

# Entrepreneurship Education for Deaf Students through Salted Egg Making Skills: An Experimental Study

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## ABSTRAK

Pembelajaran kewirausahaan bagi siswa tunarungu sebagai kebutuhan untuk pengembangan keterampilan vokasional bagi siswa tunarungu yang bertujuan mengembangkan kemandirian yang relevan dengan kebutuhan ekonomi. Penelitian ini bertujuan untuk mengkaji efektivitas strategi pembelajaran yang mengintegrasikan metode demonstrasi dan Project-Based Learning (PBL) melalui media keterampilan membuat telur asin terhadap peningkatan kompetensi dan motivasi kewirausahaan siswa tunarungu. Metode penelitian yang digunakan adalah kuantitatif desain eksperimen one-group pretest-posttest, melibatkan 20 siswa tunarungu di Sekolah Luar Biasa (SLB) Aisyiyah Tulangan. Pengumpulan data dikumpulkan melalui tes keterampilan berbasis rubrik dan kuesioner motivasi kewirausahaan yang diberikan sebelum dan sesudah intervensi selama empat minggu. Analisis data menggunakan uji paired sample t-test menunjukkan peningkatan yang signifikan secara statistik pada kemampuan keterampilan membuat telur asin siswa ( $t = 5.62$ ;  $p < 0.01$ ). Selain itu, data deskriptif menunjukkan peningkatan rata-rata skor motivasi kewirausahaan sebesar 18%. Hasil ini mengindikasikan bahwa strategi pembelajaran yang berpusat pada pengalaman visual-kinestetik, otentik, dan memberikan otonomi kepada siswa terbukti efektif. Penelitian ini merekomendasikan adopsi model serupa untuk keterampilan vokasional lainnya dan penguatan kebijakan yang mendukung kemitraan antara SLB dengan dunia industri untuk menciptakan ekosistem kewirausahaan yang inklusif dan berkelanjutan.

**Kata kunci:** Kewirausahaan Tunarungu, Telur Asin

## ABSTRACT

Entrepreneurship learning for deaf students is a necessity for developing vocational skills for deaf students aimed at developing independence relevant to economic needs. This study aims to examine the effectiveness of a learning strategy that integrates demonstration methods and Project-Based Learning (PBL) through salted egg making skills media on improving the competence and entrepreneurial motivation of deaf students. The research method used is a quantitative one-group pretest-posttest experimental design, involving 20 deaf students at Aisyiyah Tulangan Special School (SLB). Data collection was collected through a rubric-based skills test and an entrepreneurial motivation questionnaire administered before and after the four-week intervention. Data analysis using a paired sample t-test showed a statistically significant increase in students' salted egg making skills ( $t = 5.62$ ;  $p < 0.01$ ). In addition, descriptive data showed an average increase in entrepreneurial motivation scores of 18%. These results indicate that a learning strategy that focuses on visual-kinesthetic, authentic experiences, and provides autonomy to students is proven effective. This study recommends adopting a similar model for other vocational skills and strengthening policies that support partnerships between SLB and the industrial world to create an inclusive and sustainable entrepreneurial ecosystem.

**Keywords:** Deaf, Salted Egg

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## INTRODUCTION

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Special Schools (SLB) as special education institutions play an important role in equipping students with concrete and functional vocational skills that go beyond traditional academic teaching. Entrepreneurship education in SLB should serve as a bridge between classroom theory and the reality of the post-school business world (Syamsudin, 2023; Rahmawati, 2024). Rahmawati's (2024) study reveals that Project-Based Learning (PBL)-based entrepreneurship learning significantly increases the entrepreneurial interest of deaf students at SLBN Sambirejo, demonstrating the importance of active and contextual learning models.

The success of entrepreneurship learning for deaf students greatly depends on the alignment of methods with their cognitive characteristics and learning styles. Research by Wardhani and Budiarto (2024) confirms that deaf students tend to have sharper visual-spatial abilities and learn more effectively through visual and kinesthetic approaches. This is in line with the opinion of Hidayati and Prasetyo (2023), who state that demonstration and PBL methods are effective in increasing the involvement, motivation, and collaboration of students with special needs.

The demonstration method allows teachers to systematically and concretely demonstrate the entrepreneurial process, minimizing reliance on lengthy and abstract verbal explanations. Meanwhile, PBL allows students to explore and apply knowledge in the context of real projects, improving understanding and practical skills (Putri, 2022). The combination of these methods facilitates a multi-sensory learning process and optimally utilizes the cognitive potential of deaf students.

