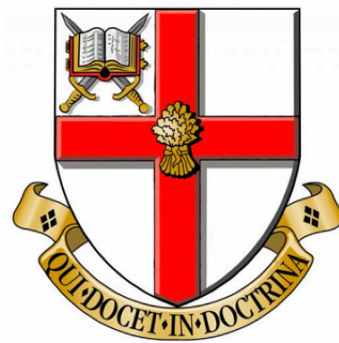


# **A Comparative Study on Students' Learning Expectations of Entrepreneurship Education in the UK and China**




University of  
Chester

*Thesis submitted in accordance with the requirements of the University of Chester for  
the degree of Doctor of Philosophy by Lan Li*

March 2022

## Declaration

The material being presented for examination is my own work and has not been submitted for an award of this or another HEI except in minor particulars which are explicitly noted in the body of the thesis. Where research pertaining to the thesis was undertaken collaboratively, the nature and extent of my individual contribution has been made explicit.

Signature: 

Date: 7<sup>th</sup> March 2022

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Supervisors: Professor Wing Lam, Professor Phil Harris and Doctor Farid Ullah

## **Acknowledgements**

The PhD process has become an indispensable part of my life. To be given the opportunity to pursue an area of academic interest in the shape of doctoral research is an immense privilege for which I am very grateful. The journey has broadened my view both professionally and personally. I have met amazing colleagues and friends.

This thesis would not be possible without my supervisors, Professor Wing Lam, Professor Phil Harris and Dr Farid Ullah. Without their patience, continuous support and encouragement, and insightful advice, the journey might not have come to an end. I would like to thank Professor Wing Lam in particular for guiding me through all stages of the writing of this thesis. Even in times of immense difficulty, she never showed any sign of neglect or impatient in helping me. She is a true ocean of knowledge not only in the field of entrepreneurship but also her experience and understanding of life make her uniquely interesting to talk about anything. I am greatly honoured to have her as both a supervisor and a friend.

I would also like to take this opportunity to thank Professor Gary Davies for his guidance and support, particularly on statistics. He has a talent for explaining the most complex things in the simplest ways. My sincere gratitude extends to Steven Markham for his feedback, suggestion and encouragement and Professor Jinbo Zhou for his aid with the questionnaire distribution in China. I would also like to express my gratitude to Dr Ying Zhao for her thought-provoking conversations, continuous enthusiasm and support for my research.

I also wish to thank all my friends: Ke Zhu, Dian Wang, Xuejian Dong, Nuoyi Liu, Zhijian Zhong, Yujiao Wang, Penghe Wen, Wenbo Wang and Xiaoke Ge. A big thanks to each of you for motivating and supporting me in your unique way on this journey.

A special thank you goes to my parents, with all my heart, for the endless support and love that I receive from you every day. I owe you everything I have in my life, and I hope I can always return the favour and make you proud and happy.

Thanks to everyone that supported me along the way.

# **A Comparative Study on Students' Learning Expectations of Entrepreneurship**

## **Education in the UK and China**

**Lan Li**

### **Abstract**

Entrepreneurship education has become a critical subject in academic research and educational policy design, occupying a central role in contemporary education globally. However, a review of the literature indicates that research on entrepreneurship education is still in a relatively early stage. Little is known about how entrepreneurship education learning is affected by the environmental context to date. Therefore, combining the institutional context and focusing on students' learning expectations as a novel perspective, the main aim of the thesis is to address the knowledge gap by developing an original conceptual framework to advance understanding of the dynamic learning process of entrepreneurship education through the lens of self-determination theory, thereby providing a basis for advancing understanding of entrepreneurship education.

The author adopted an epistemological positivism philosophy and a deductive approach. This study gathered 247 valid questionnaires from the UK (84) and China (163). It requested students to recall their learning expectations before attending their entrepreneurship courses and to assess their perceptions of learning outcomes after taking the entrepreneurship courses. It was found that entrepreneurship education policy is an antecedent that influences students' learning expectations, which is represented in the difference in student autonomy. British students in active learning under a voluntary education policy have higher autonomy than Chinese students in passive learning under a compulsory education policy, thus having higher learning expectations, leading to higher satisfaction. The positive relationship between autonomy and learning expectations is established, which adds a new dimension to self-determination theory. Furthermore, it is also revealed that the change in students' entrepreneurial intentions before and after their entrepreneurship courses is explained by understanding the process of a business start-up (positive), hands-on business start-up opportunities (positive), students' actual input (positive) and tutors' academic qualification (negative).

The thesis makes contributions to both theory and practice. The findings have far-reaching implications for different parties, including policymakers, educators, practitioners and researchers. Understanding and shaping students' learning expectations is a critical first step in optimising entrepreneurship education teaching and learning. On the one hand, understanding students' learning expectations of entrepreneurship and entrepreneurship education can help the government with educational interventions and policy reform, as well as improving the quality and delivery of university-based entrepreneurship education. On the other hand, entrepreneurship education can assist students in establishing correct and realistic learning expectations and entrepreneurial conceptions, which will benefit their future

entrepreneurial activities and/or employment. An important implication is that this study connects multiple stakeholders by bridging the national-level institutional context, organisational-level university entrepreneurship education, and individual-level entrepreneurial learning to promote student autonomy based on an understanding of students' learning expectations. This can help develop graduates with their ability for autonomous learning and autonomous entrepreneurial behaviour.

The results of this study help to remind students that it is them, the learners, their expectations and input that can make the difference between the success or failure of their study. This would not only apply to entrepreneurship education but also to other fields of study. One key message from this study is that education can be encouraged and supported but cannot be “forced”. Mandatory entrepreneurship education is not a quick fix for the lack of university students’ innovation and entrepreneurship. More resources must be invested in enhancing the enterprise culture, thus making entrepreneurship education desirable for students.

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## **List of Abbreviations**

EC: European Commission

EE: Entrepreneurship Education

GEM: Global Entrepreneurship Monitor

HE: Higher Education

MLNP: Medium and Long-Term National Plan

MNE: Management of New Enterprises

MOE: Ministry of Education

NCGE: National Council for Graduate Entrepreneurship

OECD: Organisation for Economic Cooperation and Development

PBL: Problem-based Learning

QAA: Quality Assurance Agency

SCCT: Social Cognitive Career Theory

SCL: Student-centred Learning

SDT: Self-determination Theory

SMEs: Small and Medium-sized Enterprises

TCL: Teacher-centred Learning

TPB: Theory of Planned Behaviour



# Chapter 1: Background and Rationale

## 1.1 Introduction

Since the fifteenth century, the value of entrepreneurship to economies has been recognised (Kurczewska, 2016; Maresch et al., 2016). It serves as the driving force behind national development and growth (Fellnhofer & Kraus, 2015; Ratten & Usmanij, 2021). Entrepreneurship can also be seen as a career opportunity (Davey et al., 2016), with new ventures simultaneously creating more employment opportunities for society (European Commission, 2003). Small businesses are rapidly being identified as crucial drivers of economic growth, producing more new employment than larger corporations (Rideout & Gray, 2013). The positive links between entrepreneurship, economic growth and employment have been backed up by numerous social researchers (Audretsch et al., 2012; Drucker, 1985; Lin & Xu, 2017; Martin et al., 2013; Ratten & Usmanij, 2021). Therefore, research on various areas of entrepreneurship is expanding (Barba-Sánchez & Atienza-Sahuquillo, 2018; Erkkilä, 2000; Goldstein & Gafni, 2019; Sang & Lin, 2019) in order to gain a better understanding of the motivating factors for entrepreneurs (Bull & Willard, 1993; Gartner, 2001).

Given the recognition of the vital role of entrepreneurship in economic development and progress, the education system is urged to emphasise the teaching of entrepreneurship to nurture potential entrepreneurs (Boubker et al., 2021; Chiu, 2012; Kuratko, 2005; Shane & Venkataraman, 2000) to promote social, economic and organisational development (EC, 2003; Matlay, 2006; The Quality Assurance Agency for Higher Education, 2012). This has resulted in a significant increase in the development of entrepreneurship education (EE) as an academic subject over the last two decades (Bell & Bell, 2016; Fayolle, 2013; Martin et al., 2013). Entrepreneurship education has certainly become an important field of research (Crant, 1996; Gorman et al., 1997; Ratten & Usmanij, 2021; Zhao et al., 2005) and a component of the process of developing a more solid culture of entrepreneurship and entrepreneurial intentions (Chiu, 2012). Due to students' entrepreneurial abilities, intentions and behaviours may be cultivated via entrepreneurship education (Davey et al., 2016), global interest in entrepreneurship education research has been rising (Bell & Bell, 2016).

Despite the fact that the worldwide importance and recognition of entrepreneurship education has grown and is valued by multiple stakeholders, entrepreneurship education assessment is still in its early stages (Carey & Matlay, 2010; Chukwuma-Nwuba, 2019). Learner's career choices (Harte & Stewart, 2010) and entrepreneurial intentions (Fayolle & Liñán, 2014; Pittaway & Cope, 2007) are considered the critical learning outcomes of entrepreneurship education. At the same time, research on the influencing elements of entrepreneurship education has advanced from the development of models based on personality characteristics linked with entrepreneurship (McClelland, 1961) to demographic variables such as gender, age and level of education (Botha & Bignotti, 2017), and then to the use of attitudes of intentionality models (Bird, 1988; Chukwuma-Nwuba, 2019; Kautonen et al., 2015; Krueger, 1993). However, a significant shortcoming in the literature is a lack of attention to students' learning expectations in the dynamic learning process. As the demand side of entrepreneurship education, students play a central role in the entrepreneurial learning process. It has long been established that student expectation has a significant impact on student behaviour (Price, 2019; Rauch & Hulsink, 2015), performance (Schunk & Zimmerman, 1998), self-study behaviour (Rovers et al., 2018) and learning experience (Huong et al., 2017; Kilic-Cakmak et al., 2009; Stevenson et al., 2006; Zhou & Todman, 2008). Therefore, it can be argued that students' learning expectations provide a valuable lens to understand the dynamic learning process in order to evaluate and optimise entrepreneurship education. This is an area where this thesis aims to contribute.

Furthermore, although numerous quantitative and qualitative studies on the relationship between entrepreneurship education and entrepreneurial intentions have been conducted in Western and Eastern nations, the results have been mixed (Chukwuma-Nwuba, 2019; Oosterbeek et al., 2010; Rengiah & Sentosa, 2015; Souitaris et al., 2007; von Graevenitz et al., 2010; Zahoor & Kumar, 2020). These variances may not be confined to differences in the measurements employed, as suggested by the literature, but may be connected to other factors, such as national characteristics. In fact, for an entrepreneurship education study to have practical implications for any society, it should reflect the educational and cultural practices

within the environment in which it is engaged (Chukwuma-Nwuba, 2019). Scholars suggest an urgent need for an in-depth, comparative, international study on entrepreneurship education (Kuratko, 2005; Matlay, 2008). Some comparative studies on entrepreneurship education have been undertaken, such as in the United States and China (Yu, 2018; Zhang, 2018; Zhang, 2011), the UK and India (Panwar Seth, 2020), and the United States and Korea (Lee et al., 2005), but little is known when comparing the UK and China. Research reveals that UK and Chinese students seem to have different perceptions of starting a business (Millman et al., 2009). However, how and why this is the case is not discussed in-depth and calls for further investigation. Therefore, this thesis will take the UK and China as research bases to explore the differences in students' learning expectations of entrepreneurship education in different institutional contexts and explore the causes for any differences. Potentially, this is of significance when promoting students' entrepreneurial behaviour and achieving either country's goal of encouraging entrepreneurial activities. Finally, comparing the UK and China provides different contexts for exploring entrepreneurship education (Lee et al., 2005; Panwar Seth, 2020; Yu, 2018; Zhang, 2018; Zhang, 2011), adding to the existing body of cross-cultural work.

## 1.2 Background of the study

Entrepreneurship education has become a critical subject in academic research and educational policy design (Chukwuma-Nwuba, 2019), occupying a central role in contemporary education globally (Charney & Libecap, 2000). Indeed, policymakers in numerous countries have taken steps through educational interventions to guarantee that entrepreneurship education benefits the development of entrepreneurship and entrepreneurs and that the impact is broad and long-lasting (Draycott & Rae, 2011; Nabi & Holden, 2008). Fostering entrepreneurs to boost national economic growth through entrepreneurship education has drawn widespread attention for decades (Liu et al., 2019), including in the UK and China, and is regarded to improve start-ups' success rates and reduce employment pressures.

The high rate of business failure is a worldwide concern (GEM, 2019). Most new ventures confront an existential crisis, and the percentage of successful start-ups is low (Lam, 2004). In the UK, fewer than half of new businesses survive for more than five years, 60% fail within three years, 20% fail during the first year, and the fear of failure is 44.49% (GEM, 2019). Similarly, the average life span of a Chinese new venture is only 2.9 years, with 60% failing within five years and the failure rate ranging from 75% to 90% or higher (Peng, 2019). The proportion of Chinese entrepreneurs afraid of failure has increased, reaching 44.65% (GEM, 2019). These data indicate that failure is more common than success in entrepreneurship; choosing to start a business means choosing a demanding and challenging career. Thus, the expansion of university-based entrepreneurship education is seen as a quick way to boost both the quantity and quality of entrepreneurship (Matlay, 2012) because it is intended to develop students' entrepreneurial expertise, skills and abilities.

Furthermore, the development of entrepreneurship education is an effective way to alleviate the thorny problem of societal employment pressure (Lin & Xu, 2017). There was a substantial increase in the number of students enrolling in UK higher education from 2012 to 2014. Despite a slight decrease in 2015/2016, there are still about 1.3 million full-time students and 0.5 million part-time students enrolled in UK higher education, representing 2.1% and 0.8% of the total population in the UK, respectively (Higher Education Statistics Agency, 2017). Similarly, the pressures of fast expansion in Chinese university enrolment since the twenty-first century have been particularly acute in this populous country (Lin & Xu, 2017). The major consequences of this increase are twofold. First, competition for jobs through “traditional” graduate employment pathways, that is, pursuing employment through well-developed programmes offered by established organisations, has increased substantially. Second, it demonstrates that fewer graduates are able to find work in fields that directly correspond to the academic content of their specific course of study (Collins et al., 2004). To help with this situation and stimulate economic and employment growth, entrepreneurial activity among the next generation of entrepreneurs, namely the student community, must be encouraged (Jones et al., 2008). Therefore, policymakers have stressed the significance of business start-ups and encouraged university and

college students to participate in entrepreneurial initiatives by improving entrepreneurship education with an aim to alleviate unemployment (Harrington & Maysami, 2015).

Given the significance of entrepreneurial activities in economic growth and employment creation, many countries, including the UK and China, have made investments in entrepreneurship education (Dou et al., 2019; Jones & Iredale, 2014; Lin & Xu, 2017; Walter & Block, 2016), as reflected in the direct and indirect promotion of entrepreneurship education.

The direct promotion of entrepreneurship education in the UK and China is evident in its popularisation in universities and the development and optimisation of entrepreneurship courses and teaching resources. Entrepreneurship education in the UK started earlier, with 78% of universities offering entrepreneurship education courses in 2007. It has now progressed into a full-fledged educational system and is a professional discipline (Carey & Matlay, 2010). Compared to the UK, entrepreneurship education in China is a relatively new concept and its implementation is still in the infancy stage (Dou et al., 2019; Li et al., 2003; Lin & Xu, 2017). With the recent advancement of entrepreneurship education, more than 80% of Chinese universities now offer entrepreneurship courses (Wei & Sun, 2015). However, it has yet to create a widely recognised teaching paradigm with best practices (Lin & Xu, 2017) and is still in the exploratory stage of introduction, absorption and localisation. Moreover, entrepreneurship education courses in both nations have focused on cultivating students' personal development and understanding of enterprise development, as well as actively developing tutors and practices as teaching resources to promote the skills and abilities required by start-ups.

On the other hand, the indirect promotion of entrepreneurship education in the UK and China is embodied in the institutional context with intervention from economic, political, societal and cultural aspects to encourage entrepreneurial activities. In terms of economics, the active development of both countries' innovation-driven economies has raised the entire society's expectations for the entrepreneurial knowledge and

skills of university graduates, thereby creating favourable conditions for universities to provide entrepreneurship-related courses or programmes (Duval-Couetil, 2013; Galindo & Méndez-Picazo, 2013; Gibb, 1996; Harrington & Maysami, 2015; Kothari & Handscombe, 2007; Kozlinska, 2011).

In societal and cultural terms, students' involvement in entrepreneurship is encouraged by enhancing entrepreneurship education to solve the problem of unemployment (Harrington & Maysami, 2015) and strengthen cooperation between universities and business communities to provide students with social networking opportunities (Matlay, 2009; Dou et al., 2019).

In terms of politics, the two countries have both similarities and differences. The similarities are that policymakers work closely with universities to implement entrepreneurship-friendly policies and provide government-funding opportunities to encourage more students to participate in entrepreneurial activities (Lin & Xu, 2017), enhance entrepreneurial attitude and increase the start-ups' survival rate (Dou et al., 2019). The primary distinction between the two nations is entrepreneurship education policy, resulting from the two countries' differing institutional contexts. Entrepreneurship education in the UK is a professional subject or elective course chosen by students and a voluntary education policy is in place. On the contrary, university entrepreneurship education in its infancy has been directly promoted by the Chinese government, and a compulsory education policy has been applied (Lavelle, 2021; MOE, 2012). Under this policy's effect, entrepreneurship education has become a public basic compulsory course that students are required to attend.

It can be seen that the UK and China place a high value on the role of university entrepreneurship education in promoting entrepreneurial activities and economic development, and they have implemented entrepreneurship education policies with their own social and cultural characteristics within the respective institutional contexts. This may have a far-reaching impact on students' entrepreneurial learning expectations.

### 1.3 Rationale, research question and objectives

Entrepreneurship education is a process involving several stakeholders (Birdthistle et al., 2007; Jack & Anderson, 1999). Its development and advancement are attributed to the growing support received from multiple stakeholders, including both the supply (policymakers and educators) and demand (learners) sides (Mwasalwiba, 2010). The ultimate goal of entrepreneurship education is to cultivate students with entrepreneurial intentions and abilities to promote entrepreneurial activities, emphasising that students play a central role in the entrepreneurship learning process. Therefore, this thesis is positioned as using the lens of students to understand the impact of entrepreneurship education.

As mentioned earlier, one significant weakness of entrepreneurship education's demand side is a lack of attention to students' learning expectations in the dynamic learning process. Students' expectations are a valuable source of information for lecturers and universities to evaluate their educational achievements (Voss et al., 2007). It has long been established that students' expectation has a significant impact on student behaviour (Price, 2019; Rauch & Hulsink, 2015), performance (Schunk & Zimmerman, 1998), self-study behaviour (Rovers et al., 2018) and learning experience (Huong et al., 2017; Kilic-Cakmak et al., 2009; Stevenson et al., 2006; Zhou & Todman, 2008), yet this is an area that is largely ignored in the entrepreneurship education literature. As a novel perspective presented in this thesis, learning expectation plays a crucial role in the students' entrepreneurial learning process, which will deepen the understanding of entrepreneurship education and provide a basis for evaluating and improving the quality of entrepreneurship education.

Both the supply-side and demand-side perspectives have contributed to the development of entrepreneurship education because they use different approaches to attract people's attention to various aspects. However, a common shortcoming is that prior research has failed to appreciate the research contributions from different fields. Individuals and their social relations are interactive; to focus on a person, one must consider the social environment in which they are embedded (Lam, 2004). To date, little is known about how entrepreneurship education learning is affected by the

environmental context (Dou et al., 2019; Walter & Block, 2016). Simultaneously, considering how to integrate the national-level institutional context into the organisational-level university entrepreneurship education to influence the individual-level learning process has not received sufficient attention, particularly individuals' learning expectations about the dynamic learning process. In light of this, there is a lack of a conceptual framework that has the potential to incorporate the different stakeholders and advance understanding of the complex process of students' entrepreneurial learning. Most significantly, the influence of the interplay between these different perspectives on the dynamic learning process is not addressed in the extant literature.

Therefore, this thesis will provide new field-based insights from the UK and China, explore the causes that may affect students' learning expectations in the institutional contexts and investigate the impact of learning expectations on learning outcomes. This project aims to address this knowledge gap by developing a comprehensive conceptual framework to advance understanding of the dynamic learning process of entrepreneurship education from different perspectives of stakeholders.

Therefore, this thesis aims to contribute to the following **research question**: what gives rise to the differences in students' learning expectations of entrepreneurship education between the UK and China?

Building upon this, the **aims and objectives** of this thesis are:

- RO1-To investigate students' learning expectations about entrepreneurship education in the UK and China;
- RO2-To explore the differences, if any, between the UK and China in students' learning expectations on entrepreneurship education; and
- RO3-To investigate the key factors that give rise to the different students' learning expectations in the UK and China.



#### 1.4 Potential theoretical contribution

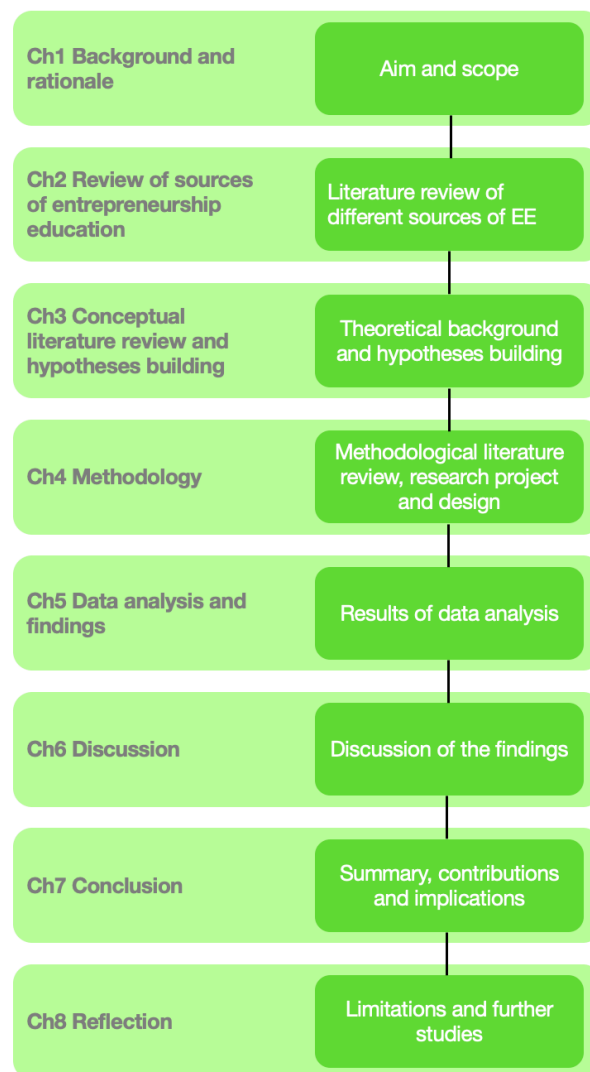
Theoretically, the focus of this thesis is to fill gaps in the entrepreneurship education literature and emphasise the central role of students in the entrepreneurial learning process. A substantial amount of literature on entrepreneurship education has been produced on both the supply and demand sides. One major weakness is a lack of attention to students' learning expectations in the dynamic learning process. As a predictive cognition (Pike, 2006; Tolman, 1945), expectations exist at all stages of learning. Expectations are dynamic, which means that students will have the potential to change their expectations as they learn new information about their environments (Pike, 2006). Therefore, one key potential contribution is that the author aims to focus on learning expectations as a novel dynamic perspective, thus deepening understanding of entrepreneurship education from a student's perspective and providing valuable feedback to stakeholders to assess and enhance the quality of entrepreneurship education.

Another potential contribution is that this thesis is to investigate and evaluate the connections between different perspectives on entrepreneurship education. Studies in entrepreneurship education tend to focus on one perspective while overlooking the relationship between perspectives, such as the supply and demand sides. However, individuals and their social relations are interactive; to focus on a person, one must consider the social context in which they are immersed (Lam, 2004). To date, little is known about how entrepreneurship education learning is affected by the environmental context (Dou et al., 2019; Walter & Block, 2016). Moreover, how these combined perspectives influence the dynamic learning process of entrepreneurship education remains unknown. The current study will deepen understanding of the dynamic learning process from the perspectives of various stakeholders by providing new field-based insights from the UK and China, incorporating the institutional context, that is, the economic, political, societal and cultural environments that may impact students' learning expectations positively or negatively. Through a preliminary comparative analysis of the UK and China, different entrepreneurship education policies may significantly affect students' learning expectations.

Furthermore, this thesis will extend self-determination theory to the field of entrepreneurship education to connect the different perspectives of entrepreneurship education, thereby exploring their interplay and evaluating their impacts on students' entrepreneurship learning process. Self-determination theory points out that student autonomy is related to self-directedness, flexibility and creativeness (Sheldon & Elliot, 1998), engagement (Niemic & Ryan, 2009; Reeve & Jang, 2006), persistence and efforts (Reeve & Jang, 2006; Sheldon & Elliot, 1998), personal goal attainment (Sheldon & Elliot, 1998), deep learning (Deci & Ryan, 2000; Niemic & Ryan, 2009), and well-being (Reeve & Jang, 2006). However, it did not provide any link between autonomy and learning expectations, indicating that there is a theoretical knowledge gap. Therefore, one of the potential core contributions is to apply self-determination theory as a cornerstone, an original conceptual framework could be developed to investigate the relationship between entrepreneurship education policy, students' learning expectations, and their behaviour in entrepreneurial learning under the institutional context, which will contribute to filling this theoretical knowledge gap and advancing the understanding of entrepreneurship education studies from different stakeholder perspectives.

