Entrepreneurial Skills in Z-Generation: A Review of

Technopreneurship Learning Ethnopedagogical-Based Approach

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ABSTRACT

Entrepreneurial skills are all the skills needed by an entrepreneur in business. The low participation of the younger generation in entrepreneurial activities makes Indonesia need to improve the quality of its entrepreneurship learning, especially technology-based entrepreneurship (technopreneurship). Therefore, an effective technopreneurship learning approach is needed, by adopting ethnopedagogy in its learning. This study aims to determine the results of a literature review regarding entrepreneurship learning that utilizes technology based on an ethnopedagogical approach in improving generation Z entrepreneurial skills. This research uses a literature review approach by analyzing empirical studies from various sources, including: scientific articles, books, and other national and international publications relevant to the topic of entrepreneurial skills and technopreneurship learning based on ethnopedagogic approach from 2013 to 2023. The findings showed that the role of technopreneurship learning with an ethnopedagogic approach to improve entrepreneurial skills in generation z is a topic that is still hot to study. In addition, tecnopreneurship learning with an ethnopedagogical approach to improve entrepreneurial skills in generation Z is better known and noticed by researchers from abroad than in Indonesia.

Keywords: Entrepreneurial Skills; Technopreneurship; Ethnopedagogic; Z Generation.

1. Introduction

1.1 Research Background

Entrepreneurial skills are all the skills needed by an entrepreneur in the business. There are many ways to develop entrepreneurial skills, one of which is through entrepreneurship education (entrepreneurship learning), but in this digital era, the business world has also adapted to the use of technology, so that digital technology-based entrepreneurship education is needed, namely technopreneurship. Based on the World Intellectual Property Organization (WIPO) report in the 2022 Global Innovation Index, Indonesia ranks 75th out of a total of 132

countries in the world with a score of 27.9 points, this still shows low business innovation in Indonesia when compared to other countries, while Indonesia's Global Entrepreneurship Index (GEI) only reaches a score of 26. In addition, the ratio of the number of entrepreneurs to the population in Indonesia is lower than several countries in Southeast Asia (Lidwina, 2019). According to a report released by the SMERU research institute, only 0.5 per 100 individuals aged 15 have very high skills. The lack of individual skills also makes it difficult for Indonesia to produce entrepreneurs. This is also evident in the fact that the number of young people participating in entrepreneurial activities is still around 3.47 percent of the total population of Indonesia (BPS, 2020). So, Indonesia needs to improve the quality of its entrepreneurship learning, especially technology-based entrepreneurship (technopreneurship) for its young generation.

The driving factors of entrepreneurship consist of internal factors and external factors. According to (Indrawan et al., 2014) internal factors consist of self-awareness, self-regulation, and motivation, while external factors are empathy and social skills. In addition, environmental factors, personal values, age, education, and work history also influence the entrepreneurial skills possessed by each individual. Therefore, entrepreneurial skills are important to be possessed by Indonesian people, especially generation Z. This is because generation Z was born and raised in the 2000s where there was a big change in this world with smartphones, laptops, and internet networks that were freely available so that life was easy (Sreeja, 2021), and with this convenience, they wanted to immediately achieve an extraordinary professional career, but without any effort (Dolot, 2018). These characteristics are suitable to encourage generation Z to become agents of technopreneurship in today's modern era.

The role of technopreneurship learning to improve entrepreneurial skills in generation Z has not been widely studied, but there are several previous studies on technopreneurship learning such as technopreneurship with cooperative learning models effectively used for vocational students (Purnomo & Triyono, 2018). Research (Hidayat et al., 2019) states that there is a contribution of scientific-based technopreneurship learning to entrepreneurship learning outcomes. In line with that, (Saptaria & Setyawan, 2021) designed technopreneurship learning based on a scientific approach to increase entrepreneurial motivation. During the Covid-19 pandemic, an e-learning-based technopreneurship learning model was developed by (Ismail & Priyanti, 2020). In addition, technopreneurship learning through the Science-Technology-Engineering-Mathematics (STEM) approach based on digital technology entrepreneurship has been developed by (Haryoko et al., 2022). In this paper, the author reviews relevant articles, so that the results of the article review are more accurate, up-to-date, and representative. The novelty in this article is to examine articles that adopt an ethnopedagogical approach to technopreneurship learning in gen Z.

