

# Categorization of Problems and Solutions in Technopreneurship Course: A Literature Study

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## Abstract

Various studies have been conducted to discuss various problems in learning technopreneurship courses and at the same time find solutions to these problems. This study aims to categorize the problems in technopreneurship courses and the solutions that have been offered to these problems. This research was conducted using the literature study method. The review was carried out on 25 articles which were the result of screening a number of articles from IEE explore, Wiley Online Library, Scencedirect and Google Scholar and had met the predetermined criteria. The results showed that there were five aspects of the problem in learning entrepreneurship courses, namely curriculum, human resources, student motivation, infrastructure, and regulation. While the results of the study also show four categories of solutions offered, namely learning models, learning strategies, learning methods, and learning techniques. This proves that educators have used various ways as solutions to achieve learning goals in all limitations, from starting to apply pedagogic models, strategies, methods and techniques that have the potential to optimize interactions between teachers and students, as well as to add new learning experiences.

**Keywords:** teaching, learning, technopreneurship, entrepreneur, literature review.

## Introduction

Technology-based entrepreneurship education, also known as technopreneurship, is an effort to synergize the theory and practice of various scientific competencies related to technology and industry.(Hidayat et al., 2018). Many countries have a perception about the technopreneurship education model and the importance of technopreneurship for all countries to avoid their citizens becoming unemployed and increase economic growth.(Atikah et al., 2021) In addition, various institutions such as government, campuses and other institutions make efforts to increase the interest of students or the younger generation for entrepreneurship, business and technopreneurship in the face of the rapid

development of information technology (IT) technopreneurship in accordance with advances in information and communication technology (Indra Hastuti, 2020)(Muslim et al., 2020). In the learning process, students are led to an understanding and mastery of economics and the development of technopreneurship-based economic learning modules(Mopangga & Bumulo, 2018)(Ambiyar et al., 2020).

In its application, various problems were encountered in the learning process of technopreneurship courses. For example, the issue of MSEs' technopreneurship competence in the pandemic era(Nyu et al., 2021); non-optimal teaching quality and problems with student interest in learning(Kurniawan, 2019); the problem of college graduates who cannot

survive in the digital era and do not have new, skilled competencies (Yenni et al., 2021); And there are many other problems that have been raised by previous researchers.

However, researchers who have studied these problems have also provided solutions to the problems above. For example, integrating digital era entrepreneurship learning based on the new literacy era of the industrial revolution 4.0 (Yenni et al., 2021); Incorporates active learning, which changes the passive role of only listening to active learners (Phuengpunum et al., 2017); make innovations based on the level of technological capability and local knowledge based (Adeoti, 2019); and various other solutions.

This study aims to categorize the problems in technopreneurship courses that have been discussed by previous researchers and show the solutions they have offered. This research was conducted by reviewing previous studies related to the teaching and learning process in the Technopreneurship course. The results of this study are expected to be useful for researchers and practitioners to present more innovative solutions in the future.

This research article is presented with the following structure: section 2 describes the research method using Literature Review, section 3 discusses the answers to the research questions, and section 4 states the conclusions of the study.

## Method

In finding articles in this journal review, the researcher used the google chrome web browser with the search keyword 'teaching and teaching on technopreneurship'. As for the journal reference sources, the researchers got from the following portals:

- <https://ieeexplore.ieee.org/>
- <https://scholar.google.com/>
- <http://www.sciencedirect.com/>