Aside from the above calls for research, there is a need to strengthen the understanding of the link between entrepreneurship education and entrepreneurial intentions, which will meaningfully add to the ongoing debate. Hence, one potential contribution is from exploring changes in entrepreneurial intentions before and after entrepreneurship education courses after controlling for confounding variables in order to enhance understanding of this relationship from the perspectives of various stakeholders.

## 1.5 Thesis structure overview



*Figure 1-1 The structure of the thesis*

As seen in Figure 1-1, this thesis has eight chapters.

Chapter 1 provides a brief background to the topic and outlines the rationale and research question, aims and objectives, and significance of the study.

Chapter 2 elaborates on entrepreneurship and the entrepreneurship environment, the definition and the importance of entrepreneurship education. It reviews the supply-side and demand-side literature of entrepreneurship education from the perspective of key stakeholders to accurately define the research question of this thesis.

Chapter 3 presents the relevant hypotheses and conceptual framework based on a thorough literature review. It applies self-determination theory as a cornerstone to build bridges across the national-level institutional context, organisational-level university entrepreneurship education and individual-level entrepreneurial learning, aiming to explore the antecedents that affect students' learning expectations in the institutional background and investigate its impact on learning outcomes.

Chapter 4 presents the research methodology, discussing the research design, data collection method, statistical methods and ethical considerations. It is here that the philosophy of the research is discussed, and the data collection techniques described. Epistemological positivism forms the philosophic foundation of the research methodology.

Chapter 5 tests the relationship between different variables using different analysis methods such as Independent sample T-test, Chi-square Test, Two-way ANOVA and Binary Logistic Regression Analysis and outlines the quantitative analysis results and listed hypothesis testing results.

Chapter 6 discusses the findings of the study and evaluates the significance of the hypothesis testing outcomes.

Chapter 7 is the conclusion and includes a summary of the key findings, the study's contributions to knowledge and implications, and closes this chapter with concluding remarks.

Chapter 8 is the reflection of the research limitations and suggests areas for future investigations.

## 1.6 Summary

This chapter presented the background to the study and stated the rationale and research question, aims and objectives, and potential theoretical contribution. It also offered an overview of the thesis structure and concluded with this summary. The following chapter will review relevant literature on entrepreneurship education, identifying gaps in the literature that this thesis seeks to fill.

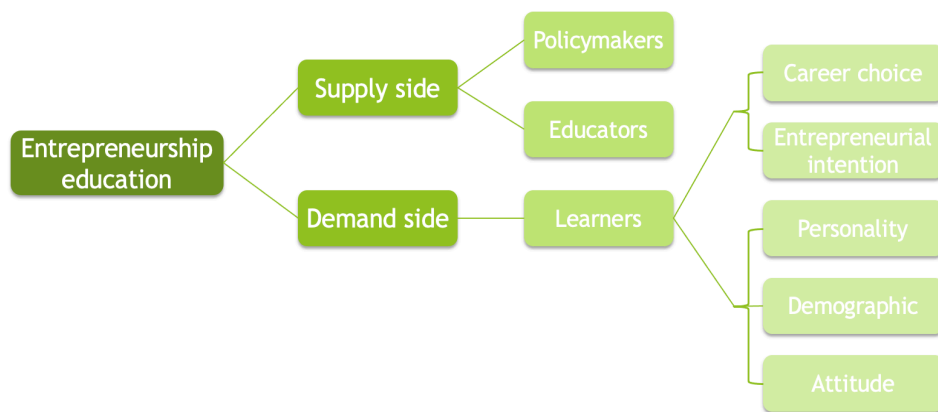
## Chapter 2: Literature Review

### 2.1 Introduction

Entrepreneurship is a crucial factor and a key driver of worldwide competitiveness, economic growth and innovation (Başçı & Alkan, 2015; Ratten & Usmanij, 2021; Wong et al., 2005). Entrepreneurial competency development has been highly sought after by policymakers and practitioners alike (OECD, 2011). Simultaneously, university students are seen as essential sources of future entrepreneurs engaging in creative and dynamic enterprises (Lüthje & Franke, 2002). Given the acknowledgement of entrepreneurial activities in economic growth and the important contribution to employment creation, universities are expected to teach entrepreneurship and promote its research and development in different disciplines (Başçı & Alkan, 2015; Boubker et al., 2021; Haase & Lautenschläger, 2011; Herrmann et al., 2008; Lautenschläger & Haase, 2011; Loucks, 1988; Matlay, 2012; Raposo & Paço, 2011; Rideout & Gray, 2013; Zahoor & Kumar, 2020; Zhang et al., 2014).

In light of this, the expansion of university-based entrepreneurship education is seen as a quick way to boost both the quantity and quality of entrepreneurship (Matlay, 2012). It can also be a source of competitive advantage if it leads to an increase in the number of entrepreneurs who own and can use rare talent and abilities that are difficult to substitute and replicate (Jones & English, 2004). Therefore, entrepreneurship education has received considerable attention in order to assist economies in the future (Dou et al., 2019; Lin & Xu, 2017).

This chapter elaborates on entrepreneurship and the entrepreneurship environment, the definition and the importance of entrepreneurship education. It reviews the supply-side and demand-side literature of entrepreneurship education from the perspective of key stakeholders (Figure 2-1) to accurately define the research question of this study. In particular, the knowledge gap will be critically discussed and how this project can contribute to filling the gap.



*Figure 2-1 The structure of entrepreneurship education literature review*

## 2.2 Entrepreneurship

### 2.2.1 Meaning of entrepreneurship

Entrepreneurship is a common social phenomenon and the driving force of innovation. Various disciplines have different perspectives on the nature of entrepreneurship. Kirby (2004) points out that entrepreneurship can be understood from various viewpoints, including sociology, economics, finance, history, anthropology, and psychology. These disciplines provide multiple concepts and terms of reference to explain it. As a result, there are numerous studies on entrepreneurship but no universal consensus on defining it.

Entrepreneurship is an activity that involves the creation and management of new, innovative, and unique businesses (Hindle & Rushworth, 2000). It overlaps several disciplines, including sociology, psychology, anthropology, and economics; thus, a simple categorisation based on the trait, behavioural and opportunity identification may not be sufficient to complete the definition (Kobia & Sikalieh, 2010). Schumpeter (1934) suggested that an entrepreneur is an innovator who can create new products, new sources, new markets, new production and operations methods, or new business models. Other academics, such as Cunningham and Lischeron (1991), viewed entrepreneurship as a collection of tasks, including fundraising, sourcing, and starting a firm. Moreover, Vesper and Gartner (1997) argued that entrepreneurship is being a

business owner by establishing a new venture or purchasing an existing one. It is about creating new businesses and also includes ongoing innovation activities (Kuratko, 2005). Shane and Venkataraman (2000) proposed that entrepreneurship entails the identification and exploitation of business opportunities. In light of this, perhaps it could be argued that there is a loose consensus around entrepreneurship, including introducing innovation, spotting opportunities, and starting businesses.

Kobia and Sikalieh (2010) identified three different approaches to entrepreneurship in the literature. First, the trait approach focuses on the entrepreneur's personal characteristics such as personality, attention, motivation, and risk-taking capabilities. Several researchers support this approach and there are few compelling arguments against it. Shane (2007) addressed entrepreneurship in terms of stakeholders' high risk-taking proclivity, which described a temperament trait that assesses people's proclivity to participate in risky activity. Because risk is a fundamental characteristic of entrepreneurship, a high risk-taking proclivity is directly associated with increased entrepreneurial activity (Bae et al., 2014; Chand & Ghorbani, 2011; Frank et al., 2010). On the other hand, Jones and Iredale (2010) took an opposite viewpoint, arguing that persons who lack the risk-taking feature that most entrepreneurs possess should be eliminated from the category. This argument is supported by Bae et al. (2014), who maintain that the trait approach fails to address issues about who an entrepreneur is. The trait approach has proven, in the opinion of some, unsuccessful and cannot offer a comprehensive definition of entrepreneurship (Kobia & Sikalieh, 2010). As such, the contribution is limited in terms of advanced understanding of what entrepreneurship is and how it can work or does not work.

Second, the behavioural approach emphasises that entrepreneurial behaviour is much more essential than many other features. Fayolle and Gailly (2015) suggested that the entrepreneur is an individual who creates an innovative firm and then manages it by utilising strategic management practices. Profit and growth are frequent motivators for such individuals. Being an entrepreneur is not a fixed characteristic of a person but rather a role a person may play in creating an organisation (Kobia & Sikalieh, 2010). However, what gives rise to this behaviour is a question left unanswered.



The third perspective is the opportunity identification approach. Many scholars have stated that entrepreneurship is an area that explores diverse opportunities for future goods and services (Eckhardt & Shane, 2003; Shane & Venkataraman, 2000; Venkataraman, 2019). Entrepreneurs investigate the opportunities to generate profits by utilising numerous resources (Shane, 2007). Entrepreneurship, therefore, involves an appropriate mix of entrepreneurs and numerous existing opportunities.

Taking forward the contribution of extant literature, this study adopts the view that the essence of entrepreneurship is a form of creative activity and is a process of combining entrepreneurs with opportunities to create value.

Entrepreneurship education is inextricably linked to the formation of entrepreneurs since it improves students' understanding of entrepreneurship and provides their entrepreneurial awareness during the learning process. In other words, it can be argued that entrepreneurship education can help to nurture entrepreneurs to have an intention to start their own business (Panwar Seth, 2020). However, how and why entrepreneurship education influences individuals to carry out entrepreneurial activities is a question left unanswered. This study is aimed at contributing to this knowledge by exploring the nexus of entrepreneurship, entrepreneurship education and students, in particular students' understanding and expectations of entrepreneurship education.

## 2.2.2 Entrepreneurship and entrepreneurial environment

### 2.2.2.1 *Entrepreneurship and institutions*

Institutions play a vital role in business start-ups. There are amenities, customs, and guidelines by individuals, which serve as rules for regulating behaviour or organs that regulate an individual's internal relationships inside a society (North, 1990). Laws and government regulations as well as conventional norms are examples of institutions (Puffer et al., 2010). They perform critical roles in promoting social development and economic progress through financial intermediation processes and creating links to different sectors in economies (Babajide et al., 2015). In other words, countries with many effective institutions such as government structures, policies and laws, cultural and norms standards are more conducive to new enterprise creation (Chukwuma-

Nwuba, 2019).

On the other hand, the lack of amenities or services, norms, and processes necessary for a well-functioning economy is referred to as an institutional void (North, 1990). Institutional voids echo the institutional contexts, making it difficult for individuals to interact, particularly in business (Doh et al., 2017). Moreover, people's behaviours in a given society are affected by incentives, constraints, or resources provided by formal and informal institutions, which are compatible (Ute et al., 2015). When institutional voids exist, it creates an environment in which potential entrepreneurs are forced to rely on family and friends (Chukwuma-Nwuba, 2019; Lam, 2004), contrasting with developed countries. It is difficult, if not impossible, to view entrepreneurship as a career choice when people believe that their "important others" will not support their desire to start a business. Hence, institutional support is critical to economic growth and development, as well as new venture creation.

#### *2.2.2.2 Entrepreneurship and culture value*

Culture is regarded to be an essential component of people's beliefs and attitudes. It is a crucial element that can encourage people of a community to engage in behaviours that may not be present in other communities (Mueller & Thomas, 2000). Hofstede (1980) defines culture as the collective programming that distinguishes members of one group from those of another. Culture can be defined in numerous ways. Nonetheless, the definitions tend to reflect a set of shared characteristics, at least in part, with other people who belong to the same group or live in a social setting (Bergmann, 2008).

Moreover, it is argued that having value entails maintaining a persistent belief that particular ways of behaviour are preferable to alternatives (Rokeach, 1972). The existence of patterns indicates the values and understandings shared by group members (Lam, 2004; Morris & Schindehutte, 2005). Thus, values can be held by communities as well as individuals. When the community holds values, it becomes an integral part of the people's culture because culture occurs within the background of the social unit (Kilby, 1993; Morris & Schindehutte, 2005). In addition, according to Hofstede (2001), values are learnt processes and tendencies to avoid undesirable

consequences or achieve positive outcomes. Although cultural values evolve throughout time, they are regarded as complete and are typically maintained due to social unit pressure (Chukwuma-Nwuba, 2019).

Over the last 40 years, academia has shown a rapid and sustained interest in the influence of culture on entrepreneurship since the national culture is a reliable predictor of entrepreneurial potential (Mueller et al., 2002). Indeed, the literature on the relationship between cultural beliefs, entrepreneurial motivations and behaviours has grown dramatically (Hayton & Cacciotti, 2013). The emphasis on cultural values originates from the generally held view that it can improve and expand the understanding of the effect of culture on entrepreneurial activities (Liñán et al., 2016) and reflect people's decisions about starting a business (Chukwuma-Nwuba, 2019). Cultural values have created a tendency to favour certain events against others (Hofstede et al., 2005). A country can have different cultures (McSweeney, 2002), and the cultural values of a society affect its proclivity to risk-taking, such as venture creation (Lee & Peterson, 2000). In light of Hofstede's (1981) cross-cultural research, Hayton et al. (2002) stated that specific cultural values promote more entrepreneurial activity than others. The researchers further discovered that while factors such as institutional economic variables do not fully explain differences in entrepreneurial activity across countries, some of these differences could be attributed to culture, as certain norms, values, and socio-cultural practices in the institutional context are more likely to promote or inhibit entrepreneurial activities and intentions (Chukwuma-Nwuba, 2019). Moreover, other scholars (Bosma & Schutjens, 2011; Van Praag & Versloot, 2007; van Stel, 2005; Wennekers et al., 2001) have also argued that disparities in entrepreneurial activities might be related to socio-economic benefits accruing to countries, which are components of a people's cultural norms, values, and beliefs.

Additionally, cultural values that encourage and are conducive to entrepreneurial activities can enhance risk-taking, whereas those that emphasise and strengthen control and consistency (public service) are less likely to encourage entrepreneurial behaviours (Hayton et al., 2002). Even though people are interested in

entrepreneurship and driven by financial benefits, social recognition, career and individual success, they still need a social culture that supports entrepreneurial behaviour (Lee & Peterson, 2000; Russell et al., 2008). This reflects how a supportive culture benefits entrepreneurship and the importance of understanding group members' entrepreneurial interests and needs. It has long been established that culture satisfies needs; when group members' requirements alter, certain components of culture may become less capable of matching social needs (Chukwuma-Nwuba, 2019). In light of this, culture needs to meet group members' expectations to better contribute to national economic progress and individual entrepreneurial development.

To conclude, entrepreneurial activities are inextricably linked to their entrepreneurial surroundings (Busenitz et al., 2000; Welter, 2011). National economic variables do not entirely explain the disparities in entrepreneurial activity between countries; some of these disparities may be linked to institutions and cultures (Chukwuma-Nwuba, 2019). Economic growth, social development, and entrepreneurship rely heavily on institutional backing. Hence, people involved in entrepreneurship, not only know how, when and why to start a business but also understand their institutional context of entrepreneurship. The increasing attention on entrepreneurship education has given rise to the emergence of entrepreneurship education in both developing and developed countries. In the following section, entrepreneurship education will be discussed.

## 2.3 Entrepreneurship education

### 2.3.1 A synopsis of entrepreneurship education development

Since the introduction of entrepreneurship education in the United States in 1947, it has grown exponentially (Charney & Libecap, 2000; Fretschner & Weber, 2013; Kuratko, 2005), with several modules and programmes having been designed and implemented globally (Daniel, 2016). Despite a conflicting assertion that the history of entrepreneurship education can be traced back to Japan in 1938 (Matlay, 2016), there is a lack of concrete evidence to support this. The history of American entrepreneurship education, on the other hand, is publicly accessible and therefore

can be critically examined. It is thought that the first entrepreneurship programme-Management of New Enterprises (MNE), was established at Harvard Business School (Cruikshank, 2005). Thus, entrepreneurship programmes have been domiciled in business schools (Olsen & Mykletun, 2012).

In 1971, the University of South California (USC) established the first MBA programme devoted to entrepreneurship, and by 1972, it had introduced entrepreneurship at the undergraduate level (Kuratko, 2003). According to Solomon et al. (1994), during the early 1980s, more than 300 universities in the United States offered courses in small business and entrepreneurship (Kuratko, 2003). As a result, entrepreneurship education added a crucial dimension to education in terms of course presentation and the concept of self-employment. To summarise, the entrepreneurship education discipline that began as MNE in the United States in 1947 has risen worldwide and gained legitimacy even among other disciplines (Kuckertz, 2013).

Following in the footsteps of the United States, both developed and developing countries, including the UK and China, began to develop entrepreneurship education. In the UK, one of the first relevant programmes was established in 1988 together with the UK's first initiative for 'Enterprise in Higher Education' (Kirby, 2004; Whiteley, 1995). By contrast, entrepreneurship education in China began appearing on individual campuses in the late 1990s in the form of college student entrepreneurship competitions (Zhou & Xu, 2012). In 2001, the Ministry of Education (MOE) introduced a pilot initiative of entrepreneurship education at the undergraduate level in nine universities (Li et al., 2003). Since then, the Chinese government has vigorously promoted entrepreneurship education in response to the rising difficulty of graduate employment and the expanding demand for higher education (Zhou & Xu, 2012).

A review of entrepreneurship education highlights that there is a lack of a universally accepted definition for entrepreneurship education; this will be discussed in the next section.

### 2.3.2 Defining entrepreneurship education

Entrepreneurship education has grown dramatically since the 1950s (Solomon & Fernald, 1991). Although research in entrepreneurship education is expanding, particularly in developed nations, the emerging body of knowledge is nevertheless influenced by conceptual and contextual issues (Matlay & Carey, 2006; Mwasalwiba, 2010). Some early studies identify entrepreneurship education just with the training for company creation. For instance, McIntyre and Roche (1999) identified entrepreneurship education as the process of giving individuals concepts and abilities to identify business opportunities that others have missed, as well as the insight and self-esteem to act when others have hesitated. It involves teaching about identifying opportunities, marshalling resources in the face of risk, and creating a new venture.

Furthermore, other researchers used several similar terms interchangeably in early studies. Jones and English (2004), who substituted entrepreneurship education with entrepreneurial education, defined it as a process through which such education is provided to people with the capacity to recognise commercial opportunities and have the insight, self-esteem, knowledge and abilities to act on them. Some researchers also use entrepreneurship education and enterprise education interchangeably (Sexton & Bowman, 1984). Garavan and O'Cinneide (1994) argued that, whereas the former is more about creating an attitude of self-reliance, the latter is for creating opportunity-seeking individuals. Given the complexities of entrepreneurship education in terms of definitions, content and pedagogies, context-based differentiation may exacerbate the problems caused by a definitional variety. Nonetheless, authors in the UK and Ireland began to use the term "entrepreneurship education." (Henry et al., 2005; Matlay & Carey, 2007)

Despite the contrasting views of similar terms, with the development of this academic subject, the definitions became more precise and reflected the major objectives and stages to be achieved (Mwasalwiba, 2010), which include actions across the whole educational system, not only established enterprises. According to Williamson et al. (2013), it is critical to have a comprehensive understanding of the processes (soft outcome) that lead up to the formation of a new enterprise (hard outcome). This may

help to inspire the actions needed at various stages to attain the hard outcome. Given that entrepreneurship is the primary tool for economic growth and development, job creation and poverty reduction, the different perspectives from which entrepreneurship education is conceptualised may still be summed up as venture creation (Chukwuma-Nwuba, 2019). Moreover, initiatives in developing nations relating to the use of entrepreneurship education as a tool for economic development are likely to be consistent with the lifelong learning concept (EC, 2016).

*Table 2-1 Definitions of entrepreneurship education*

Authors	Date	Definitions
Hood and Young	1993	Entrepreneurship education is a phenomenon that teaches participants how to establish a business in order to make a profit and contribute to economic growth.
Hynes	1996	The process or series of activities which aims to enable an individual to assimilate and develop knowledge, skills, values and understanding that are not simply related to a narrow field of activity, but which allow a broad range of problems to be defined, analysed and solved.
Jack and Anderson	1999	An avenue through which learners can appraise future career choices.
Davidsson	2004	Entrepreneurship education teaches participants how to investigate numerous opportunities and how to make sound decisions to choose the right pursuit
Jones and English	2004	A process of providing individuals with the ability to recognise commercial opportunities and the insight, self-esteem, knowledge and skills to act on them.
Fayolle et al.	2006	Any pedagogical programme or process of education for entrepreneurial attitudes and skills which involves developing certain personal qualities. It is therefore not exclusively focused on the immediate creation of businesses.
Fayolle	2009	All activities that aim at fostering entrepreneurial mind-sets, attitudes and skills that cover a range of parts like idea generation, start-up, growth and innovation.
QAA	2012	Entrepreneurship education equips learners with the extra understanding, qualities and competences required to apply these abilities in the context of creating new firms or businesses.
European Commission	2016	Entrepreneurship education is about learners developing the skills and mind-set to be able to turn creative ideas into entrepreneurial action. This is a key competence for all learners, supporting personal development, active citizenship, social inclusion and employability. It is relevant across the lifelong learning process, in all disciplines of learning and to all forms of education and training (formal, non-formal and informal) which contribute to an entrepreneurial spirit or behaviour, with or without a commercial objective.

*Source:* (Chukwuma-Nwuba, 2019; Davidsson, 2004; Hood & Young, 1993)

As seen in Table 2-1, researchers have defined entrepreneurship education according to different facets of their concerns. For instance, the QAA (2012) stated that entrepreneurship education is a prerequisite for learners to function effectively as entrepreneurs. Critics argued that many business entrepreneurs are college dropouts, while others have never had entrepreneurship education or training. Fayolle et al. (2006) suggested that entrepreneurship education is not just committed to firms' immediate formation but rather to acquiring entrepreneurial attitudes and abilities. Jack and Anderson's (1999) definition appeared to emphasise the critical role of relevant stakeholders to ensure the achievement of the entrepreneurship education programme's goals. Moreover, the European Commission (2016) defined entrepreneurship education as involving translating ideas into action, acquiring the knowledge needed to function actively in society, and covering social and commercial entrepreneurship. This concept included social enterprise, which is absent from the majority of other definitions.

In general, the definitions can mainly be consolidated into two parts. One focuses on personal skills and traits; researchers arguing that entrepreneurship education is aimed at creating or boosting entrepreneurial spirit, attitudes and culture among individuals (Galloway et al., 2005; Jesselyn & Mitchell, 2006; Kirby, 2004; Pittaway et al., 2009). Entrepreneurial traits include responsibility and innovativeness (Abdurazzakov, 2016; Jones & English, 2004). The second part is the measurement of the success or failure of this education, while traditionally, some courses are associated with venture creation and job creation (Mwasalwiba, 2010) and others with helping local entrepreneurs to form and grow (Jones & Matlay, 2011; Kirby, 2004).

Despite the many definitions, there appears to be agreement that entrepreneurship education is an educational process aimed at impacting learners' skills, entrepreneurial mindsets, entrepreneurial intentions, and business start-ups, all with the goal of viewing entrepreneurship as a career choice (Chukwuma-Nwuba, 2019). Taking forward the definition of Jack and Anderson (1999), this study considers entrepreneurship education as an educational programme that involves students/learners learning about enterprise and entrepreneurship, which in turn may



impact their career choice as an entrepreneur.

In summary, the lack of definitional consensus has not prevented the continual expansion of entrepreneurship education. Regardless of the terminologies employed, the goal is to promote an individual's entrepreneurial intention, leading to involvement in entrepreneurial activities that support socio-economic advancement. The following section aims to identify and define different stakeholders in entrepreneurship education.

### 2.3.3 The definition and role of stakeholders in entrepreneurship education

According to Freeman (2010), in the context of strategic management theory, stakeholders are defined as those individuals and groups who can influence or be influenced by achieving the organisation's objectives. Considering the particular context of entrepreneurship education, stakeholders encompass all groups directly or indirectly influenced by entrepreneurship education, either through active involvement in the provision of education or by being recipients of education (Bischoff et al., 2018). Some research literature has defined stakeholders as being either internal or external. Internal stakeholders relate to university affiliates, including university management and instructors; external stakeholders contain all non-university stakeholders directly involved in or related to entrepreneurship education of the respective universities, such as enterprises, support services, incubators, accelerators, financial institutions, as well as science and technology parks and partner universities (Bischoff et al., 2018).

However, there is no consensus on who are considered as the primary stakeholders of entrepreneurship education. From Jack and Anderson (1999), the main stakeholders include the government, students, and the business world. Birdthistle et al. (2007) pointed out that students, teachers, parents and principals are essential stakeholders of entrepreneurship education. While considering the respondents' perceptions, students and faculty members were seen as the primary stakeholders (Matlay, 2009). A university may be discouraged from providing entrepreneurship education due to a lack of relevant funding, student demand, and faculty members' interest in

entrepreneurship (Matlay, 2013). As a result, it can be argued that policymakers, faculty members and students should be considered the essential stakeholders in entrepreneurship education (Bischoff et al., 2018; Mwasalwiba, 2010).

