

# Exploring the need for a kickstarter toolkit for special education educators to teach authoring and illustrating

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## ABSTRACT

This study examines the need for developing a Kickstarter toolkit designed to support special education teachers in teaching entrepreneurship through the creation of children's storybooks. Entrepreneurship education is increasingly recognized as a valuable addition to special education, promoting skills such as creativity, problem-solving, and independence. A survey conducted among 170 special education teachers from the Kuala Kangsar district, selected through judgmental sampling, revealed strong support for introducing entrepreneurship education into special education curricula ( $M=3.69$ ,  $SD=0.71$ ). Teachers also emphasized the importance of employing pedagogical approaches to effectively teach entrepreneurship concepts ( $M=3.89$ ,  $SD=0.69$ ). Moreover, the findings indicate an urgent need for a dedicated toolkit to facilitate such activities, with educators expressing high levels of agreement regarding its necessity ( $M=3.99$ ,  $SD=0.73$ ). These results underscore the positive perception of special education teachers toward entrepreneurship education and the crucial role a specialized toolkit could play in equipping educators with the resources needed to foster entrepreneurial competencies in students with special needs.

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## 1. INTRODUCTION

The Malaysian government has demonstrated a strong dedication to providing high-quality education for every child, including those with disabilities [1], [2]. Legislative frameworks such as the Education Act 1996 [3] and the Education (Special Education) regulations 1997 [4] establish this mandate, while the Ministry of Education's special education division (SED) provides resources and training nationwide. Various school types, like integrated, private, and fully special-education schools, ensure inclusivity, with full public funding for students with disabilities [3], [5]. Additionally, the Zero-Reject Policy further enhances inclusion in mainstream schools [6]. Despite these advances, disparities in access to digital learning and creative resources persist, particularly in rural and under-resourced classrooms. Globally, inclusive publishing tools [7], such as Book Creator [8], demonstrated potential for accessible storytelling and authoring. However, these platforms lack localization for Malaysia's curriculum, entrepreneurship elements, and bilingual cultural contexts. This study fills the gap by presenting a toolkit developed to help special education teachers and students write and illustrate children's storybooks as entrepreneurial activities. The Kickstarter toolkit extends existing platforms by embedding: i) a

pedagogical model aligned with Malaysia's special education curriculum, ii) an accessibility framework integrating symbol support and multimodal design, and iii) a structured workflow for co-creation between teachers and learners. This innovation situates inclusive publishing as both a literacy and an entrepreneurship education approach.

This paper begins by contextualizing inclusive publishing in special education, followed by a needs analysis examining teachers' perceptions of entrepreneurship education. The findings highlight the need to develop a toolkit for authoring and illustrating, with its structure, pedagogy, and framework discussed. The paper concludes with implications for inclusive EdTech and future toolkit development.

## 2. METHOD

The need analysis phase forms the foundation of the design and development research (DDR) framework, aligning with the first stage of the model [9]. Need analysis is a vital phase in determining the need for the development of a product or material to assist professional practice [10], which assisted in developing a toolkit for special education teachers to author and illustrate children's books. Following recent DDR recommendations, the phase integrates systematic inquiry and participatory input to ensure contextual relevance and inclusivity. The rationale for this approach is to establish empirical justification before developing educational innovations, thereby ensuring that design decisions are data-driven and informed by stakeholders.

### 2.1. Procedural steps

The need analysis employed both literature review and survey methods to triangulate contextual and perceptual data. The procedures followed these systematic steps:

- i) Identification of research gaps: through document review and prior research, entrepreneurship elements were found to be absent in Malaysia's special education curriculum, particularly for students with learning disabilities.
- ii) Development of instrument: a structured questionnaire was adapted from the measurement tool for entrepreneurship education (MTEE) [11], ensuring alignment with international entrepreneurship education frameworks.
- iii) Pilot testing and validation: content and linguistic validation were performed by experts in special education and entrepreneurship pedagogy to establish clarity, comprehensiveness, and cultural appropriateness [12].
- iv) Data collection: the validated questionnaire was disseminated through online platforms (Google Forms and email) to reach respondents across schools efficiently [13].
- v) Data analysis: responses were coded and analyzed using SPSS for descriptive statistics, mean, percentage, and standard deviation (SD), to identify trends and establish priority needs. Interpretation of mean scores followed [14].

