

## ***Fostering Student Techno-Entrepreneurship: A Qualitative Study Of Universities' Role And Support***

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### **ABSTRACT**

*This research aims to understand how universities support students in technology-based entrepreneurial ventures. Through a series of interviews, the research identified several key ways in which universities support entrepreneurs, including a proactive approach in promoting entrepreneurship, providing entrepreneurship education and training, providing access to financial resources, and assisting students in networking and securing mentorship. However, the research also uncovered some challenges and barriers, including less rapid response to challenges and a lack of specialized support for technology-based start-ups. This research shows that while universities play an important role in supporting tech-based student entrepreneurship, there is still room for improvement. Further research is needed to understand how universities can design and implement more effective entrepreneurship initiatives, how entrepreneurship education can be more effective in increasing entrepreneurial intentions and skills, how universities can be more effective in supporting the financial aspects of entrepreneurship, and how networking and mentorship can be better utilized in the context of technology-based entrepreneurship.*

**Keywords:** *Entrepreneurship, Techno-Entrepreneurship, Student, University, Qualitative.*

## **1. Introduction**

Unemployment among university graduates is one of the important issues that drives the need for student entrepreneurship (Farhangmerhr et al., 2016). Data on student unemployment shows that many university graduates experience difficulties in entering the job market after completing their studies. Some of the common reasons are lack of job opportunities, intense competition for available positions, and lack of skills relevant to the needs of the job market. In this context, entrepreneurship becomes an attractive alternative. With entrepreneurship, students not only create job opportunities for themselves, but can also create jobs for others. Moreover, technology-based entrepreneurship, in particular, provides an opportunity to create innovative solutions to existing problems, and thus create economic and social value (Hameed & Irfan 2019). However, entrepreneurship is not an easy task and requires a wide range of skills and resources. Therefore, it is important for universities to support students in entrepreneurship, both in terms of entrepreneurship education and training, as well as in providing access to the resources and networks needed to start and grow their ventures.

In this digital era, technology has become an integral part of everyday life, including in the education and business sectors. Especially in the context of higher education, universities have a very important role in preparing students to become productive members of society, including molding them into technology-based entrepreneurs. With the advancement of technology and the internet, opportunities for students to start technology-based businesses are increasing. The challenge is how universities can motivate and support students in starting such enterprises.

Although some universities already have business incubation or entrepreneurship programs, there are still questions about the effectiveness and impact of these programs in encouraging students to become technology-based entrepreneurs (Jabeen et al., 2017). In addition, research also shows that there are various factors that influence students' motivation to become entrepreneurs, including support from the university, availability of resources, and a conducive entrepreneurial environment (Hasan et al., 2017). Therefore, it is important to understand how universities can play a role in shaping technology-based student entrepreneurship.

Several previous studies have investigated the role of universities in supporting entrepreneurship. For example, research by Davey et al. (2016) suggests that universities can play an important role in promoting entrepreneurship through education and training, networking, and financial support. In addition, a study by Stal et al. (2016) suggests that universities can serve as 'incubators' for start-ups, by providing the necessary resources and support to develop business ideas into successful ventures. However, research by Mosey and Guerrero & Urbano (2019) suggests that there are challenges in supporting entrepreneurship in universities, including a lack of understanding of entrepreneurship among academic staff and students, and a lack of structures and policies that support entrepreneurship. In the context of technology-based entrepreneurship, research by Rasmussen and Wright (2015) suggests that there are specific challenges faced by technology entrepreneurship students, including access to capital, access to technical knowledge, and the ability to build and manage teams.

While there is research that has been done on the role of universities in supporting entrepreneurship in general, there is still a lack of knowledge on how universities support students in starting and developing technology-based start-ups. In addition, there is still a lack of knowledge about the challenges and barriers faced by technology entrepreneurship students and how universities can help overcome these challenges.

The novelty of this research lies in its focus on technology-based entrepreneurship among university students, which is a relatively under-explored area in the entrepreneurship literature. It also expands our knowledge of the specific ways in which universities support student technology entrepreneurs, including education and training, financial support, and networking and mentorship. In addition, this research helps identify the challenges and barriers faced by student tech entrepreneurs and provides recommendations for how universities can help overcome these challenges.