To sum up, entrepreneurship education is a process involving several stakeholders (Birdthistle et al., 2007; Jack & Anderson, 1999). Its development and advancement are attributed to the growing support received from multiple stakeholders, including policymakers, educators, and students (Mwasalwiba, 2010). Their shared belief is that entrepreneurship education can impact culture, establish enterprising economies, and aid in self-development (Kirby, 2004; Mwasalwiba, 2010; McMullan, 1987). One key factor that can be identified from a review of the literature is that entrepreneurship education is considered to be a crucial factor to entrepreneurship; this will now be covered in the next section.

#### 2.3.4 The importance of entrepreneurship education

Entrepreneurship education contributes to the formation, development, and strengthening of entrepreneurial culture in social life and also aids in improving the level of social and economic innovation and the transformation of a state's economic structure (Lundstorm & Stevenson, 2005). In prior literature, Sánchez (2013) stated that the national Ministry of Education is likely to strengthen the achievement of skills and abilities required to develop business start-ups. Entrepreneurship education is essential for the country's economy and plays a significant role in building an innovative country (Kirby, 2005) because it has the potential to boost people's skills and capabilities in starting businesses. The studies of Fayolle and Gailly (2015) and King and Raghuram (2013) pointed out that the major aims of entrepreneurship education are likely to involve the development of entrepreneurial prospects and awareness. Sánchez (2013) maintained that entrepreneurship education facilitates organising a solid foundation of knowledge regarding entrepreneurship. Additionally, some scholars believe that business structure development effectively maximises the strength and possibilities of the educational sector (Fayolle & Gailly, 2015; King & Raghuram, 2013; Salamzadeh et al., 2013; Sánchez, 2013).

A review of the literature revealed that recent developments in the educational sector require theoretical as well as practical knowledge of entrepreneurship education (Martin et al., 2013; Piperopoulos & Dimov, 2015; Rae & Woodier-Harris, 2013; Salamzadeh et al., 2013; Sánchez, 2013). The value and necessity of entrepreneurship education have gained widespread recognition across various stakeholders, including policymakers, educators, and practitioners (Salamzadeh et al., 2013; Sánchez, 2013). Roxas et al. (2009) discovered that knowledge received from a formal entrepreneurship education programme had a beneficial effect on an individual's overall entrepreneurial intentions via the mediating impacts of attitudes and social norms supporting entrepreneurial behaviour. Vesper and McMullan (1988) stated that entrepreneurship courses help enhance students' decision-making knowledge and abilities during the start-up process. Focusing on outcomes, Chen et al. (1998) discovered that entrepreneurship students had much higher self-efficacy than non-entrepreneurship students, which considerably influenced entrepreneurial intention. This was also backed by Lüthje and Franke (2003), who pointed out that students that studied entrepreneurship were more likely to start their own enterprises. From a practical perspective, Botha et al. (2006) have also shown a positive association between small business performance and training. A comparative study conducted by Lee et al. (2005) supported this, which found that entrepreneurship education was strongly connected with entrepreneurial intention regardless of where students came from (i.e. the USA or Korea). Using a quasi-experimental design relying on the theory of planned behaviour (TPB), Rauch and Hulsink (2015) pointed out that students enrolled in entrepreneurship education show an increase in attitudes and perceived behavioural control; at the end of the programme, they also exhibit higher entrepreneurial intentions. In addition, Kolvereid and Moen (1997) contended that, apart from developing skills for business start-up and ownership, university-based entrepreneurship education can positively impact general attitudes toward entrepreneurship and, in turn, promote entrepreneurship as a valuable and respectable career option for graduates.

Entrepreneurship education can improve and enhance the quality of individual entrepreneurship, nurture individuals' ability to think creatively and critically, and has

a significant influence on successful business start-up (Chusimir, 1988; Clark et al., 1984; Galloway & Brown, 2002; Raposo & Paço, 2011; Katz, 2007). Moreover, even if a graduate chooses to work rather than set up a business, the entrepreneurial knowledge and skills acquired via entrepreneurship education can also help them make unique, innovative and creative contributions to their employment (Bridge et al., 2010).

To summarise, at the national level, entrepreneurship education plays an irreplaceable role in fostering social progress and economic growth, and it is a driving force in cultivating the entrepreneurial spirit, entrepreneurial culture and establishing innovative countries. Furthermore, at the individual level, entrepreneurship education nurtures students' entrepreneurial skills, abilities, and awareness, which is conducive to their future entrepreneurship and employment. A review of the literature helps to realise that both supply and demand of entrepreneurship education play a key role in the success of the educational programmes. This will be covered in the next section.

## 2.4 Supply and demand sides of entrepreneurship education

As discussed in 2.3.3, entrepreneurship education is a process involving many stakeholders (Birdthistle et al., 2007; Jack & Anderson, 1999). Its development and advancement are attributed to the growing support received from multiple stakeholders, including policymakers, educators, and learners (Mwasalwiba, 2010). Looking closely at their individual group, the stakeholders' interests could be explained by using the supply and demand relationship. The supply side of entrepreneurship education mainly focuses on policymakers and education providers, and the demand side principally focuses on students as the critical stakeholders.

### 2.4.1 The supply side of entrepreneurship education

#### 2.4.1.1 *Policymakers*

As supporters of entrepreneurship education, policymakers play a pivotal role in providing financial support for entrepreneurship education development. Since the entrepreneurial activity was discovered to be an essential prerequisite for innovation

capacity and economic competitiveness (e.g., Galindo & Méndez, 2014; Pagano et al., 2018; Rotge et al., 2012; Walter & Block, 2016), many countries have substantially invested in entrepreneurship education (e.g., Dou et al., 2019; Jones & Iredale, 2014; Lin & Xu, 2017; Walter & Block, 2016). It is considered a specialised education that actively demonstrates the benefits of entrepreneurship compared with other career choices (Chukwuma-Nwuba, 2019). The long-term investment in entrepreneurship education aims to embed enterprise and entrepreneurship notions at all levels of the educational system (Hannon, 2006; Matlay, 2006) to enhance innovation and reduce unemployment (Harrington & Maysami, 2015; Minniti, 2008). Researchers have identified a direct beneficial relationship between policymakers investment in entrepreneurship education and student entrepreneurs (Varela & Jimenez, 2001), and also highlighted the importance of entrepreneurship education in fostering entrepreneurial intention and predicting entrepreneurial behaviour (do Paço et al., 2011; Liñán et al., 2011; Souitaris et al., 2007; Zhang et al., 2014). Hence, policymakers' investments in university-based entrepreneurship education have increased the number of participants, anticipating that more people are likely to make entrepreneurial career choices.

Furthermore, policymakers work closely with universities and issue policies to enhance entrepreneurship education development. Policymakers can put forward clear and specific entrepreneurship education standards and provide resources for universities to achieve their educational goals (Lin & Xu, 2017). In order to strengthen the practical purpose of entrepreneurship education, policymakers have created university-based incubators to provide students with consulting and mentoring services (Culkin, 2013; Dou et al., 2019). Moreover, preferential policies such as entrepreneurship-friendly policies and government-funding opportunities have been implemented to encourage students to be involved in entrepreneurial activities (Lin & Xu, 2017), enhance entrepreneurial attitude and advance start-ups' survival rate (Dou et al., 2019). In addition, compared with some developed countries, some developing countries have adopted compulsory entrepreneurship education policies. Compulsory entrepreneurship education seems to be an effective way of creating a large number of future entrepreneurs (Chukwuma-Nwuba, 2019). However, some researchers have

suggested that forcing such a specialised professional career path on all students produces a detrimental impact (Chukwuma-Nwuba, 2019; Oosterbeek et al., 2010; von Graevenitz et al., 2010). Because of its mandatory character, entrepreneurship education may be a barrier to fulfilling its mission. In light of this, research is necessary to explore the impact of this potential weakness on students' career choices and subsequent entrepreneurial activities.

In addition to the direct impact on the emergence of entrepreneurship education programmes, state policies have an impact on entrepreneurial cultures that in turn influence the impact of entrepreneurship education. Given that policymakers play a vital role in inspiring national cultures of innovation and risk-taking in order to foster entrepreneurship and safeguard economic progress (Chukwuma-Nwuba, 2019), the influence of culture on entrepreneurship and entrepreneurship education is becoming the focus of policymakers' attention. As noted in 2.2.2.2, the national culture is a valid predictor of entrepreneurial potential (Mueller et al., 2002). A supportive culture can encourage individual's entrepreneurship and promote national economic growth and development (Russell et al., 2008). At the same time, culture also can impact a country's entrepreneurship education effectiveness, which is considered to depend on the unique background of each country (Lee & Peterson, 2000). The study of Liñán et al. (2013) confirmed the cross-cultural difference between British and Spanish college students and pointed out the role of national culture in understanding and explaining entrepreneurial intention. Taking this forward, it can be argued that the institutional context, which includes the cultural, social, political and economic contexts, is vital in shaping the impact of entrepreneurship education in different countries. This will be discussed in detail in 3.6.

#### *2.4.1.2 Educators*

Educators, as providers of entrepreneurship education, play an active role in students' entrepreneurship learning. Scholars have stated that educators are widely considered the most influential actors in education (Sagar, 2015). Given that entrepreneurship education is a practical course combining theory with practice (Zheng et al., 2017), educators' academic qualifications and entrepreneurial experience are essential in the

entrepreneurship teaching process (Oplatka, 2014; Zheng et al., 2017). Kuratko (2005) pointed out that the current demand for educators with accredited qualifications and abilities to develop entrepreneurship education remains high. This illustrates that entrepreneurship education needs high-quality educators to better guide students to learn and impart entrepreneurial experience in their teaching. In other words, the professional development of entrepreneurship educators plays an influential role in entrepreneurship education.

Moreover, the effectiveness of entrepreneurship education is mainly associated with the educator's teaching methods (Ahmad, 2013; Badwan, 2018; Balan & Metcalfe, 2012; Cheng et al., 2009; Mwasalwiba, 2010). Entrepreneurship education includes traditional and active pedagogy techniques (Cooper et al., 2004; Henry et al., 2005). Scholastic consensus is that traditional teaching methods are inefficient in stimulating entrepreneurial characteristics, while active teaching methods such as teamwork and group discussion that allow students' self-discovery are more suitable for fostering entrepreneurial intentions (Chukwuma-Nwuba, 2019). This is because the positive teaching methods adopted by educators encourage students to participate actively and do not limit students to listening and note-taking (Fiet, 2001; Garavan & O'Kinneide, 1994; Rae, 2000). According to Herrmann et al. (2008), with the development of entrepreneurship education, teaching approaches are shifting away from traditional lecture methods to modern teaching methods such as experiential learning. However, it seems that the required shift is not about abandoning traditional teaching methods but rather a balance between traditional and experiential teaching methods (Chukwuma-Nwuba, 2019; Jones & Lourenço, 2006). Scholars have argued that two ways to destroy an entrepreneurial module are by being completely theoretical or completely practical (Bygrave, 1993). In light of this, establishing a good balance between the two methods appears to be the best strategy, highlighting the necessity for entrepreneurship educators to have knowledge and abilities to identify teaching methods suitable for the different course content and design.

Additionally, entrepreneurship education as a discipline is more than simply a course or subject since it involves extracurricular activities without which it appears unlikely

to fulfil its goals. NCGE (2007) published a report that focuses on good practice in entrepreneurship education, which covers areas that educators can focus on to improve the quality of course content design and delivery. The rationale is that educators implement certain good, practical activities, which is expected to enhance the effectiveness and efficiency of the course delivery. According to Gartner and Vesper (1994) and Souitaris et al. (2007), a good practice entrepreneurship programme should have four components: (1) a taught component consisting of one or more modules; (2) a business plan component should include suggestions on the development of business ideas and business plan competitions; (3) a practical component should include entrepreneurial speeches and networking activities; and (4) a university support component should provide conference spaces and even seed funding for student groups. Entrepreneurship education is understood as a form of actionable theory education, which combines curricular courses (theoretical content) and extracurricular activities (practical content) to develop students' personalities and enable them to obtain entrepreneurial thinking and entrepreneurial abilities to plan and build companies cognitively and practically (Currie & Knights, 2003; Neck et al., 2014; Täks et al., 2014; Urban, 2006). Therefore, it is necessary to establish the influence of entrepreneurship education course content and practical activities on students' learning and entrepreneurial intentions.

As discussed in 2.4.1, the supply side plays an active role in promoting the development and implementation of entrepreneurship education. Policymakers provide funding and policy support for university-based entrepreneurship education, and educators can improve the effectiveness and efficiency of the course delivery by combining theoretical knowledge and practical activities. They, as facilitators, provide students with environmental regulatory resources and educational resources to achieve the mission of entrepreneurship education. Moreover, the influence of culture on the effectiveness of entrepreneurship education is receiving increasing attention, which is considered to be dependent on the unique background of each country. Hence, to explore the impact of entrepreneurship education on students in different countries, it is necessary to incorporate the country's institutional context in such study.



However, one major weakness of the supply side perspective is that there is a tendency for the literature to adopt an 'outside-looking-in' perspective on entrepreneurship education, which tends to regard policymakers or educators as the main body of entrepreneurship education. The ultimate goal of entrepreneurship education is to cultivate students with entrepreneurial intentions and abilities to promote entrepreneurial activities. In other words, the students play a central role in their learning process. It is the student who has produced the different outcomes during the learning process. Similarly, it is only through the learners that the learning outcome can be demonstrated. According to Shaver and Scott (1991), none of the other factors alone will create a new venture without a person. Given the importance of individuals in entrepreneurship and entrepreneurship education, an 'inside-looking-out' perspective has the potential to promote an understanding of entrepreneurship education. Therefore, students must be seen as the focus of entrepreneurship education research. In other words, the demand side of entrepreneurship education is crucial to advance understanding of this subject. In the following section, the demand side of entrepreneurship education that focuses on students will be covered.

#### 2.4.2 The demand side of entrepreneurship education

Entrepreneurship education is a specialised education that focuses on demonstrating the benefits of entrepreneurship compared to other career options (Chukwuma-Nwuba, 2019). It is intended to strengthen learners' understanding and cognition of entrepreneurship. Most importantly, learners' personal factors also play a key role in the learning process. Students enrolled in entrepreneurship education have perceived themselves as customers, and their impact, both explicit and implicit, was considerable. In the short term, full-time and part-time students constitute the demand side of the entrepreneurship education equation, without which no provision is feasible (Jones & Matlay, 2011). In the medium to long-term, students' specific needs are essential to other primary stakeholders, and their feedback and contribution to the design, development and assessment of various courses were regarded as crucial.

Numerous studies have been conducted on the demand side of entrepreneurship education from the student perspective. Scholars have paid attention to the students' entrepreneurship education learning outcomes and their impact on entrepreneurship education effectiveness. However, entrepreneurship education assessment is still in its early stages (Carey & Matlay, 2010; Chukwuma-Nwuba, 2019). Learner's career choices (Harte & Stewart, 2010) and entrepreneurial intention (Fayolle & Liñán, 2014; Pittaway & Cope, 2007) are considered the critical learning outcomes of entrepreneurship education. At the same time, research on the influencing elements of entrepreneurship education has advanced from the development of models based on personality characteristics linked with entrepreneurship (McClelland, 1961) to demographic variables such as gender, age and level of education (Botha & Bignotti, 2017), and then to the use of attitudes of intentionality models (Bird, 1988; Chukwuma-Nwuba, 2019; Kautonen et al., 2015; Krueger, 1993). Next, the learners' career choices will be discussed.

#### *2.4.2.1 Learners' career choice*

According to Harte and Stewart's (2010) definition of entrepreneurship education, one of entrepreneurship education's responsibilities is to make students aware of alternative career options and influence and shape their career choices (Harte & Stewart, 2010). Learners' career choices and perceptions about their own career choices are considered extremely valuable, especially in a period of economic downturn and financial uncertainty (Harte & Stewart, 2010). Therefore, stakeholders on both the supply and demand sides, such as training authorities and providers and learners, must understand the impact of entrepreneurship education and role models on entrepreneurial career choice (Muofhe & Du Toit, 2011).

Several notable career development theorists have contributed to the literature on careers. Dyer's (1995) Model of Entrepreneurial Careers and Lent et al.'s (1994, 2008) Social Cognitive Career Theory (SCCT) are two of the most widely supported models in the careers literature. Dyer's (1995) Model of Entrepreneurial Careers delves into four aspects of the theory of entrepreneurial careers: career selection, career socialisation, career orientation, and career development. According to this model, individual

factors such as entrepreneurial attitudes, social factors such as role models, and economic factors such as network resource availability and economic resources can all affect entrepreneurial career choice (Dyer, 1995). Moreover, education is one essential factor that prepares an individual for an entrepreneurial career (Dyer, 1995; Muofhe & Du Toit, 2011).

The connection between entrepreneurship education and entrepreneurial career choices has been investigated by scholars. These studies were carried out using both quantitative and qualitative paradigms, covering a broad spectrum of methods from the trait approach to the intention-based approach (Albert et al., 1991; Muofhe & Du Toit, 2011; Saini & Bhatia, 1996; Solomon et al., 2008). Solomon et al. (2008) conducted a qualitative study in the USA to investigate the relationship between general education, specific forms of entrepreneurship education and various entrepreneurial activities by analysing peer-reviewed research published in a diverse range of journals and proceedings between 1995 and 2006. Their findings indicated a positive connection between entrepreneurship education and the choice to become an entrepreneur and subsequent entrepreneurial success. Furthermore, Muofhe and Du Toit (2011) studied the impact of entrepreneurship education and entrepreneurial role models on career choices by comparing the entrepreneurial intentions of entrepreneurship students and non-entrepreneurship students. The results demonstrated a positive, albeit not very strong, relationship between entrepreneurship education and entrepreneurial intentions. This result supported the findings of Albert et al. (1991) and Saini and Bhatia (1996), who revealed a positive linkage between entrepreneurship education and entrepreneurial career choice.

In summary, the learners' career choice is one of the measures of entrepreneurship education outcomes. A favourable relationship has been supported between entrepreneurship education and entrepreneurial career choice. However, some studies have used entrepreneurial intention to assess the influence of entrepreneurship education on future career choices. Therefore, the learner's entrepreneurial intention will be discussed in the following.

#### *2.4.2.2 Learners' entrepreneurial intention*

Since entrepreneurial intention was acknowledged as a critical element in the entrepreneurial process, it has become the subject of study and has received greater attention. Entrepreneurial intention, like entrepreneurship education, lacks a widely recognised definition. In this study, Thompson's (2009) definition of entrepreneurial intention is adopted: a person's self-acknowledged determination to start a business and consciously strive to participate in it in the future. This definition is adequate because entrepreneurial intentions are expected to lead to self-employment at some point after graduation.

Many researchers have determined that intention is the best predictor of voluntary behaviours (Ajzen, 1991, 2001; Bandura, 2001). Entrepreneurial intention is considered a proximal and direct predictor of entrepreneurial behaviour (Bird & Jelinek, 1989; Krueger et al., 2000). The intention is a state of mind that reflects an individual's belief in taking a particular behaviour in the future and is an individual's active commitment to implementing certain behaviours (Bandura, 2001). Only individuals with a firm entrepreneurial intention are likely to start actual entrepreneurial activities; without entrepreneurial intentions, it is impossible to generate entrepreneurial behaviour (Krueger, 2000; Thompson, 2009). Ajzen (1991, 2001) created one of the most widely accepted models in intention research, which described intention as the most effective predictor of individual behaviour and argued that the complexity of intentions could support the existence of behaviour. In other words, students are most likely to start a business once their intention is shaped by certain components of entrepreneurship education (Bae et al., 2014). Research in the entrepreneurship field so far has confirmed the predictive ability of entrepreneurial intentions on entrepreneurial behaviour (Ajzen, 1991; Hmieleski & Corbett, 2006; Krueger et al., 2000; Shapero & Sokol, 1982; Wilson et al., 2007).

Furthermore, numerous studies utilise entrepreneurial intentions as the primary measure of entrepreneurship education learning outcomes (Nabi et al., 2018; Tessema Gerba, 2012). This is due to the fact that entrepreneurial intention, as a psychological state, guides individuals to focus their attention, experience and actions

toward entrepreneurship (Bird, 1988) rather than paid employment, which is an essential factor in entrepreneurial decision-making (Ozaralli & Rivenburgh, 2016; Souitaris et al., 2007). Various research on entrepreneurship education and entrepreneurial intentions have been carried out across countries.

Based on Ajzen's (1991) theory of planned behaviour, Souitaris et al. (2007) implemented a linear regression model to analyse the influence of entrepreneurship education on the entrepreneurial intention of science and engineering students at London and Grenoble universities. The study used a pre-test and post-test control group design, revealing that entrepreneurship education enhanced respondents' attitudes and entrepreneurial intentions. They additionally discovered a substantial increase in subjective norm, which may be attributed to creating a new circle of entrepreneurial-minded peers.

Since its publication, Oosterbeek et al.'s (2010) study has been one of the most referenced pieces of entrepreneurship education intervention research. In this mixed-method study combining surveys and interviews, the researchers evaluated the influence of entrepreneurship education on students' motivation and entrepreneurial abilities in the Netherlands. The survey sample consisted of 219 high school students in the experimental group and 343 students in the control group, whereas the interviewees were tutors. According to the study, the entrepreneurship education programme had a detrimental influence on students' entrepreneurial intentions. As a result, the authors noted that the mandatory programme did not achieve the expected effect due to the lack of interest from participants. However, Oosterbeek et al.'s (2010) study had a flaw in that it failed to control the confounding element of age. Furthermore, why and how the mandatory/optional programmes influence the learners' intentions are questions left unanswered.

Von Graevenitz et al. (2010) conducted a pre-test and post-test on a sample of 357 university students in Germany to examine the effects of a compulsory entrepreneurship module on students' entrepreneurial intentions. They observed a decrease in the respondents' entrepreneurial intentions, which was consistent with

the findings of Oosterbeek et al. (2010). The pre-course survey revealed that 71.4 per cent of the 196 students who took part in both questionnaires had an entrepreneurial intention, while the post-course survey indicated that this figure had dropped to 63.8 per cent. They believed this is due to the fact that entrepreneurship education provided students with information about career choices, allowing them to select the most appropriate occupations. However, because potential confounders were not controlled, the researchers could not rule out the possibility that external variables influenced students' perceptions. Hence, changes in pre- and post-course entrepreneurial intentions require further research and need to be controlled for possible confounders.

Rengiah and Sentosa (2015) applied structural equation modelling (SEM) to investigate Malaysian university students' entrepreneurial intentions due to participation in entrepreneurship education programmes. The findings indicated that after the course ended, students' interest in engaging in entrepreneurial activities increased, which supported the results of Souitaris et al. (2007). This conclusion appears to be unsurprising given that the students self-selected into the programme. Therefore, it seems that selection bias impacts entrepreneurship education outcomes; however, how and why this is the case is not discussed in-depth and thus calls for further investigation in this area.

The influence of the compulsory module of entrepreneurship education on the cultivation of Nigerian university graduates' entrepreneurial intention was examined by Chukwuma-Nwuba (2019), based on the theory of planned behaviour (Ajzen, 1991). The study employed a hybrid quantitative and qualitative research technique, with data analysed using structural equation modelling. The survey's participants were students, with 409 graduates serving as the experimental group and 402 undergraduates serving as the control group, and lecturers serving as interviewees. The results indicated that the entrepreneurship education programme has led to a decrease in graduates' entrepreneurial intentions, which was similar to the findings of Oosterbeek et al. (2010) and Von Graevenitz et al. (2010). Moreover, the author further pointed out that cultural values indirectly affect entrepreneurial intentions via

personal attitude and subjective norms. Hence, it seems necessary to investigate the impact of entrepreneurship education in conjunction with the country's institutional background.

In conclusion, entrepreneurial intention is strongly connected to entrepreneurship education (Fayolle & Liñán, 2014; Pittaway & Cope, 2007) and is a core factor in explaining entrepreneurship education learning outcomes (Nabi et al., 2018; Tessema Gerba, 2012). Although several quantitative and qualitative studies have been performed in Western and Eastern nations on the link between entrepreneurship education and entrepreneurial intentions, the results have been mixed. These variances may not be confined to differences in the measurements employed, as suggested by the literature, but may be connected to other factors, such as national characteristics. These arguments suggest that the impact of entrepreneurship education on entrepreneurial intentions requires more in-depth comparative examination in different countries.

As previously stated, on the demand side of entrepreneurship education, academics focus not only on learners' entrepreneurship education learning outcomes but also their individual factors impact on entrepreneurship education effectiveness. Following that, the learners' personalities will be reviewed.

#### *2.4.2.3 Learners' personality*

A significant number of studies in entrepreneurship focus on the learners' personality within the psychological approach (Shaver & Scott, 1991; Jones & Iredale, 2010). Personality characteristics can be used to assess individuals' propensity to produce positive behaviours and identify the variations between individuals to actively influence the surrounding environment (Buss & Finn, 1987). Scholars have investigated the link between individual characteristics and entrepreneurial behaviour and discovered that entrepreneurs indeed vary from others in several personality traits (Zhao et al., 2010). For instance, a proactive personality can favourably influence an individual's entrepreneurial intentions (Crant, 1996). Having reviewed existing

research, one major point is that people who establish their own firms share certain personality traits with other entrepreneurs (Baumback & Mancuso, 1987).