### 2.2. Participants

The study focused on special education teachers participating in the special education integrated program (SEIP) in the Kuala Kangsar district, covering both primary and secondary levels. Out of a total population of 280 educators (17 from primary schools and 8 from secondary schools), a judgmental sampling method selected 170 respondents, surpassing the minimum recommended sample size. This approach ensured that participants had relevant experience in entrepreneurship-related classroom instruction. Most participants held bachelor's degrees and had over 5 years of teaching experience, which enhanced the reliability of their responses.

### 2.3. Data collection tools

The survey instrument comprised five sections:

- i) Section A: educator background.
- ii) Section B: teachers' opinions on entrepreneurship education for students with special needs.
- iii) Section C: teaching and implementation strategies.
- iv) Section D: perceived need for entrepreneurship-based authoring and illustrating toolkit.

Each item used a 5-point Likert scale, ranging from "strongly disagree" (1) to "strongly agree" (5) [15]. This design allowed for quantitative measurement of educators' attitudes and readiness to implement entrepreneurship-based literacy activities. To improve the stability of the adapted instrument, a comprehensive evaluation covering both language validity and content-related validity was conducted. The content validity assessment specifically considers factors such as print legibility, font size, content adequacy, and language appropriateness. Content validity also evaluates whether the existing questionnaire thoroughly

addresses all relevant elements necessary for answering the research questions. This detailed approach aims to ensure the achievement of a robust and reliable outcome. Regarding the instrument's validity, it is common to perform a pilot test to refine the questionnaire items and establish the instrument's reliability. The feedback and insights gained from this initial trial are invaluable for improving the questionnaire, thus enhancing its accuracy and suitability for the upcoming research effort. To refine the questionnaire and enhance its precision and suitability for the forthcoming research endeavor, a pilot study was conducted with a group of 47 special education educators to determine the instrument's reliability. The Cronbach's Alpha value of 0.861 was reported.

#### 2.4. Theoretical and methodological alignment

The need analysis aligns with the discrepancy model of needs assessment [16], emphasizing the identification of gaps between current practices and desired outcomes in special education entrepreneurship instruction. It also resonates with DDR principles, wherein practical problems are iteratively analyzed to inform design solutions within authentic educational settings [17]. The findings from this phase directly informed the subsequent design and development phase, ensuring that the toolkit addresses the contextual realities and expressed needs of educators.

The authoring and illustrating toolkit distinguishes itself from other digital storytelling platforms by integrating pedagogical, structural, and technological innovations specifically designed for inclusive education. Unlike generic authoring tools like Book Creator, it is based on DDR and inclusive pedagogy principles, ensuring each module connects creative design activities with clear educational goals such as emotional literacy, moral reasoning, and universal design for learning (UDL) [18]. This pedagogical approach turns the creative process into a structured learning and empowerment experience rather than just an artistic activity [8]. The toolkit includes a structured process that guides development through stages: need analysis, design, development, and usability testing. This allows educators and professionals to co-create inclusive content using clear steps. It also promotes stakeholder collaboration through templates and rubrics, ensuring stories are culturally, cognitively, and emotionally authentic for diverse learners' rubrics, ensuring stories are culturally, cognitively, and emotionally authentic for diverse learners.

Regarding accessibility, the toolkit features accessibility-by-design templates that embed layout and readability standards directly into the authoring process. These templates include checklists for font clarity, color contrast ratios, and narrative pacing, which are often absent from platforms like Book Creator and Widgit Online, making them suitable for neurodiverse readers. Beyond accessibility, the toolkit promotes an inclusive creative empowerment framework that shifts the focus from consumption to creation [7]. It enables individuals with special needs and their mentors to become content creators and entrepreneurs, unlike platforms such as Tar Heel Reader, which mainly provide access to pre-made books.

The toolkit incorporates validation and feedback through iterative testing with educators, parents, and learners, ensuring ongoing improvement and relevance. Its PedTech integration enables adaptation in hybrid learning and publishing, supporting tools such as Google Classroom and Canva for education, and linking digital and print workflows [19]. These features make the toolkit a comprehensive pedagogical innovation, combining creative production, inclusive education, and accessible design.

### 3. RESULTS AND DISCUSSION

A needs analysis guided the creation of the Kickstarter toolkit to provide structured entrepreneurship activities. These activities aim to equip special needs students with essential skills through practical and engaging learning experiences. This phase seeks to determine whether developing a Kickstarter toolkit for authors and illustrators of children's books is necessary.

