The Role of Technopreneurship Education in Increasing Student Entrepreneurial Interest and Competence

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The Role of Technopreneurship Education in Increasing Student Entrepreneurial Interest and Competence

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ABSTRACT

In the era of globalisation and advances in information technology, entrepreneurship has become one of the key factors in driving a country's economy. Technological developments have also opened up new opportunities for individuals to create technology-based innovations, known as technopreneurship. The purpose of this study is to analyse the role of technopreneurship education in increasing students' entrepreneurial interest and competence. This research is a literature review that adopts a qualitative method approach, which means it will analyse and interpret data by relying on information and text from various sources. The results show that the role of technopreneurship education in increasing students' entrepreneurial interest and competence is very important and has a wide impact. Technopreneurship education brings positive impacts not only on individual students, but also on society and the economy as a whole. By combining technology and entrepreneurship, it equips students with the necessary knowledge, skills and mentality to become successful entrepreneurs in the digital and innovation era.

Keyword: Technopreneurship, Entrepreneurial Interest, Entrepreneurial Competence, College Students

INTRODUCTION

In the midst of globalisation, which is accompanied by rapid advances in information technology, the role of entrepreneurs has become one of the central components that drive the economy of a nation (Sutrisno, Cakranegara, Hendrayani, et al., 2022; Sutrisno, Kuraesin, et al., 2023). The momentum of technological development that continues to accelerate also brings with it abundant new potentials for each individual, allowing them to initiate innovations that rest on the foundation of the latest technology (Sutrisno, Ausat, et al., 2023). Referred to as "technopreneurship," the alignment of passion, skills, and knowledge becomes even more important to connect technological advancements with entrepreneurial dynamics, resulting in synergies that bring added value to the business sector and society as a whole (Wilson et al., 2007).

In the context of higher education institutions, the growing enthusiasm and proficiency in entrepreneurship among students is of infinite relevance. The existence of students who are deeply immersed in the concept of technopreneurship not only means their ability to incubate innovative business ideas, but also has a tremendous impact on the evolution of the economy and the dynamics of society through the scene of the implementation of increasingly giant technologies (Sudarwati & Chalimah, 2022). Nonetheless, on the other hand, there is no denying that there are a set of challenges that make it difficult to foster and sharpen the passion and capability for entrepreneurship among students.

One of the factors that can influence students' entrepreneurial interest and competence is technopreneurship education. Technopreneurship education has an important role in equipping

students with knowledge about combining aspects of technology and business (Permatadewi et al., 2021). Through this education, students can understand how to identify technology-based business opportunities, develop innovative ideas, design sustainable business models, and manage risks in a changing environment. The results of research on technopreneurship scientific learning design in vocational-based universities state that the technopreneurship scientific learning model is one alternative to produce graduates who are ready to survive in society by applying technology-based entrepreneurial skills (Hidayat et al., 2018). Technopreneurship education can provide an increase in the quality and achievement of institutions or institutions. This is also confirmed that acculturation of technoprenuer madrasah has good implications for madrasah and students, namely; madrasah residents are increasingly proud of Madrasah, increasing academic and non-academic achievements, community interest in madrasah is increasing, more entrepreneurial students and madrasah production units, and becoming a reference madrasah (Isdarmini, 2020).

However, despite the looming urgency of technopreneurship education, there are still a number of higher education institutions that have not been able to organise programmes or develop curricula that are effective in carving and honing the entrepreneurial spirit and capabilities of their students (Said Ahmad et al., 2023). In fact, the list of challenges covers a wider scope, from the limited number of lecturers who have the depth of experience in stretching the field of technopreneurship, the lack of qualified power assets to develop laboratory facilities or sophisticated innovation spaces (Mahardhani, 2023), to the low level of industry participation in building bridges that bridge the realities of the academic world with the real praxis contained in the realm of technopreneurship.

Therefore, this research will focus on the role of technopreneurship education in increasing students' entrepreneurial interest and competence. This research will explore how technopreneurship education can be effectively designed and implemented in higher education, as well as its impact on students' entrepreneurial interest and competence. It is hoped that the results of this research can provide guidance to universities in developing educational programmes that are able to create a generation of students who have the potential to become reliable technopreneurs and contribute to technology-based economic development.