This personality perspective is helpful in the sense that it acknowledges the importance of individuals in the entrepreneurship process. This viewpoint, however, has certain drawbacks. Because a high risk-taking proclivity is directly associated with increased entrepreneurial activity (Bae et al., 2014; Chand & Ghorbani, 2011; Frank et al., 2010), Shane (2007) addressed entrepreneurship in terms of stakeholders' high risk-taking proclivity, which described a personality trait that assesses people's proclivity to participate in risky activity. In contrast, Jones and Iredale (2010) pointed out that persons who lack the risk-taking feature that most entrepreneurs possess should be eliminated from the category. This argument was supported by Bae et al. (2014) and Kobia and Sikalieh (2010), who maintained that the personality trait fails to address issues about who an entrepreneur is. In light of this, one flaw of the personality perspective is the assumption that certain personality characteristics are unique to entrepreneurs and distinct from non-entrepreneurs. The studies have failed to establish any characteristics significantly connected with entrepreneurs or entrepreneurship (Carsrud & Olm, 1986). Moreover, research has revealed no substantial difference in personality traits between entrepreneurs and non-entrepreneurs (Brockhaus & Nord, 1979; Hull et al., 1982). Therefore, these results challenge the value of research that focuses on learners' personalities.

Furthermore, the research method's validity has been another weakness in the personality perspective. The bulk of personality trait research is based on well-established models such as McClelland's (1961) need for achievement or Rotter's (1966) Internal-External Locus of Control Scale for measuring individual personality characteristics. The assumption is that by doing so, these models are universal, valid, and impartial, and that can be used to evaluate personality characteristics accurately. The few Chinese researchers that focused on personality tended to utilise Western models to examine Chinese entrepreneurs. However, Lam (2004) pointed out that researchers and interviewees may have different interpretations of questions and answers because they are embedded in different social contexts. People with



comparable scores may not have the same 'locus of control' as the model suggests. Similarly, people with the same level of risk-taking propensity do not necessarily perceive the same level of risk in the same circumstance, particularly when examining people from different cultures (Lam, 2004). Hence, the model's reliability to forecast learners' future entrepreneurship is being questioned.

Therefore, researchers began to oppose the personality perspective as it did not contribute much to the development of entrepreneurship education and proceeded to focus on learners' demographic variables such as gender, age, and level of education (Botha & Bignotti, 2017).

#### *2.4.2.4 Learners' demographic*

##### *2.4.2.4.1 Gender*

Gender impacts have received increased attention in the research of entrepreneurship education and entrepreneurial intention (Miranda et al., 2017; Voegel & Voegel, 2019; Yukongdi & Lopa, 2017; Zahoor & Kumar, 2020). Many nations have examined entrepreneurial behaviour (e.g., Gupta et al., 2009; Majumdar & Varadarajan, 2013; Minniti & Nardone, 2007) and entrepreneurial intentions (e.g., García-Rodríguez et al., 2013; Zahoor & Kumar, 2020) in both men and women.

Previous studies have found considerable gender disparities in the entrepreneurship area (Bönte & Piegeler, 2013; Kelley et al., 2012; Zahoor & Kumar, 2020; Zhao et al., 2005). Kelley et al. (2012) discovered that in most countries, the number of male entrepreneurs significantly exceeds the number of female entrepreneurs in a survey of 54 economies. Similarly, empirical evidence has shown that males have stronger entrepreneurial intentions (Díaz-García & Jiménez-Moreno, 2010; Schwarz et al., 2009; Zahoor & Kumar, 2020) and entrepreneurial aspirations (Wang & Wong, 2004) than females. Further analysis revealed that a variety of reasons causes this gender gap. According to Zhao et al. (2005), women believed they have higher barriers to entry into the entrepreneurship field than men. Fear of failure was discovered to have a much stronger influence on females in Wagner's (2007) and Langowitz and Minniti's (2007) investigations. Allen et al. (2007) revealed that women, far more than men, do

not feel they have the required skills to start a business and are less confident in their capabilities. Females have less risk-taking behaviour and self-efficacy but a greater demand for entrepreneurship education (Wilson et al., 2007). Moreover, some researchers contended that differences in entrepreneurial activity are connected to socially and culturally determined gender (Henry et al., 2016). However, other research showed that men and women share far more similarities than differences (Díaz-García & Jiménez-Moreno, 2010). In light of this, the results of gender and entrepreneurship studies provide mixed evidence. Therefore, this study will further explore the differences between men and women, recognising gender as a confounding factor in entrepreneurship education research.

#### 2.4.2.4.2 Age

Age has traditionally been employed as an essential element in social science research to classify individuals and explain variations between them (Aapola, 2002). People's skills may increase with age (Welmilla et al., 2011) as they learn to manage their time more efficiently (Korpunen & Nápravníková, 2007).

Few studies have looked at the link between age and entrepreneurial intentions (Reynolds, 1997) and those that have, differ in their respective results. On the one hand, some researchers, including Schwarz et al. (2009) and Kautonen et al. (2011), pointed out that older individuals have higher entrepreneurial intentions than younger ones. One explanation for this is such young people typically do not have any specific plans for their future career or any understanding of the nature of entrepreneurship at the time (Botha & Bignotti, 2017). Moreover, Allen et al. (2007) discovered that entrepreneurial aspiration was more prominent in the age group of 25-34 and 35-44 but less in the 18-24 age group. They suggested that entrepreneurship education providers must effectively target the 18-24 age group to stimulate further access to entrepreneurship education and subsequent entrepreneurial activities.

On the other hand, some scholars argued that, while older people are more capable of deviating from the conventional way of doing business because they have more opportunities and means to do so (Curran & Blackburn, 2001; Weber & Schaper, 2004),

they are much less likely than younger people to take steps toward acting entrepreneurially (Hart et al., 2004) or actually create a business (Kautonen, 2008). Fung et al. (2001) and Lévesque and Minniti (2006) further explained the influence of age on entrepreneurial intentions through the opportunity cost of time, which argued that the elderly in particular are reluctant to invest time in activities with long and uncertain payback periods, such as entrepreneurship. This viewpoint was reinforced by Sajilan et al. (2015), who noted that individuals exhibit more entrepreneurial intention at a younger age (25-44) than at an older age (above 44). Schwarz et al. (2009) similarly contended that as people reach the age of 35, their entrepreneurial intention drops.

Therefore, age is one of the confounding factors in entrepreneurship education studies. These mixed results need to be further clarified through more contextual research.

#### 2.4.2.4.3 Current year of study

The current year of study represents learners' education level and has aroused the interest of entrepreneurship researchers. Empirical studies have found the connection between a person's formal education level and entrepreneurship (Galloway & Brown, 2002; Garavan & O'Cinneide, 1994; Hills, 1988; Kolvereid & Moen, 1997). According to Robinson and Sexton (1994), people with long years of formal education are more likely to become entrepreneurs and more likely to succeed than those with fewer years of education. Similarly, scholars discovered that obtaining an adequate level of education may increase personal entrepreneurial intention (Turker & Selcuk, 2009; Zahoor & Kumar, 2020). On the contrary, lower education levels are generally connected with a lower intention to be involved in entrepreneurial activities (Herrington & Kew, 2016).

However, some researchers observed an inverse link between high levels of education and entrepreneurial intentions (Wang & Wong, 2004). Since senior students have a lower interest in entrepreneurship, and the more time they stay in college does not translate into higher interest, they believe education appears to be a barrier to entrepreneurship (Wang & Wong, 2004). One probable explanation is the opportunity

cost of human capital, as higher levels of education may lead to lucrative employment possibilities in huge established businesses (Botha & Bignotti, 2017).

Additionally, Dickson et al. (2008) revealed a nonlinear relationship between education levels and entrepreneurial intentions. It implied that higher degrees of education are connected with greater entrepreneurial intention levels; nevertheless, those with extremely high levels of education are more likely to seek a formal occupation. As a result, the current year of study (education level) yields inconsistent findings in entrepreneurship education studies, which is viewed as a confounding variable.

To sum up, learners' demographics such as gender, age and current year of study have reported mixed results in entrepreneurship research. Thus, a more contextual study is required to clarify these varied findings. The present study considers their confounding effects and uses them as control variables.

As mentioned earlier, studies on the influencing factors of entrepreneurship education have advanced from the development of models based on personality traits linked with entrepreneurship (McClelland, 1961) to demographic variables (Botha & Bignotti, 2017). Although these studies can determine the correlations between certain personality traits and demographic features of individuals and entrepreneurial behaviours, their predictive powers were limited (Reynolds, 1997). Indeed, some academics have challenged these static variables' low explanatory power and conceptual limitations (Krueger, 2000; Liñán, 2004). Therefore, scholars instead focus on the impact of dynamic variables such as learners' attitudes on entrepreneurship education outcomes, which will be covered in the next section.

#### *2.4.2.5 Learners' attitude*

The reasons why people choose entrepreneurial paths and the extent to which their choices are voluntary are vital topics in entrepreneurship studies (Dawson & Henley, 2012). Choices related to entrepreneurial paths have different influencing factors (Armitage & Conner, 2001), and attitude is one of them (Ajzen, 2005). Encouraging

individuals to adopt these factors is critical for promoting entrepreneurship (Law & Breznik, 2017).

Although formal definitions of attitude differ, Azjen (2005) defined attitudes from a social psychologist's perspective as the degree to which a person has a favourable or unfavourable evaluation or appraisal of the behaviour in the issue. Scholars believe that people form attitudes depending on their beliefs about the consequences of performing their behaviours (Schlaegel & Koenig, 2014). An individual's attitude toward entrepreneurship refers to evaluating the overall favourability of establishing a firm (Krueger et al., 2000; Rosique-Blasco et al., 2018). This attitude comprises both emotional aspects (e.g. preferences) and evaluation aspects (e.g. strengths and weaknesses) (Liñán & Chen, 2009). Zhang and Cain (2017) pointed out that individuals' attitudes are shaped by their risk judgments based on personal and other people's experiences, which determines the individual's views of the attractiveness of participating in entrepreneurial behaviour. People's entrepreneurial intention (whether the individual expects to start their own business) increases when their perception of the attractiveness of entrepreneurship grows (Krueger et al., 2000).

Attitudes play an essential role in forming intentions in the theory of planned behaviour (Azjen, 2005) and influence behaviour through intentions (Schwarz et al., 2009). Several studies have supported the role of attitudes towards entrepreneurship in entrepreneurial intentions (Guerrero et al., 2008; Shook & Bratianu, 2010). Scholars have observed that a more favourable attitude can improve the intention to perform expected behaviours (Fini et al., 2012; Liñán, 2004). People are unlikely to participate in behaviour unless they have a positive attitude toward it (Botsaris & Vamvaka, 2016). Prior studies have concluded that attitude plays a significant role in explaining entrepreneurial intention (Kautonen et al., 2013), and attitude toward entrepreneurship is a crucial predictor of entrepreneurial intention (Bazkiaei et al., 2020; Engle et al., 2010; Schlaegel & Koenig, 2014; Schwarz et al., 2009; Zampetakis et al., 2009). Hence, a positive relationship has been tested out between attitude toward entrepreneurship and entrepreneurial intention.

Furthermore, scholars have also been drawn to the interactive relationship between entrepreneurship education and attitude towards entrepreneurship. Individuals can benefit from education not just in acquiring knowledge and developing skills but also in gaining more opportunities to develop their future careers (Chukwuma-Nwuba, 2019). By creating a gradual or tacit change in an individual's direction or attitude, the importance of daily learning is explained (Burgoyne & Hodgson, 2018). Given that universities have the responsibility to shape attitudes, supply knowledge and enable their students to be enterprising (Jack & Anderson, 1999), individuals pursuing entrepreneurship education at universities may have a higher chance of becoming entrepreneurs (Gelard & Saleh, 2011).

Entrepreneurship education seeks to establish a correct attitude in individuals and to develop knowledge and skills related to entrepreneurship (Potter, 2008) in order to promote a positive attitude toward entrepreneurship (Bazkiaei et al., 2020; Mcstay, 2008; Walter & Dohse, 2009). Florin et al. (2007) argued that the effect of education or environment could shift one's attitude, thereby fostering entrepreneurial intentions. The research had concluded that students who did not participate in entrepreneurship education had a negative attitude towards entrepreneurship and a lower entrepreneurial intention (Zain et al., 2010). In other words, the positive impact of entrepreneurship education on attitude toward entrepreneurship has been established.

Additionally, some studies have focused on learners' attitudes toward entrepreneurship education (Jena, 2020; Lee & Wong, 2005; Lena & Poh-Kam, 2003). Scholars argued that students' attitudes impact their participation and, in turn, affect their learning effectiveness and efficiency (Lam, 2010). One underlying assumption is that if the students demonstrate a more positive attitude towards entrepreneurship education, they will likely perform better in the course and obtain a better learning experience.

In summation, the learners' attitude as a dynamic factor has attracted attention from scholars in the entrepreneurship research field, mainly focused on attitude toward

entrepreneurship and entrepreneurial intention (Bazkiaei et al., 2020; Engle et al., 2010; Schlaegel & Koenig, 2014; Schwarz et al., 2009; Zampetakis et al., 2009), the link between entrepreneurship education and attitude towards entrepreneurship (Bazkiaei et al., 2020; Mcstay, 2008; Walter & Dohse, 2009), and attitude toward entrepreneurship education (Jena, 2020; Lam, 2010; Lee & Wong, 2005; Lena & Poh-Kam, 2003). Existing research showed that a learner's attitude positively impacts entrepreneurial behaviour and entrepreneurial intentions. Moreover, entrepreneurship education plays a vital role in shaping entrepreneurial attitudes. At the same time, the literature emphasised that learners' different attitudes can affect their learning process and outcomes. Although attitudes have been extensively studied in the field of entrepreneurship, scholars have proposed that most studies investigating people's entrepreneurial intentions and entrepreneurial behaviour has used the same theoretical perspective, that is, Ajzen's (1991) theory of planned behaviour (Renko et al., 2012). Scholars urge to employ other theories to extensively explore the relationship between individuals and entrepreneurship education (Hsu et al., 2014) to obtain different perspectives and deepen understanding of entrepreneurship education and entrepreneurial intention.

As discussed in 2.4.2, research on the demand side of entrepreneurship education mainly focuses on learners' career choice, entrepreneurial intention, personality, demographics and attitude. However, one major drawback that can be identified from the literature is a lack of attention to students' learning expectations about the dynamic learning process. It has long been established that students' expectation has a significant impact on student behaviour (Price, 2019; Rauch & Hulsink, 2015), performance (Schunk & Zimmerman, 1998), self-study behaviour (Rovers et al., 2018) and learning experience (Huong et al., 2017; Kilic-Cakmak et al., 2009; Stevenson et al., 2006; Zhou & Todman, 2008), yet this is an area that is largely ignored in the entrepreneurship education literature. This study is aimed at addressing this knowledge gap by exploring students' learning expectations on entrepreneurship education.

## 2.5 Conclusion

Through the analysis of this chapter, it can be recognised that the main stakeholders involved in entrepreneurship education are policymakers, educators and learners, which can be divided into the supply and demand sides. On the one hand, there is a tendency for the supply-side literature to adopt an 'outside-looking-in' perspective on entrepreneurship education, focusing on policymakers as external support resources and educators as university educational resources that have made significant contributions to the development of entrepreneurship education and the promotion of entrepreneurial activities. It emphasised the important influence of the country's cultural background and course content design and delivery on the effectiveness of entrepreneurship education.

On the other hand, the demand-side literature adopts the trend of an 'inside-looking-out' perspective, and the research mainly focuses on learners' career choice, entrepreneurial intention, personality, demographic (age, gender, and current year of study) and attitude. This point of view is helpful because it recognises the central role of the individual in entrepreneurship and entrepreneurial learning. The demand side of entrepreneurship education pays attention to learners' entrepreneurship education outcomes and the impact of personal factors on entrepreneurship education effectiveness. In particular, entrepreneurial intention as the main measure of entrepreneurship education learning achievements has been extensively investigated in many countries (East and West), but the results have been mixed. These variances may not be confined to differences in the measurements employed, as suggested by the literature, but may be connected to other factors such as national characteristics. These arguments suggest that the impact of entrepreneurship education on entrepreneurial intentions requires more in-depth comparative examination in different countries.

Moreover, the influence of personal factors on entrepreneurship education effectiveness has evolved from static (personality and demographic) to dynamic (attitude) factors. This shift has enhanced the understanding of the interaction between individuals and entrepreneurship education. However, a significant



weakness in the literature is a lack of attention to students' learning expectations in the dynamic learning process. Many researchers have confirmed that expectation as a dynamic variable (Pike, 2006) positively impacts student behaviour (Price, 2019; Rauch & Hulsink, 2015), performance (Schunk & Zimmerman, 1998), self-study behaviour (Rovers et al., 2018), and learning experience (Huong et al., 2017; Kilic-Cakmak et al., 2009; Stevenson et al., 2006; Zhou & Todman, 2008), yet this is an area that has been largely ignored in the entrepreneurship education literature.

Both the supply-side and demand-side perspectives have contributed to the development of entrepreneurship education because they use different approaches to attract people's attention to various aspects. However, a common shortcoming is that they failed to appreciate the research contributions from different fields. Scholars from different fields tend to focus on predetermined aspects of their own. Hence, their contribution to improving the understanding of entrepreneurship education is limited. Research has indicated that individuals and their social relations are interactive; to focus on a person, one must consider the social environment in which they are embedded (Lam, 2004). However, little is known about how entrepreneurship education learning is affected by the environmental context (Dou et al., 2019; Walter & Block, 2016). Therefore, it is necessary to focus on both the supply and demand sides of entrepreneurship education, to explore the impact of entrepreneurship education on the students' learning process in combination with the national institutional context. It is argued that students' learning expectations provide a lens to understand the interplay between the demand and supply side in the dynamic learning process.

Consequently, in conjunction with the institutional background, establishment of a conceptual framework is necessary to deepen the understanding of students' learning expectations in the dynamic learning process of entrepreneurship education. This thesis aims to explore the antecedents that affect students' learning expectations in the institutional context and investigate their impact on learning outcomes. These ideas will be elaborated in the next chapter.

## Chapter 3: Entrepreneurship Education and Student Expectations: Conceptual Framework and Hypothesis

### 3.1 Introduction

This chapter focuses on developing a conceptual framework and hypothesis building by drawing upon theories of student expectation, combining individual-level entrepreneurial learning and the national-level institutional context, supported by self-determination theory. The aim is to explore the differences in students' learning expectations under different education policies in the UK and China, leading to differences in satisfaction. It provides a review of the relevant literature on entrepreneurship education from an expectation perspective. The importance of the national institutional context is introduced and its impact in the UK and China on entrepreneurship education is discussed. In particular, the potential for national policy, shaped by national culture, to advance an understanding of entrepreneurship education is explained and emphasised. Self-determination theory is introduced to help explain why differences in policy between the two countries can be expected to influence student learning expectations about entrepreneurship courses. The teaching approach typifying that in the UK is labelled as active learning and that in China as passive learning. Various approaches to active or student-centred learning are discussed to illustrate such differences. It is argued that active or student-centred learning, particularly in the context of entrepreneurship education, is likely to be more attractive. Based upon the literature, hypotheses are then presented as to how differences between education policies can be expected to result in differences in student learning expectations of entrepreneurship education in the two countries.

### 3.2 Introduction of expectation

Expectation is one of the most basic and critical psychological functions of human beings (Sagan, 1998). It always exists in people's activities. People's studies, work and life are inseparable from expectations. In this changing and unpredictable modern society, expectation plays an even more vital role for individuals, guiding people's thinking and planning. Expectation can be defined as "*the feeling that good things are going to happen in the future.*" (Cambridge English Dictionary), "*a belief that someone*

*will or should achieve something*” (Oxford Dictionary) or *“a belief that something should happen in a particular way, or that someone or something should have particular qualities or behaviour”* (Macmillan Dictionary). Such definitions, especially the latter, indicate a strong relationship between the roles played by the individual and the expectations established within or with those roles (Davis, 2015).

Expectation is also a crucial concept in psychology. However, scholars have different views on its definition. Finn (1972) explained that expectation is the most likely outcome: the individual’s assessment of the consciousness or subconsciousness of others or themselves. It will cause people to expect that the things being evaluated are consistent with their own evaluation. Buck (1991) stated that expectation is when individuals anticipate or conceive future events based on experience and current stimuli and this attitude leads individuals to expect something to happen. Moreover, Tolman (1945) points out that expectation is a variable mental state, which is a predictive cognition about their own or others' behaviour based upon external information and experience. In other words, it is a kind of predictive cognition of one's or others' behaviour based on people's experience in responding to external information or based on the internal demand that drives people's behaviour. It is a cognitive variable and a motivation for belief value. However, there is no precise definition of expectations. That scholars appear to have given different definitions based on their respective research focuses, there is a consensus that expectation is a mental state (Pike, 2006; Tolman, 1945) that predicts certain unknown or future matters/events/incidents to match their current understanding.

Some theories about expectations have been applied in the education field, such as outcome expectation and self-efficacy. Outcome expectations are personal beliefs in the effect of an action on achieving a particular outcome (Lippke, 2020). Self-efficacy refers to an individual’s belief in his or her capacity to execute behaviours necessary to produce specific performance attainments, which reflects confidence in the ability to exert control over one's motivation, behaviour, and social environment (Bandura, 1977). It is the core concept of social cognitive theory, affecting an individual's perception, thinking, motivation and actions. As early as 1980, self-efficacy theory has

been widely used, with more than 800 papers based upon it (Judge et al., 2007). Applying expectations-related theories to the educational context reflects the student-centred educational approach. Students' expectations are a valuable source of information for lecturers and universities to evaluate their educational achievements (Voss et al., 2007). Next, the important role of student expectations in higher education will be discussed.

### 3.3 Students' expectations in higher education

#### 3.3.1 The importance of student expectation

As the competitiveness of the education industry increases, the importance of student expectations is reflected in the fact that educational institutions view students as the key decision-makers (Hill, 1995; James-MacEachern & Yun, 2017; Telford & Masson, 2005). The themes captured in such research are students' reflections of the extent to which the university meets their expectations by providing services. When students' expectations are met or exceeded, their higher education experience is positive, and their satisfaction will accordingly be high. Conversely, satisfaction will be low should their expectations not be met (Aldridge & Rowley, 1998; Bansal & Voyer, 2000). As consumers of university institutions, the gap between students' expectations and the university services' actual performance is identified as the main driver of the level of satisfaction (Huong et al., 2017). In light of this, student expectation is an essential factor that affects students' learning experience and satisfaction in the university.

Student expectations are a crucial consideration in higher education and a valuable source of information for teachers and universities (Hill, 1995; Voss et al., 2007). The results of many studies have shown that understanding and determining student expectations can help educators revamp teaching, and better coordinate teaching and learning activities and supervision, thereby improving the quality of education (Chavan & Carter, 2018; Möller & Shoshan, 2019). With the development of higher education popularisation, students' diversity is increasingly prominent (Price, 2019). It is necessary for administrators and teachers to have a good understanding of students' learning background and expectations to promote their positive learning experience; also, appropriate practice and teaching skills are essential for teachers to meet

students' current expectations and needs (Huong et al., 2017; Price, 2019). Therefore, understanding student expectations is the vital starting point for optimising transformational teaching and learning practices (Möller & Shoshan, 2019).

On the other hand, scholars suggest that students must be prepared to face more realistic expectations, as the actual learning and performance will be seriously affected by students who have vague expectations (Chavan & Carter, 2018; Rovers et al., 2018). Students' expectations are shaped and impacted by their parents, siblings and friends, which also change over time (Chavan & Carter, 2018). This thinking is supported by other scholars who argue that expectations are dynamic, and students can change their original expectations as they gain new information about their environment (Pike, 2006). From this point of view, the impact of expectations on students is not only limited to students' understanding of their learning environment but also how students respond to the environment (Pike, 2006). Furthermore, research indicates that managing expectations positively impacts students' experience and behaviour (Möller & Shoshan, 2019; Price, 2019). Thus, it is essential to help students set and shape realistic expectations for what they need to prepare them more effectively for success (Chavan & Carter, 2018; Miller, 1999). In what follows, the effects of expectations on students' learning will be discussed.

### 3.3.2 The impact of expectations on students' learning

From a psychological perspective, expectations greatly help shape human behaviour (Price, 2019; Rauch & Hulsink, 2015). Previous studies have shown that learning-related beliefs and behaviours play a crucial role in learning (e.g., Aunola et al., 2003; Hirvonen et al., 2010) because students' expectations and efforts for success determine the extent to which they can leverage existing skills and acquire new ones (Hirvonen et al., 2020). Students' expectations are diverse and generally positive (Nelson et al., 2008), and this can influence students' choice of major (Pike, 2006), performance (Schunk & Zimmerman, 1998), self-study behaviour (Rovers et al., 2018), and learning experience (Huong et al., 2017; Kilic-Cakmak et al., 2009; Stevenson et al., 2006; Zhou & Todman, 2008). Given the significant impact of students' expectations on learning behaviour, students' learning expectations have aroused

extensive attention in education circles.

