Title: Functions of a Successful Entrepreneurial Ecosystem: A Case Study of a New Zealand University

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Functions of a Successful Entrepreneurial Ecosystem: A Case Study of a New Zealand University

by

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Abstract

Universities in emerging economies are being driven to innovate and become more entrepreneurial in order to deal with the problems posed by globalisation. Therefore, entrepreneurial education is simply essential as real-world skills that will enable students to live remarkable lives in an ever-changing world. Given their importance, it is indeed critical that researchers address the key question: "If entrepreneurial education provides students with fundamental skills such as creativity, innovation, and action orientation, why have many universities not adopted entrepreneurial education within its lectures yet?"

This research presents a case study of an entrepreneurship ecosystem within a New Zealand tertiary institution. The study focuses on the benefits of entrepreneurial education for students and the ramifications for the wider socio-cultural and economic landscape. Data was collected through in-depth interviews with six participants involved with the ecosystem.

This study identifies the relevance of entrepreneurial education, making students more confident, more creative, opportunity-oriented, proactive, and innovative, adhering to a broad definition of entrepreneurship applicable to all walks of life. Furthermore, it assists people in acquiring the skills, knowledge, and attitudes required to achieve the objectives they set for themselves. Consequently, it causes a positive impact in the local region in various ways.

This study aims to encourage practitioners and policymakers in educational institutions in New Zealand to adhere to entrepreneurship programmes in order to create an entrepreneurship ecosystem in the region. In this sense, a framework was developed with measures to be implemented within the tertiary institution.

Keywords: Entrepreneurial education; Tertiary institution; Entrepreneurship ecosystem; Student development; New Zealand;

Dedication

This research is dedicated to my partner Fernanda Cristina, who is a patient, great supporter and encouraged me to do my best and improve myself during this journey.

I also dedicate this to family. My parents and brothers always remind me to work twice as hard and be the best version that I can possibly become.

Lastly, I dedicate this research to God for providing me with good health and the constant motivation to achieve my dreams.

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List of Acronyms

ETP	Theory and Practice
GDP	Gross Domestic Product
ITOs	Training Organisation
ITP	Institutes of Technology and Polytechnics
NELP	National Education and Learning Priorities
SIT	Southern Institute of Technology
TEC	Tertiary Education Commission
TEO	Tertiary Education Organisations
TES	Tertiary Education Strategy
UNZ	Universities New Zealand

Chapter 1. Introduction

1.1 Introduction

In the innovation and entrepreneurial ecosystem, tertiary education institutions play a vital role. Entrepreneurship development is an essential part of the process for students to gain exposure to new ideas and perspectives by transforming them into a variety of new possibilities. This research is based on an underlying perception that entrepreneurial universities play an important role in society, providing many benefits to the entrepreneurial ecosystem, such as sufficient capacity and productivity. While in this case, tertiary institutions are a major source of the economy's most valuable assets: highly educated individuals and innovative ideas. Also, they might be the starting point for the student population to get into the entrepreneurship ecosystem.

The ecosystem has a broad definition within its appeal, which has now been internationally embraced (Grigore & Dragan, 2020). Based on the ideas of several scholars, Guerrero et al. (2016), Frolund et al. (2018), Rice et al. (2014), and Wright et al. (2017), an entrepreneurial ecosystem consists of several features that promote the development and growth of new initiatives and projects. Elements of entrepreneurship education in collaboration with university stakeholders and external players are critical to developing a successful ecosystem. Nevertheless, universities have been innovating to meet the needs of society since their founding, and they are now starting to offer a wide range of entrepreneurial programmes and initiatives to students (Pique et al., 2018). Furthermore, Heaton et al. (2019) identified that a growing number of universities are promoting the innovation ecosystem, which includes external collaborations as a valued academic principle, while strengthening the university's resource base.

To deal with the challenges faced by globalisation, universities in emerging economies are being forced to innovate and become more entrepreneurial (Baporikar, 2019). This study is designed to explore what makes the entrepreneurship ecosystem successful, involving a tertiary education institution based on its programmes, activities, mentorship, and general structure to guide students towards a more entrepreneurial mindset with other stakeholders that constitute the entire entrepreneurial ecosystem. At

the same time, entrepreneurial universities' creativity impacts the growing regional innovation system and encourages the development of knowledge and economic development.

This research is designed to explore the region that holds an entrepreneurial university which has an advantage and a favourable environment to develop an entrepreneurial ecosystem in order to support students to learn not just about entrepreneurship but produces a workforce and adds value to knowledge creation or transformation, that improves people's values and attitudes towards social and complex problems. In the same way, this research validates the concept that entrepreneurial education methods and techniques will enable young generations, particularly human resources in the region, to acquire an entrepreneurial mentality, entrepreneurial abilities, and key skills for managing the growth of existing and new enterprises.

1.2 Statement of the problem

Tertiary institutions that do not offer an entrepreneurial education may limit students' fundamental skills such as creativity, innovation, and action orientation. Also, it creates a gap between the student population and the entrepreneurship ecosystem that is not supported or even provided by tertiary education institutions. For instance, business schools in universities place a greater emphasis on theory teaching, resulting in a shortage of incentive and entrepreneurial awareness among students (Wang, 2018).

The higher education industry is rapidly evolving. Universities around the world have faced new challenges and quick changes in the last decade or so, including increased technological progress, negative demographic trends, less public funding, new skills necessary in the economy, and severe competition for attracting students and research funding (Baporikar, 2019). In order for universities to survive and thrive in the face of these changes and challenges, they must undergo a new academic revolution, which entails making them more entrepreneurial. Nevertheless, higher education institutions must now, more than ever, think globally and establish a strong student and wider stakeholder value proposition that sets them apart from the competitors. In the medium and long term, this will have a significant impact on how universities operate.

According to Subotzky (1999), universities are influenced by two primary trends: universities are under pressure to become more market-oriented and respond to rapid environmental changes; universities should work for the benefit of society, fostering social fairness and reacting to community needs. Furthermore, according to Thorp and Goldstein (2010), five themes support the argument that universities need to have an entrepreneurial mindset in the twenty-first century.

1. Information-based tools are at the disposal of individuals, undercutting major bureaucratic institutions and empowering those with an entrepreneurial mindset;
2. To address 21st-century complex challenges, vast resources and non-traditional ways are required;
3. Millennials generation students have a different mindset, pushing universities to be more innovative;
4. Traditional sources of funds are on the downward trend, and funders' performance-based expectations require and can be addressed by an entrepreneurial approach;
5. To solve global issues, innovative problem-solving approaches that blend traditional reasons with creative solutions are required, which involve entrepreneurial thinking.

On the other hand, Beyhan and Findik (2018) highlight that students from more successful research universities are more likely to have an aptitude for finding opportunities and, as a result, to start technology-based businesses. Significantly, technology businesses founded by university students and new graduates are an excellent indicator of an institution's capacity to prepare students to be technology entrepreneurs (Beyhan & Findik, 2018). In contrast to it, the environment of the entrepreneurial ecosystem is much wider. It applies to technology-based business and all entrepreneurs' mindset and innovation environment, and tools available in conjunction with the entrepreneurial ecosystem.

This research relates to a specific context involving a tertiary education and several stakeholders to explore the entrepreneurship ecosystem. The researcher has sought to solve this issue by creating a framework that can be applied to other tertiary institutions that do not offer any related entrepreneurial programme and may limit

students' fundamental skills. As such, the primary qualitative data was collected using the mono-method approach through the conducting of in-depth interviews with six participants that are involved with the entrepreneurship ecosystem in a specific New Zealand region.

1.3 Significance of the study

This study is significant because of the current changes in society regarding the role of tertiary educational institutions in preparing students for the future of work. How have entrepreneurial universities influenced their students to value practical learning and good outcomes in order to gain more exposure and a better understanding of their career pathways? Khan (2020) claims that a more entrepreneurial community will diversify and strengthen New Zealand's economy in new ways.

One of the benefits of this study is that it examines the successful entrepreneurship ecosystem within a New Zealand tertiary education institution in order to develop a framework that can be applied to other New Zealand tertiary institutions. As a result, students will be more aware of opportunities to learn fundamental skills, respond to company issues, and eventually become entrepreneurs (Buchnik et al., 2018). Subsequently, students will be encouraged to accept risks and develop a risk-taking mindset as well as the ability to evaluate and execute on business opportunities from entrepreneurial education (Solesvik, et al., 2013).

Another benefit is that entrepreneurial education initiatives, which are gaining traction and going beyond traditional classroom teaching, improve student employment outcomes. Furthermore, regardless of career choice, entrepreneurship, according to Lackéus (2015), is about personal development, creativity, self-reliance, initiative, and action orientation.

The study of the entrepreneurship ecosystem is relevant to applied management, and entrepreneurial education. According to Lackéus (2015), it makes students more creative, opportunity-oriented, proactive, and innovative, adhering to a broad definition of entrepreneurship that applies to all walks of life. Moreover, Dobele (2016) asserts that

self-sufficiency, creativity, empathy, rational thinking, and entrepreneurship skills are all enhanced by entrepreneurial education.

This research aims to examine the functions of an entrepreneurship ecosystem involving a New Zealand tertiary education and several stakeholders. This research undertakes a case study to determine what makes the entrepreneurship ecosystem successful. Aside from that, success means a positive outcome for students, the university, and the wider environment, all of which will contribute to the study's goals. Another benefit from this study is the multidisciplinary or cross-study collaboration through the entrepreneurial journey. For example, given the importance of multidisciplinarity in entrepreneurship, it is critical to educate entrepreneurship in a multidisciplinary setting in order to prepare students to collaborate with peers from various fields of study and educational levels. Lastly, this study tends to in-depth explore the entrepreneurship ecosystem that provides students with an entrepreneurial education, which can be tailored to a variety of approaches to identifying opportunities. Then again, entrepreneurship is also considered an effective method of developing skills such as risk-taking and problem-solving, which can help individuals achieve their life objectives and overcome obstacles.

Evaluating what the students gain by being involved in the entrepreneurship ecosystem is illustrated and explained with examples in this study. For instance, students who participate in entrepreneurial education gain confidence, entrepreneurship knowledge and skills, a sense of reality, practical solutions, future ideas, and networking, according to Kirkwood et al. (2014) in their study. These educational benefits are important for an entrepreneurial career and could also be useful in any other field. Moreover, students with an entrepreneurship education are encouraged to develop attentiveness skills in order to identify business opportunities that are widely available but not recognised by all individuals (Solesvik, et al., 2013). In conclusion, entrepreneurship programmes provide students with valuable life skills to navigate this unpredictable future. Problem-solving, teamwork, empathy, and learning to accept failure as a part of the learning process are among these capabilities discussed throughout this study, contributing to other tertiary education institutions and, consequently, students and the wider environment.

1.4 Research question/aim and objectives

The aim of this study is to examine an environment involving a tertiary education institution and other parties that make a successful entrepreneurship ecosystem in the New Zealand region. A main objective is represented by the main statement that is broken down into a list of specific things that this study will present in order to achieve the goal and answer the research question.

The primary objective of the study is to attract practitioners and policymakers' attention in educational institutions in New Zealand and encourage them to implement entrepreneurship programmes in order to build an entrepreneurship ecosystem in the region and positively impact the region's broader socio-cultural and economic landscape. In order to achieve this objective, several research questions (RQ) and a conceptual framework were developed.

RQ1: What are the benefits of entrepreneurial education to students?

RQ2: What are the impacts of the entrepreneurial ecosystem on the broader socio-cultural, economic landscape?

RQ3: What measures can be implemented that would help develop a framework that can be applied to tertiary education in New Zealand in order to create an entrepreneurship ecosystem?

1.5 Structure of thesis

The research aims to identify the factors that impact the entrepreneurship ecosystem in the New Zealand tertiary education context while identifying the importance of entrepreneurial universities and their benefits to students and the wider environment. This research is divided into six chapters, with the outline of each chapter listed below.

The first chapter describes the research context around the entrepreneurship ecosystem, the study's significance, the rationale for addressing research gaps and problems, and the research objectives. In addition, this chapter summarises the research methodology and the study's limitations as it progresses.

The second chapter examines the theoretical aspects of the entrepreneurship education model, as well as the behavioural aspects of experiential learning and the triple helix model. This section will also include an in-depth evaluation (PESTEL analysis) of the tertiary education industry, with appropriate links to the research objectives.

The third chapter provides a comprehensive review of the literature on entrepreneurship. First, the ecosystem of entrepreneurship and its functions are examined. Second, the entrepreneurial universities are elaborated. Finally, students who are involved in entrepreneurial education and related benefits are discussed.

The fourth chapter provides an in-depth insight into how the research was conducted in order to solve the research question. Research methodology first introduces the study's background to justify the appropriateness of pragmatism philosophy for the research. Second, it explains the mono method, which is similar to the method used in previous research. Third, it explains the interviewing process and analysis. Finally, it lists the study's limitations, validity, and reliability, and ethical considerations.

Chapter five presents the results of the interviews with participants in the entrepreneurship ecosystem. It commences by connecting the themes and key findings to the research objectives. Second, it presents the conclusions from the interviews using tables, graphs, and direct quotes. Finally, it discusses the findings by connecting them to the theories discussed in Chapter 2 and also relevant literature.

Chapter six reveals the study's result and summary. This chapter also discusses the study's implications and limitations. The relationship between the findings and previous literature and future research recommendations on the impact of entrepreneurial education and the entrepreneurship ecosystem are discussed in this chapter.

Chapter 2. Theory and Industry Analysis

2.1 Introduction

The theory and industry analysis part provides an overview of the fundamental theories of entrepreneurship as well as an analysis of the industry. This chapter explains the theoretical framework used to develop the hypothesis and the attributes used to measure the variables studied. Evolving entrepreneurial mindset as new ways of thinking; experiential learning as getting exposure and learning by doing; behavioural aspects as attitudes and intentions towards entrepreneurship; and the triple helix model of university-industry-government interaction have been considered and are the key variables identified. A conceptual framework has been developed as a result. The last section of this chapter primarily examines the effect of external influences on New Zealand Tertiary Education and goes into great detail with the PESTLE analysis framework. The Tertiary Education sector has been chosen due to the crucial development phase in delivering entrepreneurial education, impacting students and society.

2.2 Theoretical framework

The theoretical framework of this study is structured based on entrepreneurial concepts within the higher educational ecosystem, which advocates the relation in preparing students to meet the rapid technological change and the future of experiential learning. Entrepreneurship education was chosen as an appropriate empirical setting because it is capable of facilitating activity that results in the creation of new opportunities and a whole new perspective in a changing work environment and a world of complex problems. This study employs a framework, such as the Triple Helix in conjunction with a practical approach, which is then compared to other behavioural aspects and experiential learning.

2.2.1 Entrepreneurship education

Despite the entrepreneurship concept being around us for a long time, experiential entrepreneurship education is still developing in terms of practical progress. Thus, Robinson and Josien (2014) define experiential education as a comprehensive, experience-based entrepreneurship education programme. Similarly, Cope (2005) argues that due to entrepreneurship's dynamic nature and the wide variety of skills, attitudes, and motives involved in the entrepreneurial processes, experiential education has emerged as the foundation curricula.