#### 3.1. Background of participants

The needs analysis survey questionnaire was answered by 170 special needs educators from Kuala Kangsar district. Section A of the questionnaire contains the information about the participants. The participants' background analysis is shown in Tables 1 and 2. In this analysis, 170 special education educators participated in an online survey. According to Table 1, the participants' gender distribution is as follows: 137 (80.59%) are female educators, and 33 (19.41%) are male educators. More female educators have participated in this needs analysis. Regarding teaching experience, Table 2 indicates that 13 (7.65%) educators have less than 3 years of experience in the field of special needs education. Next, 17 (10%) educators have teaching experience from 3 to 5 years. Several educators (33, 19.41%) have teaching experience ranging from 5 to 10 years. Followed by 80 (47.06%) educators who have teaching experience from 10 to 20 years. Finally, 27 educators have reported having more than 20 years of teaching experience. Overall, most educators who participated have more than 5 years of teaching experience, as reported in

Table 2. As for qualifications reported in Table 3, most educators held a bachelor's degree (149, 87.65%), while 15 (8.82%) had a master's, 4 (2.23%) held a PhD, and 2 (1.18%) had a diploma.

Table 1. Participant's gender

Gender	Frequency	Percentage	Cumulative percentage
Male	33	19.41	19.41
Female	137	80.59	100.00
Total	170	100.00	

Table 2. Participants teaching experience

Experience	Frequency	Percentage	Cumulative percentage
Under 3 years	13	7.65	7.65
3-5 years	17	10.00	17.65
5-10 years	33	19.41	37.06
10-20 years	80	47.06	84.12
Above 20 years	27	15.88	100.00
Total	170	100.00	

Table 3. Participants' professional qualifications

Professional	Frequency	Percentage	Cumulative percentage
Teaching certification	12	7.06	7.06
Teaching specialization course	40	23.53	30.59
Diploma in education	35	20.59	51.18
Degree in education	83	48.82	100.00
Total	170	100.00	

### 3.2. Analysis of phase 1

The analysis from these reports affirmed the need to develop a toolkit for authoring and illustrating children's books. The data obtained were analyzed using descriptive statistics, including percentages, means, and SD. Table 4 shows the interpretation of the mean score, adapted from [20]. Table 4 shows how the mean scores are interpreted in this phase. A score from 1.00 to 2.33 means low, 2.33 to 3.66 means moderate, and 3.67 to 5.00 means high. Based on this, the findings of the follow-up questions are reported as follows.

Table 4. Interpretation of mean score

Score mean	Interpretation of score mean
1.00 to 2.33	Low
2.34 to 3.66	Moderate
3.67 to 5.00	High

### 3.3. Special needs teachers' opinion on implementing entrepreneurship education in special education classrooms

Before developing a toolkit for authoring and illustrating children's books, it is important to determine whether special needs teachers require such a resource to teach their students how to write and illustrate these books. The research focused on answering the first follow-up research question of this phase: RQ 1(a): what is the special needs teacher's opinion on implementing entrepreneurship education in the special education classroom? this section examines educators' perceptions of implementing entrepreneurship education in special education classrooms. Table 5 presents the percentage and mean values derived from the analysis.

The study examines educators' opinions on teaching entrepreneurship in special education settings. Data from Table 5 shows a mean score of 3.69 and an SD of 0.96, indicating that most educators view entrepreneurship education favorably and see its importance for students with special needs. Many items scored highly, reflecting strong agreement, such as the importance of entrepreneurship education ( $M=4.34$ ,  $SD=0.75$ ), teachers' involvement ( $M=4.10$ ,  $SD=0.85$ ), and teamwork among teachers ( $M=3.82$ ,  $SD=0.98$ ). Overall, teachers support entrepreneurship education but highlight the need for more resources, training, and dedicated staff. Despite positive attitudes, systemic constraints hinder effective implementation. Items on resource adequacy ( $M=3.44$ ,  $SD=1.05$ ), availability of qualified personnel ( $M=3.18$ ,  $SD=1.04$ ), and annual

training opportunities ( $M=2.92$ ,  $SD=1.12$ ) received moderate scores, pointing to logistical and structural barriers faced by educators. These results align with previous Malaysian and international studies, which show that teachers in special education recognize the value of entrepreneurship but lack institutional resources and structured pedagogical tools to turn this recognition into practice [10], [21].