Scholars have proposed that the rating for expectations and perceived learning is the highest level of learning to research and critically evaluate literature, highlighting the importance of the relationship between students' pre-course learning expectations and post-course perceptions of what they actually learn (Möller & Shoshan, 2019). Much of the research on students' learning expectations focuses on the quality of the teaching, knowledge, skills and the curriculum itself (DeShields et al., 2005; Keaveney & Young, 1997). Some studies have also discovered many other non-academic factors involving students' sense of "belonging" and understanding of the institution's concerns and responses (Daleney, 2001; Elliott, 2002; Thomas & Galambos, 2004). Bennett and Kottasz (2006, p.47) suggested that "As well as holding expectations of what an institution will offer in respect of teaching and facilities, students may also have expectations concerning their own roles and responsibilities in relation to their becoming independent learners." In other words, students' learning expectations include their expectations of courses and teaching resources and also their self-expectations.

Students' learning expectations play a pivotal role in the learning process. However, one of the significant shortcomings identified from the literature is a lack of attention to the causes that affect students' learning expectations (Rovers et al., 2018). Researchers state that seminars can enable students to have more realistic expectations and perceptions of their learning environment, promoting their learning expectations in a problem-based environment (Rovers et al., 2018).

Taking forward extant studies, the author attempts to extend understanding by emphasising students' roles and responsibilities in the learning process, particularly students' course-related expectations and self-expectations. Moreover, combined with entrepreneurship education characteristics in the institutional contexts of the UK and China, the author explores the factors that affect students' learning expectations and investigates the impact of student expectations on students' learning outcomes. Given the lack of a universal definition of students' learning expectations, the student

perspective will be covered in the following section.

### 3.4 Learning expectation

Learning expectation has become a widely used term in the field of education. However, as with expectations, it lacks a universally accepted definition. Expectations emphasise the strong relationship between the individual's role and the expectations within or with these roles (Davis, 2015). Learning is a student-led behaviour, and students will develop learning expectations for external support and themselves in the learning process. Thus, focusing on students' central role in learning, students' learning expectations should include course-related expectations, such as course content, design, teaching methods, resources, and also self-expectations (Bennett & Kottasz, 2006).

Incorporating the definition of expectation, this thesis defines students' "**learning expectation**" as the anticipation of external information for learning course content, design, teaching methods, and resources, as well as the internal demand for promoting learning behaviour. It reflects both the expectations of students' learning and external support related to learning, including self-expectations and course-related expectations. Learning expectation is a "process" variable that changes over time as the students' learning process advances. In what follows, applying students' learning expectations to entrepreneurship education and the relevant factors of students' learning expectations will be covered.

### 3.5 Students' learning expectations of entrepreneurship education

Student expectations can reflect the effectiveness of enterprise education (Peterman & Kennedy, 2003) and therefore are a valuable source of information for lecturers and universities (Voss et al., 2007). In the context of entrepreneurship education, it can be argued that students' learning expectations on course content and design, teaching methods and resources, and self-expectations are crucial elements that require further discussion. This will be covered in the following sections.

### 3.5.1 Course-related expectations

#### 3.5.1.1 *Course content and design*

Entrepreneurship course content and design are the key topics that entrepreneurship education focuses on because it is the process of providing students with the ability to learn about entrepreneurial knowledge and skills (Jones & English, 2004). Kourilsky (1995) divides course components into three categories:

- Opportunity recognition.
- The marshalling and commitment of resources.
- The creation of an operating business organisation.

First, opportunity recognition entails identifying unmet needs in the market and creating ideas for services or products that address those needs, understanding consumer requirements, observing the market, creation and innovation. Second, marshalling resources includes the willingness to take risks and the skills to secure external investment. Third, the process of creating an operating business organisation to deliver a product or service involves marketing, management skills and financing (Kourilsky, 1995).

Gottlieb and Ross (1997) pointed out that assessing opportunities, securing resources, and expanding and sustaining the business are the three major concepts in Harvard Business School's entrepreneurship courses. Moreover, Roach (1999) listed the following aims in the entrepreneurship course at North Georgia Technical Institute:

1. Understand the characteristics of entrepreneurs;
2. Ability to identify business opportunities;
3. Fundamental knowledge and skills to produce an effective feasibility business plan;
4. Knowledge of the different business entry strategies available to entrepreneurs; and
5. Understand the skills and methods available to gather the market information required to assess a new business concept's feasibility.



Furthermore, Noll (1993) focuses on the behavioural traits of entrepreneurs, that is, the characteristics of entrepreneurial enterprises that can be applied to business, government or non-profit sectors. Brown (2000) points out that Noll (1993) and Roach (1999) propose defining entrepreneurship and entrepreneur as a starting point for the course objectives: firstly, learn to generate ideas by identifying business opportunities, studying consumer insights, performing self-assessment of personal creativity, conducting feasibility studies, and determining different business entry strategies. Secondly, prepare to establish a firm by evaluating personal resources and financial situation, studying and assessing multiple marketing strategies, and managing funds and employees.

In addition, based on the literature and a survey of 128 university entrepreneurship programmes globally by Vesper and Gartner (2001), Jones and English (2004) conclude that two sets of entrepreneurship education objectives operate in parallel (Table 3-1), one focuses on the students' personal development and, taking entrepreneurship as a perspective, requires them to consider the entrepreneurs' role and to compare their own abilities and behaviours; the other focuses on the knowledge and skills required for enterprise development, from initial opportunity identification to the final harvest.

*Table 3-1 Personal and enterprise development objectives*

Personal development	Enterprise development
Concept of entrepreneurship	Identifying and evaluating opportunities
Characteristics of an entrepreneur	Commercialising a concept
Value of entrepreneurship	Developing entry strategies
Creativity and innovation skills	Constructing a business plan
Entrepreneurial and ethical self-assessment	Finding capital
Networking, negotiating and deal-making	Initiating the business
	Growing the business
	Harvesting strategies

*Source:* (Jones & English, 2004, p.419)

In general, university entrepreneurship education has improved the understanding of entrepreneurship and cultivated entrepreneurial skills and abilities by teaching students' various aspects of business start-up and operation (e.g., Oosterbeek et al., 2010). Common themes involve understanding the entrepreneurial process, developing knowledge and skills to enhance the likelihood of starting a business and entrepreneurs' success, identifying and motivating entrepreneurial drive (Gibb, 2008; Glaub & Frese, 2011), preparing business proposals and creating new ventures (Rasmussen et al., 2006). Building upon Jones and English's (2004) idea of simultaneously focusing on student's personal development and enterprise development, combined with the objectives in the entrepreneurship course of Roach (1999), this study aims to explore students' learning expectations of entrepreneurship course content and design in the following aspects: the ability to identify business opportunities, understanding the process of a business start-up, writing a business plan, marketing knowledge and skills, access to finance, and management skills for a business start-up.

### *3.5.1.2 Teaching methods and resources*

#### *3.5.1.2.1 Tutor*

In higher education, where teachers play the role of supporting resources, their academic qualifications and entrepreneurial experience can play an essential role (Oplatka, 2014; Zheng et al., 2017). Tutors' academic qualifications are considered a way of evaluating human resources' competitiveness in universities (Sotnikova & Mikhailova, 2020). Educators with educational backgrounds can apply four guiding functions in the classroom: psychological, academic knowledge accumulation, role modelling practices, and career and goal path (Nora & Crisp, 2007). Since entrepreneurship education is a practical course combining theory with practice (Zheng et al., 2017), a teacher's own experience can guide students to learn and impart entrepreneurial experience in their classroom teaching. Oplatka (2014) points out that the teacher's personal experience can improve their decision to go the extra mile and initiate new projects or devise new curricula. The demand for tutors with accredited qualifications and abilities to develop entrepreneurship education has been high (Kuratko, 2005). Business schools usually assign the task of designing and developing

entrepreneurship courses to tutors who have conducted relevant academic research. Tutors with a strong background in a specific field are more willing to provide courses in that field (Lin & Xu, 2017). In other words, the development of entrepreneurship education is closely related to teachers' academic development and entrepreneurial experience in this field. Moreover, the effectiveness of entrepreneurship education is associated with the teacher's skills and knowledge of using different teaching methods, especially the methods of entrepreneurship teaching (Cheng et al., 2009).

Teaching methods play an important role in entrepreneurship education (Ahmad, 2013; Badwan, 2018; Balan & Metcalfe, 2012; Panwar Seth, 2020; Pittaway et al., 2009; Mwasalwiba, 2010), which depends first on the objectives of the course (Arasti et al., 2012). Three goals for entrepreneurship education are proposed by Jones (2010): education to enable students to understand the nature of entrepreneurship and the entrepreneurial process, education to prepare students for their own business start-up, and education as hands-on training for entrepreneurs in their own business. The selection of teaching method should suit the student's style and learning goals (Kolb, 1976; Cheng et al., 2009).

Entrepreneurship education includes traditional and active pedagogy techniques (Badwan, 2018; Cooper et al., 2004; Henry et al., 2005). Pedagogy is defined as the practice that constitutes the teaching and learning process (Loughran, 2013). Entrepreneurship education pedagogy aims to enhance students' cognition (Fayolle et al., 2016) and improve students' tacit knowledge (Chrisman et al., 2005) through the interactive practice of educators. A series of studies (Albornoz, 2008; Cooper et al., 2004; DeTienne & Chandler, 2004; Esmi et al., 2015; Lutz et al., 2015; Mueller, 2011; Nabi et al., 2018; Ollila & Middleton, 2011; Ruskovaara & Pihkala, 2013; Yballe & O'Connor, 2000) have identified specific active classroom activities adopted by entrepreneurship educators, such as case studies, business plans and experiential learning. These activities include challenging, encouraging, reflection and feedback (Badwan, 2018). Overall, these types of activities constitute active teaching methods in entrepreneurship education. Teachers can use active teaching methods to create a classroom climate to support students' autonomous experience (Badwan, 2018) based

on their own entrepreneurial and academic experiences. Students can build knowledge in the process of "doing" through this experience and behavioural learning, combining theory with practice (Jones & Lourenço, 2006).

Therefore, tutors play a guiding role in students' entrepreneurial learning as the supplier in entrepreneurship education. By the same token, it can be argued that tutors' entrepreneurial experience, tutors' academic qualifications and interactive teaching methods should form the key drivers of the students' learning expectations.

#### 3.5.1.2.2 Practice

In higher education, entrepreneurship education takes many forms, including curricular courses and extracurricular activities, and achieves different purposes at the undergraduate level (Cui et al., 2019). Some educators have maintained that entrepreneurship education should be combined with practice and viewed by students as practical, thus encouraging them to develop the skills needed for successful entrepreneurship (Arvanites et al., 2006). The purpose of entrepreneurship education is then different from other educational fields because of its practicality (Badwan, 2018). Entrepreneurship education is understood as a form of actionable theory education, which combines theoretical and practical content to develop students' personalities and enable them to obtain entrepreneurial thinking and entrepreneurial abilities so as to plan and build companies cognitively and practically (Currie & Knights, 2003; Neck et al., 2014; Täks et al., 2014; Urban, 2006).

Five elements of entrepreneurial learning are identified by Johannisson (1991): know-who, know-when, know-what, know-why and know-how and Johannisson proposed the fundamental distinction between theoretical-oriented learning (e.g., know-what, know-why) and practice-oriented learning (e.g., know-who, know-how) in entrepreneurship education. Although the practical contents have some theoretical basis or practical application in theory, the distinction between theoretical and practical here is mainly based on the different emphasis of the learning content and outcomes in entrepreneurship education. Theoretical learning usually produces knowledge acquisition, while practical learning usually develops students' skills and

abilities through experiential learning (Cui et al., 2019).

Fayolle et al. (2006) and Sun et al. (2017) studied entrepreneurship education content using Johannisson's (1991) classification to explore the relationship between entrepreneurship education and entrepreneurial intention. Entrepreneurship education's impact on entrepreneurial learning and inspiration in higher education has been studied, by Nabi et al. (2018), by applying theoretical and practical learning styles. Extracurricular activities as a learning experience can also be divided into theory-based activities and practice-based activities (Cui et al., 2019). For example, entrepreneurial knowledge can be mainly obtained through theoretically-oriented activities, such as access to real-life entrepreneurs in conferences or workshops related to entrepreneurship, while skills and abilities can be developed through hands-on experience.

In other words, access to real-life entrepreneurs can be considered as theory-based activities, while hands-on business start-up opportunities and network opportunities can be considered as practice-based activities. Both are key elements that can be used to measure students' learning expectations about entrepreneurship courses.

### 3.5.2 Self-expectations

#### 3.5.2.1 *Student input*

Student input is a central theme in student learning and development in university and is the most direct self-expectation element. It can be measured by time spent on a study to represent the degree of effort and desire to learn (Jung et al., 2016) and is related to students' internal autonomy (Reeve & Jang, 2006; Sheldon & Elliot, 1998). Research has confirmed that study time is one of the most critical inputs for determining a students' academic performance. It provides the key to examining the university education process and effectiveness (Jung et al., 2016; Stinebrickner & Stinebrickner, 2004; Tetteh, 2016), the underlying assumption being that more effort can lead to better results and therefore students may be motivated to spend more time studying (Jung et al., 2016).

Previous studies have had a relatively minimal focus on the connection between study time and students' learning outcomes (Andrietti & Velasco, 2015) and reported mixed results. While some studies have shown a negative impact (Ackerman & Gross, 2003; Krohn & O'Connor, 2005), other studies pointed out that study time positively affects student performance (Andrietti & Velasco, 2015; Jung et al., 2016; Michaels & Miethe, 1989; Stinebrickner & Stinebrickner, 2008; Tetteh, 2016, 2018). Most importantly, student input (study time) is the most significant variable over which students have control. There is clear evidence that today's college students spend less time studying and more time on other activities (Nonis et al., 2006). Understanding the relationship between student input and student learning is essential to encourage and inspire students to engage in productive learning behaviours. Therefore, there is a need for in-depth research on this issue to explore the root causes that affect student input. In this thesis, student input (study time) is used as a direct measure of self-expectation to help investigate its impact on the entrepreneurship learning process.

#### *3.5.2.2 Entrepreneurial intention*

Sarasvathy (2004) points out that natural entrepreneurs and natural non-entrepreneurs belong to tiny groups of people worldwide. However, most people have some entrepreneurial cognition, ability and motivation. In entrepreneurship research, one needs then to pay attention to the people in the middle of the two extremes. In this middle group, some people become entrepreneurs, and some choose employment. The key difference between these two groups is that they have different levels of entrepreneurial intention (Krueger, 2000; Thompson, 2009). As discussed in 2.4.2.2, only individuals with firm entrepreneurial intentions are likely to start actual entrepreneurial activities for entrepreneurship. Without entrepreneurial intentions, it is impossible to generate entrepreneurial behaviour (Krueger, 2000; Thompson, 2009). So far, research in the entrepreneurial field has confirmed the predictive ability of entrepreneurial intentions on entrepreneurial behaviour (Ajzen, 1991; Krueger et al., 2000; Shapero & Sokol, 1982). It is the most critical and sustainable construct for exploring potential entrepreneurs' entrepreneurial behaviour (Hmieleski & Corbett, 2006; Wilson et al., 2007).

Applying this to entrepreneurship education, it is argued by some that entrepreneurial intentions and entrepreneurship education are highly correlated (Boubker et al., 2021; Fayolle & Liñán, 2014; Pittaway & Cope, 2007). Studies in many countries use entrepreneurial intention as the main measure of entrepreneurship education outcomes (Nabi et al., 2018; Tessema Gerba, 2012). Many scholars have indeed shown that entrepreneurship education substantially impacts students' entrepreneurial intentions (Boubker et al., 2021; Fayolle & Gailly, 2015; Fayolle et al., 2006; Franke & Lüthje, 2004; Pittaway & Cope, 2007). But, on the other hand, the past research on entrepreneurship education remains unconvincing because this type of education is not a prerequisite for influencing individuals' entrepreneurial intentions and increasing the number of entrepreneurs (Lautenschläger & Haase, 2011; Von Graevenitz et al., 2010). As mentioned earlier, Oosterbeek et al. (2010) conclude that entrepreneurship education has little effect on students' entrepreneurial intentions. Such differences indicate that entrepreneurship education's impact on entrepreneurial intention requires a more in-depth analysis (Liñán & Fayolle, 2015). Explanations are needed as to why the relationships between entrepreneurship education and entrepreneurial intentions are not always clear.

This thesis is based upon the belief that most students will have certain entrepreneurial ability and motivation, i.e. they belong to the intermediate group pointed out by Sarasvathy (2004). It accepts that entrepreneurial intention is a direct predictor of entrepreneurial behaviour and can be influenced by entrepreneurship education (Nabi et al., 2018; Tessema Gerba, 2012). Entrepreneurship education's ultimate goal is indeed to utilise entrepreneurship learning to influence students' willingness to start a business. However, academic research on entrepreneurship education to promote entrepreneurial intention is still controversial. Therefore, this thesis takes entrepreneurial intention as a self-expectation of future careers and explores its influence on the student entrepreneurial learning process.

In summation, a review of extant literature helps to identify key factors relevant to course-related expectations (course content and design, and teaching methods and resources) and self-expectations (student input and entrepreneurial intention). In

order to explore the antecedents that affect students' learning expectations and the impact of learning expectations on learning satisfaction, it is necessary to emphasise the central role of students. Nevertheless, this does not mean that the current study will only focus on students. This thesis will combine the students and the national institutional contexts to explore how they perceive entrepreneurship education learning and what they expect. Here then, based on the comparative analysis of the institutional context and actual situation of entrepreneurship education in the UK and China, the antecedents affecting students' learning expectations will be discussed. In the following sections, the relationship between institutional context and student learning expectation will be discussed.

### 3.6 Entrepreneurial activities, entrepreneurship education and institutional context

In order to promote entrepreneurial activities, many countries have made significant investments in entrepreneurship education, including the UK and China (Dou et al., 2019; Jones & Iredale, 2014; Lin & Xu, 2017; Walter & Block, 2016). The state's direct promotion of entrepreneurship education is manifested in its popularisation in universities and the development and optimisation of entrepreneurial courses and teaching resources. The state's indirect promotion of entrepreneurship education is embodied in the institutional context's intervention upon economic, political, societal and cultural aspects. However, little is known about how entrepreneurship education learning is affected by the environmental context (Dou et al., 2019; Walter & Block, 2016), particularly whether it can help explain why entrepreneurship education might not always lead to entrepreneurship intention. Entrepreneurship education and institutional theory influence upon entrepreneurial activities have been investigated in two different and relatively isolated research streams (Walter & Block, 2016). Each of the research streams will be discussed next.

#### 3.6.1 Research stream-the impact of entrepreneurship education on entrepreneurial activities

##### 3.6.1.1 *National direct promotion of entrepreneurship education in universities*

Since entrepreneurial activity was discovered to be an essential prerequisite for innovation capacity and economic competitiveness (e.g., Galindo & Méndez, 2014;



Pagano et al., 2018; Rotger et al., 2012; Walter & Block, 2016), many advanced economies have invested heavily in entrepreneurship education to popularise it in universities (e.g., Brush et al., 2009; Walter & Block, 2016). The British government has often intervened in primary, secondary and tertiary education to help encourage a more enterprising society over the past 25 years (Treasury, 2001). Entrepreneurship education has become a critical part of the Higher Education landscape; long-term investment in entrepreneurship education aims to embed enterprise and entrepreneurship notions at all levels of the UK educational system (Hannon, 2006; Matlay, 2006). As early as 2007, the number of universities offering entrepreneurship education courses in the UK had reached 78%. Still, the survey revealed that it was only within business schools at the time and that it had not expanded into more departments and specialisms (NCGE, 2007). Nowadays, entrepreneurship education in the UK has matured into a full-fledged educational system. It can be a systematic professional discipline (Carey & Matlay, 2010) or an elective course that students can choose. The course format includes lectures and seminars, focusing on cultivating students' critical thinking and abilities to encourage them to be more proactive, with typical British teaching characteristics (Wang, 2018).

Similarly, as a fast-growing economy, China has also firmly embraced the role of entrepreneurship education in promoting entrepreneurial activities; universal entrepreneurship education has become a national priority (Dou et al., 2019). Some researchers believe that the national policy of entrepreneurship education in China is a crucial factor (Dou et al., 2019; Foss & Gibson, 2015; Li et al., 2003; Lin & Xu, 2017; Xu, 2012). Because China has a centralised government, centralisation policies shape China's entrepreneurship education (Xu, 2012). Compared with the UK, entrepreneurship education in China is a relatively new concept, and its implementation is still in the infancy stage (Dou et al., 2019; Li et al., 2003; Lin & Xu, 2017). Only universities and colleges offer entrepreneurship education in China, due to the lack of large-scale training provided by non-governmental organisations. Indeed, the cultural expectation is that only universities and colleges will have this social responsibility (Lin & Xu, 2017; Vasilescu et al., 2010). In 2012, the Ministry of Education issued a policy for universities to implement compulsory entrepreneurship

courses (Lavelle, 2021; MOE, 2012), and in 2014 the Chinese government proposed a nationwide strategic initiative to stimulate innovation and entrepreneurship and promote sustained economic growth. This initiative's core aim is that Chinese educational institutions, especially universities, will develop and implement innovative systems (e.g., efforts beyond normal curriculum design) in order to deliver entrepreneurship education (Dou et al., 2019). Wei and Sun (2015) state that more than 80% of Chinese universities already offer entrepreneurship courses. The teaching was mainly based on lectures using traditional Chinese teaching methods, emphasising the leadership role of teachers and knowledge transmission (Wang, 2018). Such education reflects the importance and determination of the Chinese government to vigorously develop entrepreneurship education, aiming to improve young people's entrepreneurial ability and, more importantly, their attitude and intention towards entrepreneurial career choice (Dou et al., 2019).

Furthermore, given that entrepreneurial activities are the driving force for the long-term economic development of nation-states (Romer, 1994), entrepreneurship education in the UK and China has been given high priority at the national level and given long-term investment. This is also reflected in the continuous development and optimisation of university entrepreneurship education courses and teaching resources. Specifically, the common themes of entrepreneurship courses in both countries include understanding the entrepreneurial process, developing knowledge and skills to enhance the likelihood of starting a business and entrepreneurs' success, identifying and motivating entrepreneurial drive, preparing business proposals and creating new ventures (Gibb, 2008; Glaub & Frese, 2011; Rasmussen et al., 2006). Also, both countries attach great importance to the role of teachers and practices as teaching resources in cultivating the skills and competencies required by start-ups. The development of entrepreneurship education is closely related to teachers' teaching abilities and entrepreneurial experience in this field (Kuratko, 2005; Lin & Xu, 2017). Its effectiveness depends largely on teachers' skills and teaching methods (Cheng et al., 2009). Moreover, entrepreneurship education is a practical course combining theory with practice (Zheng et al., 2017). Through practical activities (e.g., access to real-life entrepreneurs, hands-on business start-up opportunities and network

opportunities) to enable students to obtain entrepreneurial thinking and entrepreneurial abilities so as to plan and build companies cognitively and practically (Currie & Knights, 2003; Neck et al., 2014; Täks et al., 2014; Urban, 2006).

#### *3.6.1.2 The impact of entrepreneurship education on entrepreneurial activities*

The direct promotion of entrepreneurship education in both advanced countries such as the UK and developing countries such as China is manifested in its popularisation in universities and the development and optimisation of entrepreneurship courses and teaching resources. This has increased academic interest in the outcomes of such efforts, focusing on the individual level, that is, how entrepreneurship education drives intended or actual career choices (e.g., Gorman et al., 1997; Pittaway & Cope, 2007; Dickson et al., 2008). Entrepreneurship education can foster entrepreneurial attitudes, intentions or behaviours by increasing entrepreneurial interests and abilities (Bae et al., 2014; Kuratko, 2005; Martin et al., 2013). The literature highlights several advantages of entrepreneurship education. For example, students have learned to bring business ideas to market more effectively or rapidly than others or feel more capable of doing so (Peterman & Kennedy, 2003). The existence of entrepreneurship education can enhance the desirability of entrepreneurship, thereby encouraging students to entrepreneurial careers (Walter et al., 2013). The majority of studies have shown that taking entrepreneurship courses (e.g., Athayde, 2009; Peterman & Kennedy, 2003; Sánchez, 2013; Souitaris et al., 2007) or their mere existence (Walter & Dohse, 2012; Walter et al., 2013) can facilitate interest in entrepreneurial careers.

However, other researchers have shown the adverse effects of entrepreneurship education (Oosterbeek et al., 2010; von Graevenitz et al., 2010). This negative impact arises arguably due to students going through entrepreneurship education adopting more realistic perspectives on their entrepreneurial abilities and resource limitations in achieving success (Dou et al., 2019). These mixed results imply that there may be environmental elements influencing the overall effect of entrepreneurship education. Recent research highlights the importance of considering external environment factors (e.g., regulatory and social) in entrepreneurship education, which are

perceived to be more critical than university-controlled resources (e.g., the curriculum) (Dou et al., 2019). Furthermore, scholars point out that in developing countries like China, the development of entrepreneurship education is still in its early stages and is mainly driven by supply (policy) (Lin & Xu, 2017). In developed countries like the USA, entrepreneurship education has become fully-fledged and is usually driven by demand (economic and employment) (Harrington & Maysami, 2015; Lyons et al., 2015). These differences appear to reflect institutional differences. Therefore, in order to explore students' learning expectations of entrepreneurship education in the UK and China, it is necessary to consider the institutional context at the country level.

