes: A systematic review. *Studies in Educational Evaluation, 83*, 101405. https://doi.org/10.1016/j.stueduc.2024.101405

Setyati, E., Nugroho, Y. W., & Gunawan, T. P. (2025). Peran alat peraga dan permainan edukatif sebagai media pembelajaran untuk menstimulasi minat dan kecerdasan literasi siswa SD Muhammadiyah 4 Surabaya. *JPP IPTEK (Jurnal Pengabdian dan Penerapan IPTEK), 9*(2), 131–142. https://doi.org/10.31284/j.jpp-iptek.2025.v9i2.8321

Sunarti, Suherman, & Rusdiyani, I. (2025). Analisis kesiapan berwirausaha siswa kelas XII sekolah menengah kejuruan. *Edukatif: Jurnal Ilmu Pendidikan, 7*(1), 122–131. https://doi.org/10.31004/edukatif.v7i1.7978

Tinoca, L., Piedade, J., Santos, S., Pedro, A., & Gomes, S. (2022). Design-based research in the educational field: A systematic literature review. *Education Sciences, 12*(6), 410. https://doi.org/10.3390/educsci12060410

Verdiyanti, R. A. (2025). Penilaian sejawat dalam pembelajaran kolaboratif: Perspektif mahasiswa teknologi pangan Uniwara. *DIAJAR: Jurnal Pendidikan dan Pembelajaran, 4*(1), 17–24. https://doi.org/10.54259/diajar.v4i1.3721

Widiastuti, M., Riorini, S. V., Sirait, K. H., Dirdia, R., & Widiasmara, S. (2025). Strategi penetapan harga produk dan jasa bagi UMKM untuk meningkatkan daya saing dan keberlanjutan usaha. *Dirkantara Indonesia, 4*(1), 87–92. https://doi.org/10.55837/di.v4i1.168

Zharifah, N., & Sukmadewi, R. (2024). Peran berpikir kritis dalam membangun entrepreneur mindset mahasiswa di perguruan tinggi. *MANABIS: Jurnal Manajemen dan Bisnis, 3*(1), 13–21. https://doi.org/10.54259/manabis.v3i1.2321

Zrudlo, I. (2026). An analysis of growth mindset theory and interventions in education. *Studies in Philosophy and Education, 45*(1), 39–56. https://doi.org/10.1007/s11217-025-10029-0