LITERATURE REVIEW

Technopreneurship

Technopreneurship is a concept that combines elements of technology and entrepreneurship to create and develop innovative, technology-based businesses (Phuthong, 2023). The term "technopreneurship" stands for "technology" and "entrepreneurship". The concept emphasises the ability of individuals or groups to identify business opportunities arising from technological developments, design innovative products or services, and manage the business aspects associated with the application of technology. In the context of technopreneurship, technopreneurs or technology entrepreneurs are individuals who not only have a strong business vision (Karneli, 2023), but also a deep understanding of technological developments and how technology can be applied in their business. They are able to integrate technological aspects with business strategies, creating added value by developing new solutions or improving existing processes through the use of the latest technology (Touriano et al., 2023). Some characteristics of technopreneurship include:

1. Technological Innovation: Technopreneurs tend to focus on developing innovative products or services using new technologies or new ways of applying existing technologies.
2. Creativity: The ability to think creatively and see business opportunities where others may not see them, especially in the context of technology.
3. Risk and Uncertainty: Like entrepreneurs in general, technopreneurs must also be prepared to face risks and uncertainties in their business development, especially as technology continues to evolve rapidly.
4. Managerial Skills: Besides having technical knowledge, technopreneurs must also have strong managerial skills to effectively manage teams, resources, and business processes.
5. Connections with Industry: Strong relationships with industry and the tech community are essential for support, updates, and collaboration opportunities

Technopreneurship plays an important role in driving innovation, economic growth and technological development in a country. It can also inspire the younger generation to take an active role in developing technological solutions that can address global challenges.

Entrepreneurial Interest

Entrepreneurial interest refers to a person's interest, motivation and inclination to engage in entrepreneurial activities or independent endeavours (Anjum et al., 2023). It involves the drive within an individual to create, develop and manage one's own business or project. Entrepreneurial interest encourages individuals to take risks, seek opportunities, and face challenges in order to achieve set business goals (Harahap, Ausat, et al., 2023). Some important aspects of entrepreneurial interest include:

1. Intrapersonal Motivation: Entrepreneurial interest is fuelled by an individual's personal motivation and drive. They may feel dissatisfied with their current job or situation and want to create new opportunities through entrepreneurial ventures.
2. Self-Confidence: Entrepreneurial interest often relates to an individual's level of confidence in their ability to manage a business and overcome obstacles.
3. Innovation: Entrepreneurial interests often arise from the drive to create something new and innovative. Individuals who have this interest tend to have creative ideas and want to turn those ideas into reality.
4. Independence: Individuals with entrepreneurial interests tend to have a desire to work independently and have full control over their endeavours.
5. Perseverance: Entrepreneurs often face obstacles and failures, but entrepreneurial interest will encourage individuals to persevere and keep working towards their goals.
6. Opportunity Recognition: Individuals with entrepreneurial interests have the ability to identify business opportunities that may not be apparent to others.
7. Leadership: Entrepreneurial interests can encourage the development of leadership skills, as entrepreneurs must lead teams and make decisions that can influence the direction of the business.

Entrepreneurial interest is not just about starting a business from scratch, but also includes a proactive attitude towards opportunities, the ability to adapt to change and creativity in overcoming challenges. Having entrepreneurial interest is an important factor in fostering innovation, economic growth and the creation of new jobs in a society.

Entrepreneurial Competence

Entrepreneurial competence refers to the collection of knowledge, skills and attitudes required by an individual to succeed in various aspects of self-employment or independent business development (Mitchelmore & Rowley, 2010). It includes a combination of technical, managerial and social skills that support individuals in effectively planning, starting, managing and growing a business. Entrepreneurial competencies cover a wide range of areas, from financial management to interpersonal skills (Raharjo et al., 2023). Some important aspects of entrepreneurial competencies include:

1. Managerial Skills: This involves the ability to plan, organise and manage business resources, including time, labour and finances.
2. Creativity and Innovation: Entrepreneurial competencies include the ability to think creatively, develop new ideas and create innovative solutions in the face of business challenges.
3. Decision Making: Entrepreneurs need to make the right decisions in a variety of situations, including regarding products, markets and business strategies. This involves evaluating the risks and benefits that could potentially arise.
4. Product and Service Development: This competency includes the ability to identify market needs, design relevant products or services, and develop solutions that generate added value for customers.
5. Marketing Skills: Entrepreneurs must be able to understand the market, design effective marketing strategies, and communicate with potential customers.