In entrepreneurship education, some developments have been made, creating resources to assist in entrepreneurship learning. According to Bennett (2006), two significant schools of thinking have emerged in entrepreneurship education since the 1980s, both evolving: skills-based approach and attitude-based approach. The first process is based on the set of skills that entrepreneurs need. Robinson and Josien (2014) well summarise both approaches described by Bennett (2006), such as the skill-based approach, which has as a philosophy that entrepreneurs are born with critical characteristics. Moreover, the skill-based approach uses a teacher-centred locus of instruction with its main objectives to identify and examine critical information and understand concepts. Subsequently, the learning focus is based on practical, precise information on business formation and management.

The development approach was created when the previous skills-based approach was found to be questionable. According to Robinson and Josien (2014), based on Bennett (2006) theory, the attitude skill has a philosophy that individuals develop entrepreneurial characteristics through experience. Furthermore, the attitude skills approach uses a locus of instruction through student-centred with its main objectives to identify and examine critical information and apply concepts. Significantly, the learning focus is based on practical, hands-on experience in identifying, evaluating, and executing business opportunities.

Roberts (2018) argues that there are two primary institutional and pedagogical responses regarding experiential learning:

1. From an institutional standpoint, the focus on improving "real-life skills" through hands-on and practical learning mitigates the ongoing criticism that colleges and universities do not sufficiently prepare students for the workplace.

2. Roberts (2018) asserts that certain types of experiential work, such as community-based learning, are serving as public examples of the educational mission while also providing positive public relations with local, state, and regional stakeholders, as per institutions. To illustrate, Eyler (2009) asserts that students are more likely to solve a novel problem if they are involved in problem-solving prior to being confronted with new knowledge, rather than passively learning information by reading and lecture.

3. The distinction between classroom and workplace or group experiential learning is not only one of the material or instructional concepts, but also one of existential importance.

Students of experiential education learn as professionals, or community members who will know certain things in order to complete a task, rather than as students who must pass an exam (Eyler, 2009). Furthermore, entrepreneurship education improves behaviours, perceptions of behavioural management, and the desire to start an enterprise. Their attitudes influence people's intentions. Entrepreneurial behaviour is influenced by the desire to become an entrepreneur. In other words, entrepreneurship education does influence entrepreneurial actions (Rauch & Hulsink, 2015). To conclude, Roberts (2018) defines experiential learning theory as a particular modality that can be used in a number of contexts and experiential education as a wider field of contexts.

2.2.2 Behavioural aspects of experiential learning and entrepreneurship

Entrepreneurial behaviour encompasses an entrepreneur's activities, emotions, feelings, opinions, and actions to explore and exploit a new idea or improve the concept of entrepreneurship (Kirkley, 2016). Even though behavioural entrepreneurship theory is a relatively modern branch of behavioural theory, it is vital to review social, cognitive, and emotional biases, which are at the core of this new theory (Baron, 2007). Moreover, many attempts have been made to quantify entrepreneur behaviour to recognise entrepreneurial ability, as entrepreneurial behaviour has been identified as a critical

contributor to business performance (Nawawi et al., 2019). In this sense, Kirkley (2016) states that entrepreneurship is practised by individuals who are passionately convinced that they have found a specific answer to an unmet need or unsolved issue and are willing to go to considerable lengths to meet these demands.

Entrepreneurship education mainly focuses on increasing entrepreneurship awareness by educating students about the various aspects of starting and running a business. Moreover, entrepreneurship education is concerned with the training of potential entrepreneurs for starting a business and typically emphasises practice and action-focused learning philosophy (Rauch & Hulsink, 2015). Nevertheless, the entrepreneurship curriculum should be structured in a way that encourages students to view entrepreneurship positively. It should stress the positive aspects of entrepreneurship so that students are motivated to pursue it for themselves (Rauch & Hulsink, 2015). Similarly, self-determination, self-efficacy, stated by Kiekley (2016), and the entrepreneurial value set all work together to allow a person to communicate visible entrepreneurial behaviour. Hence, Williams (2010) identifies that learning theories and entrepreneurial education systems suggest ways to teach and transfer entrepreneurial practices to individuals.

Cope and Watts (2000) argue that learning by doing, using experiential learning methodologies, and using critical learning incidents from an individual viewpoint, is the best way to improve entrepreneurial action. The importance of reflection in gaining knowledge from experience, especially through critical incidents, is rarely isolated and influenced by their surroundings. For instance, Williams (2010) found that, an interpretation of entrepreneurial activity as being formed by participation in starting a new business; linked to a series of activities such as planning, establishing credibility, combining resources, and marketing; are the most appropriate sort of skills acquired from the person's environment. Commonly, learning by doing in combination with mentoring processes will enhance the decision-making process for testing theories and provide feedback through physical interaction and perception and reaction from the surrounding position (Williams, 2010).

2.2.3 Triple Helix Model

The triple Helix model was introduced in the early 1980s due to the entrepreneurial university idea of an academic institution, actively engaged in knowledge-based regional growth (Etzkowitz, 1984). However, it was first established by Etzkowitz and Leydesdorff (1995) as a complex structure that could be modelled as a Triple Helix of university-industry-government interactions. The focus was to explore the future of university research in the new information creation and dissemination structure. In the dynamics of Triple Helix collaboration, participation from at least three different sectors is required: academia, government, and industry (Etzkowitz & Leydesdorff, 2000).

The evolution of university-industry collaboration. The current state of university-industry ties can be traced back to two distinct sources, as well as an evolving third hybrid stream: an industrial project for which academic feedback is sought:

1. Fundamental scientific priorities funded by research councils and related bodies;
2. An industrial project for which academic input is sought;
3. Co-development of research projects with shared basic and applied objectives and various funding sources.

Even if these differ and are not mutually exclusive, each of these study orientations has an organisational counterpart (Etzkowitz, 2008).

As a centre of innovation, an entrepreneurial university is the generative theory of university-industry-government interactions (Etzkowitz & Zhou, 2007). Entrepreneurship education, study, and training involving the interrelationship between government, higher education, and the industry are becoming more apparent when entrepreneurship's social and economic aspects are considered together. The social-economic mix raises questions about the mentality required for entrepreneurship (Matlay & Mitra, 2002). In the same way, the rise of the university to equal status with the economy and polity, as well as knowledge-based societies that integrate academia, government, and industry in lateral relationships, inevitably lead to triple helixes (Etzkowitz & Zhou, 2007).

Etzkowitz (2004) explained that the university's internal framework is updated as to its relationship with industry and government shifts, and industry and government's

relationship with the university is being revised. The academic institution, often in partnership with industry and government actors, plays a constructive role in enhancing the effectiveness of its regional innovation environment. Thus, the importance of the tripartite network lies in achieving competitive advantage by encouraging entrepreneurship and innovation (Matlay & Mitra, 2002). Then again, the entrepreneurial university is capable of completing a trilateral collaboration flow. Initially based on a specific technology developed at the university or service to a local firm, the university's service mission has evolved over time to include a wider role in regional growth, often in collaboration with industry and government (Etzkowitz & Zhou, 2007).

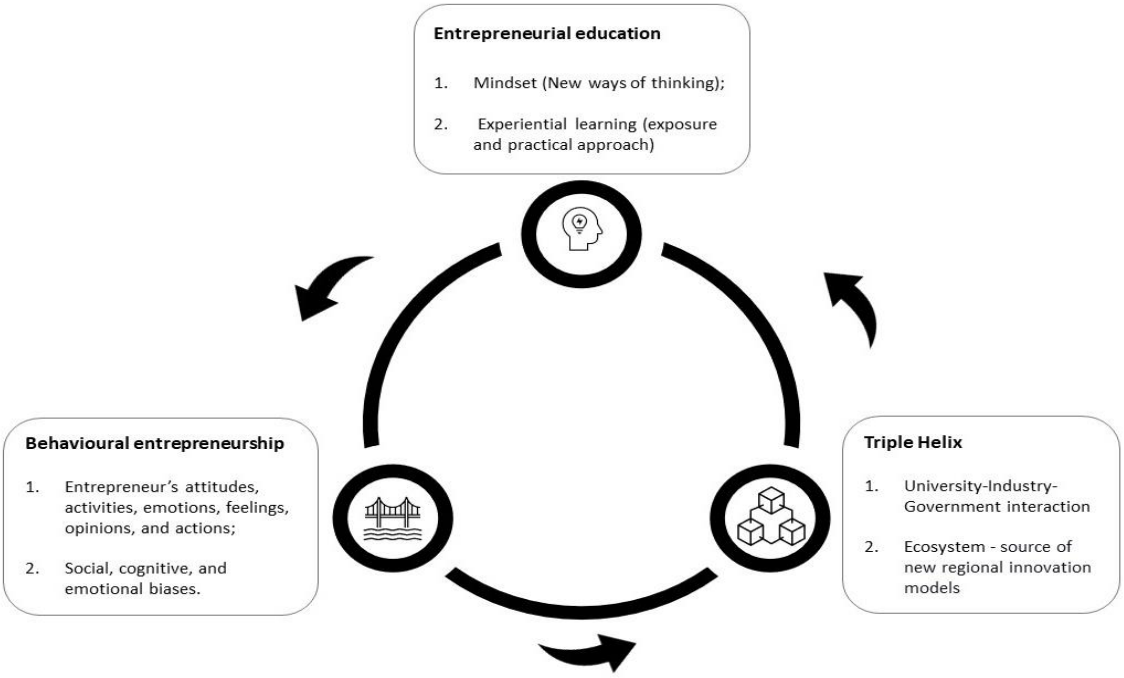
In brief, Etzkowitz and Zhou (2007) developed a model called triple helix, that was motivated by universities because universities outperform industry and government in terms of generating novel information that is the foundation of new technology and industries. The triple helix had several configurations, where entrepreneurial universities often play different roles. For instance, in a university-driven model, they kickstart regional innovation; in a government-driven model, they assist existing firms and industries while also creating new ones at the government's request. Such universities traditionally partner with industry in product and process innovation in a corporate-led setting. The direction of triple helix growth can shift over time, from government-led to university-led to corporate-led or in any other order (Etzkowitz & Zhou, 2007).

Academic goals and objectives, cooperation among university, business, and government, and the strength of local organising and initiating capabilities are all factors in regional triple helix innovation. Regardless of social or academic gaps, awareness spillover is rapidly occurring on campus by commercialising study findings (Etzkowitz & Zhou, 2007). On the other hand, the “capitalisation of information” is at the centre of a new university mission that aims to reinforce relationships between universities and information users while establishing the university as a self-sustaining economic force (Etzkowitz, 2008, p. 27). Furthermore, an entrepreneurial university can also solve societal challenges and needs, using them as the foundation for new research ventures and intellectual paradigms, creating a virtuous circle of internal intellectual growth (Etzkowitz, 2008).

A research base with commercial potential; a practice of creating start-ups; an entrepreneurial ethos on campus; policies for identifying intellectual property rights; sharing income; and controlling conflicts of interest; and involvement in regional innovation strategy are all core elements of the entrepreneurial university model as part of the triple helix model (Etzkowitz & Zhou, 2007). Moreover, Mandrup and Jensen (2017) expressed the opinion that action research appears to be a viable method for bridging sectoral partner interests around a variety of ambitious ventures into Triple Helix collaborations that could extend beyond the classroom. In knowledge-based societies, university-industry-government interaction is increasingly recognised as a source of new regional innovation models that drive the transformation of scientific and technological progress into economic activity. Significantly as identified by Etzkowitz (2008), early awareness of the learning process within their organisations and the generation of shared learning agendas across industries and institutions are where government, business, and higher education come together to promote organisational learning.

Figure 2.1

Entrepreneurship Ecosystem Theory Framework



Note. Correlation between theory models associated with the entrepreneurship ecosystem. The flow presents the Triple Helix under relation to the entrepreneurial university environment.

2.3 Industry analysis

2.3.1 Tertiary Education Industry in New Zealand

According to the Universities New Zealand (UNZ), 16 publicly funded polytechnics[1] and institutes of technology; 3 wananga; over 240 Tertiary[2] Education Commission (TEC) funded private training institutions; 12 Industry Training Organisations (ITOs), and a limited number of other organisations constitute New Zealand's tertiary sector (Universities New Zealand, 2021). The industry includes accredited tertiary education providers that provide undergraduate and postgraduate teaching, as defined under the Education Act 1989. The University of Auckland, University of Otago, Massey University, Victoria University of Wellington, Auckland University of Technology, and the University of Canterbury are the institutions with the highest market share in the Universities Tertiary Education industry in New Zealand (Ibis World, 2021).

Due to the unresponsiveness of tertiary institutions to meet the demands of the sector, in the late 1980s, the government undertook to implement much-needed reform to the demands of a fast-changing economy as part of a broader economic and public service reform agenda (Crawford, 2016).

The following were the core reform elements:

1. enhanced autonomy for tertiary providers to plan and mount programmes and retain learners;

2. appreciation of learning in, and removal of obstacles to, moving through various sections of the system; and

[1] A polytechnic is a government-controlled tertiary education institution that offers a wide range of vocational and professional programmes. A college of education is a government-run tertiary institution that primarily focuses on teacher education.

[2] The term tertiary is used in New Zealand, as it is in many other countries. It refers to all post-secondary school courses, including both higher education degrees and diplomas, as well as vocational education and training (Statistics New Zealand, 2011). However, the focus of this study is on universities

3. increased government grants, much higher tuition rates, and a student loan programme with an income-contingent repayment schedule to finance a significant expansion in participation.

Following the success of learning for life in encapsulating the reform's goal, governments ahead began debating how to make a more efficient system of autonomous providers function better in order to assist them in becoming more responsive to social and economic demands. Furthermore, the changes will take a holistic approach to understand how tertiary education could change and improve over time.

2.3.2 PESTLE Analysis

PESTLE Analysis is defined as a management technique that allows a company to determine significant external factors that affect its operations in order to improve its market competitiveness (Kenton, 2020). Furthermore, PESTLE Analysis is believed to have been first developed by Harvard professor Francis J. Aguilar under the name ETPS. Aguilar presented economic, technological, political, and social factors as major influences on the business environment in his 1967 publication "Scanning the Business Environment" (Rastogi & Trivedi, 2016). Nevertheless, PESTLE analysis can be seen as a framework or technique that marketers use to evaluate and monitor macro-environmental factors that affect an organisation, business, or industry, such as tertiary education.

Political

The political theme is concerned with issues of strategy, policy, procedure, and management that affect higher education in New Zealand. These issues arise at all levels of Government and institutions. The focus of the study is on macro-environmental factors that affect higher education teaching and research. Hodgson (2002) The Minister of Education argues that the future depends on the development and innovative application of knowledge. Since an innovation system is fundamentally based on and dependent on people, tertiary education and a professional workforce are vital for promoting innovation as research, science, and technology. However, The Productivity Commission states that

the tertiary education system is inadequate to respond to uncertain future trends and the needs of an increasingly diverse student population. The system is still not effective at experimenting with and embracing new ways of delivering education, and it lacks the features that will allow it to adapt to changing situations. Although the system does a decent job of supporting and safeguarding critical providers, it is not student-centered (New Zealand Productivity Commission, 2017).

