# Exploring the influence of entrepreneurial identity on students' choice between entrepreneurship courses and university-based incubators

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## Abstract

**Purpose** – The purpose of this study is to answer the following questions. What kind of entrepreneurial identities do students have that motivate them to choose either of the entrepreneurship course and university-based incubator? How do students involve in the entrepreneurship ecosystem at university based on their entrepreneurial identity?

**Design/methodology/approach** – For this study, the author began to gather information using previous knowledge and any aspect of a work, namely, from the literature review to represent interpretive syntheses of the meaning-making literature review addressing the research question.

**Findings** – This study suggests what happens to entrepreneur students from academia and the reason that they end up in one of the two aforementioned paradigms. This paper aims to underpin the issue of how various entrepreneurial identities of students cause substantial contributing factors in forming such entrepreneurial activities at university and throughout the entire innovation ecosystem.

**Research limitations/implications** – Almost all of the content of the entrepreneurship education (EE) courses and incubator training is oriented towards consensual entrepreneurship methods, in accordance with entrepreneurship education. Although the core contents of the EE courses and university-based incubators' training are the same, the outcomes are quite different.

**Originality/value** – This study considers the students' entrepreneurial identities with a focus on their point of view that led them to end up in one of the two common entrepreneurship resources at universities: the EE course and entrepreneurial activities related to university-based incubators.

**Keywords** Entrepreneurship methods, Entrepreneurial identity, Entrepreneurship education, University-based incubators, Entrepreneurial methodologies

**Paper type** Research paper

## Introduction

Promoting entrepreneurship has become a global trend, with governments, venture capitalists and entrepreneurs themselves playing crucial roles in fostering a thriving

ecosystem (Henry and Lewis, 2018; Kumar, 2013). This has led to increased attention to entrepreneurship in academia, resulting in the establishment of dedicated entrepreneurship departments and programmes across various disciplines (Henry and Lewis, 2018; Fayolle, 2013; Stevenson and Lundström, 2007). One area of focus within academia is entrepreneurship education, which aims to cultivate entrepreneurial mindsets and facilitate the launch of new ventures (Zali *et al.*, 2018).

Entrepreneurship education has gained recognition as a catalyst for economic growth and job creation (Henry and Lewis, 2018; Edelman *et al.*, 2008). Numerous studies have shown the positive impact of entrepreneurship education on the rise of entrepreneurs in developed countries (Stel and Zwan, 2020). Notable examples, such as the Massachusetts Institute of Technology (MIT), highlight the entrepreneurial success of graduates who have founded thousands of companies generating significant revenue (Roberts *et al.*, 2019).

Another study examines the problems that exist in entrepreneurship education in colleges and universities based on entrepreneurial psychology and attribution theory. The authors argue that entrepreneurship education has a positive impact on the formation of college students' entrepreneurial values and the success or failure of future entrepreneurship. They suggest that the core of innovation and entrepreneurship education is to cultivate college students' self-efficacy in entrepreneurial decision-making, which plays a mediating role between entrepreneurial education and students' entrepreneurial intention and identity. The authors concluded with a recommendation that colleges continue to improve the quality of entrepreneurship education and strengthen the cultivation of students' entrepreneurial spirit and ability (Xie, 2022).

However, the diverse perspectives on entrepreneurship and its educational approaches have led to a lack of consensus in entrepreneurship education material (Decker-Lange *et al.*, 2020). While efforts have been made to streamline entrepreneurship education into two paradigms, which are entrepreneurship courses and university-based incubators, there remains a gap in understanding how students' entrepreneurial identities influence their choice between these two paradigms and shape their engagement in the entrepreneurship ecosystem.

This study aims to explore the influence of students' entrepreneurial identities on their preference for either entrepreneurship courses or university-based incubators. By conducting a literature review and drawing from personal experiences and observations within startup ecosystems, this paper seeks to answer the following research questions:

*RQ1.* What types of entrepreneurial identities motivate students to choose between the two paradigms?

*RQ2.* How do students with different entrepreneurial identities engage in the entrepreneurship ecosystem at universities?

By addressing these questions, this research contributes to the existing literature by offering insights into the disparities in outcomes between entrepreneurship courses and university-based incubators. Moreover, it provides valuable insights on how to enhance entrepreneurial education by considering students' entrepreneurial identities and their involvement in entrepreneurial activities.