### 3.6.2 Research stream-the impact of institutional theory on entrepreneurial activities

#### 3.6.2.1 *Entrepreneurship concept in the institutional context*

Institutional theory attempts to explain how and why countries differ in the way that economic activities are organised and conducted (Whitley, 1999). Institutions-" the humanly devised constraints that structure human interaction " (North, 1990; p.3) - define rules and norms that individuals and organisations tend to comply with to maintain their position and legitimacy (Bruton et al., 2010). The institutional context is a combination of diverse institutional factors at multiple levels, which is constantly made sense of and enacted by individuals; it can be summed up as interconnected factors in the economic, political, cultural, and societal aspects (Lam, 2004). Baumol (1990; p.894) states for example that "how the entrepreneur acts at a given time and place depends heavily on the rules of the game – the reward structure in the economy". Orrù (1991) believes that individuals have specific "individual values" that interact with their institutional context at various levels, giving rise to entrepreneurship in society. Institutional environments are likely to be shared within a social group through continual social interaction, and members' meaning alignment and shared group values are fostered by the shared institutional environment (Lam, 2004). As a result, people are more inclined to make sense of and enact their surroundings in similar ways, resulting in the institutionalisation process (Lam, 2004). In light of this, institutional theory has been regarded as a powerful perspective for examining various phenomena involving the cross-country difference in

entrepreneurial activities (e.g., Bruton et al., 2010; Jennings et al., 2013; Minniti, 2008; Welter & Smallbone, 2011).

In a different institutional context, people's shared values and shared understanding of entrepreneurship will differ, reflecting the country's characteristics (Lam, 2004; Wang, 2012). Research suggests British students are more optimistic about entrepreneurship with the support of the UK's mature and stable economy and advanced educational concepts. By contrast, Chinese students hold a more pessimistic view. Specifically, compared with the UK, autonomy as a basic human need (Ryan & Deci, 2000) is not prominent in China's institutional context (Wang, 2012). As far as parenting is concerned, familyism and attitudes towards filial piety have led the Chinese to emphasise more strict discipline, and socially desirable and culturally approved behaviour (Wu & Tseng, 1985), rather than on individuals' expression of opinions, independence, creativity, self-competence and all-round personal development (Ho, 1986). This does not encourage autonomy and the expression of incompatible ideas, which might challenge the harmonious environment (Wang, 2012). As proactiveness is probably a universal feature of entrepreneurs (McGrath & MacMillan, 1992), this cultural value that discourages proactivity is unlikely to promote entrepreneurship in the Chinese institutional context (Wang, 2012). Moreover, influenced by Confucianism, traditional Chinese familyism is inclined to decent work and stable income rather than risky entrepreneurship (Wang, 2012). This is related to the imperfection and complexity of the Chinese market (Lin & Xu, 2017), requiring the support of funds and networks to have the opportunity to start a business (Lam, 2004).

Furthermore, as far as school education is concerned, the situation is similar. Unlike the British teaching methods that focus on critical thinking to encourage students to be more proactive (Wang, 2018), the traditional Chinese teaching method is more controlling, teacher-led and pays attention to knowledge transmission. Such a controlled educational atmosphere often makes students lose autonomy and learn less effectively (Wang, 2012). In the Chinese institutional context, students are usually pure receptors of teachers' instruction and they rarely doubt what the teachers have

talked about because doubt is often perceived as disrespectful (Chan, 1999). Students who are brought up in this environment are less likely to pose questions because of a lack of critical thinking encouragement. Instead, they are accustomed to seeking answers from the authorities (Wang, 2012). Thus, based on this traditional Chinese educational philosophy, most Chinese students are not willing to choose risk-ridden entrepreneurial careers, in which they have to solve various problems autonomously (Wang, 2012).

### *3.6.2.2 National indirect promotion of entrepreneurship education in the institutional context*

Institutions play a vital role in public policies aimed at encouraging more entrepreneurship within a country. The state designs and operates formal institutions, such as legal systems, and indirectly impacts informal institutions through their declarations and actions (Welter & Smallbone, 2011). Government policies can impact entrepreneurship because of their influence on institutions, as Minniti (2008) points out. As emphasised, it is the impact on institutions that enables government policies to influence entrepreneurship. Indeed, many nations have invested in entrepreneurship-friendly institutional infrastructure in general in order to stimulate innovation and reduce unemployment (Minniti, 2008), especially in entrepreneurship education (e.g., Bourgeois, 2011; Brush et al., 2003; Katz, 2003). Except for the country's direct promotion of entrepreneurship education in universities as discussed in 3.6.1.1, the country's indirect promotion of entrepreneurship education is embodied in the institutional context's intervention from economic, political, societal and cultural aspects to achieve the purpose of promoting entrepreneurial activities.

#### *3.6.2.2.1 Economic*

The economic development of a region or country is an evolving process (Kelley et al., 2016) and can be a vital factor in promoting the development of entrepreneurship education (Lyons et al., 2015). Many regions and countries are currently evolving from efficiency-driven to innovation-driven (Lin & Xu, 2017). In light of the fact that the developed economies are driven by innovation (Mole & Worrall, 2001; Rooks, 2000), many developing economies aim to follow the footsteps of developed economies to

encourage innovation. In China, the Medium and Long-Term National Plan for Science and Technology Development (MLNP) announced in 2006 that China is determined to turn the country into an innovative economy by 2020 (Li et al., 2019). Recent research demonstrates that China has achieved remarkable transformation and the institutional foundations of the national innovation system have already been laid over the past 40 years (Li et al., 2019). Ventures in an efficiency-driven economy usually make profits through industrialisation and economies of scale; such ventures are typically capital intensive (Lin & Xu, 2017). The innovation-driven economy, by contrast, is largely driven by knowledge-intensive ventures, especially high-tech start-ups (Lin & Xu, 2017). The emergence of these types of ventures has boosted the expectations of the entire society of the entrepreneurial knowledge and abilities of university graduates, thus generating encouraging conditions for universities to provide entrepreneurship courses or programmes (Duval-Couetil, 2013; Galindo & Méndez-Picazo, 2013; Gibb, 1996; Harrington & Maysami, 2015; Kothari & Handscombe, 2007; Kozlinska, 2011).

#### 3.6.2.2.2 Political

Government issues policies to promote the development of entrepreneurship education (Pittaway & Cope, 2007) by putting forward definite and specific requirements for entrepreneurship education and supplying institutions with resources to implement their educational missions (Lin & Xu, 2017). The British and Chinese governments have also made efforts to this end, such as implementing entrepreneurship-friendly policies and providing government-funding opportunities. Specifically, entrepreneurship-friendly policies are related to creating a friendly environment and atmosphere for entrepreneurs (Hart, 2003). The opportunity or availability of public funding is also associated with people's participation in entrepreneurial activities (Autio et al., 2012). Such preferential policies encourage more students to be involved in entrepreneurial activities (Lin & Xu, 2017), enhance entrepreneurial attitude and advance start-ups' survival rate (Dou et al., 2019).

Furthermore, many British and Chinese universities work closely with public policymakers to advance entrepreneurship education and encourage entrepreneurial activities, such as creating school-based incubators to provide students with consulting and mentoring services (Culkin, 2013; Dou et al., 2019). What is more remarkable is that in China, promotion directly driven by the government is common. Most Chinese universities and colleges' course setting and design are administered by MOE and are instructed by the MOE directives, rather than by market demand (Lin & Xu, 2017). This includes the compulsory entrepreneurship education policy issued by MOE (2012), requiring all universities to provide a basic (mandatory) course for entrepreneurship education for all students to take (Lavelle, 2021). Such an education policy is both a cause and effect of China's institutional background on entrepreneurship education. Under the relatively negative cultural value of traditional entrepreneurship concepts, this compulsory education policy indicates the importance and determination of China's development of entrepreneurship education. In contrast, entrepreneurship education in the UK implements a voluntary education policy and is a systematic professional discipline (Carey & Matlay, 2010). Students can choose to take an entrepreneurship major or entrepreneurial elective courses.

#### 3.6.2.2.3 Societal and cultural

Many governments have recognised that the development of entrepreneurship education is an effective way to alleviate the thorny problem of social employment pressure (Lin & Xu, 2017). Compared with major enterprises, small and medium-sized enterprises (SMEs) have become a more critical tool in addressing employment problems (Rideout & Gray, 2013). Policymakers have emphasised the importance of business start-ups and encouraged university and college students to participate in entrepreneurship endeavours by enhancing entrepreneurship education as one way to solve unemployment (Harrington & Maysami, 2015). The UK and China both face employment pressure problems, but this phenomenon is particularly prominent in China. In the 21st century, the rapid increase in Chinese university enrolment has created severe employment pressure for graduates (Lin & Xu, 2017). Moreover, Chinese traditional cultural values and educational concepts are relatively negative



influences for entrepreneurship (Lam, 2004; Wang, 2012). As the cornerstone of Chinese culture, Confucianism is fundamentally hostile to entrepreneurship, mainly because Confucianism traditionally disparages merchants and emphasises rote learning and learning for careers in government bureaucracies (Lam et al., 1994; Lam, 2004; Liao & Sohmen, 2001; Wang, 2012). Thus, after graduation, Chinese students are generally more inclined to seek stable and less challenging vocations, such as becoming civil servants, rather than taking the risk of starting a business (Wang, 2012). In other words, public employment is the first choice for many Chinese university students, which is a long-standing cultural phenomenon in the Chinese institutional background.

Given the feasibility of entrepreneurship education alleviating social employment pressure and promoting entrepreneurial activities, countries develop entrepreneurship education in universities (Dou et al., 2019; Jones & Iredale, 2014; Lin & Xu, 2017; Walter & Block, 2016). The UK and China are no exception. However, under such an institutional background, China, which faces a considerable population and relatively negative attitude towards entrepreneurship, is a more challenging environment than the UK in which to develop entrepreneurship education to promote entrepreneurship. Understanding this requires starting from the fundamental causes of Chinese society and culture, establishing correct entrepreneurial concepts and creating a positive entrepreneurial cultural atmosphere through entrepreneurship education. More importantly, it is necessary to integrate entrepreneurial thinking at all levels of the educational system, as in the UK.

Furthermore, the institutional context's societal and cultural aspect is also reflected in the cooperation between the universities and business communities to increase social network capital and promote entrepreneurial activities. Earlier studies gave sufficient evidence that the decision to start a business is a social decision (e.g., Burt, 2009; Dobrev & Barnett, 2005; Qin & Estrin, 2015; Shu et al., 2018). Studies have shown that an individual's willingness to become an entrepreneur is positively related to the entrepreneurship he/she is exposed to through the people around him/her (Nanda & Sørensen, 2010). Hence, exposure to experienced entrepreneurs who have

themselves engaged in entrepreneurial activities (Lerner & Malmendier, 2013; Nanda & Sørensen, 2010) will influence how students experience entrepreneurship education (Dou et al., 2019). University students usually lack first-hand experience in creating a firm (Dou et al., 2019). Such a lack of experience or real-world skills is considered the most crucial obstacle to entrepreneurial activity (Eesley & Wang, 2017). Through the connection with the business community, the exchange of knowledge and experience between students and entrepreneurs can be promoted (Bennett, 2006). In addition, scholars have found that entrepreneurs' social network capital is related to their entrepreneurial activities (Kenney & Goe, 2004). The networks of entrepreneurs and related personnel facilitate exchanging ideas, knowledge and opportunities (Dou et al., 2019). It has been found that this kind of exchange benefits not only university students but also established entrepreneurs (Elert et al., 2015). After all, effective dissemination of information benefits everyone involved in the social network (Qin & Estrin, 2015).

Social networks are crucial to entrepreneurship in any culture because business is virtually conducted through a person-context interaction (Brandstätter, 2011; Herron & Sapienza, 1992; Learned, 1992; Naffziger et al., 1994; Lam, 2004). Universities provide social networking opportunities for students by enhancing cooperation with the business community (Bennett, 2006; Dou et al., 2019). Entrepreneurship education in the UK has long been concerned with connecting with business communities and enterprises (Matlay, 2009). Wilson (2012) Review of Business-University Collaboration reported the role of enterprise skills, entrepreneurship and social enterprise in higher education provision and delivery, contributing to establishing effective links between education and work. This shows that British universities use local social resources to enrich students' entrepreneurship education practices and establish students' positive entrepreneurship concepts.

Similarly, in recent years, China has also promoted many entrepreneurship education programmes in cooperation with the business community by building entrepreneur/executive clubs and advisory boards, which aim to involve high impact individuals to share their experience and knowledge with students (Dou et al., 2019).

More importantly, social networks provide valuable opportunities for students' future entrepreneurial activities (Dou et al., 2019) and play a vital role in achieving business success (Wang, 2012). This is particularly evident in China's institutional environment. As a famous Chinese saying goes, "Who you know is more important than what you know." "Who you know" refers to "personal connections with the appropriate authorities or individuals" (Yeung & Tung, 1996, p.54). This perception makes Chinese people keen on establishing and maintaining social networks (Wang, 2012). They may acquire scarce resources or avoid distress and obtain peace of mind through networking (Redding, 1993). Therefore, establishing and maintaining personal connections is essentially a survival strategy in China (Redding, 1993), reflecting the importance of social networking in traditional Chinese society and culture.

#### *3.6.2.1 The impact of institutional context on entrepreneurial activities*

Both developed countries such as the United Kingdom and developing countries such as China have intervened in the national-level institutions to increase entrepreneurial activities. In particular, university-based entrepreneurship education as an essential, entrepreneurship-friendly, institutional infrastructure, is indirectly promoted by the government in economic, political, societal and cultural aspects. The research stream on the institutional context, based on institutional theory, focuses on how national-level institutions are beneficial or detrimental to entrepreneurship (North, 1990; Walter & Block, 2016; Whitley, 1999). This impact of institutions is believed to happen through several mechanisms. For example, institutions define, create and limit entrepreneurial opportunities (Baker et al., 2005; Urbano & Alvarez, 2014), affect transaction costs, risks and the uncertainty of entrepreneurial behaviour (Mueller & Thomas, 2001; North, 1990), and regulate the accumulation and appropriability of the returns from innovation and entrepreneurship (Autio & Acs, 2010; Levie & Autio, 2011). Empirical research has linked entrepreneurial activities with various institutions, such as state incentives (Meek et al., 2010), the educational system (De Clercq et al., 2013), supportive infrastructure (Begley et al., 2005), the legal system (Lim et al., 2010), the financial system (Bowen & De Clercq, 2008), property rights (McMullen et al., 2008), bankruptcy laws (Lee et al., 2011), economic freedom (Gohmann, 2012), and corruption control (Anokhin & Schulze, 2009).

Moreover, many studies have emphasised that public policies significantly impact the development of entrepreneurial activities (e.g., Brush et al., 2009; Dou et al., 2019; Katz, 2003; Yoon et al., 2018), which represents the country's institutional background. It is the government's influence on institutions that allows public policy to have an impact on entrepreneurship (Minniti, 2008). As a vital entrepreneurship-friendly institutional infrastructure, entrepreneurship education in universities plays a crucial role in realising student entrepreneurial activities (Walter & Block, 2016). However, not enough attention has been paid to considering how to integrate the institutional context into university-based entrepreneurship education to explore how it influences the students' learning process, especially the impact on learning expectations about the dynamic learning process. It has long been established that students' expectation has a notable effect on their behaviour (Price, 2019; Rauch & Hulsink, 2015). Therefore, exploring the antecedents that affect students' learning expectations in the institutional context is of great significance for promoting students' individual entrepreneurial behaviour, also achieving a country's goal of encouraging entrepreneurial activities.

### 3.6.3 Integrate the institutional context into university-based entrepreneurship education

Based on the discussions in 3.6.1 and 3.6.2, entrepreneurship education has been prioritised at the national level and long-term investment made to foster entrepreneurial activities in countries, including the UK and China. This has aroused scholarly interest in entrepreneurial activities, entrepreneurship education and the national institutional environment. Two research streams have emerged: the first focuses on the individual level to investigate how entrepreneurship education influences intended or actual career choices (e.g., Gorman et al., 1997; Pittaway & Cope, 2007; Dickson et al., 2008); the second, based on institutional theory, investigates how country-level institutions are beneficial or detrimental to entrepreneurship (North, 1990; Walter & Block, 2016; Whitley, 1999). These two aspects influencing entrepreneurial activities have been studied in two distinct, relatively independent research streams (Walter & Block, 2016).

However, little is known about how entrepreneurship education learning is affected by the environmental context (Dou et al., 2019; Walter & Block, 2016). Most previous studies on the effects of entrepreneurship education are limited to the individual level and ignore the national level contextual influences. Simultaneously, considering how to integrate the institutional context into the university-based entrepreneurship education to influence students' learning process has not received enough attention, particularly students' learning expectations about the dynamic learning process. Therefore, to achieve the integration of the country-level institutional background and individual-level university entrepreneurship education learning and to find the antecedents that may affect students' learning expectations, this thesis conducts a comparative study on the students' learning expectations of two countries that have very different institutional contexts: the UK and China.

#### *3.6.3.1 Summary comparing entrepreneurship education in the UK and China*

The UK and China attach great importance to the role of university entrepreneurship education in promoting entrepreneurial activities and economic development and have established entrepreneurship education with their own social and cultural characteristics under their respective institutional contexts. The state's expansion of university-based entrepreneurship education is manifested in two aspects: direct promotion and indirect promotion. The **direct promotion** of entrepreneurship education in both countries is reflected in its popularisation in universities and the development and optimisation of entrepreneurship courses and teaching resources. Entrepreneurship education courses offered in both countries cover the students' personal development and enterprise development, including the ability to identify business opportunities, understanding the process of a business start-up, writing a business plan, marketing knowledge and skills, access to finance and management skills for a business start-up. Moreover, both countries actively develop tutors and practices as teaching resources to cultivate the skills and abilities required by start-ups. For example, tutors' entrepreneurial experience, academic qualifications and interactive teaching methods, combined with practical activities such as access to real-life entrepreneurs, hands-on business start-up opportunities, and network opportunities.

On the other hand, the **indirect promotion** of entrepreneurship education in the UK and China has similarities and differences, which are embodied in the institutional context's intervention from economic, political, societal, and cultural aspects to promote entrepreneurial activities. The similarities between the two countries are: in terms of economic, the active development of the innovation-driven economy has raised society's expectations for the entrepreneurial knowledge and skills of university graduates, thereby creating favourable conditions for universities to provide entrepreneurship-related courses or programmes (Duval-Couetil, 2013; Galindo & Méndez-Picazo, 2013; Gibb, 1996; Harrington & Maysami, 2015; Kothari & Handscombe, 2007; Kozlinska, 2011). In political terms, public policymakers work closely with universities to implement entrepreneurship-friendly policies. Government funding opportunities are provided to encourage more students to participate in entrepreneurial activities (Lin & Xu, 2017), enhance entrepreneurial attitude and improve start-ups' survival rate (Dou et al., 2019). In societal and cultural terms, encouraging students to get involved in entrepreneurship by enhancing entrepreneurship education aims to help solve the problem of unemployment (Harrington & Maysami, 2015). Strengthening cooperation between universities and business communities provides students with social networking opportunities (Matlay, 2009; Dou et al., 2019).

The **main difference** between the two countries is the entrepreneurship education policy caused by the different institutional contexts. Entrepreneurship education in the UK has evolved into a full-fledged programme with a voluntary education policy in place, reflecting the country's institutional characteristics, which include a stable economy, mature market, the critical thinking educational concept, and a relatively positive entrepreneurial concept. It is a professional subject or elective course, selected by the student. Lectures and seminars are included in the course format, which reflects the British educational concept of encouraging autonomy and student-centred learning (Wang, 2018). On the contrary, given China's institutional environment, which includes features such as a fast-growing economy, imperfect market, traditional familyism, Confucianism, knowledge transmission educational concept and a relatively negative entrepreneurial concept, university

entrepreneurship education is in its infancy and has been directly promoted by the Chinese government, through a compulsory education policy (Lavelle, 2021; MOE, 2012). As a result of this policy, entrepreneurship education has become a basic compulsory course that students are required to attend. The course format consists solely of lectures, representing the dominant educational concept in the Chinese institutional context that focuses on knowledge transmission and teacher-led learning (Wang, 2018).

In contrast, British students can choose entrepreneurship education as a major or elective course within a voluntary education policy to reflect their interests and needs. They are also encouraged to be more autonomous in the learning process with active teaching methods focusing on critical thinking. However, within the compulsory entrepreneurship education policy in China, students must attend the course without any choice in the matter. Therefore, it is difficult to distinguish their interest and demand for entrepreneurial learning. At the same time, the shared value and shared understanding of entrepreneurship in China are relatively negative. Furthermore, students taught in the more controlling teaching methods tend to lose autonomy and learn less effectively (Wang, 2012), whether or not they actually aspire to study entrepreneurship education. In light of this, the voluntary and compulsory education policies resulting from the institutional context may be the reason for the differences in British and Chinese students' learning expectations, which in turn will lead to differences in how entrepreneurship courses are received and whether the student intends to start a business.

The comparative analysis of the institutional background and the actual situation of entrepreneurship education in the UK and China highlights that the most relevant difference between the two countries is entrepreneurship education policy. Entrepreneurship education in the UK is a voluntary education policy, while it is a compulsory education policy in China. This is a manifestation of economic, political, societal, and cultural characteristics of the two countries, and feedback on shared values and shared understandings in education and entrepreneurship.

This thesis extends the findings of previous studies, focusing on both the individual level and the country level, and explores the antecedents that affect students' learning expectations in the institutional context, which is of great significance for promoting student's entrepreneurial behaviour and achieving a country's goal of encouraging entrepreneurial activities. The integration of the institutional context and university-based entrepreneurship education is embodied by concentrating on the students' entrepreneurship learning process at the individual level and exploring the impact of entrepreneurship education policies at the national level on students' learning expectations. Recent research has shown that the regulatory environment is essential for entrepreneurship development and has emphasised that the public policy of regulatory environmental resources is perceived to be more critical than university-controlled resources (e.g., courses) in entrepreneurship education (Dou et al., 2019). Therefore, entrepreneurship education policies executed in the UK and China's institutional context may significantly impact students' learning expectations, which will be discussed in detail in the following section.

### 3.7 Antecedents for affecting students' learning expectations in the UK and China's institutional context

As presented in 3.6, in the UK and China's institutional context, country-level entrepreneurship education policy may affect the individual's entrepreneurship learning expectations. In other words, the UK's voluntary education policy and China's compulsory education policy are likely to give rise to different learning expectations of entrepreneurship education. This is because the education policies formulated in different national institutional contexts lead to students' different learning motivations, reflecting different learning autonomy levels impacting students' learning expectations in the learning process.

Students' motivation reflects both intrapersonal and interpersonal processes (Reeve & Jang, 2006). In general, psychological research focuses on individual intrapsychic influences on motivation, whereas educational research focuses on teacher behaviours that can effectively improve student motivation (Skinner & Belmont, 1993). At the intersection are theories that proceed deductively from the intrapsychic



impacts on student motivation to analyse various classroom activities and approaches that affect these students' attitudes and beliefs (Skinner & Belmont, 1993). This is where self-determination theory (SDT) is relevant. Research about student autonomy influences student learning based on self-determination theory and in educational research about whether teaching methods can promote student autonomy in active and passive learning. In turn, SDT influences the impact of various teaching methods on students' learning from student autonomy as an individual intrapsychic factor.

Self-determination theory is a theory that builds on the concept of motivation and focuses on autonomy, which aims to describe the internal "innate needs" of individuals (in this study, students), that may influence their performance and experiences in a given situation (in this study, the learning process) (Ryan & Deci, 2000). In the following section, self-determination theory will be explored, followed by its application to this present study.

### 3.7.1 Student autonomy and student learning

#### 3.7.1.1 *Self-determination theory*

Deci and Ryan (1985, 2002) propose self-determination theory, which concerns interrelationship between motivations, innate human needs and well-being in the immediate social environment. As defined by Deci and Ryan (1985), self-determination is a quality of human function involving the experience of choice. It is the ability to choose and have those choices and be the determinant of one's own actions. SDT regards motivation as the core of biological, cognitive and social regulation and involves direction, energy, and continuous activation and intention (Deci & Ryan, 2000). It believes that humans have an intrinsic motivation for growth and achievement (Stone et al., 2009). They have natural motivational tendencies and readiness to learn, explore and absorb knowledge, and develop new skills (Ryan & Deci, 2000). However, these natural tendencies can be supported, facilitated, or hindered by the social environment (Ryan & Deci, 2000). Since SDT is regarded as a macro theory of human motivation, development, and wellness, it is based on certain aspects, including the three assumed basic psychological needs, intrinsic motivation and extrinsic motivation, and social environment, which will be discussed.

First, SDT holds that as long as the social environment provides human beings' basic psychological needs, they have the impetus to learn and develop innately (Deci & Ryan, 2000; Ryan & Deci, 2000). SDT assumes three needs: autonomy, competence and relatedness, which are essential nutrients to function optimally and grow psychologically (Deci & Ryan, 2000). The need for autonomy is the need to have a sense of full volition and provide choice about one's activities and goals, which is a feeling that emerges when goals and actions are experienced as coming from one's authentic self. Next, the need for competence is the need to be effective in one's interactions with the environment and feel capable of dealing with challenges (Deci & Ryan, 2000; Ryan & Deci, 2000). Finally, the need for relatedness refers to the requirements to be closely related to others. By satisfying the three basic needs, individuals experience an elaborated sense of self and obtain better psychological well-being. On the contrary, deprivation of the three basic needs leads to a highly fragmented, reactive or alienated self.