6. Financial Skills: The ability to manage business finances, create budgets, track income and expenses, and understand financial statements are essential components of entrepreneurial competencies.
7. Interpersonal Skills: Good relationships with customers, suppliers, partners and co-workers are key to success. Entrepreneurial competencies include the ability to communicate well, work in teams and build networks.
8. Emotional Resilience: Entrepreneurs are often faced with challenges and failures. This competency includes the ability to stay calm and remain focussed in overcoming obstacles.
9. Network Development: Having a strong network of fellow entrepreneurs, mentors and members of the business community can provide support, inspiration and collaboration opportunities.

Entrepreneurial competencies play an important role in business success and economic development. Individuals who possess good entrepreneurial competencies tend to be better equipped to face business challenges, seize opportunities and generate positive impact in society.

Student

Student is a term that refers to an individual who is undergoing higher education at an educational institution such as a university, college, or similar institution. A student is a person who has enrolled and is active in a particular academic programme with the aim of obtaining an academic degree, such as a bachelor (S1), master (S2), or doctorate (S3). Usually, students are involved in teaching and learning activities that include lectures, seminars, practicum, research, and other tasks relevant to the study programme taken (Amerstorfer & Freiin von Münster-Kistner, 2021). They choose a particular major or study programme according to their interests and career goals, and they are provided with training and knowledge in that field. Students may also be involved in activities outside the classroom, such as student organisations, clubs, or other extracurricular activities. In addition, they are often involved in research projects, theses, or dissertations in higher levels of education (Master's and Doctoral). Higher education plays an important role in the intellectual development, skills and career preparation of individuals (Harini et al., 2023; Ismaya et al., 2023). Students are an integral part of the higher education environment and contribute to the academic, research and innovation culture of the institution. Students can come from a variety of backgrounds and ages, and they are at a stage of life where they seek to develop themselves, pursue personal interests, and achieve their academic and professional goals.

RESEARCH METHOD

This research is a literature review that adopts a qualitative approach, which means it will analyse and interpret data by relying on information and texts from various sources. The main focus of a qualitative literature review is to collate, evaluate and integrate existing knowledge on the topic under study, namely the role of technopreneurship education in increasing students' entrepreneurial interest and competence. In this research, data will be collected from various sources relevant to the topic under study, such as scientific journals, books, research reports, and other articles. The data period covers the time from 2007 to 2023, which allows the researcher to see developments, trends, and changes that have occurred during this period.

The qualitative approach in the literature review allows researchers to describe and characterise complex and multidimensional issues in greater depth (Elo et al., 2014). In addition, this method makes it possible to involve multiple sources of information and cover a range of different viewpoints, thus enriching the analysis and strengthening the validity of the findings. The data collection process will involve meticulous text analysis, searching for information, and categorising relevant data for the research topic. Subsequently, the author will collate this information in a structured format, compare and synthesise findings from multiple sources, and identify patterns, themes and trends that emerge from the collected data.

One of the advantages of a qualitative literature review is its flexibility in understanding and explaining complex phenomena, as it is not limited by numerical or statistical constraints (Rahman, 2016). This method also allows researchers to gain deep insights into how the topic under study has evolved over time, as well as how concepts and understandings of the topic have changed

over the years. In this research, it is important to scrutinise the reliability and credibility of the sources used, as well as critically analyse the information collected. With a qualitative approach, the researcher must be able to present findings objectively and reflectively, provide clear and accurate interpretations, and recognise the limitations of the methods and data used (Bradshaw et al., 2017). The conclusion of this research will hopefully provide a comprehensive picture of the development of the topic under study over the 2007 to 2023 time period, and may also provide recommendations for further research that can broaden the understanding of issues related to the topic.

RESULTS AND DISCUSSION

Technopreneurship education plays a crucial role in cementing students' interest and enhancing their competence in pursuing an entrepreneurial spirit in an era filled with technological dynamics and innovation buzz, a situation we are currently experiencing. The concept of technopreneurship encompasses the harmonisation of advanced technological elements and a strong entrepreneurial spirit, forming a new paradigm in which the knowledge provided to students is not only limited to the aspects of business development, but also extends to the ways of integrating the latest technology and stunning innovation in the whole process. Therefore, it can be interpreted that the role played by technopreneurship education has a very basic urgency in preparing prospective students to become entrepreneurs who are able to achieve brilliant success and remain competitive in navigating the increasingly complex and dynamic sea of business competition.