- <https://onlinelibrary.wiley.com/>

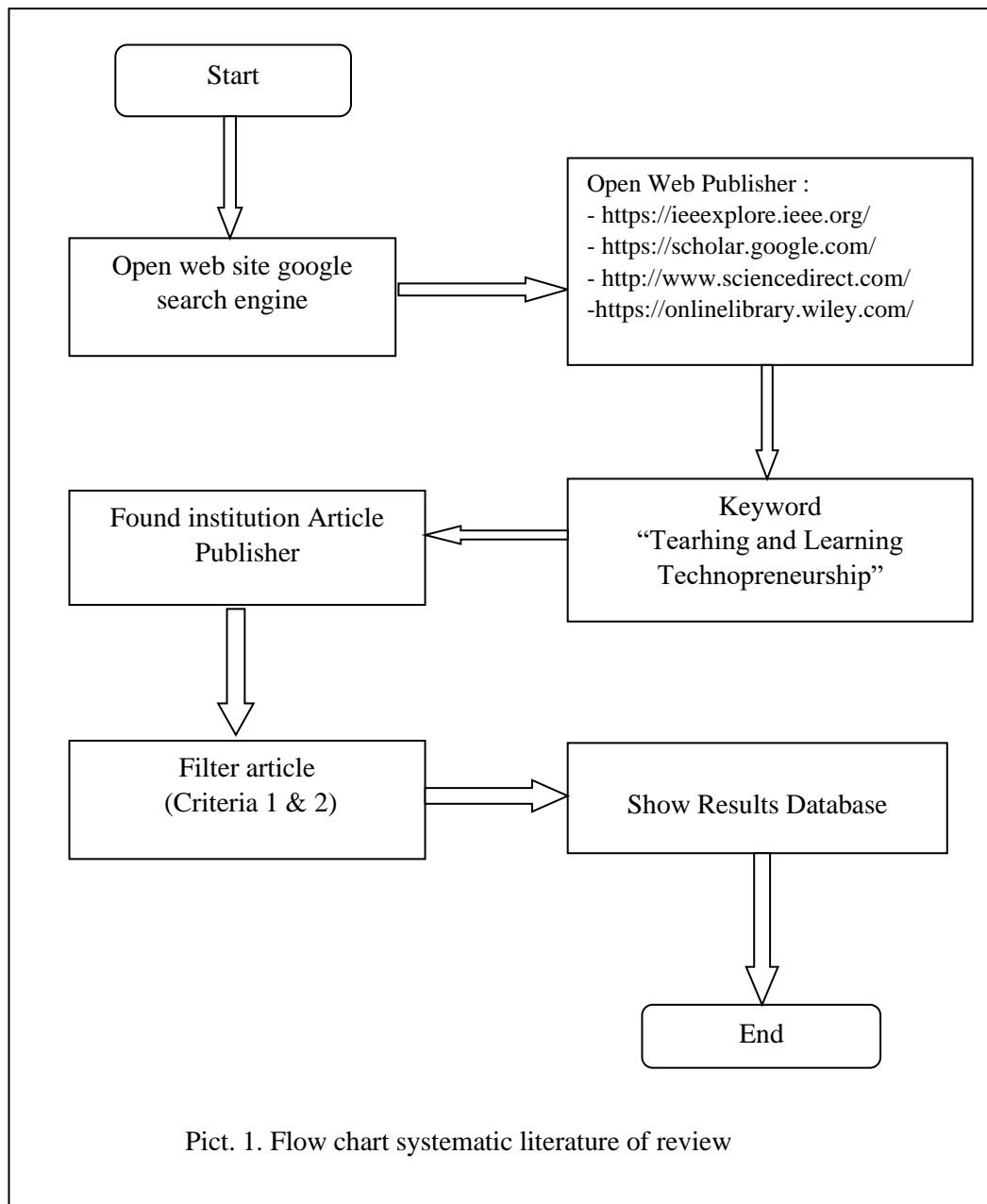
the criteria that the researcher entered were: articles selected from reputable journal publishers, Scopus international indexed, internationally accredited, English GS index. All databases are searched with the same keywords: teaching, learning, technopreneurship.

Next, a search was carried out on each web page database (site visit), with the same keywords (criterion 1): teaching and learning technopreneurship, keywords were used consistently in each database used. The results obtained from the search for the first criteria were obtained, 3 articles from the IEEE Xplore database, 17 articles from the ScienceDirect database, 17 articles from the Wiley database, and 1,380 articles from the Google Scholar database. The total articles obtained from 4 databases are 1,417 articles.