1.2 Research Purposes

This research aims to find out the results of a literature review on entrepreneurship learning that utilizes technology based on an ethnopedagogical approach in improving generation Z entrepreneurial skills.

1.3 Scope of Research

The review of this article is limited to the use of the ethnopedagogical approach alone in examining related variables, so that for the development of further research can be done more broadly, namely conducting a review of articles that use various approaches in technology-based entrepreneurship learning to improve entrepreneurial skills.

2. Literature Review

2.1 Entrepreneurial Skills

2.1.1 Definition

Entrepreneurial skills consist of two words: skills and entrepreneurship. Literally, skill means the ability to complete a task, while business is one of the fields in the world of trade. According to (Iskandar & Safrianto, 2020) business skills can be owned by people who intend to become business actors, but not just their intentions, business actors are also required to have creative ideas and innovate on their individual skills. Entrepreneurial skills are abilities that encourage changes in attitudes to be able to have skills, create their own results, and solve problems on an ongoing basis (Negeri et al., 2023). So, it can be concluded that entrepreneurial skills are a skill in completing tasks in the business field to maintain business continuity and achieve optimal profitability.

2.1.2 Clasification

Entrepreneurial skills are important for an entrepreneur to maintain continuity and even increase business competitiveness. This is in accordance with research (Khan et al., 2021) that entrepreneurial skills have a significant effect on the business performance of a company. In addition, according to (Negeri et al., 2023) competence in entrepreneurial skills is the key to success in starting business diversification and sustainable profitability, so it can be concluded that every entrepreneurial skill is important and can be utilized in the process of managing an ongoing business to increase profitability.

According to (Lyons et al., 2020) entrepreneurial skills are divided into:

- Technical skills
- Managerial skills (business management skills)
- Personal skills (personal entrepreneurial skills).

Then, according to (Iliyasu & Daramola, 2023) there are several entrepreneurial skills including managerial skills, word processing skills, entrepreneurial skills, practical expertise, information and communication technology skills, skills in providing financial services, skills in operating office machines, time management skills, and technical skills. In research (Nugraheni, 2022) there are 6 skills that can affect business success, namely strategic skills, social skills, managerial skills, process skills, learning and adaptive skills, and digital skills.

2.1.3 Indicator

Indicators of entrepreneurial skills according to (Prasetyo, 2020) are as follows:

- Opportunity Startup
  If individuals are able to take advantage of opportunities (opportunities) to start a business, then this indicates the presence of entrepreneurial skills in the individual.
- Technology Absorption
  If there is business innovation and a high level of technology absorption, then entrepreneurial skills are also said to increase.
- Human Capital
  The ability of human capital and the absorption of entrepreneurial technology is proven to be able to encourage better entrepreneurial business performance, so that quality human capital also indicates more skill in entrepreneurship.
- Competition

Individuals who can create competitive businesses are indicated to have adequate entrepreneurial skills.