One aspect that plays a central role in technopreneurship education is the provision of deep insights into the vast potential embodied in technological advancement, a force capable of changing the paradigms built into established conventional business structures. Through this in-depth educational process (Ohara, 2023), students are not only provided with knowledge, but furthermore, they are invited to reflect and comprehensively understand how various forms of cutting-edge technology such as artificial intelligence, sophisticated data analytics, Internet of Things (IoT) connectivity, and various other technological breakthroughs, can be holistically applied wisely in building and developing modern business insights (Sutrisno, 2023). In this realm of education, students are invited to view technology as a transformational force that is not just a tool, but a medium that forms a new path towards exciting possibilities in the business world (Harahap, Sutrisno, et al., 2023; Sutrisno, Cakranegara, Asri, et al., 2022). They are guided to understand more deeply how these exemplary technologies can be a catalyst in generating significant added value for various aspects of the business. In this learning process, students are encouraged to hone their skills in planning the utilisation of technology to create innovative products that are not only effective and efficient, but also remain relevant to the changing market demands. By utilising technological developments as a bridge to new opportunities, students are prepared to become competitive agents of change in a dynamic and challenging business era (Soltanifar et al., 2021).

It is important to note that technopreneurship education is not just limited to accelerating technological and entrepreneurial skills, but also plays a fundamental role in developing and deepening the entrepreneurial interests that flourish among students. In a technopreneurship-infused educational environment, students are not only given the opportunity to explore the creative ideas bubbling up in their minds, but more so, they are given a wide platform to devise revolutionary solutions to the challenges facing society. It needs to be recognised that the impetus arising from this education is capable of shaping a resilient entrepreneurial mentality in students. Through an in-depth approach, they are not only asked to respond to change, but are also invited to act as active change agents who are able to inspire positive change in the surrounding community. Moreover, through this inclusive educational process, the interest in entrepreneurship, which may have only been potential, can be transformed into a real commitment to engage in the long journey of entrepreneurship (Atrup et al., 2023). In this process, students are given the opportunity to explore the process of developing an idea into a sustainable business. The encouragement to hone their creative potential and realise it in the form of a tangible business provides a strong foothold for their interest to grow and develop (Diawati et al., 2023). In this way, they not only observe

entrepreneurship as a means to achieve financial gain, but also as a medium that allows them to make a positive impact in various aspects of people's lives (Hermansyah, 2023; Salamah, 2023; Sukenti, 2023). The realisation of their role as agents of social change inspires students to see entrepreneurship as a tool that can drive greater change, promote sustainable innovation, and foster inclusive growth for society at large.

Along with its focus on developing entrepreneurial interests, technopreneurship education places a deep emphasis on building holistic competencies in students who are stepping into the world of entrepreneurship. Rather than focusing on general business management aspects, the education process provides students with an invaluable opportunity to gain highly specialised and relevant skills in the realm of technology-enabled business ecosystems (Almusaed et al., 2023; Azzaakiyyah et al., 2023). As a concrete example, in an effort to strengthen the foundation of their competence, students are not only armed with knowledge of traditional business management, but are also directed to hone skills that are closely related to technology-based business dynamics (Wahyoedi et al., 2023). They have the opportunity to undergo an intensive training process that covers various aspects, from innovative technology-based product development strategies, to an in-depth understanding of how to execute efficient and responsive project management in an ever-changing technological context (Sari, 2023). Furthermore, they are also introduced to the importance of reliable and effective digital marketing (Sudirjo, 2023), as well as the much-needed ability to manage risks that are unique to the rapidly evolving technological environment (Purnomo, 2023). These skills, which make up the fundamental range of technopreneurship education, collectively form a strong and solid foundation for students to assume the role of managing quality and sustainable technopreneurship businesses. With these in-depth skills, they are able to move smoothly and effectively in the challenging business landscape and compete in the fast-paced and dynamic world of technopreneurship.