The next stage, criterion 2 is narrowed down to narrow down the number of the most relevant articles, with the following criteria:

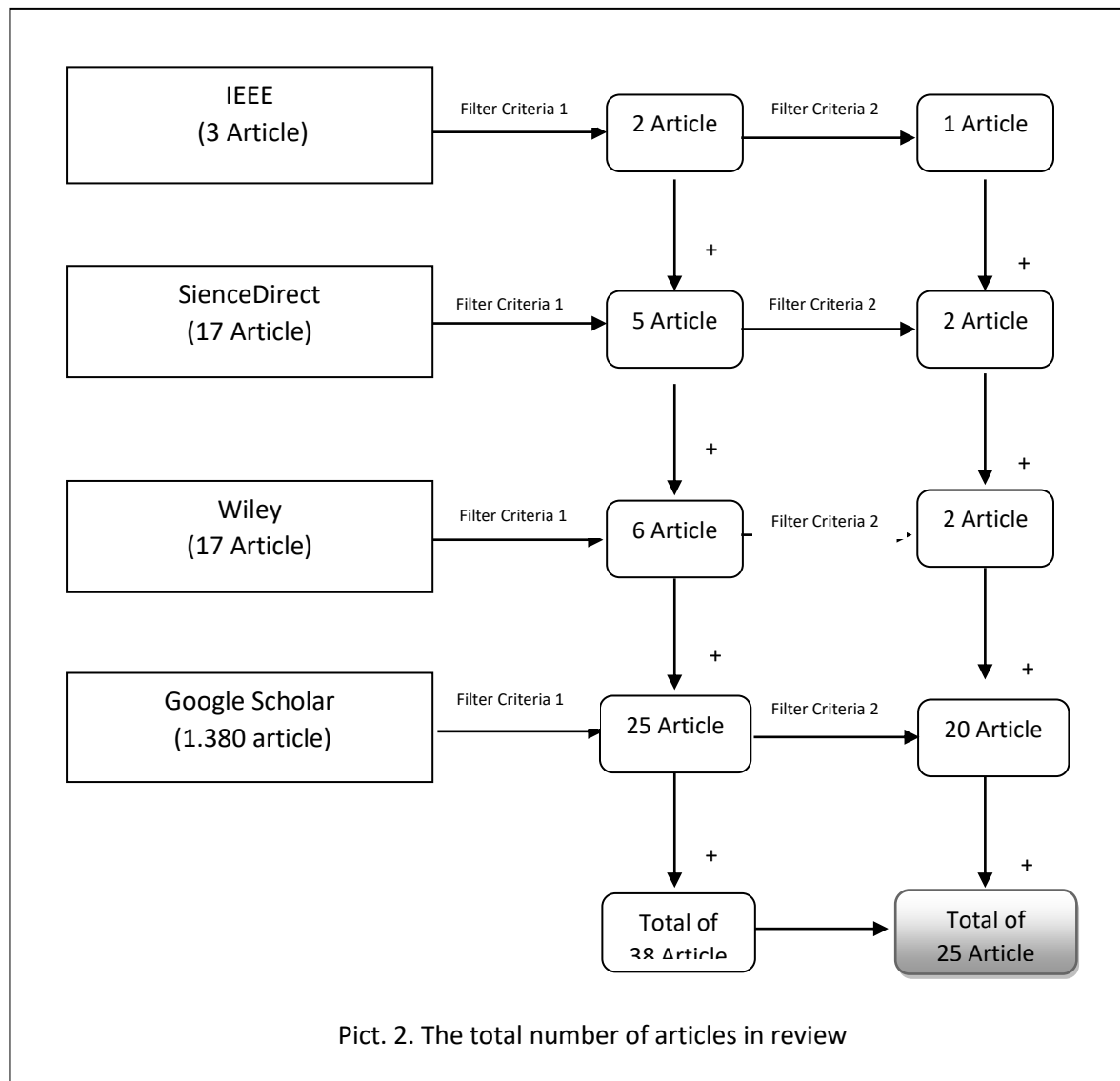
- Articles focus on teaching and learning technopreneurship
- Publish year range from 2017 to 2021
- The title of the article consistently teaches and learns technopreneurship
- Abstract briefly describes one such word: power electronics, teaching, learning, e-learning and power electronics education innovation
- Peer-reviewed articles
- Full text in English
- Empirical research, teaching and learning about technopreneurship
- Has a digital object identifier
- Downloadable (electronic format)