This study proceeds as follows: "Moving towards uniformity in entrepreneurship methodologies in entrepreneurship education" section is a pioneering insight into the new approach to delivering entrepreneurial education with a concentration on dominant entrepreneurial methodologies. "Incubators: applied entrepreneurship education" section begins with an introduction to the role of incubators in universities and the current scope of

activities and the strategies they use in their training programme according to the lean start-up. "Discussion: different perspectives; from the bird course to making the start-up fly" section comprises the discussion and conclusion, which outline the implications of the findings and future work.

## Moving towards uniformity in entrepreneurship methodologies in entrepreneurship education

To move forward, it is necessary to gain an overview of the materials provided in established entrepreneurship methodologies in academia. At universities, a wide range of initiatives and pedagogical modules in entrepreneurship education (EE) are delivered to students for an array of reasons (Sá and Holt, 2018; Fayolle, 2013). Fayolle touched on these reasons, such as audiences, objectives, methods, evaluation and content in EE. The variability in audiences who have a different background in science, demographics and socio-economy with various levels of motivation and various attitudes towards EE is proven by the lack of knowledge of the most proper integration of contents and materials to meet the audiences' needs.

The "about, for, in or through" model is one of the most popular classifications of entrepreneurship education. Since this model was developed, the primary goal of education has been to teach either *about* or *for* entrepreneurship. Another goal is to educate in entrepreneurship, which is defined as training people to be more innovative or entrepreneurial at work or in their businesses (Hoppe *et al.*, 2017). The notion of entrepreneurship education in any type of teaching technique in delivering the course, such as "teacher-directed", "participatory" and "self-directed," is denoted as a holistic notion of entrepreneurship education in this study, which is mostly teacher-centred (Aadland, 2020).

In entrepreneurship education, from the pedagogical viewpoint, many objectives are formed with little proper insight into the effectiveness of the institutional design of EE courses. The EE literature that emphasises the important generalities of "learning by doing" should be considered as experiential and active pedagogy, but no details on how the active pedagogies are performed are provided. According to Martin *et al.* (2013), entrepreneurial outcomes are associated with other attributes and personality traits, such as entrepreneurial intentions, knowledge, skill sets and a positive attitude towards entrepreneurship.

In the case of EE course content, the common priority is materials that address business models and introduce the basic fundamentals of venture creation. These contents are frequently designed as a sought-after set of didactic books to ponder the establishment of entrepreneurial processes and activities (Fayolle, 2013). According to Schramm (2014), entrepreneurship education in the modern age is flawed. To illustrate, an analogy was drawn between entrepreneurship education and the early days of teaching medicine when the case study methodology was dominant. While the case study technique in medicine does communicate knowledge, it was understood that the same manner of tutoring is insufficient for EE due to the unique characteristics of specific business cases. As Schramm argues, entrepreneurship education needs to be revolutionised based on the parallels between medical education and entrepreneurship education (Schramm, 2014). Research conducted by Edelman *et al.* (2008) has shed light on the course content in EE, requiring revisions in terms of what is taught in the classrooms because would-be entrepreneurs are involved in some entrepreneurial activities, leading to the creation of new ventures that are not practiced in classes and are far from what is taught by educators in EE. It demonstrated the scarcity of EE research on how to tailor a set of fundamental principles for EE content by combining theoretical knowledge and professional practices that are still needed for the efficacy of EE (Fayolle, 2013). The conventional model of entrepreneurship at the content level is mainly

about economic thinking to determine how an entrepreneur takes entrepreneurial actions by discovering unidentified areas demanding a product or service that exceeds the available supply. The traditional process started with discovering the opportunity, then evaluating the opportunity and if it was worthwhile exploiting the opportunity. After that, entrepreneurs established entities (Fisher, 2012).

Because the majority of the EE content was framed around the processes of opportunity, identification, evaluation and exploitation. Recently developed interventions and methods, such as effectuation, prescriptive methods (Fiet, 2008), design thinking (Brown, 2008), disciplined entrepreneurship (Aulet, 2013) and lean start-up (Mansoori and Lackéus, 2019), have emerged from the development of the field of entrepreneurial activities. These interventions and entrepreneurial methods mainly cover the major learning materials of entrepreneurship education, which are summarised here.

### Effectuation
Effectuation is a well-known example of an entrepreneurial approach. It is described as a collection of heuristics that every entrepreneur may apply to build a new enterprise in the conditions of uncertainty (Sarasvathy, 2001). The focus of effectuation is on controlling the future, not predicting it (Sarasvathy, 2003). In effectuation, human beings realise that they are responsible for the future, so it is possible to direct or affect the future through human action (Sarasvathy, 2009). Effectuation's backbone consists of the five heuristics that make up the logic of effective decision making, which are as follows:

(1) starting by asking yourself "who am I, what do I know and whom do I know?";

(2) minimising risk by estimating how much one is willing to lose;

(3) using the surprise factor as leverage;

(4) obtaining early commitments from partners to reduce uncertainty; and

(5) instead of attempting to predict what will happen in the future, concentrate on the activities one can control.