The value of international education is highlighted in the New Zealand Tertiary Education Strategy 2014–2019. International education offers a valuable opportunity to enhance the appeal of tertiary education and not only offers alternative revenue streams for New Zealand Tertiary Education Organisations, but it also fosters international collaboration with counterparts around the world. Hence, these statements demonstrate New Zealand's strong importance of international education. As a means of reputational marketing, universities in New Zealand appear to be working hard to improve their rankings in various schemes. It can be seen that the New Zealand Government is also effectively reacting to ranking findings, spinning the outcomes (Joyce, 2013). Furthermore, investing in targeted funding to attract top academics to New Zealand for their science and entrepreneurship abilities and improve ranking outcomes (Rotherham, 2016).

The Government has made substantial investments in tertiary education, emphasising increasing young people's achievements and encouraging them to pursue higher education. It has established specific priorities as part of the Better Public Services agenda and increased data to support study options. For instance, the Youth Guarantee has expanded opportunities for students transitioning from school and created new Vocational Pathways with industry to help students move through school and further study or jobs (Ministry of Education & Ministry of Business, Innovation and Employment, 2014). Many new programmes and reward systems have been implemented to get tertiary education organisations (TEOs) closer to the industry (Goedegebuure et al., 2008). This clearly shows that New Zealand places a high priority on technology and information transfer.

Economic

The growth of skills and talent among New Zealand's population will be critical to the country's economic development (Ministry of Economic Development et al., 2003). In the same way, in 2003, the Tertiary Education Commission was established to consolidate all tertiary education funding into one entity and lead the transition to a tertiary system that better meets New Zealand's society's needs economy (Maharey, 2004). To achieve the goal to diversify New Zealand's economy, Cullen (2000) noted the need to improve the economy's information, technology, and skills base. Nevertheless, to emphasise the importance of tertiary education and research in the economy, where the quality of an economy's intellectual capital is a major factor in its development and use of technology.

Universities contribute significantly to the economies of the areas where they are located, accounting for up to 6.3% of regional GDP nationwide. For instance, the University of Auckland contributes 2.4% of Auckland's regional GDP by student spending. Similarly, the University of Otago and its students account for 6.3% of the total population (Universities New Zealand, 2018). Over the last decade, total domestic student enrolments have declined as more New Zealanders have enrolled in overseas universities. On the other hand, international student enrolments have increased over the same time frame, leading to policies that attract international doctoral students. Complementary to this, over the last five years, the Universities industry has seen a modest increase in revenue. Since 2016, the New Zealand Government has been lowering annual fee increase rates, limiting the industry's ability to increase revenue (Universities New Zealand, 2021).

Even though the New Zealand Government spending on education had dropped to 4.6% of GDP and 16.4% of total government spending in 2018/19, New Zealand still invested a significant amount of money $3.1 billion represented public expenditure on tertiary education as a percentage of GDP (1.5%) in 2017 (Education Counts, 2021). Over the next five years, the industry's income is forecast to rise by 1.5% annually to $4.4 billion. However, due to the outbreak, industry revenue is expected to drop by 1.2% this year of 2021 (Ibis World, 2021). Commonly, institutions of the industry have transformed globalising education in New Zealand into a distinct type or model for practising

globalising education and have made it accessible to key economic development political projects (Lewis, 2011).

Social

The demands and aspirations of students are shifting. As student fees have risen, a transition to a more "client-centred" approach has occurred, with students becoming more aware of the benefit they are receiving for their educational investment. Universities have a reputation for being out of date, with static frameworks, conventional teaching methods, and antiquated technology that is out of step with what students use in their everyday lives and will use in their future professional practice (Greenhow et al., 2009). On the other hand, Universities do more than just training; they educate as well. New Zealand Universities, in other places, contribute to individual awareness of social problems and the attainment of social, economic, and physical well-being, which benefits society (Universities New Zealand, 2021). Subsequently, according to Universities New Zealand (2018), 92% of international university students chose to study in New Zealand because of the strong reputation of its universities. In other words, New Zealand is delivering quality teaching and learning.

Tertiary Education Commission (TEC) has created several programmes to support all learners to succeed, and through those programmes are providing capability and monitoring performance (Tertiary Education Commission, 2020). And yet, information technology has the potential to play a significant role in supporting student achievement, and TEC is heavily investing in the commitment to creating a tertiary education system that embeds learner success (Tertiary Education Commission, 2020). New Zealand's tertiary education sector offers a diverse range of learning opportunities, from foundation skills to doctoral studies. The sector contributes significantly to the nation's innovation through its research activities and the skills it imparts. The convergence of funding and provision through vocational education and training, higher education, job training, adult and community education, and tertiary education is a core feature of the New Zealand scheme for better social community development (Ministry of education, 2018).

Technological

It is clear that all the advancement in technology is moving at an extremely fast pace. Based on the ideas of Cullen (2000), since the early 2000's the Government's vision for the future of the New Zealand economy has been widely shared. It is a high technology-driven, value-added economy that is adaptable and sensitive to a wide variety of niche business opportunities in the global marketplace. Furthermore, Cullen (2000) also acknowledges that policies must provide opportunities for creative businesses to thrive. That means bridging the gap between entrepreneurs and capital markets, research institutions and training organisations, and business advisors and those who provide the services required for effective idea incubation.

Approximately 21 years later, around 120,000 people work in the tech industry in New Zealand. It makes a significant contribution to the national economy, and the New Zealand government intends to make it the second-largest contributor by 2025 (Roy, 2018). New Zealand needs both domestic and international talent to push the IT sector forwards. Unlike many other tech hubs around the world, New Zealand is not seen as a desirable destination for many international tech talents. On the other hand, the current government mandate in New Zealand is that all schools provide learner-centred pathways, implement twenty-first-century pedagogies, and provide quality, sensitive, and future-focused education (Bolstad et. al, 2012). Presumably, it can help teachers and teacher educators in the creation of technology-based education programmes.

The Government requested that the Productivity New Zealand Commission look at how well New Zealand's tertiary education system is set up to adapt to and take advantage of technological, internationalisation, population, tuition costs, and skill demand patterns. The Commission was also needed to assess possible innovation roadblocks (New Zealand Productivity Commission, 2020). Throughout the tertiary education sector, many teachers and groups of teachers are innovating, including incorporating emerging technologies into their teaching practice (New Zealand Productivity Commission., 2017). In brief, technology will continue to advance, necessitating the development of new skills and the potential for a variety of new tertiary education models.

Environmental

The tertiary education sector is now more open to student demands, innovative in terms of programme offerings, and better able to accommodate a significantly larger number of students, both domestic and international (Abbott, 2006). Universities in New Zealand are engaged in the profession's basic skills and what is often referred to as a basic standard of living skills – research, experiential learning, communication, adaptation, and innovation (Universities New Zealand, 2021). Hodgson (2002), The Minister of Education in New Zealand, argues that the future depends on the development and innovative application of knowledge. Since an innovation system is fundamentally based on and dependent on people, tertiary education and a professional workforce are vital for promoting innovation as research, science, and technology.

A modern type of organisation that offers on-the-job, on-campus, and online technical education and training all over the country, the New Zealand Institute of Skills and Technology (Te Pūkenga) was founded in 2020. Te Pūkenga combines the 16 current Institutes of Technology and Polytechnics (ITPs) into a single organisation that will improve the capability to facilitate work-based, campus-based, and online learning as a single system as a result (Tertiary Education Commission, 2021).

According to the latest OECD Innovation Strategy (2013), innovation can only thrive in an economic and regulatory climate that includes the following features:

• A professional workforce capable of nurturing new innovations and developing new technologies, bringing them to market, and implementing them in the workplace and adapting to technical and social changes throughout society.

• A stable business climate that promotes technology investment allows creative firms to test new concepts, innovations, and business models and assists them in growing, expanding their market share, and reaching scale.

• A robust and effective information production and dissemination mechanism that prioritises the systematic pursuit of fundamental knowledge.

• Policies that promote entrepreneurship and creativity.

• Governance and execution are given a lot of attention. The effect of innovation policies is highly reliant on their governance and implementation, including public confidence in government policy and a willingness to learn from past mistakes.

To illustrate those features, the Tertiary Education sector in New Zealand is developing new policies and programmes to adapt to help with funding decisions and increase performance. Hence, in comparison to other developed countries, New Zealand's education system tends to perform well, with high levels of engagement and achievement (Ministry of Education, 2019).

Legal

An Organisation for Economic Co-operation and Development (OECD) study of New Zealand's higher education highlighted the importance of maintaining the export market and ensuring the viability of the country's tertiary institutions. This has prompted New Zealand to become a more involved and recognisable participant in the internationalisation market with initiatives. One of them is the establishment of Education NZ. This national body coordinates and markets New Zealand as a tertiary education destination and hires offshore education counsellors to reinforce bilateral relations (Goedegebuure et al., 2008). Likewise, the Tertiary Education Strategy (TES) outlines the government's long-term policy vision and current and medium-term tertiary education goals. Through their investment plans, TEOs must demonstrate how they can achieve the TES's goals (Kōrero Mātauranga, n.d.).

National Education and Learning Priorities (NELP) with the Tertiary Education Strategy (TES) are published under the Education and Training Act 2020. The educational programs are assisting young people in reaching their educational potential; preparing young people for civic and community engagement, and work; fostering resilience, determination, trust, creative and analytical thinking, strong social skills, and the ability to develop positive relationships. Furthermore, assisting young people in recognising diversity and inclusion. To conclude, one of the Act's aims is to establish and regulate a system of education that promotes positive relationships, including obligations about tertiary education institutions (Ministry of Education, 2020).

2.4 Summary

The theoretical framework in which hypotheses are formulated to evaluate the impact is concluded in this chapter. In today's society, entrepreneurship is a key element associated with a capacity for innovation and creativity, and it stimulates employment and economic growth. To sum up entrepreneurs innovate and are in constant search for changes in the business environment, identifying and exploiting opportunities. Overall, the world seems to be facing a period of rapid technological, cultural, and social change. As a result, many universities are trying to adapt to the needs of a new generation of students; however, many of them are slow. The PESTLE analysis has been useful in understanding the macro-environmental factors that influence other professional societies in New Zealand tertiary education and evaluate several programmes and different institutions with similar common goals.

The third chapter will examine the existing literature on the elements that make up the university's entrepreneurship ecosystem.

Chapter 3. Literature Review

3.1 Introduction

In the innovation and entrepreneurship ecosystem, educational institutions play a crucial role (Reichert, 2019). Fredin and Lidén (2020) highlight that entrepreneurial environments are a recent concept in entrepreneurship research that looks at how local environmental factors influence entrepreneurial behaviour. To illustrate, entrepreneurship is an essential aspect of students' pathway to gain exposure to innovative concepts and experiences by shaping them into a variety of new possibilities (Boldureanu et al., 2020). This chapter discusses the various aspects of the entrepreneurship ecosystem and the main stakeholders and areas that benefit from an entrepreneurial environment linked to higher education relationships. In addition, many scholars have provided definitions and suggested methods to improve entrepreneurial universities' relationships with the business community over the years. The outcome is critical to ensuring that research and teaching are relevant to the current business environment and related fields.

This literature review will also examine the literature on the importance of emerging innovation and the entrepreneurial revolution with higher educational institutions. This chapter outlines the key extant literature in the field of the entrepreneurial universities' ecosystem and the purposes of this study with the literature is segmented in three areas. First, it will explore the entrepreneurial environment and its characteristics. Educational institutions will be the second area explored, followed by entrepreneurial universities' role in the innovation and entrepreneurial ecosystem. Finally, it will explore the effects for students who participate in entrepreneurial education based on the study's primary objectives. The key attributes gathered by the researcher after reviewing the literature, supporting the hypothesis and rationale of this study, are presented in the following chapter.

3.2 Entrepreneurship ecosystem

The word *ecosystem* was formulated as the fundamental concept for the first time in 1935 by Arthur Tansley. Tansley (1935) characterised an ecosystem as a biotic community and the physical environment in which it exists in a particular place. Tansley chose the word "system" from physics to emphasise the relations between the biotic and abiotic elements of ecosystems because he wanted to emphasise interactions (Tansley, 1935). Likewise, Moore (1999) describes the ecosystem as "an economic community supported by a foundation of interacting organisations and individuals" (p.76). Like its biological equivalent, a business ecosystem evolves from various elements to a more structured community. Different methods Rice et al. (2014) describe that to examine the role of context in enhancing or inhibiting entrepreneur performance outcomes can be seen as the developmental pathway for moving the idea to an entrepreneurship ecosystem; this progression can be seen from both an individual and an organisational perspective. Moreover, Rice et al. (2014), suggest that the understanding of entrepreneurship ecosystems is assisted by research in the fields of social and ethnic entrepreneurship and diffusion and industrial clusters. Furthermore, Rice et al. (2014) also highlights that each of these two approaches supports the understanding of entrepreneurship ecosystems, including how organisations interact with one another.

In general, Isenberg (2010) identifies that entrepreneurial ecosystems shape the essence and quality of entrepreneurial activities by defining the types of organisational structures that will be recognised as valid and shaping the path and potential rewards associated with opportunity recognition, development, and pursuit. Multi-level structures and stakeholders, multiple actors, and numerous contexts are all part of entrepreneurial ecosystems (Isenberg, 2010). Furthermore, as universities in many other parts of the world compete for students and their tuition revenue, innovative experiential initiatives/programs will help institutions stand out in a competitive market (Roberts, 2018).

Entrepreneurship is a broad concept that encompasses a variety of activities and contexts, including real-life situations, research experiments, new businesses, and societal structures (Guerrero & Urbano, 2010). Similarly, Mason and Brown (2014) argue that an

entrepreneurial and innovation ecosystem can be described as a collection of interconnected actors (both potential and existing). Based on the ideas of the literature, Mason and Brown (2014) define entrepreneurial organisations as innovative organisations, and entrepreneurial and innovative processes that formally and informally coalesce to connect are mediated by government initiatives to improve the local entrepreneurial environment's performance. While this is the case from an entrepreneurship perspective, Wright et al. (2017) assert that the ecosystem is the product of different processes and actors functioning in various contexts over time.

The development and growth of new ventures are assisted by an entrepreneurial ecosystem, which includes many features as noted in findings by Guerrero et al. (2016), Frolund et al. (2018), Rice et al. (2014), and Wright et al. (2017). Furthermore, building successful ecosystems requires elements of entrepreneurship education, business incubation, innovation and the formation of partnerships between university stakeholders and external players, as described by Rice et al. (2014) and Guerrero et al. (2016). In addition, Reihana et al. (2007) state that it is important to note that while entrepreneurship and innovation are closely related, they are not the same thing. Reihana et al. (2007) also argue that the commercialisation or exploitation of innovation is what entrepreneurship is all about. Entrepreneurs recognise opportunities and take calculated risks in the face of uncertainty in order to expand markets, create or upgrade products, and create new technologies or services.