Table 5. Special needs teachers' opinion on implementing entrepreneurship education in the special education classroom

	Description	Strongly disagree (%)	Disagree (%)	Neutral (%)	Agree (%)	Strongly agree (%)	Mean	SD
1	Entrepreneurship education is important in our special education program.	1.76	0.59	4.71	48.24	44.71	4.34	0.75
2	Entrepreneurship activities are led by teachers at our school.	2.35	1.18	13.53	50.00	32.94	4.10	0.85
3	We have the resources needed to implement entrepreneurship education.	4.12	15.29	28.82	36.47	15.29	3.44	1.05
4	We have a qualified teacher or team in charge of entrepreneurship education.	5.29	21.18	32.35	32.35	8.82	3.18	1.04
5	The teachers have an opportunity to participate in entrepreneurship education-related training every year.	10.59	28.24	27.06	27.06	7.06	2.92	1.12
6	We work together as a team to plan how entrepreneurship education is carried out.	2.35	8.24	19.41	44.71	25.29	3.82	0.98
7	The atmosphere in our special education program supports an entrepreneurial approach.	1.76	4.71	14.71	46.47	32.35	4.03	0.91
	Average	4.03	11.34	20.08	40.76	23.78	3.69	0.96

### 3.4. Analysis of teachers' opinions on strategies used to carry out entrepreneurship education in the classroom

In this section, the research examines whether educators are practicing specific strategies to deliver entrepreneurship education in special education classrooms. Therefore, the study attempted to answer the second follow-up question of this phase: RQ 1(b): what are teachers' opinions on the strategies used to teach entrepreneurship activities in the special education classroom? this section examines the strategies teachers are practicing to teach entrepreneurship in the special education classroom. Table 6 presents the percentage and mean value obtained from the data analysis.

Table 6. Strategies used to carry out entrepreneurship education in the special education classroom

	Description	Strongly disagree (%)	Disagree (%)	Neutral (%)	Agree (%)	Strongly agree (%)	Mean	SD
1	I talk with students about how entrepreneurship connects to the subject they are learning.	1.18	3.53	21.18	55.29	18.82	3.87	0.80
2	I incorporate entrepreneurs' success stories into my teaching to motivate students.	1.18	4.71	19.41	58.24	16.47	3.84	0.79
3	I encourage students to take part in entrepreneurship competitions.	1.76	4.12	22.35	49.41	22.35	3.86	0.87
4	I assist students in entrepreneurship-related topics projects.	1.18	4.71	14.71	57.06	22.35	3.95	0.82
5	I encourage students to take part in entrepreneurship events like sales, fairs, and kiosks, as these activities help develop their entrepreneurial skills.	1.76	2.94	14.12	57.65	23.53	3.98	0.81
6	I guide students in planning the future direction for their entrepreneurship products.	1.76	5.29	19.41	52.94	20.59	3.85	0.87
	Average	1.47	4.22	18.53	55.10	20.69	3.89	0.83

The research explores how educators teach entrepreneurship and examines their current approaches. According to Table 6, the mean score is 3.89 with a SD of 0.83, suggesting that most special education teachers actively promote entrepreneurial skills among students with special needs. The data indicate a positive trend toward experiential and activity-based teaching methods. The overall mean of 3.89 ( $SD=0.83$ ) reflects strong agreement among teachers that entrepreneurial skills are being developed through various instructional strategies. This implies that special education teachers not only value entrepreneurship

education but also integrate entrepreneurial practices into their teaching. Top activities include encouraging participation in entrepreneurship events and fairs ( $M=3.98$ ,  $SD=0.81$ ), supporting students on entrepreneurship projects ( $M=3.95$ ,  $SD=0.82$ ), and assisting students with planning their product futures ( $M=3.85$ ,  $SD=0.87$ ). These emphasize hands-on, project-based learning aligned with experiential education principles [22], highlighting active experimentation, teamwork, and reflection as essential for skill development. The findings mirror international best practices, which advocate for real-world application, collaboration, and problem-solving in entrepreneurship education for learners with disabilities, fostering self-determination and confidence [21], [23]. However, while the quantitative data show positive engagement, the quality and depth of implementation rely on institutional support, teacher preparedness, and access to adaptive resources. The consistent mean scores suggest that, although teachers include entrepreneurial elements, these strategies vary in scope, structure, and inclusiveness. Prior research indicates that without systematic scaffolding or localized teaching aids, entrepreneurship teaching risks remaining activity-based rather than conceptually transformative [10], [24]. Consequently, teachers require a structured pedagogical framework to convert these activities into meaningful entrepreneurial learning outcomes. The next section discusses developing a toolkit for creating children's picture books. Recognizing differences among learners also promotes the development of more appropriate instruction for everyone, helping to close the gap between the curriculum and learners [25], [26].