There is no denying that the role of technopreneurship education has proven to have a truly significant impact in opening up students to a much wider range of networks and resources that have the potential to support and spur the development of their closely-held businesses. In an educational environment that fuels the spirit of technopreneurship, students are not only exposed to theories and concepts, but also given invaluable opportunities for in-depth interactions with key industry stakeholders (Singh et al., 2021). They are given the golden opportunity to collaborate and communicate directly with experienced practitioners who have successfully treaded the path of technopreneurship, get guidance from insightful mentors, and even explore the opportunities they can create with investors who are interested in the innovative potential they bring. Moreover, students also have the opportunity to exchange views and experiences with fellow students who are also dedicated to the world of technopreneurship with similar interests. These interactions, fostered in a progressive educational environment, transcend the confines of the classroom and allow them to experience first-hand the realities of a booming business. The existence of this network not only serves as a platform for expanding horizons of understanding, but is also a fertile field for harvesting learnings from valuable experiences that have been applied by pioneers and seasoned practitioners (Prastyaningtyas et al., 2023). Moreover, this network also opens the door for potential co-operation and partnership opportunities. Students can benefit from this invaluable social capital in their efforts to build and develop a strong and competitive technopreneurship business amidst the ever-evolving global competition.

Thus, it can be strongly concluded that the role played by technopreneurship education has a tremendous level of significance in catapulting the interest and also enhancing the competencies inherent in the entrepreneurial spirit of the students. Rather than simply stopping at the stage of imparting knowledge, this education thoroughly opens the door for students to enter a deeper and highly multidisciplinary realm of knowledge, by providing a holistic view of how the harmonious integration of technology and business concepts can give birth to innovations that are able to break boundaries and remain prominent as a competitive force. Technopreneurship education is not just a mere provision, but an enlightenment process that goes beyond the theoretical dimension. Through this educational process, students not only gain an understanding of technology and business principles, but more deeply, they are given an in-depth insight into how the two aspects, which may initially stand alone, can be harmoniously integrated to form a breakthrough business

model that is full of competitiveness. This approach not only nurtures critical and creative thinking, but also builds the much-needed skills to articulate concepts into action, and transform them into innovative and compelling products or services. In this process, technopreneurship education embraces students' ability to understand and respond to the complex dynamics of the entrepreneurial world. Through specially designed training and practice, an interest in entrepreneurship is not just an initial passion, but becomes core to their identity. Through this education, students are also given valuable opportunities to connect with experienced industry practitioners, mentors, and peers with similar interests, which in turn, forms an invaluable network. Now, more than just a conclusion, technopreneurship education manifests as a solid and sturdy path for students to take their interest and competence in the world of technopreneurship to a higher and shiny stage in a future full of potential.

CONCLUSION

The role of technopreneurship education in increasing students' entrepreneurial interest and competence is very important and has a wide impact. Technopreneurship education has a positive impact not only on individual students, but also on society and the economy as a whole. By combining technology and entrepreneurship, it equips students with the necessary knowledge, skills and mentality to become successful entrepreneurs in the digital and innovation era. Some suggestions to further optimise the role of technopreneurship education are:

a) Curriculum Refinement: Universities need to continue to develop and refine the technopreneurship curriculum in accordance with the latest technological developments and market trends. This curriculum should include a combination of technological knowledge, business management, innovation and interpersonal skills.

b) Industry Network Development: Cooperation with industry and business practitioners should be enhanced. This can be done through internships, seminars, workshops and collaborative projects. Industry can also provide direct input on market trends and industry needs that help steer technopreneurship education.

c) Providing Financial Support: Universities and government agencies can provide financial support for students who want to develop their technopreneurship business ideas. This can be in the form of research funds, grants, or business competitions that provide seed capital funds.

d) Innovation Centre Development: Universities can develop innovation centres or business incubators that support students in developing their technopreneurship ideas into real businesses. These centres can provide workspace, mentorship, training, and access to industry networks.

e) Increased Public Awareness: The public needs to be given further understanding of the importance of technopreneurship and its positive impact on the economy and society. This can be done through seminars, workshops, and educational programmes that involve the general public.

f) Impact Measurement: Colleges should track and measure the impact of the technopreneurship education provided. This can be done by monitoring the success of businesses generated by alumni, the number of jobs created, and the contribution to innovation and sustainable development.

With these roles and suggestions, technopreneurship education can be an effective means of preparing the younger generation to become competitive, innovative entrepreneurs who contribute to the advancement of society and the economy as a whole.

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