Picture 1 will describe the systematic steps carried out in conducting a literature study.



After several screenings, based on criteria that meet the requirements for a literature review, several relevant articles were obtained in each database. A total of 38 articles were used as reading sources for the review. Of the 38 articles obtained, they were reviewed based on the content of the problem and solutions, in order to obtain as many as 25 articles that were used as references. The details of the articles studied were: 1 article from the

ieeexplore.ieee.org database, 20 articles from the Google Scholar database, 2 articles from the ScienceDirect database, and 2 articles from Wiley. There are some authors who have more than 1 article. This final data total is re-verified to ensure that a number of articles meet the specified criteria for review. Pictures of the results of the review and article review can be seen in Picture 2



## RESULTS AND DISCUSSION

From the results of the literature review, it was found that teaching and learning in technopreneurship courses have many problems with various solutions offered. such as problems with conventional teaching methods (lectures), there are some educational institutions and universities that have collaborated with practicum, but its nature is still limited to product manufacturing, not to

the sales process, teaching and learning processes are less effective and efficient, low student motivation in attending lectures, the average value of students is low, and so on. The solutions include the teaching and learning process using project-based learning, the Work-Based Learning (WBL) approach, contextual and applicable economic learning modules, the concept of learning by doing, and others. The detail by result of literature study can see by table 1.

TABLE I. PROBLEM AND SOLUTION TEACHING AND LEARNING ON  
TECHNOPRENEURSHIP COURSE

No	Teaching and Learning on Technopreneurship		
	Author (s)	Problem	Solution
1	(Nurdiyanto, 2018)	There is an imbalance between the competence of graduates with technological advances and the dynamics of the workplace	Applying a Work-Based Learning (WBL) approach, by utilizing the workplace to improve work experience
2	(Et. al., 2021)	Vocational graduates do not yet have competencies that are adaptive, innovative and applicable in the world of work	Implementing an e-commerce project-based learning model
3	(Hashimi et al., 2021)	There has been a major transition and dominance of the technology start-up ecosystem, but regulations, human resources and stakeholder involvement, public-private collaboration have not been optimal.	Policy makers must seek to optimize the role of entrepreneurship in educational institutions
4	(Atikah et al., 2021)	Lack of student interest in looking for work due to reduced job opportunities, high levels of competition and high unemployment	Technopreneurship development in universities, so that interest and entrepreneurial culture in the 4.0 revolution can be optimized.
5	(Lailatussaadah et al., 2020)	there is an imbalance between high school human resource standards and the quality needed in the world of work. As a result, more and more college graduates are	Literature review on entrepreneurship education to realize the entrepreneurial spirit of students, and can be applied effectively and become a