### 3.5. Analysis of teachers' opinions on the need to develop a toolkit for authoring and illustrating children's picture books

In this section, the research examines educators' views on the need to develop a toolkit for authoring and illustrating children's books. Thus, the study attempted to answer the third follow-up question of this phase: RQ 1(c): what is the teacher's opinion of the need to develop a toolkit for authoring and illustrating children's books? Table 7 reports the percentage and mean value obtained from the data analysis.

Table 7 shows strong consensus among teachers on the need for a specialized toolkit to support entrepreneurship-focused authoring and illustrating activities in special education. The high mean score of 3.99 ( $SD=0.78$ ) reflects teachers' belief that this toolkit is crucial for enhancing teaching and learning. Items related to student independence ( $M=4.02$ ,  $SD=0.74$ ), parental involvement ( $M=4.01$ ,  $SD=0.77$ ), and promoting best practices in entrepreneurship education ( $M=4.04$ ,  $SD=0.77$ ) indicate that teachers see the toolkit as a way to extend classroom benefits to families and the community. This consistent agreement highlights teachers' awareness of the gap between pedagogical goals and available instructional resources. While earlier subsections 3.3 and 3.4 showed teachers' enthusiasm and proactive efforts in entrepreneurship education, this subsection provides empirical proof that current practices lack structured support, localized materials, and accessible digital tools. These findings support the need for an evidence-based toolkit that integrates creative, pedagogical, and technological elements into a unified instructional framework.

Table 7. The need to develop a toolkit for authoring and illustrating children's books

	Description	Strongly disagree (%)	Disagree (%)	Neutral (%)	Agree (%)	Strongly agree (%)	Mean	SD
1	The toolkit can help me in planning entrepreneurship activities for students.	1.18	4.12	21.18	49.41	24.12	3.91	0.85
2	Toolkit can help me to promote entrepreneur activities to a greater extent to other schools and community.	1.18	2.35	17.06	55.88	23.53	3.98	0.78
3	Toolkit can help students to initiate activity independently.	1.18	1.18	15.29	58.82	23.53	4.02	0.74
4	Toolkit encourages parents to participate in entrepreneurship activities at home with children.	1.18	1.76	17.06	55.29	24.71	4.01	0.77
5	The toolkit can help promote the best practices of entrepreneurship activities in the broader population.	1.18	1.76	15.29	55.88	25.88	4.04	0.77
	Average	1.18	2.24	17.18	55.06	24.35	3.99	0.78

## 4. CONCLUSION

Teachers recognize the value of entrepreneurship and are open to innovation, but face systemic barriers such as limited local resources, training, and tech tools for inclusive learning. This highlights a broader gap in Malaysia's special education, where entrepreneurship is acknowledged but under-supported. The results endorse UDL as a key framework, promoting multiple ways for learners to engage, understand, and express themselves via diverse modalities. Teachers' positive views on entrepreneurship literacy

activities indicate a willingness to adopt experiential learning, fostering differentiated instruction and multimodal participation. These ideas align with Kolb's experiential learning cycle, emphasizing active experimentation and reflection. The high scores in perceptions and approaches show that teachers involve students in practical projects and teamwork. Moderate responses on training and resources highlight the need for ongoing professional development and instructional frameworks. The toolkit addresses this through a structured, pedagogically supported authoring process, templates, accessibility standards, and feedback systems that support reflective teaching and learner independence. These findings extend prior research on inclusive publishing and digital storytelling. Platforms like Book Creator and Widgit Online show promise but often lack pedagogical integration, localization, and co-creation. Scientifically, these results highlight how PedTech innovations can reshape inclusive education. PedTech, emphasizing pedagogy over technology alone, uses storytelling, creative design, and entrepreneurship to promote equitable, high-quality education. The toolkit demonstrates that technology-supported, inclusive pedagogy fosters social engagement, employability, and empowerment for learners with disabilities. Its compatibility with hybrid classrooms and online publishing offers growth opportunities, ensuring sustainability and global impact. In summary, the toolkit is an evidence-based, contextually relevant solution addressing local and global educational needs. It combines inclusive methods, design thinking, and educational technology to redefine storytelling for entrepreneurial development and identity-building. Its organized, accessible, and collaborative approach offers a model for transformative 21st-century special education. Further research through pilots and long-term studies will help assess its effectiveness in enhancing inclusive literacy, self-efficacy, and digital creativity among students with special needs.