These five heuristics constitute a cycle that guides progress through the effectuation logic phases (Mansoori and Lackéus, 2019).

### Prescriptive methods
Prescriptive theories assist people in deciding what to do and how to think in a given situation (Cross and Sproull, 2004) so as to advance the quality of judgment and decision-making. A prescriptive theory consists of an active and research-based guide for entrepreneurs to follow so that they are more likely to succeed at generating revenue. Business ideas are usually discovered systematically by matching an entrepreneur's experience, specialised expertise and a specific business idea (Fiet, 2008). In other words, entrepreneurs should start with their prior experience or specific knowledge based on their business idea to have limited search on the channels of information. Fiet (2008) postulated five steps for it:

(1) self-reflecting on past, particular and general knowledge;

(2) choosing channels of information according to your previous knowledge;

(3) limiting the search to the most desired information sources;

(4) looking for signs and responding promptly to them; and

(5) evaluating feedback in light of socio-cognitive variables.

The objective of this procedure is to find meaningful signals in the form of informative cues about the surroundings. The extensive scientific endeavour to empirically define and categorise entrepreneurial processes and then translate the results into prescriptive techniques for how entrepreneurs should think and conduct business to generate value is a major source of prescriptions for entrepreneurs (Denyer *et al.*, 2008).

*Disciplined entrepreneurship*
It forms on the notion of teaching entrepreneurship with discipline to reduce the gap between innovation and market through disciplined planning experimentation by MIT lecturer Bill Aulet who is a managing director of the Martin Trust Center for MIT Entrepreneurship. Although discipline is not the first attribute that comes to mind when thinking about entrepreneurship, it is critical when launching a business. According to him, entrepreneurship is a subject in its own right, and it can be taught in a number of phases, many of which include hands-on experimentation (Matheson, 2013). Disciplined entrepreneurship consists of 24 steps, which are practical once you have business ideas;

(1) market segmentation;
(2) select a beachhead market;
(3) build an end user profile;
(4) calculate the total addressable market (Tam) size for the beachhead market;
(5) profile the persona for the beachhead market;
(6) full life cycle use case;
(7) high-level product specification;
(8) quantify the value proposition;
(9) identify your next 10 customers;
(10) validate your core;
(11) chart your competitive position;
(12) determine the customer's decision-making unit;
(13) map the process to acquire a paying customer;
(14) calculate the total addressable market size for follow-on markets;
(15) design a business model;
(16) set your pricing framework;
(17) calculate lifetime value (Ltv);
(18) map the sales process to acquire a customer;
(19) calculate the cost of customer acquisition;
(20) identify key assumptions;
(21) test key assumptions;
(22) define the minimum viable business product;
(23) show that "the Dogs Will Eat the Dog Food"; and
(24) develop a product plan (Aulet, 2013).

More than half of these steps concentrate on customers as Aulet says "Entrepreneurs who succeed are those who start a business by putting themselves in their customers' shoes" (Matheson, 2013).

## Design thinking

Around 2006, design thinking gained momentum as a set of management guidelines (Rauth, 2015). A few of Stanford d.school's and IDEO's (an international design company) designers have advocated for business and entrepreneurship to benefit from design thinking with a belief of revolutionising management education (Martin, 2009). In general, design thinking is a strategy that combines business with design to enhance mutual relationships. An emphasis is placed on making managers think like designers and using designers' sensibilities and methods when solving problems (Brown, 2008). Design thinking has become a valuable tool for some start-ups and innovation ecosystems (Sonalkar *et al.*, 2016). The process of design thinking can be divided into five steps:

(1) empathize with the problem by taking the users' perspective;

(2) identify the problem in detail by analysing the information that is dispersed;

(3) through brainstorming different solutions and combining imaginative thoughts about these solutions, come up with a wide range of possible solutions that could solve the problem;

(4) prototype a solution to find new pathways by highlighting its strengths and flaws; and

(5) obtain a deeper understanding of the solution and test it with people by seeking feedback on prototypes (Mansoori and Lackéus, 2019).