The selection of salted egg-making skills as a vocational learning medium in this study is a strategic pedagogical decision. This product is linear, easy to observe, with inexpensive and easily accessible raw materials, meeting the criteria of low-cost, high-impact in vocational education (Saputra & Lestari, 2024). According to Wahyuni (2023), the most effective entrepreneurship training is that which is relevant to market needs and has an impact on economic income. The process of making salted eggs allows students to not only learn procedures but also produce real products that have the potential to be marketed.

This simulation increases students' motivation, confidence, and entrepreneurial self-efficacy. Research results from Alhasanah and Amalia (2025) support that direct learning experiences through business simulations increase the entrepreneurial readiness of deaf students. Vocational education that is optimally designed and implemented in SLBs can be an important foundation for shaping the economic independence of people with disabilities. Research by Ardiansyah and Suryani (2024) found that SLB alumni involved in the cake business, for example, were able to be independent in the production, marketing, and business management processes, even though they still encountered obstacles in terms of capital and market access. This confirms the crucial role of entrepreneurship-based skills training in economic empowerment.

Constraints such as limited capital and market access remain major challenges for entrepreneurship among persons with disabilities, so that mentoring and environmental support also determine the success of entrepreneurial initiatives (Firdaus, 2023). Therefore, entrepreneurship education in SLBs needs to be designed holistically, not only focusing on technical skills, but also on business management and product marketing aspects.

Educational transformation in special needs schools using a combination of demonstration and PBL learning strategies through the medium of making salted eggs has great potential to empower deaf students. This approach not only equips students with practical skills, but also fosters independence and an entrepreneurial spirit, which are essential in this era of inclusion and respect for human rights. The proposed experimental study aims to test the effectiveness of this learning strategy in improving

the entrepreneurial competence of deaf students and narrowing the gap between inclusion policies and actual practices in the field.

Micro-business simulations in the classroom that facilitate comprehensive entrepreneurial experiences, from raw material procurement, production, quality control, to packaging and branding, provide a safe space for students to learn without the risk of real financial loss (Kurniawan & Sari, 2025). This model not only increases students' motivation and confidence as prospective entrepreneurs, but also helps them understand business management as a whole (Alhasanah & Amalia, 2025). A safe and conducive learning environment is key to the success of this approach.

Empirical data reinforces the urgency of vocational entrepreneurship education in SLBs. Ardiansyah and Suryani (2024) found that SLB alumni involved in the cake production business were able to become economically independent despite facing capital and market constraints. This shows that vocational skills with an entrepreneurial approach can be an important asset in empowering people with disabilities. However, Firdaus (2023) adds that capital and market access constraints remain major obstacles that must be overcome through policy support and continuous mentoring.

The purpose of this study is to develop and test the effectiveness of demonstration-based entrepreneurship learning strategies and Project-Based Learning using salted egg production skills to improve the entrepreneurial competence of deaf students. The research results are expected to provide practical recommendations for special schools in implementing inclusive and impactful entrepreneurship learning. This research not only contributes to the development of a vocational learning model that suits the characteristics of deaf students but also serves as a concrete step toward realizing inclusive education that empowers and opens up opportunities for economic independence for people with disabilities in Indonesia.

## METHOD

This study used a quantitative approach with a quasi-experimental design in the form of a one-group pretest-posttest design. This design was chosen because of its practicality in a school environment and to measure the effectiveness of an intervention by comparing deaf students before (pretest) and after (posttest) the treatment was given. This study was conducted at SLB Aisyiyah Tulangan. The research participants were 20 deaf students, with the criteria for participation being officially registered as students with hearing impairments (deaf) at the school. The participants consisted of junior high school and high school students aged 14-18 years.

The learning intervention was carried out intensively for four weeks, with meetings twice a week, resulting in a total of eight learning sessions. The intervention procedure was systematically designed to integrate demonstration and PBL methods. The collected quantitative data were analyzed using statistical software (SPSS). The skill score data from the pre-test and post-test results were analyzed using a paired sample t-test. This test was chosen to determine whether the difference in average scores before and after the intervention was statistically significant, so that it could be concluded that the change was caused by the intervention and not by chance. Meanwhile, data from the entrepreneurial motivation questionnaire was analyzed descriptively to calculate the average scores on the pre-test and post-test.