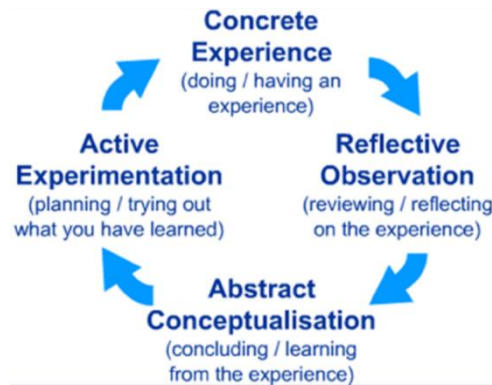*2. 2 Technopreneurship Learning*

2.2.1 Technopreneurship

Technopreneurship consists of two words, namely technology and entrepreneurship. So according to (Marti'ah, 2017) technopreneurship is the result of combining technology and entrepreneurship. Technopreneurship is also defined as a process in an organization that prioritizes innovation to continuously find and solve major organizational problems in order to increase competitiveness in the global market (Okorie et al., 2014). According to (Husna, 2020) technopreneurship is a synthesis of entrepreneurial and technological capabilities by utilizing creative resources to compete in the business market. According to (Wardhana, 2021), there are many technopreneurship in Indonesia, namely: (1) online trade (e-commerce); (2) start-up companies; (3) the use of digital financial services or financial technology (fintech); (4) the use of online taxi and ride-hailing services; and (5) the use of food delivery.

2.2.2 Technopreneurship Learning

In the education sector, technology-based entrepreneurial learning is often referred to as technopreneurship learning. According to (Nurhayati & Machmud, 2019) technopreneurial learning is defined as the process of acquiring sustainable entrepreneurial knowledge, skills, and attitudes for the process of creating and managing to become an effective technopreneur. According to experimental learning theory according to (Kolb, 1984) technopreneur learning is defined as a process in which technopreneurs develop knowledge through four different learning abilities namely experiencing, reflecting, thinking, and acting.

Figure 1. Kolb's Learning Cycle

Source: (Kolb, 1984)

2.2.3 Indicator

According to (Nurhayati & Machmud, 2019) there are 3 indicators of Technopreneurship Learning with the following sub-indicators:

Table 1. *Technopreneurship Learning Indicator*

Negotiated Enterprise
1. Partnership and joint enterprise
2. Shared meanings, structure, and practices
3. Changing roles over time

4. Engagement in networks of external relationships
Personal and Social Training
1. Narrative construction of identity
2. Family relation
3. Identity as practice
4. Tension between current and future identity
Contextual Learning
1. Learning through immersion within the industry
2. Opportunity recognition through cultural participation
3. Practical theories of entrepreneurial action

2. 3 Ethnopedagogy-based Approach

2.3.1 Definition

Ethnopedagogy is an approach to education that offers a culture-based concept or more precisely, local wisdom. According to (Fatmi & Fauzan, 2022) ethnopedagogics views local wisdom as a source of innovation and skills that can be empowered for the welfare of society. The use of local cultural approaches in lessons will be able to introduce and make students feel close to culture. So that learning becomes more meaningful, because they can directly benefit from the knowledge they learn and can improve practical and memory abilities (Pastika, 2023). It can be concluded that local wisdom-based learning is the creation of a learning environment and the design of learning experiences that integrate local culture as part of learning.

2.3.2 Local Wisdom-based Entrepreneurship

Local wisdom is closely related to everything that is cultural and characteristic of the life of a particular community, so entrepreneurship based on local wisdom is an innovation for the future economy without destroying the social order of society. According to (Herdina et al., 2021) creativity and product innovation that emphasize local cultural patterns are the strengths to produce end products that have value advantages. In addition, (Prawinugraha et al., 2021) local wisdom in the field of marine and fisheries resource utilization can be accurately identified through the standard educational process in workshop and entrepreneurship lessons at the senior high school (SMA) level. So, it can be concluded that ethnopedagogy can be used in entrepreneurship learning.

2.3.3 Indicator

Indicators of local wisdom that can be developed in learning (ethnopedagogy) according to (Afriyanto et al., 2018) are: (1) suitability for learner development; (2) competency needs; (3) flexibility in the type, form, and timing of implementation, and (4) usefulness for national interests to face global challenges.

2.4 Generation Z

2.4.1 Definition

In the experience of history, the current generation developed in the categories of baby boomers, generation X (born between 1961-1980), generation Y (born 1990-1995), and generation Z (1995-2010). This grouping is a grouping based on the similarity of birth years, locations, and events that significantly affect the lives of these groups (Christiani & Ikasari, 2020). So, it can be concluded that generation Z is a generation born and raised in the era of technological sophistication in the range of 1995 - 2010.