## Lean start-up

Introduced largely by Steve Blank in the book titled *The Lean Start-up*, authored by Eric Ries in 2011. Lean start-up is a reference for most software entrepreneurs (Yang *et al.*, 2019) which is increasingly being used to describe various types of innovation development in other areas (Roland and Katja, 2012). The lean start-up methodology, inspired by Toyota's lean manufacturing principles, creates value for customers and eliminates waste during the development phase. It communicates with nuanced principles far easier than ever before now that the concepts of "product-market fit" and "customer development" have emerged and are directly used to validate and test business assumptions with potential customers. The idea behind these concepts for entrepreneurs is that start-ups need a customer development process in addition to a product development process to discover and understand their customers. In line with the principles of the lean start-up, an irritation strategy is formed by "building", "measuring" and "learning", assisting entrepreneurs in iterating experiential searches to achieve sustainable business models. One of the aims of a lean start-up incorporates continuous customer feedback into the product development process. The general opinion of this methodology has been posited to not offer the market a product or service that no one needs (Eisenmann *et al.*, 2011). Failing to do so is the most common reason for start-up failures (Blank and Mullaney, 2021; Chang, 2004). Customer development is the central component of the lean start-up methodology; validating the assumptions with potential customers and incorporating their feedback into the product development. For this purpose, the minimum viable product (MVP) is an agile approach that leads to a fast-track state of product development cycles. The MVP approach benefits entrepreneurs' limited resources, like time and money, by quickly realising how their products will address their customers' problems (Blank, 2013).

According to the "business model" jargon that has been around in the business world since the late 1990s (Casadesus-Masanell and Ricart, 2010; Martikainen *et al.*, 2014), a business model is a mechanism that shows how a venture operates and how technology in

the form of a service or product relates to the creation of economic value (Magretta, 2002). It also represents the entire company's strategy (Casadesus-Masanell and Ricart, 2010). In this sense, the business model evolved into other rewording structures, such as the business model canvas, which Osterwalder introduced (Osterwalder *et al.*, 2005). A simple means of expression for nascent entrepreneurs to picture all the strategy requirements for their business ideas, from delivering value to capturing the value. The business model canvas contains nine blocks, two of which are more vital than the rest of the blocks, value propositions and customer segments. All these blocks are explained in the EE course as a standard framework (Blank and Mullaney, 2021). The value proposition is demonstrated by the unique characteristics and value of the product(s) or service(s) your company has promised to deliver to your customers (Osterwalder *et al.*, 2005; Nogueira Cortimiglia *et al.*, 2016).

The business model canvas is one of the significant parts of EE courses and a complementary material with one of the aforementioned entrepreneurship methods. The NSF I-Corps programme, which forms a specific entrepreneurship education curriculum seeking to offer entrepreneurship and innovation education to NSF-funded researchers, is the best example of standardised entrepreneurship education based on the lean start-up method for customer discovery as well as Osterwalder's Business Model Canvas (Aileen *et al.*, 2020).

## Incubators: applied entrepreneurship education

The role of universities in entrepreneurship was confined mostly to licensing patents through old-school offices such as technology license offices or technology transfer offices or creating spin-offs by faculty and staff (Breznitz and Feldman, 2012; Lockett and Wright, 2005; Wright *et al.*, 2017). The recent inclusive move made by universities focused more on students who, according to recent studies on alumni of the MIT and Stanford University (Eesley and Miller, 2018; Roberts and Eesley, 2012), have been becoming entrepreneurs and are founders of many new firms with a huge impact on job creation and economic growth. Many of the recent billionaires on the Forbes list are founders of student-created firms who used to be university alumni (Miller and Acs, 2017). Research conducted by Åstebro *et al.* (2012) showed evidence that the US universities' main concentration has shifted to students rather than faculty in the case of start-ups. Many findings have shown that entrepreneurship education programmes help students improve their entrepreneurial intentions (Fayolle *et al.*, 2006). Aside from entrepreneurship education, over the past couple of years, universities have established incubators to deal with the lack of provision for students' growing interest in entrepreneurship as well as acting as a host for fledgling ventures to forward technology commercialisation in the form of technology-based ventures (Cooper *et al.*, 2012). Because universities realised students' growing interest in start-up and entrepreneurship, they have established several supporting programmes beyond entrepreneurship education courses to partially accommodate their students' interest, such as incubators' training and workshops for more passionate students-entrepreneur, and more recently, accelerators to scale up the ventures initiated by students (Wright *et al.*, 2017). Some non-university-based incubators and accelerators such as Y Combinator and 500 Startups have emerged to develop the vibrancy of the innovation ecosystem. The university-based incubators often entail different initiatives in the entrepreneurial ecosystem which aim to serve students, staff, scholars with affiliations to the respective universities, and the private ones are open to anyone. These incubators provide them with shared offices, prototyping labs, maker spaces, technology transfer mentoring and networking with the objective of survival and growth. Other business-related services are provided to ventures