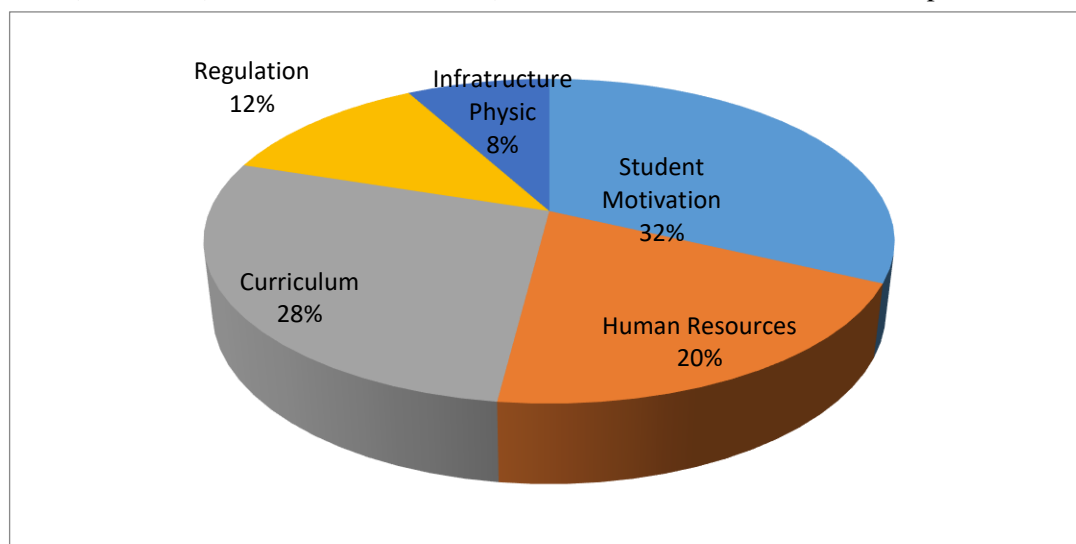
		unemployed	recommendation for universities
6	(Journal et al., 2018)	The low interest of students or the younger generation for entrepreneurship, business and technopreneurships	Building an IT Technopreneurship Guidance System using computing with an expert system approach based on students' personal characteristics.
7	(Hidayat et al., 2019)	Inequality between job opportunities and labor supply, intense competition in obtaining work	analysis of entrepreneurship material with the concept of learning by doing through a production and technology-based learning approach
8	(Mopangga & Bumulo, 2018)	Lack of mastery of material about economics, lack of student creative ideas in technology-based entrepreneurial development	Making a contextual and applicable economic learning module
9	(Adeoti, 2019)	There is not a single country or business company in the world that sincerely or sincerely transfers its technology to other countries or economic agents	innovation must be based on the level of technological capability and local knowledge base.
10	(Phuengpunum et al., 2017)	There is a gap in education	Incorporates active learning, which changes the passive role of only listening to active learners.
11	(Alias et al., 2020)	The high unemployment rate in Malaysia, many graduates are not working / unemployed	four main solutions: i) speed problem; ii) designing a "fit for purpose" regulatory framework; iii) regulatory enforcement challenges; iv) institutional and cross-border challenges
12	(Paulus, 2021)	Knowledge acquisition and applications applied by millennial business actors have not been intensive	A study on the effect of knowledge acquisition and application of knowledge on the use of technology for millennial entrepreneurs in Indonesia
13	(Wong et al., 2020)	Malaysia's digital trade education is far from the industry's expectations	a practical-based digital transformation approach to teaching and learning entrepreneurship, technopreneurship and