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C : Conceptualization

M : Methodology

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Vi : Visualization

Su : Supervision

P : Project administration

Fu : Funding acquisition

### CONFLICT OF INTEREST STATEMENT

Authors state no conflict of interest.

### DATA AVAILABILITY

The data that support the findings of this study are available from the corresponding author upon reasonable request.





### REFERENCES

- [1] S. H. Musa, E. M. Zain, M. Z. Ismail, H. M. Hussin, and M. N. Nordin, "Something important for special education in Malaysia," *Turkish Journal of Computer and Mathematics Education*, vol. 12, no. 11, pp. 5211–5216, 2021.

- [2] S. Arumugam, M. C. Mustafa, N. B. Abdullah, I. D. B. Shamsudin, M. R. B. M. Jamil, and M. B. Dzainudin, "From classroom to creativity: SMART-PUBLISH toolkit for special needs entrepreneurship in publishing children's picture books," *Journal of Ecohumanism*, vol. 6798, pp. 8863–8883, 2024.
- [3] The Commissioner of Law Revision Malaysia, *Education Act 1996*, 2016. [Online]. Available: <https://tcclaw.com.my/wp-content/uploads/2025/07/Education-Act-1996.pdf>
- [4] Bahagian pembangunan kurikulum, kementerian pendidikan Malaysia, *Special education curriculum (in Malay: kurikulum pendidikan khas)*, 2023. [Online]. Available: <https://repositori.bpk.moe-dl.edu.my/terbitan>
- [5] Kementerian pendidikan Malaysia, *Ministry of education*, 2021. [Online]. Available: <https://www.moe.gov.my/pendidikan/pendidikan-khas>
- [6] N. K. Ensima, M. I. Hamzah, M. H. M. Yasin, and N. M. Nasri, "The implementation of zero reject policy in Malaysia: a systematic review," in *Proceeding of International Conference on Special Education in South East Asia Region*, 2022, pp. 243–260.
- [7] K. S. J., "The role of digital storytelling in education: enhancing literacy and communication skills," *Eurasian Experiment Journal of Scientific and Applied Research*, vol. 5, no. 2, pp. 36–39, 2024.
- [8] M. F. Fadhil, S. Niah, and P. Febtiningsih, "Development of e-book using Book Creator to enhance students' understanding of narrative text on reading skill," *Jurnal Basataka*, vol. 8, no. 1, pp. 657–665, 2025, doi: <https://doi.org/10.36277/basataka.v8i1.761>
- [9] R. C. Richey and J. D. Klien, *Design and development research*. Lawrence Erlbaum Associates, 2007.
- [10] M. Zainol, M. Kadar, N. A. Razaob, and F. W. Yunus, "The need for a handwriting intervention guideline for occupational therapists in the Malaysian context," *Journal of Occupational Therapy, Schools, and Early Intervention*, vol. 00, no. 00, pp. 1–22, 2021, doi: [10.1080/19411243.2021.2009954](https://doi.org/10.1080/19411243.2021.2009954).
- [11] L. U. Findland, *Measurement tool for entrepreneurship education*, 2020. [Online]. Available: <https://eumtee.lut.fi/>
- [12] S. Sundram and N. Romli, "A pilot study to test the reliability and validity of the research instrument," *Malaysian Journal of Social Sciences and Humanities*, vol. 8, no. 3, 2023.
- [13] M. H. M. Yasin, S. A. Ghani, S. Mohamed, and M. M. Tahar, "Needs analysis of augmentative and alternative communication knowledge and skills among special education teachers for Malaysian primary schools," *Universal Journal of Educational Research*, vol. 8, no. 11, pp. 110–116, 2020, doi: [10.13189/ujer.2020.082114](https://doi.org/10.13189/ujer.2020.082114).
- [14] K. Gengatharan, A. B. Rahmat, and S. D. Krishan, "Need-analysis on importance of health education assessment module for lower primary teachers in classroom-based assessment," *Universal Journal of Educational Research*, vol. 8, no. 8, pp. 3355–3359, 2020, doi: [10.13189/ujer.2020.080807](https://doi.org/10.13189/ujer.2020.080807).