such as business management, financial projections, sales, marketing strategies, human resources and accounting (Barbero *et al.*, 2014; Sá and Lee, 2012). However, all entrepreneurs often go through the screening process to get access to the incubators' resources and programmes (Scillitoe and Chakrabarti, 2009) which is divided into two typical approaches: those that focus primarily on the idea and those that focus primarily on the founder or team (Bergek and Norrman, 2008). The mission of most incubators supposedly is to accommodate the ventures with requirements that they need to survive with the reduction of some of the operational risks. Many incubators, whether private or university-based, including top-tier ones, such as Y Combinator, Techstars, 500 Startups and AngelPad, provide structural coherence in start-up training by following the principles of the most common entrepreneurship methods, in particular, lean start-up methodology. The entrepreneurship methods and principles and instructions are commonly incorporated into lectures, seminars and coaching sessions, offered at incubators or even some accelerators. As a part of these sessions, participants normally discuss topics such as customer discovery, idea validation and the analysis of gathered feedback, all of which primarily revolve around the main instructions of the most common entrepreneurship methods, in particular, lean start-up methodology (Mansoori *et al.*, 2019). For all of the reasons discussed, ventures that have graduated from incubators have a higher survival and success rate, and there is evidence in some literature of the importance of incubators (Bjørnar, 1997). In Canada, for instance, the Canadian Association of Business Incubation indicated more than 80% of its graduated firms survived (Anonymous, 2010). If incubators are coupled with accelerators, they empower incubation by accelerating the efficacy of venture creation through capital resources, tailored tutoring and mentoring programmes during a short course of time (Pauwels *et al.*, 2016).

The resources at incubators formulate a vibrant plan and environment that drives entrepreneurs forward. The atmosphere at incubators reflects one of the missing elements of EE courses, which is "learning by doing" in an experiential context mixed with active pedagogies of entrepreneurship education.

### Discussion: different perspectives; from the bird course to making the start-up fly

Academia has paid a lot of attention to entrepreneurship education, with a vast amount of literature to understand the underlying factors causing entrepreneurs to be successful, most of which offers insights into the effectiveness, outcomes and incremental changes in crystalized strategies in validating business ideas, such as the lean start-up methodology. Despite this significant increase in the literature on these topics, very few studies have been conducted on students' identities, mindsets and actions through the lens of EE and start-ups. It is difficult for universities to identify the relevant factors that distinguish students' choices when it comes to entrepreneurial activities due to a lack of research on the practices and procedures leading students to choose between the EE course and the incubator in the university context. Also, there is a debate about what kind of motivations and goals the students may have in either of the two paradigms and to clarify the intention of pursuing entrepreneurship education. Yet, researches that expound on reasons in this topic are absent, leaving an unexplored perspective that this study intends to illuminate. In this section, the author's experience and opinion are mixed with the literature to draw a cogent argument. The incubator pieces of training and workshops are almost identical to the content of the EE courses, which mostly relate to the entrepreneurship method. The identical content of the two paradigms, but in different contexts, renders telling findings that are the subject of this study's debate.

In incubators, entrepreneurs are surrounded by seasoned mentors, serial entrepreneurs and inventors (Breznitz *et al.*, 2018). According to personal observations, the environment in incubators is subject to actionable plans and performance onwards and upwards to identify what the failure risks for the start-up are and how those risks can be handled. Entrepreneurs do their utmost to make their companies survive, either as small businesses or scale-ups (e.g. unicorn start-ups), whereas the EE courses, by nature, follow a syllabus to deliver specific materials by instructors who direct and administer the class, which is usually referred to as the 'bird course' by students. The EE courses have an institutional structure that has a minimum liberation to allow students opportunities to apply their learning-oriented framework to their own business ideas during a short period – a few hours per week for a semester or two. The outcomes of these courses are typically graded on a scale ranging from a bare pass to a high grade. The types of activities that students engage in when they try to avoid failing or obtain an A are often limited to the boundaries of class duties. This is an indication of students' performances, not their capabilities and motivations for becoming entrepreneurs. Tim Urban's (Urban, 2016) TED talk is about the role of procrastination in making many people feel unsatisfied if they wait until the last minute. He elaborated on the context of a college when students are approaching a deadline. He says that everybody procrastinates, but deadline-driven procrastination varies from situational procrastination, such as waiting to launch a start-up. The EE courses, like other courses, have deadlines for homework and exams – an external push. A recent study by Eesley and Lee (2020) suggests research findings of the association between entrepreneurship rate and entrepreneurship education, which highlights that entrepreneurship education, especially entrepreneurship courses, have no impact on entrepreneurial activity and do not result in forming start-ups. A study by Valencia-Arias *et al.* (2022) provides valuable insights into the factors that influence university students' attitudes towards entrepreneurship The study indicates that the student's entrepreneurial mindset will increase in direct proportion to how much entrepreneurial culture, such as incubators and startup events, that the student experiences as well as how much training they receive. It suggests that universities should adopt a holistic approach to entrepreneurship education that integrates entrepreneurial culture, university environment and entrepreneurial training into their curricula and teaching methods, which goes beyond entrepreneurship courses. If entrepreneurship education and EE courses are not the major factor, there may be another motivation stemming from the student's interest and spirit.