Through this qualitative study, this research aims to answer that question and provide insight into how universities can be more effective in encouraging and supporting technology-based student entrepreneurship.

## 2. Literature Review

### Student Entrepreneurship

Student entrepreneurship is an area that has been widely researched in recent decades. The concept refers to the initiatives and efforts taken by university students to create and manage their own businesses during or after their studies (Morris et al., 2017). Many universities have identified entrepreneurship as an important area and have invested in programs and initiatives to support student entrepreneurship (Bergmann et al., 2016).

Factors that influence student entrepreneurship have been the focus of many studies. Studies have shown that factors such as individual characteristics, university environment, and social support can influence the level and type of entrepreneurship among students (Jansen et al., 2015).

Entrepreneurship education has also been shown to have a positive impact on students' entrepreneurial intentions and behaviors (Liu et al., 2019). These programs often include skills training, mentorship, and access to professional networks and resources.

However, some studies have also shown that there are challenges in encouraging entrepreneurship among university students. For example, factors such as career uncertainty, lack of experience, and lack of capital can be barriers (Shirokova et al., 2016).

### **Techno-Entrepreneurship**

Techno entrepreneurship is a concept that refers to the application of innovative ideas using technology to create value and competitive advantage (Nambisan 2017). It involves the development of new products or services that are technology-based and often focuses on innovation and new inventions.

Research has shown that technology entrepreneurship has the potential to drive economic growth and create new jobs (Elia et al., 2020). In this context, the role of universities and research institutions is crucial, as they are often at the forefront of technological discovery and innovation.

Technology entrepreneurship also requires a number of specialized skills and knowledge. For example, technology entrepreneurs must be able to understand and apply new technologies, and have an understanding of markets and business opportunities (Malecky 2018).

However, technology entrepreneurship also has its challenges. For example, new technologies often require large investments and high risks, and can take a long time to generate profits. In addition, technology entrepreneurs also have to deal with issues such as intellectual property rights protection and government regulations (Mian et al., 2016).

## **3. Research Method**

### **Research Design**

This study uses a qualitative approach to explore the phenomenon, as this method allows researchers to understand the phenomenon from the perspective of the participants and seek a deep and contextual understanding.

### **Population and Sample**

The population of this study is students who have been involved in technology-based entrepreneurship at universities in Pekanbaru, Indonesia. The sample will be selected using a purposive sampling technique, where participants are chosen based on certain criteria - in this case, they must be students who have started or managed a technology-based business.

### **Data Collection**

Data will be collected through semi-structured interviews. Interview questions will be designed to explore participants' experiences in setting up a technology-based business, with a focus on the role and support of the university. In addition, researchers will also collect documentary data such as relevant university curricula or programs where available.

### **Data Analysis**

The data collected will be analyzed using thematic content analysis. This involves coding the data, identification of themes or patterns, and interpretation of the findings. This analysis will allow the researcher to understand how universities encourage and support technology-based student entrepreneurship.

### **Validity and Reliability**

To ensure the validity and reliability of the study, the researcher will use data triangulation, which is using multiple data sources to validate the findings. In addition, the researcher will also conduct member checking, which is asking participants to confirm the researcher's interpretation of their data.