Second, the central tenet of SDT is that, contrary to other motivational theories (such as Bandura's Social Cognitive Theory) that treat human motivation as a monolithic construct, SDT divides human motivation mainly into two types of motivation: intrinsic and extrinsic motivation (Deci & Ryan, 2000). Intrinsic motivation refers to behaviours carried out in the absence of external impetus that inherently is interesting and enjoyable (Ryan & Deci, 2000a). For instance, when people are internally motivated, they will play, explore and participate in activities for internal fun, challenge and excitement. These behaviours have an *internal perceived locus of causality* (de Charms, 1968), which shows that they are experienced as emanating from the self rather than external sources, accompanied by feelings of interest and curiosity (Deci & Ryan, 1985). Therefore, as an exemplar of autonomous function (such as volitional), intrinsic motivation is essential to humans' inherent tendencies to learn and develop (Flavell, 1999).

On the contrary, extrinsic motivation refers to the behaviour carried out to achieve some outcome separable from the activity itself (Ryan & Deci, 2000a). It can be further divided into four types: (1) external regulation, (2) introjected regulation, (3) identified

regulation, and (4) integrated regulation (Ryan & Deci, 2000a). First, *external regulation* is the least autonomous type of extrinsic motivation. Externally regulated behaviours are performed to avoid punishment or negative consequences, satisfy an external need, or achieve an externally imposed rewards contingency, which is difficult to maintain once the controlling contingencies (e.g. grades) have been removed. The next type of extrinsic motivation is *introjection regulation*, in which behaviours are formulated to satisfy internal contingencies such as self-aggrandisement or self-derogation avoidance. For instance, students who originally studied to do well in the exam now learn to feel proud or avoid feeling guilty for not learning enough through interpolation control. A particular type of introjected regulation is ego involvement (Nicholls, 1984; Ryan, 1982), which means that one's self-esteem depends on one's performance. When the ego is involved, students will feel the internal pressure of learning to avoid shame or feel worthy (Niemic et al., 2008). Both external regulation and introjected regulation are considered emanating from outside of the self, and therefore have an *external perceived locus of causality* (de Charms, 1968). Thus, those forms of behavioural regulation are considered to be relatively controlled.

Moving towards greater autonomy, behaviours undertaken because they are considered valuable or essential are considered to exemplify *identified regulation*. At this point, the person has acknowledged the personal importance of behaviour and, as a result, has embraced its regulation as to his or her own. *Integrated regulation* is the most autonomous form of external motivation. When identified regulations are fully brought into unity with one's needs and values, integration occurs. Both identified regulation and integrated regulation are considered emanating from and consistent with the self, and therefore have an *internal perceived locus of causality* (de Charms, 1968). Thus, those forms of behavioural regulation are considered to be relatively autonomous.

Integrated motivation shares many qualities with intrinsic motivation (Gelderen, 2010). However, the behaviour in intrinsic motivation is carried out for its own inherent purposes; in contrast, integrated regulation behaviour is carried out for its presumed instrumental value concerning some outcome separate from the behaviour,

even though it is volitional and valued by the self (Deci & Ryan, 2000; Ryan & Deci, 2000).

Third, the social environment is a crucial concept in self-determination theory, which can be viewed as either supportive or not supportive. The former depends on the assumption that needs can be met so that people will be more autonomous, whilst the latter believes that people may feel controlled due to lack of support, leading to low-quality performance (Ryan & Deci, 2000a, 2011). As explained by Deci and Ryan (2012), social-contextual factors that support satisfaction of the three basic psychological needs will enhance persistence, autonomous functioning, effective performance (especially on heuristic tasks) and wellness; on the contrary, social-contextual factors that hinder the satisfaction of these three basic psychological needs will lead to less persistence, reduced autonomy, worse performance and greater ill-being.

Moreover, self-determination theory emphasises the importance of the social environment, consistent with the emerging trend of a situated view of motivation (Chen & Jang, 2010). Järvelä (2001) states that motivation is no longer a distinct factor or a separate variable; it can be used to explain a person's readiness to learn or act, but it reflects the social and cultural context. SDT aims to clarify the dynamics of human beings' needs, motivation and well-being in the immediate social environment. The framework of SDT enables researchers to examine mechanisms through which contextual factors, such as teacher behaviour or social interaction, can promote or weaken students' motivation (Chen & Jang, 2010).

#### *3.7.1.2 Application of SDT in the education context*

A review of the literature helps to reveal the connection between entrepreneurship education and SDT. Pintrich and Schunk (2002, p.257) described SDT as 'one of the most comprehensive and empirically supported theories of motivation available today.' It has been successfully applied to a variety of settings, including politics (Losier et al., 2001), religion (Neyrinck et al., 2005), physical education (Standage et al., 2005), health care (Williams et al., 2006), and general education (Niemic et al., 2006).

SDT plays a vital role in the field of education. Motivation has been identified as a critical factor affecting learning (Lim, 2004); in particular, intrinsic motivation significantly impacts individuals' inherent tendencies to learn and develop (Flavell, 1999). Prior studies have shown that student motivation is related to various essential learning consequences, like retention (Lepper & Cordova, 1992), persistence (Vallerand & Blissonnette, 1992), course satisfaction (Fujita-Starck, 1994) and achievement (Eccles et al., 1993). SDT is a theory that builds on the concept of motivation, which aims to describe the internal "needs" of individuals (in this case, students) that may influence their performance and experiences in a given situation (in this case, the learning process) (Ryan & Deci, 2000).

Furthermore, SDT is mainly concerned with the conditions that support or hinder the innate propensities to be autonomous, related and competent (Gelderen, 2010). It emphasises that students' learning motivations can vary in their relative autonomy, from behaviours inspired by interests and values (autonomous types of motivation or autonomous motivation) to those behaviours inspired by external rewards and punishments (controlled type of motivation or controlled motivation) (Gelderen, 2010). Studies have shown that students' natural tendency to learn is a highly valuable resource available to educators; it is an area where external control can be imposed (Niemic & Ryan, 2009). Given that more autonomous types of extrinsic motivation are related to improved student learning and adaptation, understanding how to promote internalisation has become a crucial educational agenda (Gelderen, 2010; Niemic & Ryan, 2009).

Many researchers have applied SDT to intrinsic motivation in educational environments to explore the impact of student autonomy, teachers' autonomy support and autonomy control on student learning. A large amount of past literature shows that student autonomy can promote intrinsic motivation (e.g., Benware & Deci, 1984a; Deci et al., 1981; Grolnick & Ryan, 1987; Kage & Namiki, 1990; Ryan & Deci, 2000; Ryan & Grolnick, 1986; Standage et al., 2006). The more autonomous a person's motivation is, the higher the quality of persistence, and learning and emotional experience are enhanced (Niemic & Ryan, 2009). Besides, the teachers' primary

purpose of autonomy support is to allow students to work from their internal motivational resource base (Gelderen, 2010). Studies have found that students' inner autonomy is related to self-directedness, flexibility and creativeness (Sheldon & Elliot, 1998), engagement (Niemic & Ryan, 2009; Reeve & Jang, 2006), persistence and efforts (Reeve & Jang, 2006; Sheldon & Elliot, 1998), personal goal attainment (Sheldon & Elliot, 1998), deep learning (Deci & Ryan, 2000; Niemic & Ryan, 2009), and well-being (Reeve & Jang, 2006). These outcomes are directly related to positive behaviour and are linked to individual goals and beliefs (Gibb, 1993). Conversely, students studying within the system of autonomy control are less likely to be engaged (Black & Deci, 2000; Deci & Ryan, 1985, 1987; Hardre & Reeve, 2003).

SDT (Ryan & Deci, 2000) has been repeatedly used to study student activities' underlying factors and performance in the learning process. It has also been widely utilised and validated in the field of education in both conceptual and empirical research (over 200) (Guay et al., 2008). Its wide application in the educational environment is also reflected in entrepreneurship and entrepreneurship education, discussed next.

#### *3.7.1.3 Application of SDT in entrepreneurship and entrepreneurship education context*

SDT in the field of entrepreneurship and entrepreneurship education mainly focuses on the exploration of entrepreneurial intention. Motivation can play an essential role in forming entrepreneurial intentions and different levels of attitudes (Al-Jubari et al., 2019). Subjective norms and perceived behaviour control may be derived from different types of motivations (Fayolle et al., 2014). Hence, people may have intrinsic or extrinsic motivations, or both, to engage in entrepreneurial activities (Naffziger et al., 1994). Some studies have analysed the influence of internal and external motivations on entrepreneurial intentions (Carsrud et al., 2009; DeTienne et al., 2008; Fayolle & Liñán, 2014) and have developed a deeper understanding of the motivational process involved in voluntary entrepreneurial behaviours (Al-Jubari et al., 2019). Under certain circumstances, both intrinsic and extrinsic motivations may positively impact entrepreneurial intentions (Antonioli et al., 2016; Baluku et al., 2019). Likewise,

their impact on entrepreneurial perseverance is likely to be different (DeTienne et al., 2008), as are those on action decisions (Carsrud & Brännback, 2011). For example, social enterprises' creation may be more obviously fuelled by intrinsic motivation (Carsrud & Brännback, 2011).

Furthermore, there are few studies on the impact of SDT on entrepreneurship education (Gelderen, 2010). Gelderen (2010) suggests that in entrepreneurship research and education, greater emphasis should be devoted to whether and how to attain student autonomy and enable students to pursue their entrepreneurial learning process through autonomy support. He stressed the impact of autonomy support on students and its importance to entrepreneurship education, believing that autonomy could be considered the guiding principle of entrepreneurship education. By implication, the use of external regulation (autonomy control) might negate such influences (see below).

Past experimental studies in psychology have confirmed that student autonomy in learning that is SDT focused can promote intrinsic motivation (Benware & Deci, 1984; Deci & Ryan, 2000; Deci et al., 1981; Grolnick & Ryan, 1987; Kage & Namiki, 1990; Ryan & Grolnick, 1986; Standage et al., 2006), increase self-directedness, flexibility and creativeness (Sheldon & Elliot, 1998), engagement (Niemic & Ryan, 2009; Reeve & Jang, 2006), persistence and efforts (Reeve & Jang, 2006; Sheldon & Elliot, 1998), personal goal attainment (Sheldon & Elliot, 1998), deep learning (Deci & Ryan, 2000; Niemic & Ryan, 2009), and well-being (Reeve & Jang, 2006). Moreover, it successfully predicts various learning outcomes, including performance, perseverance and course satisfaction (Deci & Ryan, 1985; Eccles et al., 1993; Fujita-Starck, 1994; Vallerand & Blssonnette, 1992), and influences entrepreneurial intention (Al-Jubari et al., 2019; Baluku et al., 2019). In entrepreneurship education, the critical role of student autonomy in entrepreneurship learning is also proposed and should be regarded as the guiding principle of entrepreneurship education.

Earlier reference is made that students' learning intention, motivation and autonomy can be reflected in their expectation of entrepreneurship education; this, in turn, is related to their potential entrepreneurial activities. Taking this forward, it can be argued that students' learning expectation of entrepreneurship education provides a distinctive lens to advance understanding of the interplay between students and institutional context in the dynamic learning process of entrepreneurship education. Since learning expectation is the internal motivational resource of students, it will be affected by student autonomy. In other words, student autonomy positively influences students' learning expectations. Taking this forward, it can be argued that if students have more active autonomy in entrepreneurship education, they are more likely to have higher learning expectations.

In summary, building upon self-determination theory and applying it in entrepreneurship education, emphasising the importance of the social environment and how it influences students' autonomy and, in turn, impacts their learning expectations, is established. Taking this forward, hypotheses will be developed, which forms the conceptual framework of this study.

#### *3.7.1.4 Applying SDT to entrepreneurship education in the UK and China*

The discussion in 3.6 shows that due to the impact of the institutional context, the UK and China's entrepreneurship education policies are different, reflecting the different attributes of the course types (optional or compulsory). Entrepreneurship education in the UK is within a voluntary education policy, and student can choose their major or optional courses by themselves. While in China, entrepreneurship education is a compulsory education policy, which is a public introductory course that students must participate in without any choice. Oosterbeek et al. (2010) state that entrepreneurship education programmes could fail to meet expectations partly because course participation was mandatory. Moreover, Karimi et al. (2016) point out that optional entrepreneurship education programmes had a more significant influence on students' entrepreneurial intention and opportunity identification than compulsory ones. In light of this, students with a genuine interest in a subject are more likely to select into studying an elective course, whilst the interest of students attending



compulsory courses may be harder to discern (Cui et al., 2019). This might suggest that students who choose to opt for entrepreneurship education courses have a perception of autonomy and will also be more interested and engaged.

Therefore, students' pre-class self-selection is the fundamental difference between the UK's voluntary education policy and China's compulsory education policy. According to self-determination theory, this will be manifest in differences in students' internal autonomy, affecting their learning expectations in the entrepreneurial learning process. This will then have a direct impact on the students' choice, which will be discussed in the next section.

#### 3.7.1.4.1 Student choice before class

Choice plays an essential role in enhancing student engagement, intrinsic motivation and learning (Deci et al., 1996; Flowerday & Schraw, 2000), a finding supported by several studies (Eshel & Kohavi, 2003; Hardre & Reeve, 2003). A critical yet perhaps ignored factor in students' declining motivation may be school environments, which supply progressively fewer opportunities for students' choice and decision-making (Otis et al., 2005; Ryan et al., 2002). The favourable influence of supplying students with well-designed, meaningful choices has been demonstrated across a wide range of academic fields and student populations (Assor et al., 2002; Martin et al., 2003).

The role of choice in student motivation is best understood through the self-determination theory of motivation (Ryan & Deci, 2000), which focuses on student learning autonomy in promoting intrinsic motivation. According to SDT, an individual's sense of autonomy shows a feeling of full volition and having a choice regarding one's activities and goals (Deci & Ryan, 1985). This feeling emerges from having opportunities to engage in self-selection, including setting goals based on personal values and interests, making decisions to achieve those goals and taking the initiative to progress toward those goals to determine one's future (Deci & Ryan, 1985). According to SDT, student autonomy is best supported by providing options to choose courses and removing external controls, such as pressures (Ryan & Deci, 2000). Therefore, choice plays a vital role in the student motivation model, and students'

self-selection of courses demonstrates their willingness and autonomy to learn. Next, the influence of students' motivation, intention, and autonomy on students' learning process under different choices in psychology will be explored.

#### 3.7.1.4.2 Student motivation, intention and autonomy in the learning process

Motivation is intrapersonal because students' personal orientations and beliefs will influence their motivation and performance, such as interest and achievement goals (Elliot, 1999; Tobias, 1994). In other words, student self-selection of courses based on their own desires and aspirations will lead to certain expectations and goals for the selected courses, which will affect their efforts in the future learning process. The motivation of students revolves around the concept of intentionality (Deci & Ryan, 1987). Intention is the determination to participate in a particular behaviour, equivalent to being motivated to act (Reeve & Jang, 2006). For example, a student's intention to take action might be "I want to learn in an entrepreneurial course." This learning intention sometimes comes from within and is fully recognised by the students' self-awareness. In this case, the intention indicates high autonomy and is linked to autonomous types of motivation (e.g., intrinsic motivation and identified regulation in SDT; Ryan & Deci, 2002). Alternatively, the same intention can be coerced, induced or produced by external causality, for instance, from a teacher's instructions or external rewards; or it can be derived from a pressure-inducing intrapsychic force such as an ego involvement. This intention shows low autonomy and is linked with controlled types of motivation when this happens (e.g., external regulation and introjected regulation in SDT; Ryan & Deci, 2002). Therefore, students' intentional learning behaviour - their motivated action - can be initiated and adjusted autonomously or can be initiated and adjusted in a controlled, involuntary manner (Reeve & Jang, 2006).

Autonomy is the internal recognition of one's behaviour- the sensation that one's behaviour comes from oneself and is one's own (Deci & Ryan, 1987). It is the ability to make motivation emerge from an internally controlled locus and volitional sources of motivation rather than an externally controlled locus (e.g., external regulation) or nonvolitional causality (Deci & Ryan, 1985; Reeve et al., 2003). When students are

autonomously motivated, they will report an inner locus of causality, a sense of freedom (high volition), and a sense of choice over their actions (Reeve et al., 2003). An inner perceived locus of causality is the perception that behaviour originates from and is regulated by oneself; the opposite is an external perceived locus of causality (Reeve & Jang, 2006). The perception of strong psychological freedom in the activity is represented by volition; the inverse is ego involved or feeling stressed (Reeve & Jang, 2006). The perceived choice of one's action indicates the continual decision-making flexibility to select what to do, how to do it, and whether to do it; the reverse is a rigid assignment (Reeve & Jang, 2006). Thus, autonomy is an experience of an internally controlled locus, volitional intention to act, which can be assessed by self-reports of an internal perceived locus of causality, high volition and a perceived choice over one's actions (Reeve & Jang, 2006).

From the above discussion in the psychology field, students' choice, motivation, intention and autonomy are intrapersonal and interpersonal. Students' pre-course self-selection is a direct embodiment of students' thoughts and internal motivational resources, also it is the fundamental basis for identifying students' interest in the course and learning autonomy. The course selection process is a process by which students express their inner needs, expectations and goals, and confidence in completing the course. Translating the importance of autonomy to instructional choice has led to increasing attention on how to enable students to take an active role in their learning process (Evans & Boucher, 2015). This is based on the growing realisation that students must be allowed to choose and study with autonomy in order to improve their learning intention and intrinsic motivation to engage in learning activities. Students are more likely to see the value in a given learning task and become more involved in the learning activity when they feel autonomous (Deci et al., 1996; Grolnick et al., 1991).

Students' choices, motivations, intentions and autonomy are reflected in students' learning processes under different education policies in the UK and China. British students play a more active role; their conscious learning behaviours of voluntary education in self-selection of courses are initiated and adjusted autonomously,

showing internal autonomous motivation, a high degree of psychological freedom, and a sense of choice in their actions. On the contrary, Chinese students' compulsory education is initiated and adjusted in a controlled, involuntary way; students play a passive role and feel pressure and rigid assignment. Thus, as students' self-selection of entrepreneurship courses under different education policies shapes their different learning autonomy, different learning expectations towards entrepreneurship courses can be expected in each country.

According to self-determination theory, student autonomy promotes intrinsic motivation (Ryan & Deci, 2000). Students' learning expectations, as an intrinsic motivational resource, are affected by student autonomy. In other words, compared with Chinese students, British students with purposeful self-selection of courses have higher internal autonomy, leading to full confidence and expectations for their future study of entrepreneurial courses.

Hence, from the psychology perspective of students' internal autonomy, self-selection on courses, leads to the hypothesis that the UK students will have higher learning expectations of course content and design (ability to identify business opportunities, understanding the process of a business start-up, writing a business plan, marketing knowledge and skills, access to finance, and management skills for a business start-up), teaching methods and resources (tutors' entrepreneurial experience, tutors' academic qualification, access to real-life entrepreneurs, interactive teaching methods, hands-on business start-up opportunities, and network opportunities), expected input (self-expectation in study hours) and pre-course entrepreneurial intention (self-expectation in careers) than Chinese students.

Except for student autonomy from within, autonomy support in teaching can cultivate, support and increase students' internal endorsement of classroom activities to initiate students' intentional learning behaviour (Reeve et al., 2004; Reeve, 2006; Reeve & Jang, 2006). Next, autonomy support and control from the psychological perspective will be discussed. By taking into account the institutional context and the actual situation of entrepreneurship education in the UK and China, a discussion about

teachers' behaviour in active and passive learning and how this affects student autonomy is included in the next section.

#### 3.7.1.4.3    **Autonomy support and control**

Autonomy support refers to a kind of interpersonal behaviour supplied by one person to involve and foster another person's internal locus and volitional intentions to act (Reeve & Jang, 2006). As an example, a teacher can support students' psychological needs, preferences, interests and values. Asking students what they want is a kind of autonomy-supportive behaviour, as teachers attempt to uncover the students' psychological needs and incorporate them into the course (Reeve & Jang, 2006). Giving students time to solve problems in their own way is an autonomy-supportive behaviour since teachers enable students' preferences and interests to lead their classroom activities (Reeve & Jang, 2006). Similarly, providing reasons to explain why there is a rule or why a boring activity is worth students' attention is an autonomy-supportive behaviour since it permits students a sense of value to direct their learning activities (Reeve & Jang, 2006). In general, autonomy support is concerned with finding ways to cultivate, support and improve students' internal endorsement of classroom activities (Reeve et al., 2004; Reeve, 2006; Reeve & Jang, 2006), such as active teaching approaches.

When autonomy is supported, teachers can help students establish a sense of consistency between learning behaviour and their internal motivational resources (Reeve & Jang, 2006), such as psychological needs, interests, expectations, preferences, goals, inputs and values. Although teachers cannot give students an experience of autonomy directly, they can inspire and support this experience by recognising students' internal motivational resources (e.g., from student interest and choice) and providing chances to align their learning intention with classroom activities (Reeve & Jang, 2006).

On the contrary, when autonomy is controlled, teachers instruct students to put aside their own internal motivating resources in favour of following a teacher-centred agenda (Reeve & Jang, 2006). To urge students to stick to the agenda, teachers provide

external incentives, impose external goals, exert communication pressure and generally affect students' thinking, feeling and behaving in behaviour modification programmes (Reeve & Jang, 2006). The fundamental idea is to create an agenda that stipulates what students should and should not do and use external contingencies and pressuring language to make students move towards that agenda (Reeve & Jang, 2006). Thus, when autonomy is controlled, students' motivation is driven by external contingencies and pressuring language rather than by their internal motivation resources, which has a negative impact on students' engagement, emotionality, intrinsic motivation, academic achievement, creativity, conceptual understanding, psychological well-being and persistence in learning process compared with autonomy support (Benware & Deci, 1984; Black & Deci, 2000; Boggiano et al., 1993; Deci & Ryan, 1985, 1987; Grolnick & Ryan, 1987; Hardre & Reeve, 2003; Koestner et al., 1984; Miserandino, 1996; Ryan & Grolnick, 1986; Vallerand et al., 1997).

Compared with the compulsory entrepreneurship education policy in China, UK teachers are more able to determine British students' internal motivational resources because, in the UK's voluntary entrepreneurship education policy, they can decide what students who choose entrepreneurship education as a major or elective course will be interested in, based on their need and what they are willing to learn. Whereas Chinese students who are forced to participate in entrepreneurship education are unclear about their own needs and expectations, their learning intention is therefore coerced, induced or produced by external causality. Moreover, providing students with choices is a kind of autonomy support in itself (Assor et al., 2002), which encourages independent thinking (Assor & Kaplan, 2001), enhances the self-initiation of learning activities (Grolnick & Ryan, 1987), and allows students to find their own solutions to problems (Stefanou et al., 2004). This will result in students being more active in the learning process, with a high degree of autonomy and engagement. Therefore, from the perspective of student autonomy in psychology, the UK's voluntary entrepreneurship education policy provides autonomy support, while China's compulsory entrepreneurship education policy is autonomy controlling.

Furthermore, autonomy support and autonomy control are also reflected in the teachers' behaviour in the education field, which has triggered a discussion on active and passive learning of teaching approaches in the education circle. Compared with autonomy control, autonomy support can foster, support and improve students' internal endorsement of classroom activities through active teaching approaches to enhance student autonomy, participation and learning intention (Reeve et al., 2004; Reeve, 2006; Reeve & Jang, 2006). It is the same as the characteristics and purpose of active learning and passive learning in higher education. Thus, autonomy support can be regarded as active learning, and autonomy control as passive learning.

As discussed in 3.6, both Britain and China have created their own systems and teaching methods of entrepreneurship education, demonstrating their institutional characteristics. After years of development, the UK's entrepreneurship education has become a fully-fledged voluntary education policy. It is a professional subject and optional courses can be chosen by the student. The course format includes lectures and seminars, reflecting British higher education's emphasis on critical thinking and student-centred learning characteristics that provide students with more opportunities to improve their autonomy (Wang, 2018). On the contrary, entrepreneurship education in China is in its infancy and has been promoted directly by the Chinese government with a compulsory education policy in place that requires students to attend (Lavelle, 2021; MOE, 2012). Only lectures are provided, reflecting the traditional teaching characteristics of Chinese higher education that focuses on knowledge transmission and teacher-centred learning (Wang, 2018). Chinese entrepreneurship education as a public basis course provides students with fewer opportunities to participate, resulting in a lower degree of student autonomy. Therefore, from an educational perspective, teachers' behaviour promotes student autonomy; British entrepreneurship education tends to be active learning, while Chinese entrepreneurship education tends to be passive learning.

In higher education, teachers' incentive styles in active learning play an important role in improving students' internal endorsement to initiate intentional learning behaviour (Reeve et al., 2004; Reeve, 2006; Reeve & Jang, 2006). It revolves around finding

positive and appropriate teaching methods in the teaching process based on the national institutional context. In what follows, the impact of autonomy support and control of psychology, teaching methods and its relation to active and passive learning and students' learning will be discussed further.

### 3.7.2 Student autonomy inspired by teachers' behaviour impacts students' learning

Most research on student learning motivation focuses on how teachers' behaviour promotes student autonomy. In the following section, applying this to self-determination theory, the impact of active and passive learning on students' learning will be explored further.