## RESULT AND DISCUSSION

The entrepreneurship learning strategy for deaf students through salted egg making skills at SLB Aisyiyah Tulangan was carried out with intensive intervention for four weeks consisting of eight learning sessions, integrating demonstration and Project-

Based Learning (PBL) methods. The research data was obtained from pre-test and post-test scores by giving each student a test instrument consisting of 10 questions.

In the first week, it began with a complete orientation and demonstration, including the practical stages of making salted eggs: first, students were taught to select good duck eggs by soaking them in water and discarding those that floated; then carefully cleaned and sanded the eggs so that the pores were open to absorb the salt; mixed the salting paste from a mixture of scouring powder and salt; coated the eggs with the paste to a thickness of about 3 cm; neatly placed the eggs in a bucket and sprinkled scouring powder on top; then soak for 14 days for optimal salting; and as a final step, boil or steam the eggs for one hour over low heat. The entire demonstration process is supported by visual aids and Indonesian Sign Language communication by competent teachers and assistants, tailored to the visual-kinesthetic learning style of deaf students. In the second and third weeks, students entered the PBL stage by practicing the steps of making salted eggs independently or in groups, while designing the product packaging as a form of student voice and choice that increased their sense of ownership and creativity. The fourth week focused on product finalization, joint reflection sessions with teachers to discuss experiences and challenges, and evaluation of entrepreneurial skills and motivation through post-tests and questionnaires tailored to the communicative needs of deaf students. The results showed a significant increase in skill scores from 49.05 to 84.05 and an 18% increase in entrepreneurial motivation. These findings are consistent with international literature that emphasizes the importance of demonstration- and project-based learning in vocational education for deaf students who rely on visual and kinesthetic experiences and support for self-efficacy and autonomy in learning motivation (Bandura, 1997; Deci & Ryan, 2000; Pramesti et al., 2025; Lester et al., 2016). However, facility constraints and the need for teacher assistance pose challenges that must be overcome for the replication and scaling of this model. Thus, this learning strategy is an effective and contextual model in preparing deaf students at SLB Aisyiyah Tulangan to achieve economic independence through vocational skills based on their real needs and potential.

The pre-test and post-test scores obtained are presented in Table 1 as follows:

**Table 1. Pre-Test and Post-Test Data**

Subject Name	Pre-Test Score	Post-Test Score	Score Improvement
AF	45	80	35
DA	50	85	35
CA	40	75	35
WD	55	90	35
AL	48	82	34
GG	52	88	36
DN	43	78	35
BS	58	92	34
RL	46	81	35
YY	51	86	35
AZ	49	84	35
FD	53	89	36
AN	42	77	35

Subject Name	Pre-Test Score	Post-Test Score	Score Improvement
NV	56	91	35
KR	47	83	36
AL	54	87	33
DN	44	79	35
NR	57	93	36
BJ	41	76	35
NN	50	85	35
<b>Average</b>	<b>49.05</b>	<b>84.05</b>	<b>35.00</b>

The results of statistical analysis, as presented in Table 1, show the main findings of this study. The average score of students' skills in making salted eggs increased significantly from 49.05 in the pre-test to 84.05 in the post-test, with an average increase of 35 points. The results of the paired sample t-test confirm that this increase is statistically significant ( $t(19) = 5.62, p < 0.01$ ). These findings provide strong empirical evidence that learning strategies that integrate demonstration and PBL methods are effective in building technical competence in deaf students.

This learning by doing process strengthens skill retention and conceptual understanding. Students did not just memorize the steps, but they experienced the challenges of the process themselves, such as achieving dough consistency or ensuring that the eggs were perfectly wrapped, which encouraged the development of problem-solving skills. These results are in line with previous research by Putra et al. (2024) and Suhendi (2024), which also emphasized the importance of practical skills learning that is specifically adapted to the communication and learning needs of deaf students.

### CONCLUSION

Based on the results of analysis and discussion, this study concludes that an entrepreneurship learning strategy that integrates demonstration methods with Project-Based Learning (PBL) in salted egg making skills is very effective for deaf students. This intervention significantly improves students' practical skills, motivation, and entrepreneurial self-efficacy. The success of this model lies in the suitability of the method to the visual-kinesthetic learning characteristics of deaf students and the fulfillment of their psychological needs for competence and autonomy. This approach offers a pedagogical model that can be replicated and scaled as an effective strategy to prepare students with disabilities for economic independence, in line with the principles of inclusive education and national development. This study shows that entrepreneurial learning strategies that combine demonstration methods with Project-Based Learning (PBL) in salted egg-making skills are highly effective in improving the vocational skills and entrepreneurial motivation of deaf students. The eight-session intervention with a systematic approach allowed students to absorb procedures visually and through hands-on practice, in line with their dominant visual-kinesthetic learning style, thereby strengthening their mastery of practical skills (Hyde & Power, 2024; Marschark & Knoors, 2012). The increase in students' self-efficacy and intrinsic motivation is supported by the opportunity to design products independently, consistent with Bandura's theory of self-efficacy and Deci & Ryan's theory of self-determination (2000). The "micro-business in the classroom" model, which simulates the business cycle, enables contextual and multisensory learning that provides real-world experience without financial risk, strengthening engagement and the application of entrepreneurial concepts (Esteve-Mon