2.4.2 Characteristics

A characteristic that is closely related to Gen Z is digital natives. This is because they were born in the midst of the emergence of technological sophistication with the existence of smartphones, laptops, and freely available internet networks (Karina et al., 2021). The consequence of this situation is that generation Z can easily search and check the information they need, so generation Z has become an educated generation because access to information is so wide open. Generation Z uses different mobile devices, they comment on reality and the environment they live in, they manifest their opinions and attitudes using Facebook, Twitter, blogs, and internet forums, and they share photos (Instagram, Pinterest, Snapchat) and movies (YouTube, Instagram, Snapchat). The existence of various applications that support multitasking makes it difficult for Gen Z to concentrate and have long-term memory (Christiani & Ikasari, 2020). According to (Sreeja, 2021) generation Z tends to want to achieve an outstanding professional career immediately, without any effort. Gen Z does not care about stability in the workplace, they easily change workplaces, seek flexibility, and break away from routine. Young people see self-employment as a way to engage in professional activities, especially as they perceive it as a better-paying job that provides a sense of independence (Suryadi, 2019). So being an entrepreneur is a career option that suits the characteristics of Gen Z.

3. Research Methodology

This research uses a literature review approach. Researchers searched and analyzed empirical studies from electronic academic databases such as ScienceDirect, Emerald, ResearchGate, and Google Scholar, including: scientific articles, books, and other national and international publications relevant to the topic of entrepreneurial skills and technopreneurship learning based on ethnopedagogic approach from 2013 to 2023. In addition, researchers also used the help of publish or perish software, then, the analysis in this literature review follows four sequential steps: 1) Finding and collecting relevant materials on how the ethnopedagogic approach adopted in technopreneurship learning can contribute to improving entrepreneurial skills; 2) Reducing and categorizing the collected materials; 3) Analyzing and synthesizing the information in depth to gain insights from the collected materials; and 4) Presenting the final conclusion as the concluding stage of the literature review process.

Figure 2. Data Collection Techniques
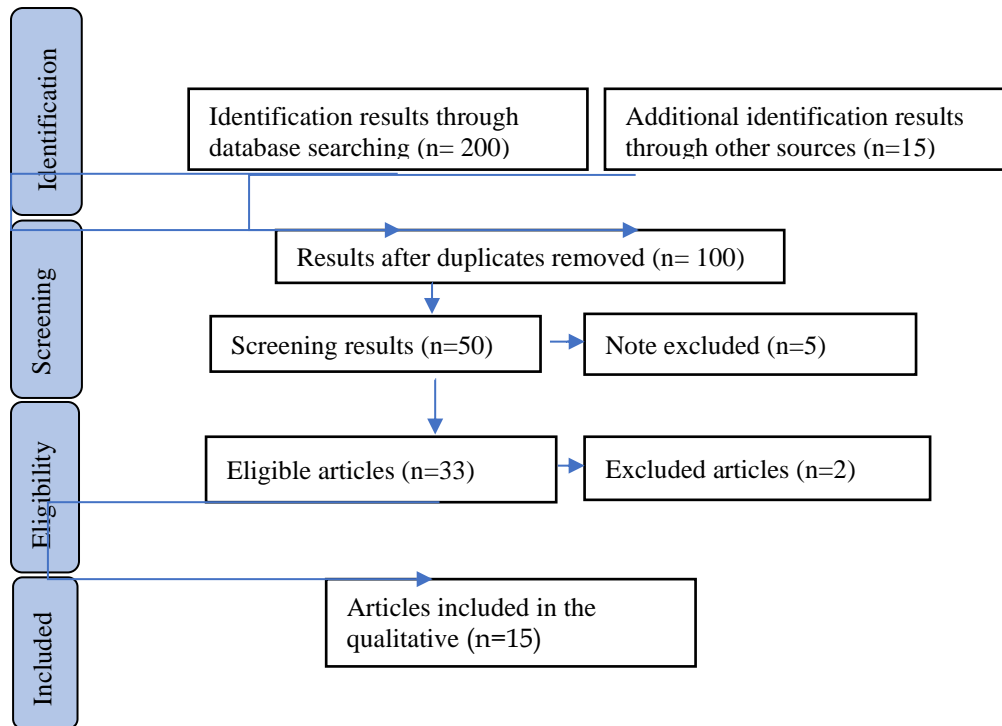
4. Results