## 4. Results and Discussion

### Interview results

1. **Role of the University:** The majority of respondents reported that universities play an important role in supporting their journey as technology-based entrepreneurs. Several students mentioned various programs and initiatives, such as workshops, seminars, and business competitions, held by universities to encourage entrepreneurship.
2. **Education and Curriculum:** Some respondents emphasized the importance of entrepreneurship education in the curriculum. They felt that certain courses had provided them with the necessary knowledge and skills in running a technology-based business.
3. **Support and Resources:** Some respondents discussed the resources and support provided by the university, such as access to computer labs and hardware, financial support, and guidance from lecturers or mentors.
4. **Proactive Approach:** Some respondents indicated that university management has been proactive in providing support to technology entrepreneurship students. This includes establishing entrepreneurship centers, providing co-working spaces, and organizing start-up competitions.
5. **Education and Training:** A number of respondents emphasized that universities have included entrepreneurship in the curriculum and provided specialized training to help students develop the skills necessary for entrepreneurship.
6. **Financial Support:** Several respondents mentioned that universities facilitate access to funding, either through internal funds or assisting students in submitting proposals to external investors.
7. **Networking and Mentorship:** A number of respondents appreciated the university's efforts in connecting students with industry mentors and successful alumni networks.
8. **Response to Challenges:** While many respondents felt supported, some also noted that university management was sometimes slow to respond to challenges they faced, such as internal bureaucracy or lack of support for tech-based start-ups.
9. **Suggestions and Recommendations:** Some respondents had suggestions on how university management could more effectively support them, including increased funding, more practical training, and more opportunities for networking and mentorship.

### Discussion

Most respondents felt that universities have been proactive in supporting entrepreneurship. This is in line with the Triple Helix theory that describes universities as important actors in the innovation and entrepreneurship ecosystem (Etzkowitz & Zhou 2017). However, some respondents felt that these initiatives have not been fully effective, suggesting the need for further research on how to design and implement these initiatives to be more effective. Respondents felt that the entrepreneurship education and training available at the university had helped them. This supports previous research showing that entrepreneurship education can increase entrepreneurial intentions and skills (Fayolle & Gailly, 2015). However, there is also a need to ensure that this education is relevant and in line with recent developments in the field.

Universities have played a role in helping students gain access to funding sources. This supports the Resource-Based View theory which emphasizes the importance of access to resources for entrepreneurial success (Barney, 1991; Kellermans et al., 2016). However, respondents also emphasized the importance of support in financial management and strategy, suggesting the need for further research on how universities can support this aspect of entrepreneurship.

Respondents valued the access to networks and mentors provided by the university. This supports Social Network theory which emphasizes the importance of networks in entrepreneurship (Kurt & Kurt 2020). However, some respondents felt that these benefits have not been fully utilized, suggesting the need for further research on how to maximize the benefits of these networks and mentorship.

The practical implications of the research include the following: 1) Universities need to evaluate and adjust their entrepreneurship initiatives periodically to ensure their effectiveness. 2) Entrepreneurship curricula and training need to be updated regularly to remain relevant to the latest developments in technology and business. 3) In addition to helping students gain access to funding, universities also need to provide assistance in financial management and strategy. 4) Universities need to ensure that students can make the best use of available networks and mentorship. 5) Universities need to be more responsive in addressing the challenges faced by student entrepreneurs, including internal bureaucracy and lack of support for technology-based start-ups

## 5. Conclusions

The interviews show that universities play an important role in supporting student tech entrepreneurs, through proactive approaches, education and training, financial support, and networking and mentorship. However, some challenges and barriers still exist, including less rapid response to challenges and lack of support for tech-based start-ups.

This study has several limitations. First, the results are based on interviews with a limited number of respondents, which may not fully represent the experiences of all technology entrepreneurship students. Second, the study relied on the subjective judgment of the respondents, which may be influenced by personal biases and perceptions. Third, this study focuses on one specific context (i.e., university), and the results may not be generalizable to other contexts.

Based on the results and limitations of this study, there are several recommendations for future research. First, further research is needed to understand how universities can design and implement more effective entrepreneurship initiatives. Second, further research can help understand how entrepreneurship education can be more effective in increasing entrepreneurial intentions and skills. Third, further research is needed to understand how universities can more effectively support the financial aspects of entrepreneurship, including addressing the challenges and barriers faced by student entrepreneurs. Finally, further research can help understand how networks and mentorship can be better utilized in the context of technology-based entrepreneurship.