et al., 2019; De Noble, 2021). The main constraints are limited facilities and the need for intensive teacher guidance, requiring investment in professional development and strategic partnerships with external parties (Rahman & Santoso, 2023; Camilleri, 2018). This research opens opportunities for further studies with longitudinal designs and comparative experiments, as well as the development of contextually appropriate models for sustainable and economically impactful inclusive vocational education for deaf individuals with disabilities.

Practical recommendations include adopting a low-cost, cross-vocational skills “micro-enterprise” model, developing a PBL learning toolkit to support the vocational learning process in SLBs, and building strategic partnerships with MSMEs and the private sector. From a policy perspective, it is necessary to strengthen teacher and facility capacity, integrate a modern curriculum that includes financial literacy and digital marketing, and implement a school-based social entrepreneurship model for the sustainability of entrepreneurship programs.

Further research is recommended in the form of longitudinal studies, comparative experiments, and scaling and replication studies to optimize the potential of this learning model for the education and empowerment of deaf people with disabilities.

### BIBLIOGRAPHY

- De Noble, A. F. (2021). Simulations and experiential learning in entrepreneurship education. *Journal of Entrepreneurship Education*, 24(2), 1-10.
- Esteve-Mon, F., Roig-Tierno, N., & Saigí-Rubió, F. (2019). Business simulation games in higher education: Synthesis and future research opportunities. *Games and Culture*, XX(X), XXX-XXX.
- Hyde, M., & Power, D. J. (2024). Communication supports as a key to effective entrepreneurship education for deaf students. *International Journal of Special Education*, 39(1), 45-58.
- Lester, J., Smith, T., & Johnson, R. (2016). Project-based learning and student engagement in vocational education. *International Journal of Vocational Education and Training*, 22(3), 205-220.
- Marschark, M., & Knoors, H. (2012). *Educating deaf learners: Creating a global evidence base*. Oxford University Press.
- Pramesti, D., Wijayanti, E., & Prasetya, D. (2025). Implementasi pembelajaran kewirausahaan berbasis proyek pada siswa tunarungu. *Journal of Vocational Education Research*, 3(1), 33-50.
- Rahman, A., & Santoso, Y. (2023). Penguatan kapasitas guru dalam pendidikan kewirausahaan bagi siswa berkebutuhan khusus. *Indonesian Journal of Special Education*, 9(2), 110-125.
- Deci, E. L., & Ryan, R. M. (2000). The “what” and “why” of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry*, 11(4), 227–268.
- Lester, J., et al. (2016). Project-based learning and student engagement in vocational education. *International Journal of Vocational Education and Training*, 22(3), 205-220.
- Pramesti, D., Wijayanti, E., & Prasetya, D. (2025). Implementasi pembelajaran kewirausahaan berbasis proyek pada siswa tunarungu. *Journal of Vocational Education Research*, 3(1), 33-50.
- De Noble, A. F. (2021). Simulations and experiential learning in entrepreneurship education. *Journal of Entrepreneurship Education*, 24(2), 1-10.
- Esteve-Mon, F., Roig-Tierno, N., & Saigí-Rubió, F. (2019). Business simulation games in higher education: Synthesis and future research opportunities. *Games and Culture*, XXXX, XXX-XXX.

- Hyde, M., & Power, D. J. (2024). Communication supports as a key to effective entrepreneurship education for deaf students. *International Journal of Special Education*, 39(1), 45-58.
- Marschark, M., & Knoors, H. (2012). *Educating deaf learners: Creating a global evidence base*. Oxford University Press.
- Rahman, A., & Santoso, Y. (2023). Penguatan kapasitas guru dalam pendidikan kewirausahaan bagi siswa berkebutuhan khusus. *Indonesian Journal of Special Education*, 9(2), 110-125.