Maheshwari *et al.* (2022) conducted a systematic review to determine entrepreneurial intention in other studies from 2005 to 2022 that aims to contribute to the growing body of literature on the factors affecting the entrepreneurial intentions of university students. It suggests thematic analysis with seven key factors, such as cognitive, personality, environmental (e.g. access to technology like the Internet), social (e.g. prior experiences, role models), educational (e.g. entrepreneurship courses at universities), contextual (e.g. perception of recent economy/market, perception of government support, opportunities) and demographic (e.g. gender and nationality differences) factors. The research discovered that perceived desirability in the cognitive factor has a significant impact on entrepreneurial intentions. Students' intentions towards entrepreneurship are significantly influenced by cognitive and personality factors like self-efficacy, individual attitudes, desire for achievement and behavioural control. It claims that self-efficacy mediates the relationship between students' risk propensity and intentions to become entrepreneurs.

In contrast to students in entrepreneurship courses, students who show up at incubators are the ones with an internal push to find their fulfilment. They possess a feeling of self-discipline and self-commitment, which form a sense of responsibility for making a better

future. They are more likely to commit to putting their ideas into action if they are combined with their own sense of responsibility, otherwise, it is just their imagination. The following is an explanation of how students find themselves in the EE course or the incubator, as well as their outcomes. According to Sá and Holt (2018), they aimed to establish patterns for students who were pursuing entrepreneurship education. The patterns are associated with students' goals, aspirations, rationale and decision-making, which lead the students to engage in entrepreneurial activities such as an EE course or venture creation. These patterns are categorised into four types of profiles. The four profiles were titled "experience seekers", "entrepreneurship explorers", "entrepreneurship engagers" and "venture creators".

"Experience seekers" are students who do not intend to be entrepreneurs after graduation. They are intrigued by the concept of entrepreneurship but do not consider themselves to be would-be entrepreneurs. Students with this profile are eager to gain work experience in a start-up ecosystem to present themselves as versatile enough for multitasking and appealing to employers. Their attitude towards entrepreneurship resources on campus is a means of job transition and skill development for future career advancement.

"Entrepreneurship explorers" are students who have a higher level of curiosity than "experience seekers" and seek to gain familiarity with the fundamental principles of entrepreneurship while having no prior experience or specific entrepreneurial goals. They improve their understanding of entrepreneurship through EE courses, which enables them to make a more informed decision on whether or not to step further into the world of entrepreneurship. They acquaint themselves easily with the innovation ecosystem and start-up culture through the EE courses. In spite of the fact that students with this type of profile are quite often influenced by others in this ecosystem, they do not intend to be entrepreneurs. They may fit in the entrepreneurship ecosystem without gaining first-hand entrepreneurial experience. The difficulty of launching a new venture appears to be a deterrent to becoming an entrepreneur, and they recognise that founding a new venture is more difficult than traditional career roles.

"Entrepreneurship engagers" are those students who are similar to "entrepreneurship explorers" but need to determine their entrepreneurial ability and potential. They engage in much more experiential activities and learning by participating in entrepreneurship events and activities such as pitch competitions and hackathons. They look for more out of the EE courses. These students, for instance, took entrepreneurship courses that included launching businesses in a campus accelerator rather than gaining academic credit. Joining nascent ventures on campus leaves a positive impression on some of them. Although some of them do not wish to take on stressful positions as founders, they have discovered that being co-founders may be preferable. Typical features of the programmes at the incubators are mentorship, one-on-one coaching and networking, all of which are appreciated by these students. These students have more contact with people in incubators, including like-minded peers, former entrepreneurs and mentors, which allows them to exchange insight and expertise while also gaining a better sense of whether they belong to this group as entrepreneurs or not. The beneficial outcome for these students is the network they build within the community and the innovation ecosystem. Speaker series and more open-ended ways of networking are examples of networking activities for these students.