			digital commerce benefits students and related industries.
14	(Yenni et al., 2021)	College graduates who cannot survive in the digital age, who do not have new, skilled competencies.	integrating digital era entrepreneurship learning based on the new literacy era of the industrial revolution 4.0.
15	(Bakar et al., 2020)	Technopreneurship, a critical field in Islam that is relevant during the COVID-19 pandemic, has received less attention	Application of the concept of Technopreneurship according to an Islamic perspective and its relevance in the era of the Covid-19 pandemic in Malaysia
16	(Autoridad Nacional del Servicio Civil, 2021)	High unemployment rate and limited job opportunities in Indonesia	All universities in the country to answer the needs of the labor market by mastering entrepreneurial skills for students
17	(Kurniawan, 2019)	The quality of teaching is not optimal, the attractiveness of students to learning is less	cooperative learning model with Flash card games approach and quiz – quiz trade
18	(Nyu et al., 2021)	UMK technopreneurship competence in the pandemic era	Digital marketing literacy is very effective in improving technopreneurship competence as a survival strategy in the era of the Covid pandemic
19	(Coyanda, 2019)	The motivation of university graduates who have the interest and enthusiasm to become entrepreneurs is very weak	Building a technopreneur learning model by providing business theory, business ideas, business opportunities, selecting technology ideas or solutions, business groups, utilizing IT technology
20	(Adi et al., 2017)	College graduates are still dominant as job seekers, not job creators	Increase capacity building in the PSP-KUMKM Business Incubator Unit and technopreneurship-based SME tenants
21	(Koe et al., 2021)	Lack of youth intention in entrepreneurship and low number of	Colleges should offer non-traditional technopreneurship curricula and improve

		technology-based entrepreneurs	technology infrastructure
22	(Hariyono & Andrini, 2020)	Less learning leads to improving students' skills	developing innovative learning models by combining Blended Learning and Project Based Learning (PjB2L) on the abilities of technopreneurs
23	(Ismail et al., 2017)	Determination of product job sheets has not been oriented to the practice of technology needs for the community	The application of the Technopreneurship learning model to engineering expertise packages of mechanical engineering expertise
24	(Hidayat et al., 2018)	The learning system in various universities that has not focused on producing graduates who are ready to create jobs	Entrepreneurship learning model in vocational-based tertiary institutions, in particular explaining the framework of the Technopreneurship Scientific Learning Model
25	(Sumarno et al., 2018)	Technopreneur enthusiasm among students is still very little.	Develop a technopreneurship-based entrepreneurship education design.

Based on table 1, the researchers found five main aspects that became gaps or obstacles in the teaching and learning process. First, student interests (8 articles), human resources (5

articles), infrastructure (2 articles), curriculum (7 articles), Regulations (3 articles). Figure 3 will show the percentage of article review results based on these five aspects.



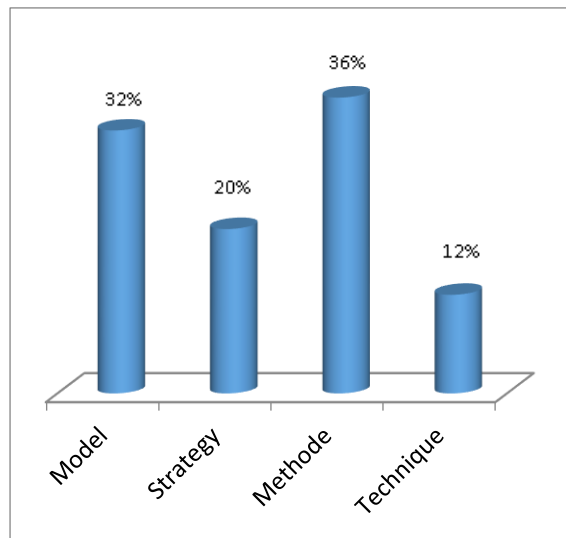
Pict. 3. Percentage the problem of teaching and learning

According to table 1, we classify teaching and learning solutions into 4 categories, such as teaching models (8 articles), strategies (5

articles), methods (9 articles) and techniques (3 articles). The percentage of teaching and



learning solutions in the Technopreneurship course is shown in Picture 4.



Pict. 4. Percentage the solutions of teaching and learning

## CONCLUSION

In this journal review, various problems and solutions are presented in teaching and learning in technopreneurship courses. Based on these findings, it proves that educators have used various ways as solutions in achieving learning goals in all limitations, from starting to apply pedagogic models, strategies, methods and techniques that have the potential to optimize interactions between teachers and students, as well as to add new learning experiences. . Educators must be able to improve students' cognitive, affective and psychomotor abilities, so that students' interest will increase to become technopreneurs and contribute to reducing the unemployment rate of a country.

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