Audretsch et al. (2018) declare that ecosystems are often viewed as essential factors of the economy. Entrepreneurial ecosystems build and manage markets, so a theory of the economic effects of entrepreneurial ecosystems should assist in understanding how they emerge and function. Furthermore, Spigel et al. (2020) assert that entrepreneurial ecosystems have risen in popularity as one of the decade's most successful new economic growth policies. Nevertheless, entrepreneurial prospects occur at all stages of the entrepreneurial ecosystem's lifecycle, and individuals and businesses use various tools and support to take advantage of these (Cantner et al., 2020).

3.3 Entrepreneurial Universities

The world is rapidly changing, requiring a shift in the mentality of those in charge of overseeing and regulating universities in order to maintain demand (Baporikar, 2019). In the same way, Baporikar (2019) argues that universities in developing economies are being pushed to develop and become more entrepreneurial due to globalisation aspects within existing challenges; consequently, universities are constantly promoting entrepreneurship. The environment encourages students to become aware of start-up opportunities while also providing them with the opportunity to learn fundamental skills, solve business problems, and ultimately become entrepreneurs (Buchnik et al., 2018). Thus, Kipper et al. (2014) suggest that universities should be considered a key factor in driving socio-economic growth and assisting students in their journey by encouraging an entrepreneurial culture. Similarly, Rubens et al. (2017) argue that individuals, companies, and organisations (public and private) with a variety of business and research activities are increasingly seeing entrepreneurial universities as the anchor institution in their communities and the first order of business.

Commonly, Meyer and Sharma (2019) declare that a local educational institution is a vital component of developing an innovation ecosystem. As a result, Pique et al. (2018) stated that universities are bridging the gap between themselves and the industry by offering diverse programmes and initiatives intended to encourage students to become entrepreneurs. The ability to acquire resources can be enhanced by knowledge gained from entrepreneurship-related courses. Additionally, such start-up activities, such as finding potential business prospects, interviewing clients, and drafting a business plan, should be completed to fulfil entrepreneurship course requirements (Morris et al., 2017). Between universities and industry, collaboration is crucial as identified by Rice et al. (2014) that universities and industries can learn a lot from one another, and collaborations between the two can be mutually beneficial, particularly for universities' creative students. In addition to that, Frolund et al. (2018) assert that educational institutions, especially in collaboration with businesses, are essential drivers of the innovation economy.

The position of entrepreneurial university programmes that recognise how skills/abilities gained in entrepreneurship educational programmes, such as opportunity recognition and working under pressure, can be very useful for becoming more tolerant of intense work commitment. This is critical for the consistency and accomplishment of the expectations/demands of an academic entrepreneurship career in comparison to other occupational choices (Guerrero et al., 2020). Complimentary to this, Etzkowitz (n.d.), pointed out that a second revolution, involving the university's assumption of a mission for economic and social growth, is currently in progress. Entrepreneurial scientists and entrepreneurial universities have emerged as prestigious academic role models as knowledge becomes a more critical factor in economic growth (Etzkowitz, n.d.).

Academic development patterns are integrated and enhanced by the entrepreneurial university. As identified by Etzkowitz, (n.d.) rather than entrepreneurship education degrading research, it has been discovered that the reverse is so when practice inspires theory and vice versa. And yet, as a component of economic growth and progress, the entrepreneurial university shapes the country's future, not just as an educator of young minds but also as an information generator and a transmitter of knowledge (Zosa, 2013). Notwithstanding, Culkin and Mallick (2011) propose that entrepreneurship is at the heart of what some universities do; "innovation, creativity, and enterprise are their core values" (p. 356). These principles include developing independence as the ability to address issues, taking ownership by embracing challenges and making things happen, and recognising the importance of networking (Culkin & Mallick, 2011).

Guerrero et al. (2020) argue that entrepreneurial universities' core practises (teaching, research, and knowledge transfer/commercialisation) are directed towards transforming community mindsets, intentions, and behaviour (students and academics). Similarly, Wilson (2008) asserts that entrepreneurship education is the first and, perhaps, the most crucial step in embedding an innovative culture. Through expanding the entrepreneurial university's network, the university's entrepreneurial attitude can be reflected in the way it generates new revenue streams. Those universities, to be genuinely entrepreneurial, should have a variety of income sources (Culkin & Mallick, 2011). In the same way, Bratianu and Stanciu, (2010) concluded that entrepreneurship should improve

the university's mission to effectively manage today's uncertain economic environment and intensify market competitiveness.

In short, the entrepreneurial model has arisen as universities have stepped in to tackle national technical crises, resulting in unintended spin-off firms. Thus, entrepreneurship education has expanded across universities as part of an attempt to enable students from all fields to engage in innovation. The expression universalization of academic entrepreneurship has been used ever since (Etzkowitz, 2008).

3.4 Students involved with entrepreneurial education

Having hands-on experience as part of the learning process is a great way to get more involved and to illustrate Beyhan and Findik (2018) noted that students who have been exposed to entrepreneurship activities within the ecosystem are more likely to start their businesses due to their previous experience. And yet, they are regarded as role models who contribute to students' growth and decision to become entrepreneurs; while in this case, Reihana et al. (2007) identified that the importance of entrepreneurial education in influencing attitudes, talents, and society is widely acknowledged. Students are more likely to consider themselves future entrepreneurs if they are exposed to entrepreneurship sooner and more broadly.

Findings by Guerrero and Urbano (2010) identify that academic and student attitudes towards entrepreneurship are the most important factors. The main reason for this is that Guerrero and Urbano (2010) suggest that each university community is different, and attitudes towards entrepreneurship are influenced by a variety of factors including entrepreneurship education, teaching methodologies, role models, and reward systems. In the same way, the importance of education and preparation is crucial. However, Reihana et al. (2007) explored the idea in all aspects of the educational system, education-oriented primarily for entrepreneurship growth is missing. A lack of business expertise influences the discussion in this field.

Based on the ideas of Wright et al. (2017) rather than one institution is at the centre of the process and overseeing it, student entrepreneurship ecosystems are co-created. Students, faculty, university administrators, investors, angel networks, local

governments, start-ups, and corporations are all involved as co-creators; each of these parties has its own set of goals, norms, ideals, and values (Wright et al., 2017). Complimentary to this, Morris et al. (2017) argue that deliberate practice will result in improved knowledge structures, enhanced self-confidence, and a higher probability of taking action in the future.

Multiple curricular entrepreneurship-related events were found by Morris et al. (2017) to have a significant and beneficial impact on the scope of students' start-up projects. Via entrepreneurship programs, students will be exposed to a range of experiential exercises and challenges that encourage entrepreneurial actions (Morris et al., 2017). Thus, Wilson (2008) states that students at entrepreneurial universities are expected to take classes and collaborate on projects alongside students from other fields, helping them benefit from the entire institution's experience. As a result, a dynamic team and project-based learning environment are created. Subsequently, Morris et al. (2017) challenged the idea that entrepreneurship is a valuable career opportunity because it enables students to be self-employed, learn different talents, earn money, and contribute to economic growth.

Meanwhile, globalisation accelerated technological advancements, and lower transport costs have entirely transformed the nature of work. Wilson, (2008) argues that it is no longer necessary to prepare students for careers. However, universities must prepare students to work in an entrepreneurial and global world that is diverse and changing rapidly. Moreover, Culkin and Mallick (2011) state that educating entrepreneurs involves providing students with the requisite skills to set up a business and develop transferable skills such as innovation, teamwork, and research analysis, highly regarded by businesses. And yet, based on the ideas of Culkin and Mallick (2011), the development of young graduates through entrepreneurship education will enrich and expand the student environment of higher education, allowing for the discovery of both theory and practice and the growth of commercial understanding and venture creation skills.

Culkin and Mallick, (2011) point out that, rather than simply embracing the skills agenda, entrepreneurship programmes help students improve their skills in strategic thinking, negotiating, collaboration, establishing constructive networks, selling, and convincing. Whereas as their ability to take calculated risks and make rational choices

based on a combination of solid facts and their own instincts. As explained by Guerrero et al. (2020), entrepreneurial universities play a critical role in graduates' decision to pursue a career as a salary or salaried employee or as an entrepreneur/self-employed person. Hence, the role of educational programmes in the development of unique skills/abilities is important for achieving the highest degree of work effort tolerance needed to become an academic entrepreneur, according to the findings by Guerrero et al. (2020) of a study on the impact of the entrepreneurial university environment on graduates' career choices.

Personality characteristics (self-efficacy, risk-taking, need for achievement, proactiveness, and attitude towards entrepreneurship, behavioural control) are essential elements in the entrepreneurial intention that can be developed during the study process of entrepreneurship (Remeikiene et al., 2013). Furthermore, Liu et al. (2019) found that to enrich the connotation of entrepreneurship education and improve its effectiveness, universities and other relevant educational institutions should pay more attention to the combination of self-learning and external training in entrepreneurship. Consequently, students will get stronger self-efficacy and entrepreneurial abilities. Significantly, Lynch et al. (2019) identified that students exposed to new technologies, industries, and processes as part of the design challenge in entrepreneurial learning have reflections, as this underlines as a crucial factor for gaining knowledge. Hence, entrepreneurial education is a transformative experience that revolutionises students' world perspectives.

3.5 Summary

This literature review has examined the literature relating to innovation and the entrepreneurial university ecosystem. There has been much research on the entrepreneurship ecosystem, including a variety of characteristics, components, and external players. There is also a lot of evidence in the literature, as noted by Reichert, (2019), Frolund et al. (2018), Meyer and Sharma (2019) and Pique et al. (2018), that educational institutions influence society's demand and entrepreneurial universities are important drivers of innovation in the entrepreneurship ecosystem. Furthermore, due to the importance of economic development and direct benefit to society, entrepreneurial

studies have become one of the most widely researched management studies in recent years. However, entrepreneurial environments are a relatively new concept in entrepreneurship research that examines how local environmental factors affect entrepreneurial behaviour. Nevertheless, it could be considered a gap in the literature review to discuss the existing literature's limitations and the void that can be explored in future research. This research aims to identify the successful elements of the entrepreneurship ecosystem, so this literature review discussed the available literature on attributes of entrepreneurship in higher education. The final area covered in this literature was that students who can gain specific skills, practical experience and exposure are involved with entrepreneurial learning and the effects of entrepreneurial education.

While chapter three provided a comprehensive review of the literature on the entrepreneurship ecosystem. Chapter four will outline the methodological approach used in this research.

Chapter 4. Methodology

4.1 Introduction

This chapter aims to describe research methodology, a broad research strategy that outlines how this research should be carried out. This study examines the successful functions of an entrepreneurial New Zealand university ecosystem. In order to achieve the primary objectives of this research, the study utilises a qualitative methodology, which conducts an exploratory method with a philosophical pragmatism research design and inductive case study approach discussed in detail in this chapter. Subsequently, this chapter covers the semi-structured interviews used to gather information from the tertiary education entrepreneurship ecosystem members. It will explain why the thematic analysis was chosen to analyse the data. Lastly, it will discuss the study's limitations, reliability, bias, and ethical considerations.

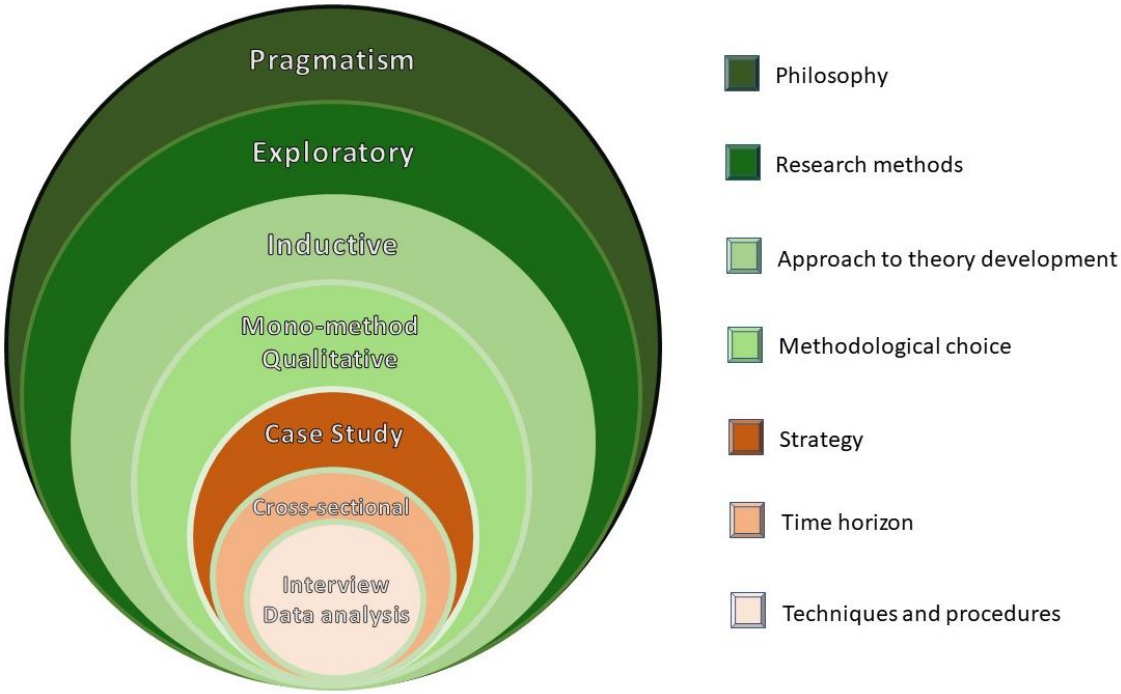
4.2 Research philosophy and design

The importance of methodology in research and scientific work is to guarantee its quality and reliability throughout the process. According to Saunders et al. (2016, p. 124) "The term research philosophy refers to a system of beliefs and assumptions about the development of knowledge". A well-thought-out and consistent set of hypotheses will form a reliable research philosophy, which will support methodological choice, research strategy, data collection techniques, and analysis procedures. Moreover, it allows the researcher to create a coherent research project in which all research elements will be included (Saunders et al., 2016).

The main purpose of this research is to explore and evaluate the functions of a successful entrepreneurship ecosystem programme and activities at a tertiary education in New Zealand. According to Kipper et al., (2014) universities should be considered a key factor in driving socioeconomic growth and assisting students on their path by encouraging entrepreneurial culture. The research methodology is summarised at figure 4.1.

Figure 4.1

Summary of Research Methodology



Note. Adapted from Research methods for business students by Mark Saunders, Philip Lewis and Adrian Source: Thornhill, (2016 p. 164).

This research takes a particular approach to its core theme, a case study of the entrepreneurship ecosystem within the university. As a result, pragmatism theory takes a qualitative approach to focus on what is important, on what matters, and how to develop entrepreneurial practices realistically and productively. Often the inductive approach is used in conjunction with a qualitative data collection and analysis method (Dudovskiy, n.d.). Nevertheless, according to Saunders et al. (2016), the importance of an idea's meaning has practical consequences for pragmatists. The researcher assumes that the pragmatism theory, with an exploratory study and an inductive approach, provides the appropriate foundation for conducting this type of research as well as help in achieving its goals.