The results of data reduction resulted in 15 relevant articles that will be reviewed in this study. The research results are presented in two tables containing journal articles that were reviewed. Table 1 presents the results of the research which includes the year of publication of the article, journal name, and type of publication while table 2 presents the author's name, method, and findings.

Table 2. Indexed Journal Publications

Tahun	Journal Name	Number of Article	Publication Type
2023	Procedia Computer Science Volume 217	1	Scopus (Q1)
2023	Sustainable Technology and Entrepreneurship Vol. 3, Issue.1	1	Scopus (Q1)
2023	Journal of Innovation and Knowledge Volume 8	1	Scopus (Q1)
2023	JMP: Jurnal Minfo Polgan Volume 12, Issue 2	1	Sinta 3
2022	Journal of Management and Research Vol. 9, Issue. 1	1	Scopus (Q4)
2021	Education Sciences Volume 11, Issue. 7	1	Scopus (Q2)
2021	Global Business and Management Research: An International Journal Vol. 13, Issue. 3	1	Scopus (Q4)
2021	International Journal of Learning, Teaching and Educational Research Vol. 20, Issue. 6	1	Scopus (Q3)
2021	Journal of Open Innovation: Technology, Market, and Complexity	1	Scopus (Q1)
2020	Edusains: Journal UIN Jakarta Volume 12, Issue. 1	1	Sinta 2
2020	Mimbar Pendidikan: Jurnal Indonesia untuk Kajian Pendidikan Volume 5, Issue. 2	1	Sinta 3
2019	Thinking Skills and Creativity 34	1	Scopus (Q1)

2018	Jurnal Konseling dan Pendidikan Volume 6, Issue 1	1	Sinta 2
2016	Jurnal Kajian Bali Volume 06, Issue 01	1	Sinta 2
2015	MIMBAR: Jurnal Sosial dan Pembangunan	1	Sinta 3

The findings showed that the role of tecnopreneurship learning with an ethnopedagogical approach to improve entrepreneurial skills in generation z is a topic that is still hot to study. This is evidenced by the articles contained in various electronic document-based academic databases in the last 8 years.

5. Discussion

Table 2 describes the author's name, method, and findings related to tecnopreneurship learning with an ethnopedagogical approach to improve entrepreneurial skills in generation z.

Table 3. Author's Name, Method, and Findings

Author's Name	Method	Findings
Christian Dreyer dan Hana Stojanová	Qualitative	There are differences in entrepreneurial motivation in generation Y and generation Z where Gen Z is more willing to take business risks, easily driven by goals, more visionary, proficient in digital literacy, and works more effectively than Gen Y.
Eugine Tafadzwa Maziriri, Mufaro Dzingirai, Brighton Nyagadza, dan Brian Mabuyana	Quantitative	Parents' entrepreneurial desires, wants, and perceived feasibility will stimulate attitudes towards intentions and careers in technopreneurship among Generation Z students.
Shahzada Adeel, Ana Dias Daniel, dan Anabela Botelho	Quantitative	By having higher prior knowledge, entrepreneurial alertness, opportunity recognition, motivation and entrepreneurial intention, they will show higher entrepreneurial skills.
Sutrisno	Qualitative	Technopreneurship education has a positive impact not only on individual students, but also on society and the economy as a whole.
Ujang Sugara dan Sugito	Qualitative	In Indonesia, there is no clear concept of ethnopedagogy, so the implementation of ethnopedagogy is also immature.
Jacinto Jardim	Qualitative	There are 9 entrepreneurial skills required to become a professional in the business world.
Hesham Magd, Siraj K. Kunjumuhammed, dan Ravi Thirumalaisamy	Qualitative	Entrepreneurs in the new normal require entrepreneurial resilience, agility and social entrepreneurship skills.
Sama'a Al Hashimi, Yasmina Zaki, Ameena Al Muwali, dan Nasser Mahdi	Qualitative	Universities in Bahrain encourage successful entrepreneurs through the integration of best practices in innovation and entrepreneurship education into the curriculum.
Muhammad Farrukh Shahzad, Kanwal Iqbal Khan, Saima Saleem, and Tayyiba Rashid	Quantitative	Self-motivation, family support, peers, and institutional support have a positive and significant effect on entrepreneurial intention.
Yuli Rahmawati, Achmad Ridwan, Sylvia Faustine, Sitti Syarah, Ibrahim, dan Pramita Cucu Mawarni	Qualitative	The ethnopedagogical learning model has an impact on the development of students' science literacy and cultural identity.
Panicha Hatthakijphong, dan Hsiu-I Ting	Comparative	Entrepreneurs and aspiring entrepreneurs thought that downplayed the importance of perseverance, and only