"Venture creators" is the profile of entrepreneur-students who are identified as start-up founders at university incubators. Their reasoning behind their entrepreneurial pursuits vary – from being their own boss to creating value for others. Their commitment moves them to launch start-ups and meet milestones related to business development, which is the opposite of the aforementioned groups. Venture creators are almost ahead of them in terms

of entrepreneurship, mostly due to their motivation. Their motivations are relatively associated with their venture mission, which goes above and beyond the entrepreneurship education or learning and networking that revealed the main motivations for previous profiles. Students of this profile search for resources that help them grow, i.e. the resources offered by incubators or accelerators, such as prototyping labs, coaching, financial resources and professional services. Start-ups at university incubators may be eligible for some government financial benefits and hiring support like recruiting interns. Entrepreneurs in university incubators benefit from a network of experts, advisors and business angles. Venture creators' networking is valuable in the same way that entrepreneurship engagers' networking is, but it is more goal-oriented, specific and aligned with the milestones of their ventures, such as the commercialisation of their product (Sá and Holt, 2018).

From EE courses to incubators, these profiles can be found on various paths to entrepreneurship, which results in a variety of outcomes. The first two profiles, "experience seekers" and "entrepreneurship explorers", are usually found in the EE course and are usually curious about entrepreneurship and have the opportunity to gain new soft skills in entrepreneurship that may help them in their future career development. Students with these two profiles consider the EE course an introductory course and a path to incubators if they want to pursue entrepreneurship more seriously.

The last two profiles are identified among most students at incubators. They are passionate about entrepreneurship, and they seek ways to make their ideas real. Their goal is to do more than just learning about entrepreneurship. They believe that entrepreneurship has either money making, value generation or both. If they fail to launch their start-up, they at least gain worthwhile experience.

For some students who fall into the second and third profiles, universities have developed some measures to create hybrid courses. These include innovative hybrid courses such as the New Venture Design course at the University of British Columbia, which has three to nine credits. This course aims to provide students with practical knowledge related to the formation of an entrepreneurial enterprise. Students in this course are from the engineering and business schools, a good blend of technology and business individuals. They learn about venture requirements, such as market assessment and design cycle definition, financial projections, marketing, distribution and manufacturing to develop their products. This course is run by a few mentors, including the course instructors (Anonymous, 2021). In another example, SFU Beedie's Invention to Innovation programme, a graduate certificate in science and technology commercialisation, aims to train highly educated students who notice the potential of commercialisation in their research. This programme helps them to become entrepreneur-scientists and gives them the capabilities to make a business case out of their research. These programmes or courses mostly suit students with a third profile and possibly direct their profile to the fourth one.

All these students have various levels of motivation for entrepreneurship. However, the level of motivation for launching a start-up among for students with the profile of "venture creator" is higher than that of students who fit into the other possess the rest of the profiles. All profiles are beneficial to the ecosystem in their own way. If a student creates a venture, they have the chance of finding co-founders among the students who are "entrepreneurship engagers" – the third profile. Also, students who fit into the first two profiles, "experience seekers" and "entrepreneurship explorers", may be useful in the early stage of recruitment, e.g. hiring an intern.

The visual illustration below (Figure 1) developed by the author locates the profiles of a diverse range of activities, ranging from entrepreneurship courses at universities, on one

| Introductory | Idea-stage | Venture formation | Growth (hiring interns) | Exit |

experience seekers
entrepreneurship explorers
entrepreneurship engagers
venture creators

experience seekers
entrepreneurship explorers
entrepreneurship engagers
venture creators

Entrepreneurship courses

Incubator programs

Start-up journey

University based start-up ecosystem
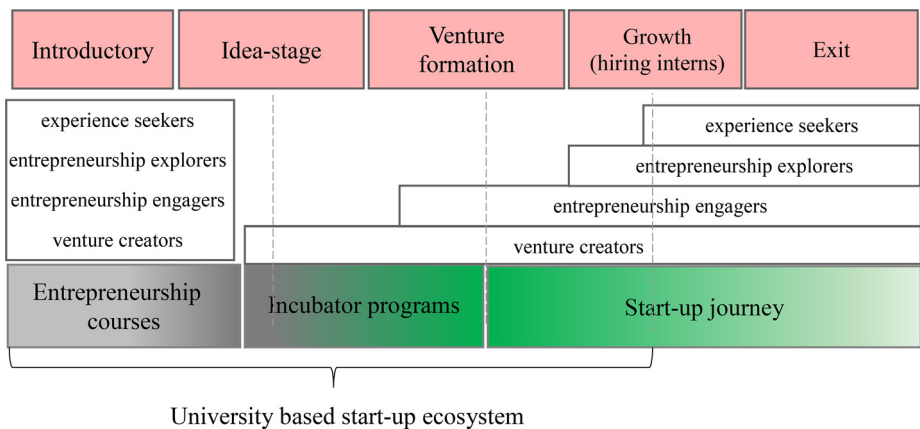
hand, to scaling up the start-up in the context of real business, on the other, which is reconciled with the start-up stages at the top of the illustration.