The research philosophy helps to understand how the data of the research was collected, analysed and applied. In this study, the research philosophy is pragmatism, which recognises ideas as meaningful only if they support action to improve something

on a practical and effective point (Dawson, 2009). Pragmatism is often associated with mixed-methods or multiple-methods analysis, in which the emphasis is on the research's outcomes and questions rather than the methods (Creswell & Plano Clark, 2011; Johnson & Onwuegbuzie, 2004; Teddlie & Tashakkori, 2009). This research mainly focuses on practical problems, on what is essential, on what matters (Moerman, n.d.), rather than being trapped in a single point of view, resulting in a collection of methods that can be used for the common good. As a result, pragmatism allows one to transfer many different things at many different times, or, to put it another way, many different ways of interpreting the world; various realities (Dudovskiy, n.d.). Furthermore, according to Taatila (2010), the pedagogic theory for entrepreneurship education should be based on the interpretive model, i.e., pragmatism. Taatila (2010) proposed that "Since pragmatism aims at translating useful knowledge of real-life problems into action, the people must constantly acquire new knowledge and skills to better cope with the situation" (p.55). In the same way, is entrepreneurship education in accordance with the literature review.

The research method exploratory is the most suitable in the context applied in this entrepreneurial study, which is used to investigate a problem that is not clearly defined. It is carried out to understand the existing problem better. However, it does not provide conclusive results. For this research, the researcher takes a broad idea around the entrepreneurship ecosystem within the tertiary institution and uses it as a tool to identify questions that could be the focus of future studies (Saunders et al., 2016). Then again, in order to develop a conceptual framework in this study, exploratory research is especially beneficial in developing a new model (Creswell & Creswell, 2018).

The three main approaches to theory development are deductive, inductive, and abductive. According to Saunders et al. (2016), the deductive research approach begins with a hypothesis, which is frequently established by academic literature reading. Then, the research strategy is structured to test the theory. Similarly, Thomas (2006) points out that deductive analysis is a type of data analysis that aims to see if the results are consistent with the investigator's prior assumptions, theories, or hypotheses. In contrast, the abductive approach is used when gathering data to investigate a phenomenon, recognise themes, explain patterns, and evaluate with more data (Saunders et al., 2016). Regardless, the inductive approach begins with data collection to investigate a

phenomenon, followed by the generation or construction of theory, typically in the form of a conceptual framework (Saunders et al., 2016).

This research applies an inductive approach rather than a deductive or abductive. Firstly, because of the small sample size and qualitative nature of the data, the inductive approach is a method of analysing qualitative data guided by specific evaluation objectives (Thomas, 2006). Furthermore, based on Thomas (2006) 's ideas, the inductive approach's main goal is to enable research findings to emerge from raw data's regular, dominant, or important themes without the constraints imposed by structured methodologies. Thus, Saunders et al. (2016) demonstrated that a small sample of participants would be more suitable for research using an inductive approach applied to this study.

The first methodological decision is whether to conduct the study using quantitative, qualitative, or mixed research methods. Quantitative refers to any data collection process, such as a questionnaire or data analysis method, such as graphs or statistics, that generates or uses numerical data (Saunders et al., 2016). Quantitative is related to positivism. Its key characteristics are that it refers to relationships between variables that are evaluated numerically and analysed using a variety of statistical and graphical techniques. However, it is essential to make sure the questions are phrased explicitly enough that all participants are on the same page (Saunders et al., 2016). Similarly, Dawson (2009) argues that large-scale survey research, such as questionnaires or structured interviews, is used in quantitative research to generate statistics.

The term 'qualitative' is sometimes used as one and the same with any non-numerical data collection method, such as an interview, or data processing process, such as categorising data (Saunders et al., 2016). Dawson (2009) explored the idea that interviews or focus groups are used in qualitative research to investigate attitudes, behaviour, and experience. It aims to obtain a comprehensive response from participants. Conversely, Saunders et al. (2016) pointed out that qualitative research can be used with pragmatism theory. One of its key characteristics is that it conducts research on participants' meanings and their relationships, using a range of data collection methods and analytical procedures to create a conceptual framework and theoretical contribution.

Mixed-methods research is designed both quantitative and qualitative, with quantitative and qualitative data collected sequentially (Creswell & Creswell, 2018). This approach can be used in the philosophy of critical realism and pragmatism (Saunders et al., 2016).

The qualitative research method is more suitable in the context of this study, since it uses interviews with a select group of students, faculty, and graduates who are currently or have previously been involved with the entrepreneurship ecosystem at the university through one or more entrepreneurial-related programmes or events. In addition, qualitative research was chosen to emphasise the experiences and meanings that only qualitative characteristics could provide through interviews with the selected participants.

The research strategy defines how the researcher will address the research problem. It is the methodological link between the philosophy and the methods of data collection and analysis. According to Saunders et al. (2016), there are eight types of strategies: Experiment, Survey, Archival and Documentary Research, Case study, Ethnography, Action Research, Grounded Theory and Narrative Inquiry. The first two research strategies are mainly linked to quantitative design. The following two are attached to qualitative, quantitative and mixed methods research strategies. The following four are related exclusively to a qualitative research design (Saunders et al., 2016).

The research strategy of this study is a case study that is guided by the research question and objectives linked to the philosophy and research approach. A review of the analytical methods used in the related entrepreneurial literature reveals that a case study approach has been frequently used (Neergaard & Ulhøi, 2007; Kamur & Ormiston, 2012; Kuckertz & Prochotta, 2018). While this is the case, Wigren (2007) found 11 matches in 11 issues of Entrepreneurship Theory and Practice (ETP) using case studies conducted between 2002 and 2005, after examining the literature from two leading entrepreneurship journals to see what kinds of strategies and approaches were used.

It can be seen, case study research is likely to be challenging, because of its in-depth nature and the need to classify, describe, and gain access to the case study environment. On the other hand, the case study enables observing and analysing a phenomenon that only a few individuals have thought about before. It can be useful in guiding the researcher towards an approach that logically suits the research objectives

and questions (Saunders et al., 2016). This project takes a unique approach, with the core theme being a case study at a New Zealand university that focuses on the entrepreneurship ecosystem.

Most research projects for academic courses must be completed within a certain length of time, and this study is no exception. A research design can be one of two types: cross-sectional or longitudinal, depending on the time period (Bell et al., 2019). The main distinction between these two research methods is the time frame in which they are conducted. Bell et al. (2019) proposed that cross-sectional studies are designed to collect data at once over a one-off period. In contrast, longitudinal studies are designed to collect data multiple times over at least two time periods. Significantly, as Saunders et al. (2016) explained, case studies based on interviews conducted over a short period are frequently used in cross-sectional studies, which applies to this specific study.

4.3 Method: Interviews and Data Analysis

4.3.1 Purpose of the questionnaire

Interviews are used to gather more detailed information about attributes, behaviour, preferences, feelings, attitudes, opinions, and knowledge from a small group of people. Moreover, interviews will assist in the collection of accurate and reliable data appropriate to the study's question and objectives. Furthermore, it is significant because the nature of every interview is to be aligned with the research question and objectives, as well as the study's purpose and research strategy (Saunders et al., 2009). In the same sense, interviews enable the researcher to explain and evaluate the meanings derived from the interview (Saunders et al., 2019).

Interviews also allow for collecting accurate and reliable data relevant to the research question and project's goal. For the purpose of this study, the interviews will provide much needed information about the university entrepreneurship ecosystem and its extracurricular initiatives and programmes. Moreover, this specific study wants to understand detailed evidence from this type of interview that can be correlated and

contrasted with data from other interviews, while also requiring the interview to be dynamic in order to produce more relevant data (Dawson, 2009).

4.3.2 Interview design

According to Saunders et al. (2016, p. 391), there are "three types of interviews: unstructured interviews, semi-structured interviews, and structured interviews". Unstructured interviews are informal. For instance, there is no pre-set list of questions, but there is a good understanding of the subject to be explored. It is an open dialogue in which the interviewer is free to discuss events, behaviour, and beliefs related to the research subject. Non-directive is another term for it. Unstructured interviews may also be used as part of an intervention study or ethnographic research method (Saunders et al., 2016).

In structured interviews, questionnaires are based on a predetermined and standardised or similar range of questions. While there is some social interaction between the researcher and the participant, the interview process must follow the script to avoid bias. Furthermore, structured interviews are also known as quantitative analysis interviews due to gathering quantifiable data (Saunders et al., 2016). On the other hand, in terms of selection, the structured interview demonstrates the comparative superiority to the standard unstructured interview (Wright et al., 1989).

The semi-structured interview is a qualitative data collection strategy, which is also often referred to as qualitative research interviews. The interviewer has a list of topics or main questions to cover in each interview, which can differ from one to another. Furthermore, the questions may change based on the flow of the conversation, or even be omitted if the context of the interview requires it. Additional questions, on the other hand, can arise. For this type of interview, the interview schedule would most likely include some opening remarks, a potential list of prompts for further discussion, then some closing remarks.

The semi-structured interview is used in the exploratory analysis to provide relevant background or contextual information. It can also be used to find out how variables relate to one another in this study. Even so, this study takes an inductive

approach, which is beneficial when performing qualitative interviews (Saunders et al., 2016). Overall, semi-structured interviews were preferred over unstructured and structured interview methods mainly due to their flexibility during the interview process and key questions set to support and guide the direction of the interview. Furthermore, a range of valuable information about other people's experiences: with more qualitative data, the research question can be better answered. Some flexibility or an emergent design through interviews, particularly semi-structured, gave the researcher a lot more flexibility.

For the purpose of this research, the participants were interviewed in semi-structured and dialogic face-to-face or via online (Zoom meetings) sessions. Since the question was prepared in advance to guide the discussion, it was semi-structured, allowing respondents to articulate various points of view on their own terms while still providing rich, accurate, and comparable qualitative data (Keller & Conradin, n.d.). Furthermore, according to Saunders et al. (2009), in semi-structured interviews, the interviewer can have a list of topics and issues to cover, but these may vary from interview to interview. It is also possible to rearrange the questions per the interview's flow. However, given the nature of events, additional questions may be required to fully address the research question and objectives (Saunders et al., 2009).

The participants used in this research consist of students and faculty currently involved with entrepreneurship education and entrepreneurs who have graduated from the university entrepreneurship program(s). After being introduced to the entrepreneurial ecosystem, the participants were indicated, predominantly through start-up space and by the entrepreneurship program's personnel.

4.3.3 Pilot testing

A pilot study may be used for a variety of purposes, including developing and testing research instruments, determining the feasibility of a full study, developing and testing sampling and recruiting methods, gathering preliminary data, and obtaining effect size information (Connelly, 2008). To improve the consistency of the questions used in the analysis, the researcher performed a small-scale pilot study on a close group of

friends (three people) associated with the entrepreneurial ecosystem, such as start-ups, before beginning the actual interviews. The small-scale pilot study was held at the SIT Arcade Business hub, and it was conducted in the evening by the researcher to interview the invited participants. The interview process was first conducted individually with each participant. Then, as a group, to share opinions and suggestions regarding the questions and general preparation.

Van Teijlingen and Hundley (2001) argue that when researchers explore pilot studies in greater depth in scholarly papers and reviews, they often state that they learned from the pilot study and made the required improvements. Any of these methods and results from pilot studies may be highly beneficial. Similarly, Connelly (2008) states that the pilot study's lessons can help avoid major issues that were not expected prior to data collection. In this research, the pre-tested questions for the pilot study interview semi-structured questionnaire were based on previous research in entrepreneurship education and experiential learning. The pilot study was used by the researcher to avoid repetitive questions with similar outcomes, moreover questions were rephrased to provide additional clarity. Also, to better prepare the researcher during the interview course and emergent themes that might arise. Furthermore, the pre-tested questions were important because pilot studies can be time-consuming, challenging, and full of unexpected issues. However, it is preferable to have a well-designed and well-conducted pilot study, informing about the best research process and, occasionally, possible outcomes (Van Teijlingen & Hundley, 2001).

4.3.4 Procedure

Preparation is the key to a successful interview. According to Saunders et al. (2016 p. 401), when using semi-structured interviews, the 'five Ps': "previous preparation prevents poor performance" should be crucially applied. For this research, the 'five Ps' were used to specifically demonstrate the researcher's competence and credibility to gain trust during the interview process.

4.3.5 Participants and sampling

Convenience and snowball sampling methods were chosen for this study, considering the researcher's close networking with the entrepreneurship community. The convenience method saved the researcher time and resources by finding appropriate participants for the study. In contrast, the snowball method could estimate rare characteristics, which Malhotra and Birks (2006) identified as strengths of the snowball sampling techniques.

According to Saunders et al. (2016), convenience sampling assists in better answering the study question since the chosen sample is comparable. Similarly, as Taherdoost (2016) explained, participants are chosen for convenience sampling because they are often readily and easily accessible. The convenience sampling was used to select two participants who were already familiar with the researcher from entrepreneurial events in New Zealand.

The second method chosen was a non-random sampling method; snowball sampling, which uses a few situations to allow others to participate in the analysis, resulting in a larger sample size. This method is most effective in small groups (Taherdoost, 2016). In the same way, Saunders et al. (2016) described snowball as a sample participant who is accessed via referrals from the initial sample of participants. The snowball sampling procedure was used to select participants based on the contacts generated by convenience sampling participants who had no previous relationship with the researcher.

Researchers have preferred to use various numbers of participants because there is also no officially recognised minimum sample size for qualitative studies. Polkinghorne (1989) suggests that interviewing 5 to 25 people will expand the range of perspectives available. Similarly, Saunders et al. (2016) use in-depth interviews to determine the minimum sample size, which should be between 5 and 25 people. While this is the case, Creswell (2007) presented a general opinion on the number of interviews needed for general research, such as whether between 5 and 30 participants should be included in the sample. To sum up, Guest et al. (2006) conclude that 12 interviews are enough participants to reflect a population with similar characteristics. Nevertheless, for this

project, the researcher selected a sample of six participants considering limitations, such as limited time, resources, logistical work, among others.

Table 4.1:

Summary of interview participants

Participant 1	Male, early 40s, great interest in entrepreneurship and the director of the entrepreneurship program at the tertiary institution.
Participant 2	Male, mid-40s, an economist with 70+ published in various fields and the DCC chair in entrepreneurship at tertiary education.
Participant 3	Male, early-30s, start-up space passionate with entrepreneurship education as main driver. Facilitator and mentor that offers guidance to all the exciting, forward-thinking start-up companies.
Participant 4	Male, mid-20s, student of the entrepreneurship master program and involved in the ecosystem with his product development and future start-up.
Participant 5	Female, early-30s, passionate and enthusiastic with an entrepreneurial spirit. General manager of the start-up space and supporter of the entrepreneurship ecosystem within the tertiary institution.

Participant 6	Female, early-60s, recent graduate of the entrepreneurship master program and involved in the ecosystem. Owner of a few businesses in the past, now developing a product for the pet industry.