- [15] H. H. Alshibly, A. Alwreikat, R. Morgos, and M. Y. Abuaddous, "Examining the mediating role of customer empowerment: the impact of chatbot usability on customer satisfaction in Jordanian commercial banks," *Cogent Business and Management*, vol. 11, no. 1, 2024, doi: [10.1080/23311975.2024.2387196](https://doi.org/10.1080/23311975.2024.2387196).
- [16] J. McKillip, *Need analysis: Tools for the human services and education*. Thousand Oaks, CA: SAGE, 1987.
- [17] S. McKenney and T. C. Reeves, "Educational design research: portraying, conducting, and enhancing productive scholarship," *Medical Education*, vol. 55, no. 1, pp. 82–92, 2021, doi: [10.1111/medu.14280](https://doi.org/10.1111/medu.14280).
- [18] V. Priyadharsini and R. S. Mary, "Universal design for learning (UDL) in inclusive education: Accelerating learning for all," *Shanlax International Journal of Arts, Science and Humanities*, vol. 11, no. 4, pp. 145–150, 2024, doi: [10.34293/sijash.v11i4.7489](https://doi.org/10.34293/sijash.v11i4.7489).
- [19] L. Aleksieva, V. Racheva, and R. P. Forsyth, "Talking tech, teaching with tech: how primary teachers implement digital technologies in practice," *Informatics*, vol. 12, no. 3, pp. 1–31, 2025, doi: [10.3390/informatics12030099](https://doi.org/10.3390/informatics12030099).
- [20] S. Fukushima, T. Nonaka, H. Kobayashi, C. Tokoro, and E. Yamasue, *EcoDesign for circular value creation: Volume I*. Springer Singapore, 2025, doi: [10.1007/978-981-97-9068-5](https://doi.org/10.1007/978-981-97-9068-5).
- [21] S. N. Koustas and E. S. Salehi, "Entrepreneurship education and experiential learning in higher education," *Experiential Learning and Teaching in Higher Education*, vol. 4, no. 1, p. 15, 2022, doi: [10.46787/elthe.v4i1.3429](https://doi.org/10.46787/elthe.v4i1.3429).
- [22] A. Y. Kolb and D. A. Kolb, "Experiential learning theory: a dynamic, holistic approach to management learning, education and development," in *The SAGE Handbook of Management Learning, Education and Development*, 2009, pp. 42–68, doi: [10.4135/9780857021038.n3](https://doi.org/10.4135/9780857021038.n3).
- [23] M. C. Schuhmacher and H. T. Thieu, "The role of students, educators, and educational institutes in entrepreneurship education: a systematic literature review and directions for future research," *Entrepreneurship Education and Pedagogy*, vol. 5, no. 3, pp. 279–319, 2022, doi: [10.1177/2515127420977773](https://doi.org/10.1177/2515127420977773).
- [24] M. R. M. Jamil, A. T. M. Hashim, M. S. Othman, A. M. Ahmad, N. M. Noh, and M. F. M. Kamal, "Digital pedagogy policy in technical and vocational education and training (TVET) in Malaysia: fuzzy Delphi approach," *Journal of Technical Education and Training*, vol. 15, no. 2, pp. 1–10, 2023, doi: [10.30880/jtet.2023.15.02.001](https://doi.org/10.30880/jtet.2023.15.02.001).
- [25] Q. I. Almeqdad, A. M. Alodat, M. F. Alquraan, M. A. Mohaidat, and A. K. Al-Makhzoomy, "The effectiveness of universal design for learning: a systematic review of the literature and meta-analysis," *Cogent Education*, vol. 10, no. 1, 2023, doi: [10.1080/2331186X.2023.2218191](https://doi.org/10.1080/2331186X.2023.2218191).
- [26] K. Roy and K. Swargiary, "A systematic review of the Samagra Shiksha Abhiyan: Evaluating access, quality, inclusivity, digital education, and implementation challenges," *SSRN*, 2024, doi: [10.2139/ssrn.4879121](https://doi.org/10.2139/ssrn.4879121).




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