The majority of the profiles can be found on the left side of the illustration, where the introductory courses in entrepreneurship are presented because these courses are appropriate for most students regardless of their background or field. "Venture creators" are more interested in following their passion through entrepreneurship and ending up inside the university's incubators after successfully being selected, where they can validate their idea to launch an idea-stage venture. In line with their entrepreneurial journey, students with the profile of "entrepreneurship engagers" who establish the network in the start-up ecosystem may team up with "venture creators" as co-founders. At this stage, the greenish area in the illustration depicts a transition from validated ideas to venture formation, which typically occurs at accelerators if universities have them. These transitions are initiated by students who hold the entrepreneurial identity of being a founder or the profile of "venture creators". At the beginning of the growth stage of start-ups, where they usually look for talents and hire some people, the most available resources for them are students with profiles of "entrepreneurship explorers" and "experience seekers" who look for internships or co-ops in the start-up ecosystem at universities.

The future avenue for this research might be the role of universities in engaging these students with four types of profiles in a way that benefits the entire community, society and the regional economy. Furthermore, best practices for promoting entrepreneurial formations and activities on campus should be developed to shape more entrepreneur students and possibly shift the students' entrepreneurial identity from "experience seekers" and "entrepreneurship explorers" to "venture creators" as they explore and become comfortable with how these activities allow them to truly express their entrepreneurial identity. Moreover, the universities require to formulate plans for a smooth transition from the EE courses with teacher-centred as an introductory course to incubators with active student-centred learning to accommodate more students with non-"venture creators" profiles.

## Conclusion
This study contributes to the literature studying entrepreneurship education and entrepreneurial identity of students by examining the generalities of entrepreneurial activities in universities, which are categorised within two common paradigms. In the vein

of entrepreneurship education, all entrepreneurship educational materials, particularly at universities, have recently been linked with the aforementioned entrepreneurship methods. As a result, the core component of entrepreneurial education is generally focused on topics such as customer discovery, hypothesis and idea validation and customer data analysis. The findings have implications for the development of entrepreneurial activities, in particular for recognising the distribution of students between these paradigms according to their entrepreneurial identities. This study also underscores the need for further attention to the subtle importance of discovering students' identities and comprehending their interactions within these two paradigms. From the perspective of policymakers and educators, discovering students' identities and their interactions provides illuminating insights into further tailored entrepreneurship education courses and also assists students with finding and establishing themselves in the innovation ecosystem.

In the two established entrepreneurship education paradigms for universities promoting entrepreneurial activities, different types of entrepreneurial identities within students can be discovered. Despite the relatively similar entrepreneurship education content of the two paradigms, what distinguishes these two paradigms in terms of material structure and outcomes are students whose entrepreneurial identities, intentions and motivations vary from the general scope of entrepreneurial activities at universities, including the two paradigms. However, to serve more students, some hybrid courses with a focus on experiential activities are being developed at universities. Students with intentions and motivations to launch ventures, "venture creators", have a passionate commitment to entrepreneurship and usually navigate through the experiential activities in the EE courses, learning more as they do so. These students with a sense of responsibility for their ideas are far more likely to end up in incubators than the rest of the students, whereas the EE courses cater to a wide variety of students with different levels of motivation who want to discover their entrepreneurial identities and need to know what entrepreneurship is, thereby serving as an introductory course. Venture creators appear to be more likely to kick-start entrepreneurial activities in universities than other students, many of whom come after them to be involved in entrepreneurship as either co-founders or employees (interns). As a result, students with various entrepreneurial identities contribute to the entrepreneurship ecosystem by helping other students to express their entrepreneurial identities and making them comfortable with what it means to be an entrepreneur, which requires a lot of attention from educators and policymakers. Discovering their identity is invaluable because all student profiles are essential in the entrepreneurship ecosystem not only to maintain harmony in the innovation ecosystem but also to make it thrive.

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