4.3.6 Data analysis

Thematic analysis to analyse the data collected is being used by the researcher, a highly inductive method of analysis. However, the researcher's themes that emerged from the data with a particular purpose were not imposed. This method of study is ideal because the researcher can collect and analyse data at the same time. However, according to Dawson (2009), context reading can be an important part of the analysis process, particularly if it helps explain an emerging theme. Following that, Braun and Clarke (2006) suggest that an inductive methodological approach can be used to identify, analyse, and report patterns (themes) within data, and in the same way for data processing, which will be useful when dealing with smaller data sets. Saunders et al. (2016) stated that all qualitative data refers to unquantified, non-numeric data or data that may be a consequence of all research techniques. Nevertheless, it is accompanied by qualitative data analysis procedures, which help create theories from the data. Hence, there was no data triangulation because the researcher aimed to analyse the participants' current views and perceptions.

Thematic analysis is a technique for recognising, analysing, and documenting data patterns. In other words, it organises and explains the data set in rich detail to the minimum level (Braun & Clarke, 2006). The data for this research will be analysed thematically, with the researcher acting as an interviewer in the process. Hence, the focus of the interview will be on understanding complexities, robustness, resilience, and aspects of individual behaviour within the entrepreneurial ecosystem. To sum up, thematic analysis entails searching a data set containing several interviews for recurring patterns of meaning and will. In other words, the process begins when the researcher notices and

searches for patterns of meaning and potential issues of interest in the data, which may occur during data collection.

4.4 Limitations, reliability and bias

The study will be presented as a case study on the entrepreneurial ecosystem of a New Zealand university and other several parties. Since the researcher is not a student, staff member, or has no ties to the campus, it could pose a possible limitation to the researcher due to a conflict of interest. Another limitation is the amount of information given during interviews since confidential intellectual property information can be involved. At the university, the researcher investigated effective strategies for launching and managing the entrepreneurship ecosystem. Moreover, to develop a framework that could be extended to other tertiary institutions in New Zealand. However, due to various factors such as culture, society, policymaker reluctance or lack of particular knowledge, change obstacles, uncertainty, and population acceptance, it is unlikely that it will match and thrive.

Even though some of the interviews were mainly conducted on-site (university dedicated spaces), the process's biases and answers could be influenced. The researcher worked hard to ensure that the project was free of bias by establishing control metrics and making the interview process pleasant and relaxing for all parties. The researcher kept notes and observed any implicit behaviour or language that might lead to bias in order to avoid the risk of bias. The study aimed to find out what makes the New Zealand university entrepreneurial ecosystem successful. In conclusion, the researcher did not generalise the results but created flexible structure guides for multiple tertiary educational institutions. The overall approach of qualitative and exploratory analysis was well-suited to the concepts of pragmatism theory.

4.5 Ethical considerations

One of the most important aspects of the research can be defined as ethical considerations. This is especially important because the research involves a variety of

interactions, including in-depth interviews and participants' experiences, with students, faculty members, and entrepreneurs.

To avoid any potential harm, the researcher conducted the interviews in a relaxed and familiar setting for the participants, such as the Start-up space meeting room with which most of the participants were already familiar. Nevertheless, this study did not collect any cultural, gender, or ethnicity data from any group or subgroup during the research process.

The researcher was fully aware of the previously mentioned ethical concerns regarding the research study and adhered to the rules and regulations established by the Southern Institute of Technology's (SIT) Human Research Ethics Committee. So, the Human Research Ethics Committee of SIT was formally consulted, and data collection began only after ethics approval was granted. A copy of the ethics application can be found in Appendix A, and a copy of the approval letter can be found in Appendix B.

Participants were given an information sheet as well as a consent form before the interview date was set, and they were asked to participate in the interviews on a voluntary basis. The participant's verbal consent was also sought prior to the start of the interview. The semi-structured interview process took on average 30–45 minutes, with key questions already set to guide the conversation.

Prior to the study, full consent from the participants was obtained, but adequate confidentiality was ensured to protect the participants' privacy. Those who chose not to participate were provided with the same information on which to base their decision.

An information sheet and a consent form were included in the informed consent form. Interviews were recorded and transcribed, then stored in a locked filing cabinet/password-protected computer for five years before being destroyed. Please see Appendix C for a copy of the consent form, Appendix D for a copy of the participation information sheet, and Appendix E for a copy of the interview questions.

4.6 Summary

The appropriate research philosophy, design, and methodology used in this study were explained in this chapter. This study follows the path of previous research into entrepreneurial ecosystems. First, the study's background was presented, followed by a discussion of the research strategy and philosophy. Second, a comparison of research methods was described, and the study's appropriate research methods and approaches were identified. Finally, the semi-structured interview research process and analysis were presented. The study's limitations, validity, and bias, as well as ethical considerations, were also addressed.

While Chapter four discussed the researcher's approach to conducting the research, Chapter five will focus on the analysis and findings of the project.

Chapter 5. Findings and Analysis

5.1 Introduction

This chapter provides a summary and conclusion of the research. It will first introduce the entrepreneurship ecosystem and its functions and the research goals and questions. Second, this research had the primary data gathered through in-depth interviews with six participants in the entrepreneurship ecosystem at a New Zealand tertiary institution. The information was then analysed and interpreted using a narrative inquiry that discusses the study's importance and implications for practice and industry. The six participants represented the tertiary education industry sector, and several quotes were used to express their main expressions, feelings, and knowledge. Finally, it will provide the conclusion with a conceptual framework by tying all the information together.

5.2 Results

The results from the empirical study are organised in a manner that clearly relates them to the specific research objectives/questions that were outlined in Chapter 1. This study used thematic analysis, and the data is organised into themes as follows.

5.2.1 Research Objective 1

"RQ 1: What are the benefits of entrepreneurial education to students?"

The results from the interview showed that many are the benefits from entrepreneurial education to students. Current literature showed clear evidence of the importance of entrepreneurial education within the tertiary institution. A few quotes as a result from the interview question have highlighted this importance by addressing students' benefits.

Entrepreneurial education/learning

The results highlighted the importance of entrepreneurial education within the tertiary institution and the entrepreneurship ecosystem. These findings are in alignment with earlier work by Wilson (2008) that changing mindsets and providing the necessary skills and entrepreneurship education can enable the promotion of an entrepreneurial and innovative culture. Then again, Bratianu and Stanciu (2010) identified that entrepreneurial education entails the development of specific attitudes, behaviours, and abilities on an individual level, which can manifest themselves in various ways throughout a person's career while also providing long-term benefits to society and the economy. In particular, Participant 1 (P1) noted that:

> *Students need to be exposed to this type of learning; they need to see their lectures. And professional staff and the structures in universities also need to see that their activities and interests expand much beyond theory in the classroom. (P1)*

Furthermore, P1 also asserted that:

> *"Entrepreneurial education creates employees with entrepreneurial mindsets and larger organisations have an interest in people who think differently, who have a different mindset who might be going through the traditional pathways." (P1)*

Similarly, Participant 2 (P2) argued that:

> *Students learn to trust in aggregate information; they meet outside experts who have done it to Venus' successful founder, they meet academics, they hear stories of failure… Consequently, the entrepreneurial education helps them to improve absorptive capacity and develop new information and about ways to make continuous improvement in opportunities for new value creation. (P2)*

On the other hand, Participant 4 (P4) manifested his experience as perfect timing to turn theory into practice, resulting in a greater development as:

> *I am working on this business concurrently while studying. So that gets quite interesting because obviously, there's the theory that I'm learning at university, but then I'm putting the theory into practice in a real business context. So, the incubator*

(program) combined the work on the business will have a much greater impact on my professional skills and personal development. (P4)

While this is the case, Participant 6 (P6) described entrepreneurial education as a feeling and provided examples during her journey as:

The entrepreneurial education is flying like an eagle; you can fly over the top of many things and develop really good skills for seeing the big picture. Understanding the overall concepts of what you are dealing with in an entrepreneurial situation. In other words, it gave me a much wider scope to understand what I am actually doing. (P6)

Entrepreneurial ecosystem related to student development

The interviewees have different points of view of the entrepreneurial ecosystem. It was clear that their views were based on their current roles, knowledge, and expectation of the entrepreneurship ecosystem that vary according to their know-how and involvement. However, the benefits to the student development as individual and professional were in the same direction of opinions and narratives. Entrepreneurship education programmes contribute to students' entrepreneurial intentions, resulting in many benefits, such as innovation and creativity mindset, problem-solving, development of new ventures, and much more. This finding confirms the results of a study by Fayolle et al. (2006) that the entrepreneurship ecosystem impacts the growth of students' attitudes and mindset, rather than just the number of firms produced. For example, raising entrepreneurial awareness and mentality, learning how to create and establish new activities, or simply discovering what entrepreneurship is about. For instance, Participant 3 (P3) and Participant 5 (P5) declared that:

To measure the benefits of being entrepreneurial, even if the individual is not starting a company, people that are more entrepreneurial, will be more productive employees and therefore, lead the productivity of New Zealand… students all of a sudden getting confidence realising how much they can do, how much they can add value being comfortable coming out of the lane. (P3)

Skill development, sort of entrepreneurial capital development, things like creative problem solving, different communication styles, how to work in a team, and how to look at problem-solving… Students develop empowerment and confidence and create a much wider worldview believing that if they come across a problem, they have in the workplace or in the community which is something they see that can be done better. (P5)

In the same way, Participant 4 (P4) described how the entrepreneurship ecosystem helped his student journey by saying that

"Entrepreneurial programs have taught me to be very persistent and stay persevere through some of the tough times." (P4)

While this is the case, Participant 6 (P6) highlighted her journey describing the entrepreneurship ecosystem as a structure to build the skill set necessary to do the practical side of things. P6 expressed her experience as:

It is given me the opportunity to strengthen my business skills, to be able to develop rigour, to develop sort of strength in being able to work with different skill sets…gave me a chance to sit back and reflect but it also gave me a chance to work with case studies and learn theory and how to implement it. Develop my skills in terms of conceptual understanding of things. (P6)

Entrepreneurship programme related to student entrepreneurial perspective

Most of the respondents preferred to rely on graduate student stories as some were not students or did not graduate from the entrepreneurship programme at the tertiary institution. On the other hand, the stories from the student experience showed evidence, confirming the stories from other students and their similarities. That said, one of the interesting aspects is the several common points mentioned, such as described by P1, that:

"Students just love entrepreneurship and the cohort who are quite like-minded. They love getting their hands dirty and having to do things where they feel uncomfortable, and where they have to experience failure." (P1)

P5, describes her views even further by saying that:

> *Confidence in what students know so far, no one is ever ready, you do not finish developing as a human, you do not need to have all the skills. So, students understand this perspective, and they kind of see the capability from where they are right now and what they can do and be able to call on their network. (P5)*

In contrast, P2 states that:

> *"Students get to recode their mind around the existential meaning of a failure. Many students are flooded with this sort of self-limiting fact perception." (P2)*

To illustrate, the students' participants point of view, participant (P4) and (P6) stated that:

> *Putting a network together, for example, entrepreneurship is a lot more collaborative than I imagined it to be before I went to these programs… It has been an experience that people are more than willing to help to explore my entrepreneurial ideas and business. I think I had an image that it was a very competitive, sort of cutthroat world but, the truth is that most people are quite willing to help out. (P4)*

> *My perspective around entrepreneurship now relates to the skill set that I acquired to work effectively and efficiently, using both intuitive and strategic action. Also, to understand that I will learn more from mistakes as part of my development process as I never thought before. (P6)*

5.2.2 Research Objective 2

"RQ 2: What are the impacts of the entrepreneurial ecosystem on the broader socio-cultural, economic landscape?

Many are the impacts on the wider socio-cultural, economic landscape from the entrepreneurial ecosystem. The result from the interview questions was used to address those impacts, and aside from the initial themes identified through the literature review, several other common themes emerged, and the researcher discovered patterns among the stories.

The impacts of entrepreneurial education in the wider environment

Entrepreneurial education impacts the wider environment and society as a whole in so many ways. In accordance with Toutain et al. (2017), entrepreneurship education is currently achieving a level of success that spans the political, educational, scientific, and professional realities and is deeply entrenched in society's social layers. P1, P2 and P5's point of view and experience supports this idea by explaining specific situations and even further outcomes such as people's well-being described as follows:

> *Entrepreneurial education tackles mindsets and these mindsets are essential for creating start-ups of the future, which creates employment and leads to economic and social development... entrepreneurship also breeds new entrepreneurs, new start-ups, economic profits, societal well-being, etc. (P1)*

> *Entrepreneurship education is increasing the likelihood of productivity gains of job creation, revenue growth, labour productivity growth, export growth in jobs, jobs, jobs... one of the big takeaways from macroeconomics is that productivity growth is the engine that drives increases in GDP per capita standards of living. We know that is only a partial measure of people's well-being. (P2)*

> *Collectively, we know that entrepreneurship is the expression; a rising tide lifts all ships. So, by empowering more people with things like financial literacy, and the same of marketing and filling some of those educational gaps, we are actually building on the well-being and the resiliency of the collective community. (P5)*

Furthermore, P5, also explained her view of the support perspective that the entrepreneurship ecosystem provides such as:

> *Entrepreneurship is a pathway for solving some of those big intangible problems, such as access to education and sustainability. So, the entrepreneurship ecosystem supports building something towards leaving the world a slightly better place. In other words, entrepreneurship is a pathway to increased wellbeing in the community. (P5)*

Entrepreneurial learning for students in different fields/disciplines

The result showed that entrepreneurial learning is a gap for students who do not experience it, resulting in fewer students' awareness of entrepreneurial opportunities and consequently not positively impacting the wider environment. Through entrepreneurial learning, different disciplines have standardised approaches to activities and problem-solving. These common approaches make it easier to gain disciplinary knowledge and discuss issues with people from other fields. However, some specific issues necessitate the collaboration of experts from various disciplines. For instance, P1 believes that everyone can be an entrepreneur. He noticed a massive cohort by talking to prospective people interested in the master of entrepreneurship. He provides examples such as, students from other disciplines may feel held back from pursuing a career in business or entrepreneurial avenues, because that student think does not do business. P1 expresses his views as:

> *Entrepreneurship is like a crash course in the key business skills you need. And I think that can complement and unlock your core discipline expertise... having a core discipline expertise and complementing that with an entrepreneurial mindset opens up a far greater window of opportunity.*

On the other hand, P2 has trouble thinking of a reason why entrepreneurial learning should not be applied to other disciplines as it only adds value to the ecosystem. This is alignment with Holienka et al. (2015) that highlighted the importance of entrepreneurship education among different discipline students, focusing on education through entrepreneurship, i.e., developing enterprising individuals' life skills and competencies. P2 mentions that the university has faculty and students standing up businesses that are humanities, certainly as the hard sciences or a medical program of a business school. So, P2 can hardly think of a case where entrepreneurship would be inappropriate and describes his experience as:

> *Everybody, regardless of what major field of study. Part of why you do it is you want to see it, your big idea realised in the world, benefiting people. However, you measure character and conceive of benefit... whether I see it as a massive enabler of a person*

in any field, wanting to think about translating abstractions and ideas into action and delivery of novel goods and services. (P2)