## References :

- Bergmann, H., Hundt, C., & Sternberg, R. (2016). What makes student entrepreneurs? On the relevance (and irrelevance) of the university and the regional context for student start-ups. *Small business economics*, 47, 53-76.
- Davey, T., Hannon, P., & Penaluna, A. (2016). Entrepreneurship education and the role of universities in entrepreneurship: Introduction to the special issue. *Industry and higher education*, 30(3), 171-182.
- Elia, G., Margherita, A., & Passiante, G. (2020). Digital entrepreneurship ecosystem: How digital technologies and collective intelligence are reshaping the entrepreneurial process. *Technological forecasting and social change*, 150, 119791.
- Etzkowitz, H., & Zhou, C. (2017). *The triple helix: University-industry-government innovation and entrepreneurship*. Routledge.
- Farhangmehr, M., Gonçalves, P., & Sarmiento, M. (2016). Predicting entrepreneurial motivation among university students: The role of entrepreneurship education. *Education+ Training*, 58(7/8), 861-881.
- Fayolle, A., & Gailly, B. (2015). The impact of entrepreneurship education on entrepreneurial attitudes and intention: Hysteresis and persistence. *Journal of small business management*, 53(1), 75-93.

- Guerrero, M., & Urbano, D. (2019). A research agenda for entrepreneurship and innovation: the role of entrepreneurial universities. *A research agenda for entrepreneurship and innovation*, 107.
- Hasan, S. M., Khan, E. A., & Nabi, M. N. U. (2017). Entrepreneurial education at university level and entrepreneurship development. *Education+ Training*, 59(7/8), 888-906.
- Hameed, I., & Irfan, Z. (2019). Entrepreneurship education: a review of challenges, characteristics and opportunities. *Entrepreneurship Education*, 2, 135-148.
- Jabeen, F., Faisal, M. N., & I. Katsiolouides, M. (2017). Entrepreneurial mindset and the role of universities as strategic drivers of entrepreneurship: Evidence from the United Arab Emirates. *Journal of Small Business and Enterprise Development*, 24(1), 136-157.
- Jansen, S., Van De Zande, T., Brinkkemper, S., Stam, E., & Varma, V. (2015). How education, stimulation, and incubation encourage student entrepreneurship: Observations from MIT, IIT, and Utrecht University. *The International Journal of Management Education*, 13(2), 170-181.
- Kellermanns, F., Walter, J., Crook, T. R., Kemmerer, B., & Narayanan, V. (2016). The resource-based view in entrepreneurship: A content-analytical comparison of researchers' and entrepreneurs' views. *Journal of Small Business Management*, 54(1), 26-48.
- Kurt, Y., & Kurt, M. (2020). Social network analysis in international business research: An assessment of the current state of play and future research directions. *International Business Review*, 29(2), 101633.
- Liu, X., Lin, C., Zhao, G., & Zhao, D. (2019). Research on the effects of entrepreneurial education and entrepreneurial self-efficacy on college students' entrepreneurial intention. *Frontiers in psychology*, 10, 869.
- Malecki, E. J. (2018). Entrepreneurship and entrepreneurial ecosystems. *Geography compass*, 12(3), e12359.
- Mian, S., Lamine, W., & Fayolle, A. (2016). Technology Business Incubation: An overview of the state of knowledge. *Technovation*, 50, 1-12.
- Morris, M. H., Shirokova, G., & Tsukanova, T. (2017). Student entrepreneurship and the university ecosystem: A multi-country empirical exploration. *European Journal of International Management*, 11(1), 65-85.
- Nambisan, S. (2017). Digital entrepreneurship: Toward a digital technology perspective of entrepreneurship. *Entrepreneurship theory and practice*, 41(6), 1029-1055.
- Rasmussen, E., & Wright, M. (2015). How can universities facilitate academic spin-offs? An entrepreneurial competency perspective. *The Journal of Technology Transfer*, 40, 782-799.
- Stal, E., Andreassi, T., & Fujino, A. (2016). The role of university incubators in stimulating academic entrepreneurship. *RAI Revista de Administração e Inovação*, 13(2), 89-98.
- Shirokova, G., Osiyevskyy, O., & Bogatyreva, K. (2016). Exploring the intention-behavior link in student entrepreneurship: Moderating effects of individual and environmental characteristics. *European Management Journal*, 34(4), 386-399.