		emphasized the importance of creative thinking and innovation, as well as human resource management.
Iwan Setia Kurniawan, Rifki Survani	Quantitative	Students' ability to develop an integrated ethnopedagogical biology learning model still needs to be developed, especially for several aspects.
I Wayan Rasna, Dewa Komang Tantra, dan Ni Made Rai Wisudariani	Qualitative	Ethnopedagogical analysis is used in character education, which includes local wisdom and genius, more reliable and applicable to children in Bali.
Badariah Hj Din, Abdul Rahim Anuar, dan Mariana Usman	Quantitative	There are 5 entrepreneurial skills that can make entrepreneurship programs effective, namely business plan, risk thinking, self-efficacies, need for the achievement, and locus of control.
Laksmi Dewi, Ahmad Yani, dan Asep Dudi Suhardini	Development	Learning models and devices that have the content of national character and entrepreneurship based on local wisdom are proven to increase the enthusiasm and activeness of students.

From Table 2, it is known that 6 out of 15 authors come from Indonesia, while the other 9 authors come from Malaysia, Taiwan, Pakistan, Iran, Portugal, Czech Republic, South Africa, and Zimbabwe. This indicates that writers from abroad have higher enthusiasm in researching the role of technopreneurship than researchers from Indonesia. From these findings, tecnopreneurship learning with an ethnopedagogical approach to improve entrepreneurial skills in generation z is better known and noticed by researchers from abroad.

Parents' entrepreneurial desire, perceived desire, and perceived feasibility will stimulate and technopreneurship intentions among Generation Z students (Mazariri et al., 2023). According to (Jardim, 2021) the entrepreneurial skills needed to become professionals in the business world consist of (1) creativity and innovation skills; (2) spirit of initiative; (3) self-efficacy and resilience; (4) strategic planning, and evaluation; (5) problem solving and decision making; (6) transformational leadership; (7) clear communication; (8) teamwork and networking (team work); and (9) digital technology-based communication skills. According to (Qasim & Mahmood, 2022) technopreneurship has proven to be beneficial in reducing government burden, improving socio-economic conditions, and creating jobs. By combining technology and entrepreneurship, students can be equipped with the knowledge, skills and mentality needed to become successful entrepreneurs in the digital era (Sutrisno, 2023). According to (Dewi et al., 2015) learning models and devices that have the content of national character and entrepreneurship based on local wisdom are proven to increase the enthusiasm and activeness of students. The ethnopedagogical approach can be used in character learning for elementary school students in Bali (Rasna et al., 2016). In addition, there are local wisdom values that are aligned with entrepreneurial attitudes (Komara & Adiraharja, 2020). So, ethnopedagogy can be applied in technopreneurship learning to improve the entrepreneurial skills of gen Z.

6. Conclusion

The role of tecnopreneurship learning with an ethnopedagogical approach to improve entrepreneurial skills in generation z is a topic that is currently being studied, but this topic is better known and noticed by researchers from abroad than in Indonesia.

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