P3 sees entrepreneurial learning in different fields as important; he argues that most people will work for a business and having some understanding of how a business works is essential. In addition, entrepreneurship is a great way to broaden students' viewpoints quite a bit more. So, it is important from that aspect and then if someone as the vast majority of people works within a team. He explains his view by explaining that:

"Entrepreneurship is a good way to build some of those skills for working in the same team and build some empathy skills that are essential for any field." (P3)

In contrast, P5 argues that problems do not exist just in the business scope. Opportunities in the market do not exist just in business school. She believes that Crossfield entrepreneurial learning showcases the journey as a career a lot better and describes her view arguing that:

"It is just as important for the students from any discipline to be accessing entrepreneurial education as for the business students as it would take multiple facets to make a successful and thriving community." (P5)

While this is the case, the students' perspective results brought some interesting points. P4 argues that some of the people who perform really well in the entrepreneurship program are students from various disciplines. He expresses his ideas as:

I think that everybody should probably have some kind of base-level understanding of how a business works, especially how a small business works. There are a lot of skills you learn from the entrepreneurship programs that apply, well beyond just starting your own business. (P4)

And the other student (P6) reveals her view as:

There are a lot of students that came to programs like audacious with really good ideas, quite outstanding…Through start-up space, it is visible that students from any

field are getting more confident with a better understanding of the industry they are in. (P6)

However, both student participants argued that despite entrepreneurial learning be a great subject and a must-have discipline for students from any field; those students still may lack specific knowledge or the exposition to different scenarios that P4 and P6 recognise as important, making them with an advantage due to the master in entrepreneurship program that most of the other student did not experience. In particular, some of their views as:

I could put what I am learning about the business into practice, students from other disciplines might find a problem in their area of study, and they want to solve it... they may have the hard skills to do a specific thing and understand the science, but it is a different level of understanding to be able to take that offering to market. Some degrees might not actually walk you through that in the way that an entrepreneurial program would. (P4)

It is thanks to me doing the masters in entrepreneurship that I know what I am doing. I know the background I am dealing with (i.e., investors) and what I should be doing in these phases. How I engineer and know all the strategies of bringing all this stuff together…that has given me rigour, the strength and confidence to know what to do next. (P6)

Entrepreneurship ecosystem for students after graduation

The findings demonstrate that the entrepreneurial ecosystem is crucial during students' academic time and the efficacy while they are students as a journey around all the learnings. The ecosystem provides the necessary knowledge, tools, and networking for students to get started once they graduate. However, some of the projects started during this time may stay involved in the start-up spaces (i.e., business incubator program), but not as part of the ecosystem within the tertiary institution. Similarly, Wright et al. (2017) stated that universities had developed a continuum of support activities and services that graduates can use to develop further a new venture or extra

resources/ extra support. P1 emphasises that entrepreneurial education forces independence and confidence because you really need to do it. He also argues it is all about acting, doing and not much about planning and analysis and setting things up. Nevertheless, the entrepreneurship ecosystem will not be needed as much once they graduate because they will be ready. He describes his views as:

> *Entrepreneurship is about doing things in uncertain situations with minimal information and learning as you go. And yet, that as a life skill is hugely important and will help every single student on their journey after graduation. (P1).*

Complementary to this, a sign of progress is people finishing their entrepreneurial education knowing what to do next and how to proceed. In particular, P6, who recently graduated from the entrepreneurship program, described the steps she is facing now after her course as:

> *Now that I finished my entrepreneurial education, I am going okay; I now know what I need to do to exploit an opportunity when it happens, I know the process that I need to go through, step by step. (P6).*

5.2.3 Research Objective 3

"RQ 3: What measures can be implemented that would help develop a framework that can be applied to tertiary education in New Zealand in order to create an entrepreneurship ecosystem?"

Several of the previous findings used from the interview questions were also used to address research question number three. Some of the findings involving students' benefits and the impact on the broader society are relevant to understand some of the measures. Furthermore, there are many ways to reach the implementation stage to develop a practical framework combining multiple collaborations and the tertiary institution.

Most critical points for a successful entrepreneurship ecosystem within the tertiary institution

The result showed that there are many effective ways and crucial aspects to build a successful entrepreneurship ecosystem within the tertiary institution. However, the result also showed that there is no one size fits all due to so many variants such as policymakers and acceptance. Many approaches that might work are argued to provide a pathway to developing a university-based entrepreneurial ecosystem. However, the result showed some critical points for a successful entrepreneurship ecosystem within the tertiary institution that Fetters et al. (2010) proposed in the book *'The Development of University-Based Entrepreneurship Ecosystems: Global Practices'.* For instance, the relationship between regional clusters, collaborative activities, academic institutions, and leadership commitment, among others, as the description of some of the components in each ecosystem that matches the result of this study.

Hence, P1 argues to be two key factors, first as interdisciplinary collaboration. It brings huge benefits in the classroom that combined with the entrepreneurial ecosystem where there is a greater variety of background expertise by experience. In other words, people of different age groups, different life experiences, and different corporate experiences are beneficial. However, having people from applied science, maybe from a health background and a business background, is an even more relevant role that the university plays in the entrepreneurship ecosystem. Second is external engagement, which P1 describes as:

> *External engagement with industry and other entrepreneur actors is essential; it is about creating more. It is about expanding the network within the institution, exploiting all the fantastic knowledge and insights that exist across the campus and exploiting the external network.*

Similarly, P2 believes that there are many ways for the tertiary sector to engage with the entrepreneurial ecosystem in meaningful, valuable well-being-enhancing ways. Moreover, it takes sincerity with external engagement, the collaboration between the university and the rest of the ecosystem. He explains his theories as:

> *The goal is to grow aggregate value add. It can be measured as the number of start-ups, the valuation of start-ups exit, jobs created, revenue growth of the portfolio start-*

ups from an ecosystem...universities that are happy to let private investors become part of the ecosystem will give back and create these massive benefits for both sides. (P2)

To sum up, P2 explains the private investor as:

Universities do not have to compete to capture the largest share today. We just need to keep, keep the system growing as a healthy ecosystem, and understand that reciprocity happens in lots of indirect ways and happens over multiple decades. (P2)

The evidence shows that another crucial aspect of creating a successful entrepreneurship ecosystem within the tertiary institution is making sure students are getting relevant content such as action-oriented, which can straight be applied towards practice. For example, P4 gives his student perspective, and he argues that he always found the idea of owning or running his own business. Thus, being in those systems, the entrepreneurship ecosystem forced him to really put those ideas into practice. It made him a lot more confident about having ideas and actually understanding how to execute them. In other words, he learned how to make an idea a reality through entrepreneurial programs. He describes his experience as:

I found for me personally doing, being in an entrepreneurship program concurrently while studying has made me better at both. So, my studies have contributed to my ability to perform in entrepreneurship programs. What I have learned from the entrepreneurial programs has made me a lot better at what I am studying as well. (P4)

Significantly, P5 argues that a successful ecosystem needs long-term commitment from leaders because it is a long gap to building skills or building start-ups. The roadmap to the potential unicorn (venture capital industry term to describe a start-up valued at more than $1 billion) is not a one-year turnover that you can just be generating new start-ups. Furthermore, she also supports having activities and events in programs that engage and support the whole pipeline. She describes her point of view as:

The tertiary education is a support organisation. So, it really needs to be a founder driver, so it needs the student entrepreneurs to be the ones that explicitly say here is

what we need, here is what interests us, where curiosity is, it needs to be inclusive, so it needs to be a space for everyone at any age or stage. (P5)

Final thoughts and quotes about the entrepreneurship ecosystem

As a last question for the interview process, all the participants were asked the same question of last thoughts and quotes that they believe to be relevant according to the entrepreneurship ecosystem and their experiences. The results presented in table 5.1 are varied, as the participants express their opinions based on their journey, but a similar outcome in some quotes, such as the differences between having great ideas and being entrepreneurial. On the other hand, the result shows evidence that everyone can become entrepreneurial. The difference is having enough confidence in the idea and enough passion for making or taking it into reality. The participants made clear that it is a lot of hard work. There will be a lot of uncertainty, and great entrepreneurs are people who can take that idea and persevere through all the difficulties until they reach their goals with a good outcome for the wider society.

In the same way, start on a small scale through multiple collaboration from stakeholders as suggested in the framework and move towards more entrepreneurship ecosystems within the local tertiary institution across the country in order to improve the well-being and improve community and environment. Thus, the results suggest it is also looking at entrepreneurship as a real potential to increase the productivity of New Zealand.

Table 5.1

Entrepreneurship ecosystem / participant quotes

P1	*Entrepreneurial mindset needs to extend to public policy, public funding, government, and teachers in the classroom. Lecturers encouraging students to go to their comfort zone and do kind of really novel things and not be afraid of failure, academics, and how they do their research could be encouraged to be more innovative and novel well.*

P2	*One of the best things that happens as a result of entrepreneurship education, when done well, is that people come out, having let go of this zero-sum game view of the world. That growing the aggregate pay off pie, means that we can be happy about other successes.*
P3	*Entrepreneurship is a vehicle for self-discovery and skill development, as much as it is for starting a company, starting a business.*
P4	*Anybody that has ever gotten up in the morning and taken a shower has had a great idea. Entrepreneurship is about getting out of the shower, going to work and making that idea a reality.*
P5	*If we are going to empower people to increase resiliency, well-being and sustainability as a community, entrepreneurship skills need to be available and accessible to as many people as possible. Diversity and inclusion of what success looks like, is really important.*
P6	*Entrepreneurial ecosystem is seen as pieces to a puzzle, like a jigsaw puzzle. You have to go and find those pieces, to put them together to create the overall picture of the puzzle incorporating them into a complex cross-collaboration entrepreneurial ecosystem.*

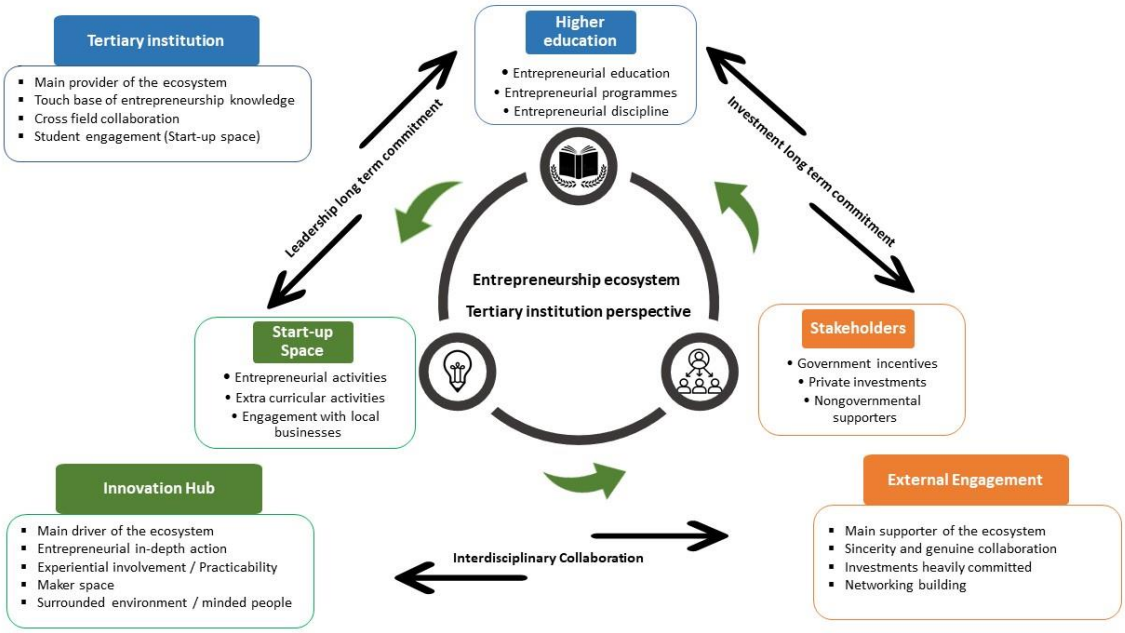
5.3 Conceptual entrepreneurship ecosystem framework

According to the Tertiary Education Commission (2018), universities in New Zealand are already taking steps to improve the country's overall innovation capability and performance. In addition, in an increasingly innovation-driven economy, there are more opportunities to collaborate with the private sector to achieve common goals, creating an entrepreneurship ecosystem.

In order to encourage practitioners and policymakers in educational institutions in New Zealand to implement entrepreneurship programmes, this framework (Figure 5.1) based on the research question finding was developed. It shows a few measures to be implemented to start providing entrepreneurial education to students and, within time, interact with the wider society to create the entrepreneurship ecosystem.

Figure 5.1

Entrepreneurship ecosystem within the tertiary institution framework



Note. Entrepreneurship ecosystem framework on the tertiary institution perspective. The flow presents which role each of the parties represents in the ecosystem.

5.4 Discussion

The present study found that students associated with entrepreneurial education gain several benefits. Significant improvement was found in the student journey when involved with the entrepreneurship ecosystem. Students got more independence and confidence, creating more exposure and a broader overview of the world. As a result, students become more resilient and ready to take more risks through their practical skills,

also acquired from entrepreneurial education. Furthermore, students understand the importance of being proactive, increasing productivity, and building a network. They become better and more effective employees, generate more well-being, and leave university better prepared for the world. Previous research has established that self-efficacy, risk-taking, need for achievement, proactiveness, attitude towards entrepreneurship, behavioural control, and internal locus of control (Remeikiene et al., 2013) are the main features of entrepreneurial intention. These findings align with earlier work by Culkin and Mallick (2011) that found those principles include recognising the importance of networking, developing independence as the ability to address issues, taking ownership by embracing challenges and making things happen. Moreover, the study findings provided evidence that entrepreneurial intention can be developed during the academic year and completely enhance students' entrepreneurship behaviour. This finding is consistent with previous studies, which show that entrepreneurial education has an influence and actions on entrepreneurship (Rauch & Hulsink, 2015).

According to Frolund et al. (2018), educational institutions, particularly when working in collaboration with businesses, are critical drivers of the innovation economy. The current findings of this study extend this to the entrepreneurial ecosystem, positively impacting the wider socio-cultural and economic landscape. Those impacts, therefore, are both monetary and non-monetary outcomes, such as the likelihood of productivity gains of job creation, generating labour productivity growth, export growth in jobs and economic profits. Consequently, the entrepreneurship ecosystem also increases the hard economy metrics, job productivity, revenue exports, and overall economic and social development. Furthermore, it creates new entrepreneurs, start-ups of the future, and societal well-being. In comparison with an earlier study, Feldman (2014) challenges the idea that the entrepreneurship ecosystem creates more entrepreneurs. While this is the case, Feldman (2014) also identified that entrepreneurs are the people who recognise opportunities, mobilise resources, and create value, which are critical to establishing institutions and developing capabilities that will ensure regional economic growth.

After examining the results to develop a framework in order to create an entrepreneurship ecosystem within the tertiary institution, some of the measures consist of implementing a stronger entrepreneurial ecosystem policy, stakeholders such as central

and local governments, tertiary institutions, and the social and private sectors must work collaboratively. Furthermore, these findings confirm the result of a study by Rice et al. (2014) and Guerrero et al. (2016) that entrepreneurship education, business incubation, innovation, and the formation of partnerships between university, stakeholders and external players are all required components of successful ecosystems.

5.5 Summary and Conclusion

The research findings are interpreted in Chapter five through an analysis of the primary data collected in order to answer the research questions posed at the outset. Entrepreneurial education has a positive impact on a student's academic journey while also preparing them for a much broader view of the world by developing an entrepreneur mindset and behaviour, according to the findings of the study. Regarding the entrepreneurship ecosystem, the findings suggest that the support of start-up spaces and local stakeholders and leaders' long-term commitment are fundamental to the success of a more entrepreneurial student population. Consequently, the research reveals the importance and impacts of the entrepreneurship ecosystem on the broader socio-cultural, economic landscape. Finally, the research highlights several measures to develop a framework to be applied to tertiary institutions in New Zealand to create an entrepreneurship ecosystem.

The relationship between this research and previous research and the limitations and recommendations for future studies will be discussed in Chapter six.

Chapter 6. Recommendations and Conclusion

6.1 Introduction

The conclusion and key findings from the study are summarised in this chapter. First, it will begin by stating the research's goals and objectives. Second, it will discuss the study's significance as well as its implications for practice and industry. Third, it details the research's limitations and the study's contribution to the field of management research. Finally, it will list the opportunities that can be developed as recommendations for future research. Finally, it will present the conclusion by tying everything together.

6.2 Purpose of the research

Entrepreneurship education is the base for the entrepreneurship ecosystem creation within the tertiary institution, which contains key experiential factors that contribute to success and workplace engagement, such as opportunities for students to apply outside of the classroom what they have learned. For instance, active engagement in extracurricular activities with a different mindset and approach to turning challenges into opportunities are only a few examples that higher education can provide to students in the new fast-paced change world. This research aimed to develop a conceptual framework that can be applied to a tertiary institution in New Zealand to create an entrepreneurship ecosystem. Three objectives guided this. First, to explore the benefits that entrepreneurial education has on students. Second, to understand the impacts that the entrepreneurship ecosystem has on the wider environment. Third, to find out the measures to be implemented into the conceptual framework. Furthermore, those questions aligned with the problem statement supporting the hypothesis that tertiary institutions that do not offer an entrepreneurial education may limit students' fundamental skills such as creativity, innovation, and action orientation.

Even though there is a high availability of literature associated with the entrepreneurship ecosystem, there is a lack of studies that analyse all these aspects together to create a new ecosystem through entrepreneurial education into universities,

specifically in the New Zealand tertiary education sector. Apart from that, this study highlights the importance of entrepreneurial education for students, the broader cultural, economic landscape, and consequently the impacts on New Zealand productivity.

6.3 Conclusion from key findings

Summary of the key findings and how they relate to the research questions/ objectives is presented at Table 6.1.

Table 6.1

Key Findings against the Research Questions/Objectives

Themes	Key findings
Students benefits (Entrepreneurial education)	- More independence and confidence - Become more proactive and resilient. - Comfortable with taking risks. - Create more wellbeing. - Practical skill (Theory into practice) - More efficient productivity - More exposure / much wider worldview perspective - Become better and more effective employees - Networking building
Entrepreneurial ecosystem impacts on broader socio-cultural, economic landscape	- New entrepreneurs, new start-ups, economic profits, societal wellbeing - Economic and social development - Likelihood of productivity gains of job creation - Labour productivity growth, export growth in jobs - Increase the hard economic metrics, jobs productivity revenue exports - More vibrant and collaborative community

Entrepreneurship ecosystem framework (Tertiary education)	- Entrepreneurship programmes - Cross collaboration among stakeholders / Interdisciplinary collaboration and external engagement - Heavily supporters such as local government, local business, and tertiary institution - Long term leadership commitment - Strategic spaces for action (events / programs) - Surrounded environment / minded people - Sincerity with external engagement and genuine collaboration.

From all the findings, a conceptual framework of entrepreneurship ecosystem within the tertiary institution was developed. From one side, the tertiary institution provides entrepreneurship programmes and related activities. On the other hand, the start-up space with all the practicability aspect and action in place. Lastly, the stakeholder collaboration in order to establish a world-class innovation hub and maker space, with an investor's fund, and investment committees. Moreover, a global presence in extra-curricular programmes and integration of entrepreneurship within curricula.

6.4 Relationship to previous research

Entrepreneurship education has become one of the most popular topics in education. In addition, it has increased as a research area due to its practical importance and high demand. Furthermore, entrepreneurship education is one of the world's fastest-growing subject areas, with a growing interest in it due to its ability to connect current business practices with academic theory. Increased research interest in the topic has correlated with a greater emphasis on entrepreneurship education to be essential. The researcher hopes to contribute to the vast body of management studies by conducting this research on the entrepreneurship ecosystem within the tertiary institution. Several of the findings are similar to those found in previous research. However, in light of the relevant

research questions and the New Zealand tertiary institution environment, the findings of this study provide a new perspective and local context.

6.5 Delimitation and Limitations of the present study

The following sections will cover delimitation, which refers to the study's scope and limitations that are beyond the researcher's control.

6.5.1 Delimitations

The study focused on the entrepreneurship ecosystem within a tertiary institution in the Otago region, which was chosen due to its progress journey resulting in great recognition and in consideration of relevant aspects such as entrepreneurship program, start-up space and other available parties to the researcher's accessibility. The participants for the interview were chosen based on their involvement with the ecosystem through approachability and indication. I was curious about the entrepreneurial university and related programs. I wanted to improve the standards of my professional field by revealing certain findings to be applied to higher educational institutions in New Zealand in order to provide entrepreneurial education to more students.

6.5.2 Limitations

Despite the steps taken to improve the study's reliability and validity, there are still a few flaws that should be addressed in future research. The sample size was small, with only six participants taking part in the research. Consequently, only a few of each perspective (tertiary institution, start-up space, students) were involved in the research. Furthermore, due to convenience, low resources, and limited time the participants were chosen from the researcher's contacts as well as contacts made through previously known participants. Hence, the data did not reflect a comprehensive view of students from other fields and disciplines of the entrepreneurship ecosystem. In conclusion, the result did not allow for sufficient data collection to provide a more accurate analysis.

The developed framework may not necessarily fit and succeed accordingly in other tertiary institutions in New Zealand due to several reasons such as culture, leadership commitment, policymaker lack of knowledge, change barriers, and population acceptance. However, it still can be used as a piece of base information to relate and start from.

6.6 Recommendations for future research and practice

There are still a lot of research opportunities about the entrepreneurship ecosystem to be explored. Researchers in entrepreneurship education should indeed continue to develop critical thinking skills and find innovative teaching methods. Furthermore, it is possible to gain additional knowledge about entrepreneurs and entrepreneurship due to such discussions, which may influence future research in the field.

The research was conducted during a short period, which constrained the collection of data. Hence, it is recommended to gather data and expand the duration of data collection. This can examine whether there is a cycle in the students' intakes with new students and create measures of the students involved with the entrepreneurship ecosystem in different stages and consequently its impacts in the broader environment.

On the other hand, as student demand for entrepreneurial learning grows, so will the demand for universities to provide high-quality entrepreneurship programmes, necessitating more entrepreneurship professors, resulting in more knowledge to offer the best practices of entrepreneurial education. So, to address this gap, it is recommended to case study another entrepreneurship ecosystem within the tertiary institution in order to explore the different processes and improvements that can be made towards good outcomes for both the tertiary institution and society.

To sum up, higher education institutions may benefit from entrepreneurship education. At a time when many undergraduate programmes are seeing decreasing enrolments, the demand for entrepreneurial skills may be what draws students back. Hence, further research should be carried out by policymakers at tertiary institutions to develop new entrepreneurial programmes and offer throughout the university.

6.7 Conclusion

This study presented a case study of an entrepreneurship ecosystem within a tertiary institution in New Zealand. The research focused on the entrepreneurial education associated with the benefits to students and impacts caused to the wider socio-cultural, economic landscape.

As the summary of the findings, it can be conveyed that entrepreneurial education adds an immense value to student development and provides a different mindset of making things happen, such as applying theory into practice, generating action-oriented students. Furthermore, the findings suggest that entrepreneurial education has advantages, including the possibility of increased student participation and societal value creation.

The findings of this study have provided a crucial and policy suggestion to tertiary institutions to adopt entrepreneurial programs and increase the importance of the entrepreneurship ecosystem with the local society. In short, this study concludes that universities should undergo a new academic revolution, which includes becoming more entrepreneurial to survive and thrive in the face of current fast-paced changes and challenges and better prepare students to deal with ever-changing surroundings.

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Appendix B. Interview Question - Students

Interview Question Sheet - Students

1- Can you briefly describe your entrepreneurship journey?

2- Can you tell me about experiences that you have gained from entrepreneurial education?

3- Could you describe if the entrepreneurial ecosystem, such as tertiary education, Startup spaces and other parties, has benefited your development as a student/individual?

4- Does the entrepreneurship program and your involvement with the entrepreneurship ecosystem added value to your student experience?

5- Has the tertiary institution entrepreneurial programme and related activities change your perspective of entrepreneurship or pathway careers?

6- How the entrepreneurship programme has supported your innovation and entrepreneurial mindset? What is/was your relationship with the program?

7- Would you achieve your entrepreneurial spirit without being involved with the entrepreneurship ecosystem? Why is/was it relevant? Why is/was it important during your academic or post-academic journey?

Extra questions –

1- Have you ever had any entrepreneurship education before? If so, can you please explain?

2- What is the benefit(s) after studying entrepreneurial education for you as a student and for the broader environment?

3- Do you believe students from different disciplines should also have this sort of entrepreneurship education? Why?

Appendix C. Interview Question – Staff members

Interview Question Sheet – Staff members / Managerial Role

1- Can you briefly describe your entrepreneurship journey?

2- Could you describe how you see the entrepreneurial ecosystem, such as in the tertiary education sector, start-up spaces and other stakeholders, benefit student development?

4- How do the entrepreneurship program and the involvement with the entrepreneurship ecosystem add value to the student experience?

5- What are the main aspects that entrepreneurial education supports in the broader environment? Any examples?

6- What are the most critical points to create a successful entrepreneurship ecosystem within the tertiary institution?

7- Do you see entrepreneurial learning as important for students in different fields? Why?

8- Is there any other information that you see relevant about entrepreneurial education and the benefit(s) involving the broader environment?

Extra questions –

1- How do you see the entrepreneurship ecosystem helping students after graduation?

2- What are the most crucial aspects students learn from the entrepreneurial programme/ learning?

Appendix D. Information Sheet

FUNCTIONS OF A SUCCESSFUL ENTREPRENEURIAL ECOSYSTEM: A CASE STUDY OF A NEW ZEALAND UNIVERSITY

Information Sheet for Participants

Thank you for showing an interest in this project. Please read this information sheet carefully before deciding whether or not to participate. If you decide to participate I thank you. If you decide not to take part there will be no disadvantage to you of any kind and I thank you for considering my request.

Introduction

My name is Geraldo Miranda, and I am a student in the Master of Applied Management degree programme at the Southern Institute of Technology, Invercargill carrying out a research project as partial fulfilment of my degree.

What is the aim of the project?

This project aims to explore what makes the entrepreneurial ecosystem at The Otago University successful in order to examine what are the benefits that entrepreneurial education have in relation to students. A further objective is to determine the impacts that the entrepreneurial ecosystem have to wider environments. A benefit as a result of this research, could be to develop a framework that could be applied to other tertiary education institutions in New Zealand.

What type of participants are being sought?

I will be looking for students currently involved with the entrepreneurship ecosystem, students, mentor(s) or staff directly involved with the entrepreneurship programme(s), and

entrepreneurs who have graduated from or with involvement with the entrepreneurship ecosystem.

What will participants be asked to do?

Should you agree to participate in this project you will be asked to attend face-to-face interviews, which can be conducted online in case not available to be present at the site. Your level of involvement is entirely voluntary. Sensitive questions relating to the project, such as culture, gender or ethnicity, will not be asked. The interviews will be semistructured, leading with a few questions that guide the interview process – ended and recorded in the researcher's mobile phone. The interviews will be between 30 and 45 minutes long. Please be aware that you may choose not to participate in the project at any time without any disadvantage of any kind to yourself.

Can participants change their minds and withdraw from the project?

You may withdraw from participation in the project at any time up until the point at which the data is anonymised and amalgamated into the report, without any disadvantage to yourself of any kind.

What data or information will be collected and what use will be made of it?

The interviews will be recorded on a digital audio recorder or video in case online interviews for later transcription and analysis. Your name will not be mentioned in the recording or transcription and you will not be identified at any time. Your name will not be used in the dissertation and any identifying features in the data will be withheld or disguised to protect anonymity. All information will be kept confidential, and the data will be used by the researcher only for the purposes of this study.

What will happen to the results?

The results of the project will be in a report available in the Southern Institute of Technology library (Invercargill, New Zealand). You are most welcome to request a copy of the results of the project should you wish.

How will the data be stored?

The data collected will be securely stored in such a way that only the researcher will be able to gain access to it. At the end of the project any personal information will be destroyed immediately except that, as required by SIT's research policy, any raw data on which the results of the project depend will be retained in secure storage for five years, after which it will be.

What if you have any questions about the project?

If you have any questions about the project, either now or in the future, please feel free to contact:

Researcher: Geraldo Luiz Miranda Neto
Southern Institute of Technology
[redacted]

Supervisor: Jacob Wood
[redacted]

This research has been approved by the Human Research Ethics Committee at SIT.

If you have concerns about the **ethical conduct** of this research or the researchers, the following procedure should occur.

Write to the following:

The Secretary of the Human Research Ethics Committee
Southern Institute of Technology
133 Tay St
INVERCARGILL 9840 NZ
Tel: 03 211 2699

All information is confidential and will be handled as soon as possible.

Appendix E. Participant Consent Form

Declaration of consent to be interviewed for the functions of a successful entrepreneurial ecosystem: a case study of a New Zealand university

I have had the scope and nature of the research fully explained to me. Any questions about the research have been satisfactorily answered, and I understand that I may request further information at any stage.

I accept and note that:

1. My participation in this research is entirely voluntary.
2. I may withdraw from participation in the research at any time up to the point at which the data is anonymised and amalgamated, without explanation, disadvantage, or disincentive.
3. Any information given during the interview is being utilised solely for the purpose of the specific research project and will not be disclosed to any other person or agency without my express consent.
4. The interview will be recorded for later transcription.
5. This information may be incorporated into the research report, but actual names or other characteristics that may lead to identification of individuals will not be disclosed.
6. I may request to view any completed drafts or sections of the research report to which I have contributed, at any time.
7. A copy of the completed research report will be made available to me, on request, at the conclusion of the research.

Declaration

I have read and understood the information set out on this form, and give my informed consent to be interviewed in accordance with the stated terms and conditions.

Name of Research Subject/Participant Name of Researcher

Signature …… Signature ……..…….

Date …… **Date ……..……..…**