#### 3.7.2.1 Active learning

Active learning is a multi-layered and complicated process (Watters, 2014). However, it is apparent that it is usually described positively and based on a "good experience". It is often understood as a panacea for learning and teaching; arguably, instead of 'active', it can easily be called "good" learning (Watters, 2014). The existing literature and research on active learning gives the impression that this is a learner-centred, progressive and dynamic approach, which holds learners responsible for their own learning (Michel et al., 2009). However, active learning is a controversial term that seems to have no universally accepted definition in higher education. The use of the term active learning generally relies on intuitive understanding more than any standard or well-defined theory or practice (Watters, 2014).

Active learning is presented in many ways in the literature. The leaders in this field, Bonwell and Eison (1991), have made a significant contribution to its development and acceptance of active learning as a viable approach. They state that active learning is a learning method in which students actively or experientially participate in the learning process. There are different levels of active learning, according to the degree of student participation. Proponents of active learning describe a student's involvement in the process of "doing things and thinking about what they are doing" in class (Bonwell & Eison, 1991, p.2). In other words, in addition to passively listening, students also participate in active learning with critical thinking. Moreover, Prince



(2004) claims that active learning can be defined as any teaching method that allows students to participate in the learning process. Active learning activities include various practices, such as: interspersing short writing exercises in class; pauses in class to allow students to consolidate notes; facilitating small group discussions; incorporating survey tools, quizzes, and student self-assessment exercises; leading laboratory experiments; conducting field trips and using debates, games and role play (Bonwell & Eison, 1991; Braxton et al., 2000; Ebert-May et al., 1997; Sarasvathy, 2004). As ways of autonomy support, these active learning activities stimulate students' interest and inquiry while acquiring knowledge and skills, rather than promoting the memorisation of large amounts of information (Montgomery et al., 1997), which increases students' internal endorsement and learning intention (Reeve et al., 2004; Reeve, 2006; Reeve & Jang, 2006). Furthermore, active learning can enhance student knowledge and understanding of course content (Anderson & Adams, 1992; Chickering & Gamson, 1987; Johnson et al., 2006; McKeachie et al., 1986) and yield many advantages: students are more engaged than in passive listening; students are involved in activities such as reading, discussion and writing; students' motivation is enhanced; students can receive feedback immediately; students can conduct higher-level thinking, such as analysis, synthesis and evaluation and encourage students to move beyond a superficial, fact-based approach to the material that gives life and direction to the subject matter (Bonwell & Eison, 1991; Ladousse, 1987; McKeachie, 1999; Shaftel & Shaftel, 1976; Van Ments, 1994). In short, active learning requires students to engage in meaningful learning activities and think about what they are doing. Students play an active role in active learning with high autonomy and learning intention.

#### 3.7.2.1.1 Characteristics of active learning in the literature

Although Bonwell, Eison and Prince's definitions are broad, they are helpful as an overarching definition. However, it is necessary to explore other literature that presents specific characteristics of active learning to have different lenses. Table 3-2 shows the main features of active learning, which are present in literature (Watters, 2014).

*Table 3-2 Characteristics of active learning*

Characteristics of active learning	References
Student responsibility for learning	Berry (2008), Rogers (1969), Denicolo et al. (1992)
Collaboration between students and students and being involved in cooperative learning	Rogers & Freiberg (1994)
Critical thinking	Bonwell & Eison (1991), Berry (2008), Denicolo et al. (1992), Rogers & Freiberg (1994)
Strong relationship between student and teacher	Rogers (1993), Brookfield (2017), Freire (2000), Gibbs and Jenkins (1992), Hooks (1996)
Student-centred	O'Neill and McMahon (2005)
Deep approach to learning	Marton and Säljö (1976)
Learning and developing skills	Bonwell & Eison (1991), Denicolo et al. (1992)
Engaging students in the learning process	Prince (2004), Bonwell & Eison (1991),
Students are engaged in activities (projects, role-plays, discussions etc.)	Prince (2004), Bonwell & Eison (1991), Berry (2008), Chickering and Gamson (1987)
Surface approach – physical activity	Watters (2014)
Deep approach – cognitive process	

*Source:* (Watters, 2014)

This table provides a summary of some of the features mentioned in the literature. However, it must be pointed out that this is not an exhaustive list. Some authors provide further explanations, such as Michael and Modell (2003), who believe that active learning involves establishing, testing, and repairing a mental model of what one has learned. Besides this, Denicolo et al. (1992) defined active learning as the pursuit of personal and academic meaning and believed that it is not only about absorbing information but having a good grasp of key concepts and being able to apply them in different environments. As shown in Table 3-2, active learning is student-centred with actively thinking, engaging and interacting in the learning process. The main characteristics of active learning, student engagement and teacher-student relationship will be discussed next.

### **Student engagement**

Active learning and student engagement are closely related, as both terms indicate a commitment to enhancing the student's learning experience. 'Activist' learners may

benefit the most from learning which is physically "active" in the sense of collaboration and participation (Honey & Mumford, 1982), because according to Kanninen (2009), "activist" learners like group work and learn best when they are engaged in new experiences, opportunities and problems. This is supported by other scholars who point out that student engagement has the characteristics of active learning, such as critical thinking and cooperation with others (Watters, 2014). Active learning seems to be a means to define and achieve student engagement. In recent years, many studies have investigated and attempted to explain the meaning of the term student engagement (Bryson & Hardy, 2011; Coates, 2008; Kuh, 2009; Kuh et al., 2006; Trowler, 2010; Trowler & Trowler, 2010). In many higher education policies, student engagement has also become a widely used term, and like active learning, it can be defined in many ways.

Kuh (2009) defines student engagement as the relationship between the time and effort invested by students and their experience with desired university learning outcomes and the measures taken by institutions that motivate students to participate in these activities. Bryson and Hardy (2011) believe that student engagement is a social construction concept because it includes perceptions, expectations and experience of being a student. Furthermore, Bryson and Hardy (2011) emphasise Fromm's (1978) view that learning is about developing subject knowledge and how students change with learning. Student engagement and active learning may intersect due to the importance of educational "experience" and "purposeful activities" (Kuh et al., 2006). Trowler (2010) also outlines this intersection and believes that progressive teaching concepts (usually associated with active learning) impact student engagement because it involves a shift in educators' perceptions towards a student-centred approach, in which autonomy and self-direction are essential. Therefore, from the student learning experience perspective, the concepts of active learning and student engagement are heavily overlapped. They recognise the students' dominant position in learning and emphasise the critical influence of student autonomy and self-direction on students' learning. In other words, students' self-direction and high autonomy are the manifestations of their intrinsic motivation and cognitive understanding of active learning.

### **Teacher-student relationship**

Another critical characteristic of active learning is the strong relationship between students and teachers. McKeachie (1999) and Gamson (1991) state that active learning refers to the experience of students thinking about issues in the process of interacting with teachers and each other. It is supported by other scholars who argue that active learning is not necessarily restricted by the teaching space but depends on the motivation of students and teachers and how they go about engaging with the learning and with each other (Watters, 2014). Active learning could not exist without active teaching; active learning does and should incorporate active teaching (Watters, 2014). Haym (2005) pointed out that active teaching is a technique that is continually looking for new teaching methods of delivery and fine-tuning existing teaching methods to maximise students' learning and understanding. This learning process creates an impression in students' minds that the teacher cares about them and their success (Watters, 2014). In other words, the teacher has to actively teach in order for students to actively learn. Moreover, Watters's (2014) study states that there is a link between active learning and good teaching because participants often use examples of "good teaching" or a "good learning experience" to describe and qualify it when discussing active learning.

Many of the features that define active learning can also be found in the literature on good teaching. Good teaching and active learning share many similar characteristics (Watters, 2014). Little et al. (2007) and Gunn and Fisk (2013) conducted a comprehensive review of teaching excellence in their report and provided evidence that underpins the characteristics of higher education teaching excellence awards. These features include motivating and inspiring students, promoting student engagement, enhancing active learning and group learning and peer interaction (Gunn & Fisk, 2013), and encouraging students to develop knowledge and transferable skills (Little et al., 2007). Bonwell and Eison (1991) and Denicolo et al. (1992) claim that critical thinking and student responsibility for learning are the main characteristics of an active learning approach to learning and teaching. Furthermore, Gibbs (2012) and Revell and Wainwright (2009) pointed out that good teaching and effective learning will occur when students and teachers have opportunities to interact and collaborate.

This is supported by other scholars who argue that the relationship between good teaching and active learning is expressed in the way that good teachers provide opportunities for active learning and support student autonomy (Watters, 2014). Therefore, as a means to stimulate students' active learning, active teaching can improve students' inner endorsement and initiate intentional learning behaviours.

Like active learning, "active teaching" is not clearly defined in the literature; its understanding and conceptions will undoubtedly differ. Still, the purpose has been affirmed, to combine various teaching methods through good teaching to provide students with opportunities and improve their engagement, learning intention and autonomy. Research on the relationship between active learning and active teaching continues. Watters (2014) pointed out two new conceptual understandings of active learning in higher education, emphasising how active learning and active teaching related and influenced each other. One is the teachers' approaches to promoting active learning in different ways (philosophy, approach, method and tool). The other is the students' approaches to learning actively based on student-centred learning (O'Neill & McMahon, 2005). In these two concepts and their relations, categories are not entirely discrete, and there is substantial overlap (Watters, 2014). Watters (2014) highlighted that active learning is complex and can take many forms and occur in different learning environments, depending on the teacher and student's motivation and how they interact with each other in learning. Therefore, from the perspective of the strong relationship between students and teachers, these two concepts provide a new way to understand and discuss active learning.

#### 3.7.2.1.2 Definition of active learning from the student perspective

So far, there is no exact definition of active learning. The extant literature lacks coherence and appears isolated and fragmented. Scholars give different definitions based on their respective research focuses. However, the main characteristics of active learning have been established. Understanding active learning from the students' approaches and teachers' approaches proposed by Watters (2014) seems to be a better way to understand the relationship between learning and teaching in higher education. Specifically, except for the intentional learning behaviours generated by

student inner autonomy, teachers can provide reasonable teaching methods through active learning to create opportunities for students' participation, improve student autonomy and enable students to have a better learning experience. This shows the same characteristics as the voluntary education policy of British entrepreneurship education in its institutional context; that is, the university provides students with opportunities for choice and decision-making in the curriculum and seeks appropriate teaching methods to increase student participation and autonomy. Therefore, active learning is a manifestation of voluntary education in British entrepreneurship education.

This thesis focuses on the student perspective because it is the student who makes learning happen. Learning is a student-led behaviour driven by students' internal motivations. Moreover, teachers' active teaching approaches as autonomy support can increase students' internal endorsement of classroom activities to enhance their autonomy and willingness to learn. Hence, taking forward the definitions of Jones and Lourenço (2006), Wright et al. (1994) and Watters (2014), **active learning** can be defined as student-centred voluntary education, reflecting students' high autonomy, high learning intention and motivation, active involvement and interaction in the learning process. It is a deep learning that students' autonomy originates from within and is fully approved by their sense of self. In comparison, passive learning is the opposite, which will be discussed next.

#### *3.7.2.2 Passive learning*

Passive learning is a traditional approach in which knowledge must be transmitted and received in the form of explicit information; students then can apply this newly discovered knowledge to their own purposes (Michel et al., 2009). In this case, passive learning is seen as an external objective process (Higgins & Elliott, 2011). Some characteristics of active learning (e.g., students engaged in activities) suggest that learners must be physically active in order for any active learning to occur. Therefore, passive learning is often referred to as the opposite of active learning (Haidet et al., 2004). Dhliwayo (2008) states that in terms of the concepts and theories taught to them, traditional passive learning can only be remembered by students. Furthermore,

passive learning is usually associated with teacher-centred learning (Kain, 2003), in which students are bystanders rather than active participants or "citizens of the learning environment" (Hwang et al., 2008; Rogers & Freiberg, 1994, p.9). Passive learning is a negative concept, which is related to didactic lecturing and usually indicates the ideas of learner dependency and powerlessness (Haidet et al., 2004), which neglects students' own interests and needs and overemphasises the leadership role of teachers, resulting in students lacking learning intention and autonomy in the learning process.

Passive learning is a method of learning or guidance. Students can only get information from the teacher and internalise it but cannot get feedback (Michel et al., 2009). In universities, passive learning is common in compulsory courses (Michel et al., 2009; Watters, 2014). In traditional classes, lecturers deliver the session most of the time in class with little opportunity to engage students through discussion or experiential exercises (Stewart-Wingfield & Black, 2005), which decreases student engagement. Besides, lecturers provide a syllabus and schedule and determine scores in conventional classes by a small number of tests, usually based on multiple-choice questions, yes-no questions or matching questions (Michel et al., 2009). Although teachers make discussion sections and essay examinations possible, they rarely make significant changes to the passive nature of these courses' learning experience (McCarthy & Anderson, 2000). Such an environment provides an incentive to learn only at a surface level (passive) rather than at a deep level (active) (Marton & Säljö, 1976). It shows that teachers' autonomy control in passive learning can only provide superficial motivation, be less effective in motivating students' inner endorsement or lead to conscious learning behaviour. According to Jaques (1992), the traditional format encourages students to focus on superficial indicators instead of fundamental principles, thereby ignoring deep (active) learning. This indicates that in order to realise the efficiency of knowledge transmission, passive learning may neglect the cultivation and development of other skills and abilities of students in learning (Watters, 2014).

The traditional teaching method has been used in higher education for many years because it provides a convenient and quick way to impart knowledge and introduce basic principles to large classes of undergraduate students (Whetten & Clark, 1996). Passive learning elevates the professor into a singular individual in the classroom who can provide and share instruction (Huggins & Stamatel, 2015; Topcu & Abrahams, 2018). In a traditional classroom environment, lecturers actively teach students who may passively absorb course content and rarely ask questions (McDonald et al., 2020). Using traditional lecture methods, lecturers can present a large amount of material in a relatively short time (Miner et al., 1984), which may allow students to benefit from a more convenient and direct content distribution method (Huggins & Stamatel, 2015). Although traditional lecture methods still dominate, some studies have shown that, compared to active learning, students are unable to retain as much material after completing such a course (Van Eynde & Spencer, 1988). Another shortcoming of passive learning is a lack of student attention, which many educators have observed in their own classes (Dorestani, 2005). Educators speculate that many students are not actively engaged in most traditional lectures (McDonald et al., 2020; Michel et al., 2009). Furthermore, passive learning may severely minimise student engagement and lead to unwanted consequences related to the coerced, induced or produced learning autonomy caused by external causality. It is low volition to learn that leads to low student engagement, which may have a negative impact on normal classroom attendance, causing students to miss valuable course content (Huggins & Stamatel, 2015). When students attend the course, this may reduce learning outcomes and lead to course failure (Huggins & Stamatel, 2015). As passive learners, they are unable to apply the multi-level thinking, critical analysis, and originality sought after by employers (Huggins & Stamatel, 2015; Munoz & Huser, 2008; Oliver, 2008). Furthermore, compared with the students in active learning environments, passive learners find it more challenging to make interpersonal and social connections on college campuses (Braxton et al., 2000; Felten et al., 2013; Munoz & Huser, 2008). Hence, passive learning may also lead to the lack of development in the skills needed to understand the concepts, pass the courses, acquire certain preferred soft skills, and socially engage or network (McDonald et al., 2020).



As with the term "active learning", passive learning is not clearly defined in the literature, which may give rise to differences in understanding. As pointed out before, passive learning is a negative concept and often referred to as the opposite of active learning (Haidet et al., 2004), in which students are bystanders rather than active participants or "citizens of the learning environment" (Rogers & Freiberg, 1994, p.9). In passive learning, teachers can only provide a few opportunities for students to participate in learning activities and are relatively unable to stimulate students' autonomy and learning motivation, which is consistent with the characteristics of the mandatory education policy in Chinese entrepreneurship education under the institutional context. In other words, it can be argued that passive learning is a manifestation of compulsory education in Chinese entrepreneurship education.

To sum up, this section covers literature on **passive learning** as teacher-centred compulsory education, reflecting students' low autonomy, low learning intention and motivation, passive involvement and interaction in the learning process. Building upon this, it can be argued that it is a surface learning in which student autonomy is coerced, seduced or created by external causality.

#### *3.7.2.3 The main characteristics of active and passive learning from the student perspective*

To better understand students' vital role in the learning process, it is necessary to identify teaching and learning characteristics in higher education. Through combing the literature, this thesis defines active learning and passive learning from the student perspective and explains their main features as shown in the following table:

*Table 3-3 Active learning vs passive learning*

<b>Active learning VS Passive learning</b>		
<b>Characteristics</b>	Active learning	Passive learning
<b>Education policy</b>	Voluntary	Compulsory
<b>Focus of the learning environment</b>	Student-centred	Teacher-centred
<b>Student engagement</b>	High	Low
<b>Student motivation</b>	High	Low
<b>Student autonomy</b>	High (from self-awareness)	Low (coerced by external causality)
<b>Student interaction</b>	High	Low
<b>Student learning intention</b>	High	Low
<b>Role of students</b>	Constructors, discoverers and creator of knowledge	Received knowledge and contain knowledge
<b>Relationships</b>	Personal interactions among students and between institutions and students	Impersonal relationship among students and between institutions and students

*Source Inspired by Jones and Lourenço (2006) and Wright et al. (1994)*

According to Table 3-3, students play different roles in active learning and passive learning under the different entrepreneurship education policies in the UK and China. British students play an active role in the active learning of voluntary education, which acts as a constructor, discoverer and creator of knowledge with high autonomy and learning intention, leading to personal interactions among students and between institutions and students. In contrast, Chinese students playing a passive role in the passive learning of compulsory education, have received knowledge from a system containing knowledge with low autonomy and learning intention, resulting in the

impersonal relationship among students and between institutions and students (Jones & Lourenço, 2006; Wright et al., 1994).

Thus, from the student perspective of entrepreneurship education, this is reflected in the fact that British students in active learning under a voluntary education policy have higher autonomy, engagement, motivation, learning intention and interaction than Chinese students in passive learning under a compulsory education policy. Next, the related teaching approaches in active learning will be discussed for the purpose of increasing students' internal endorsement of classroom activities to initiate student autonomy and intentional learning behaviour.

#### *3.7.2.4 Related teaching approaches in active learning*

In higher education, instructors have started to shift from passive learning approaches to more active learning approaches (Charlton, 2006; Richardson, 2008) because excellent teaching has a positive impact on students (McKeachie et al., 1986). As discussed in 3.7.2.1.1, active learning and active teaching are inseparable. Active learning is not necessarily restricted by the teaching space. Still, it depends on students and teachers' motivation and how they engage with the learning and with each other (Watters, 2014). Active learning does and should incorporate active teaching. Haym (2005) pointed out that active teaching is a technique that is continually looking for new teaching methods of delivery and fine-tuning existing teaching methods to maximise students' learning and understanding. Adopting teaching methods based on student interests, needs, and goals is a way of autonomy support, which can help students establish a sense of consistency between learning behaviours and their internal motivational resources to improve students' autonomy and engagement. Therefore, from this point of view, teachers' use of positive teaching approaches is a concrete manifestation of active teaching, which plays a vital role in active learning to influence students' learning.

Given the importance of the need to improve teaching approaches, it is not surprising that many different teaching approaches have been developed in the past 30 years. To increase participation and positively impact students, educators must apply active

learning principles to the classroom's actual setting (Michel et al., 2009). According to Auster and Wylie (2006), four dimensions are needed to produce a systematic approach to enhancing active learning in the classroom: context setting, class preparation, class delivery, and continuous improvement. Specifically, context setting means providing an open and relaxed learning environment in the classroom; class preparation includes thinking, planning, and creativity before class; the implementation of the prepared lesson in the classroom is referred to as class delivery and; continuous improvement requires seeking and using feedback on teaching methods (Auster & Wylie, 2006). Active learning variations in higher education mainly include seminars and tutorials, student-centred learning, blended learning and flipped classroom, problem-based learning, collaborative and cooperative learning, and participatory and experiential learning. Each of them will be discussed next.

#### 3.7.2.4.1 Seminars and tutorials

Seminars and tutorials as a form of active learning are widely used in higher education, usually consisting of a small number of students and one teacher to guide the session and provide stimulation (Watters, 2014). It is the most common form of teaching in entrepreneurship education in the UK. On a basic level, seminars could lead to more realistic expectations and perceptions of students about their learning environment (Rovers et al., 2018). In contrast to didactic lectures, seminars and tutorials (in theory) transfer the focus from teachers to students; students are required to prepare and attend seminars and tutorials, sometimes scored for their performance on these occasions (Watters, 2014). Montgomery (2008) argues the physicality of the seminar room and puts forward an interesting point that the seminar is not just a place for learning. They are incidental, and the dynamic of learning at seminars is affected by many factors, such as the student and teacher, the subject being addressed, the room settings and physical space.

When using activities based on active learning, seminars can provide a perfect space to obtain this goal and improve students' learning process shifting it to deeper learning, allowing them to convert information instead of merely regurgitating it (Watters, 2014). The quality of the content in seminars and tutorials may vary depending on the

person hosting the session (i.e. experienced/inexperienced teacher) and the degree of preparation, interest, and comfort of the students in the atmosphere (Watters, 2014). Student autonomy and their learning are likely to be more active if they are given the opportunity to collaborate in groups, share presentations or chair sessions because they are likely to be more deeply engaged. Moreover, their learning experience is also likely to be of higher quality since they have to successfully exchange ideas with their peers, which means they must truly comprehend the concepts they are learning (Watters, 2014).

In short, seminars and tutorials may provide an environment where active learning can occur, as they are both ways for students to develop skills, exhibit knowledge and conduct collaborative work. In seminars and tutorials, the student-teacher ratio is small, which may create opportunities for teachers and students to develop working relationships (Watters, 2014). As the most common positive teaching method in active learning, seminars and tutorials can allow invisible barriers, such as those established by amphitheatre-style lecture halls, to be broken down and for interaction between teachers and learners to take place (Watters, 2014).

#### 3.7.2.4.2 Student-centred learning

As a positive method for learning and teaching, student-centred learning (SCL) is a concept that has gradually become familiar in higher education (Kain, 2003; O'Neill & McMahon, 2005; Richardson, 2005). It is often considered a form of active learning (Watters, 2014), and similar to the term active learning, it lacks any clear definition in higher education. Armstrong (2012) states that in pedagogical teaching, students' responsibilities are ignored or suppressed when teachers guide the learning process and students take a receptive role in their education. With the emergence of progressive education, educators often attempted to replace teaching approaches with group work and "hands-on" activities, in which students can decide for themselves what they want to do in class (Armstrong, 2012). The key to progressive education is the students' premise to be able to construct their own learning actively (Watters, 2014). Theorists such as Vygotsky, Piaget and Dewey are committed to the collective work of how students learn and are primarily responsible for the shift

towards student-centred learning (Watters, 2014).

Student-centred learning is consistent with active learning, which usually means reversing the teacher-centred understanding of the learning process and instead placing students at its centre. SCL is usually contrasted with teacher-centred learning (TCL), where learning centres on the teacher's requirements, design and performance (Kain, 2003; O'Neill & McMahon, 2005). O'Neill and McMahon (2005) argue that SCL is a paradigm shift in learning and teaching, with power shifting from teacher to student. Blackie et al.'s (2010) definition of SCL means that this is not only a different way of teaching; it involves teachers' changing from measuring personal success by how much of the syllabus is covered to measuring success by how much knowledge the students have learned and how deeply they have understood. This is the same as active learning, which requires teachers to focus on the students' learning and pay attention to the actual learning process rather than transmit information. However, students may become outstanding in the process but have little knowledge about the content of the subjects they are learning if the focus is only on the learning process instead of information transmission (Watters, 2014). Prosser and Trigwell (1999) claim that it is imperative to balance the content and process, encouraging students to focus on meaning and understanding instead of empty reproduction of knowledge in an SCL approach. SCL aims to put students' needs first in the course's content and design, rather than trying to drag activities or discussions into established courses. Besides, Kugel (1993) and Reinsmith (1992) pointed out that as teachers become more experienced and professional, they are more inclined to adopt SCL.

Many researchers describing SCL use the word "activity" when trying to reach a definition. Gibbs (1995) and Lea et al. (2003) state that SCL is a reflexive method that relies on active learning rather than passive learning. They also argue that SCL is associated with student autonomy, responsibilities of the student, deep learning and understanding, interdependence between students and teachers, and mutual respect. Moreover, Brandes and Ginnis (1986) state that SCL: a) considers the learners' experience outside the curriculum and focuses on the process and content; b) allows critical decisions about learning to be made through negotiations between teachers

and learners; and c) allows learners to have different views of themselves based on their learning experience.

There have been some criticisms of SCL. Cousin (2008) believes that SCL adoption may be challenging for some teachers because SCL is a shedding of the self as a teacher, and SCL can rob the teaching of ritual etiquette and theatrical dimensions. Others contend that SCL is overly focused on individual learners, although it is popular (Simon et al., 2002). Furthermore, its implementation has some difficulties, such as the resources required to implement it in a large undergraduate class (O'Neill & McMahon, 2005). O'Sullivan (2004) outlined SCL as a Western learning approach; it may not necessarily be transferred to developing countries with different learning cultures and limited resources. For example, China has deep-rooted traditional educational concepts. The education culture based on knowledge transmission results from its institutional background, including political, societal, cultural and economic, with Chinese socialism characteristics (Wang, 2012; Watters, 2014). Notwithstanding, studies have shown that some staff may have difficulty understanding the significant shifts in thinking and practice regardless of their culture and background, which in SCL implementation is essential (Jordan et al., 2014). Besides, Prosser and Trigwell (1999) emphasised their concern regarding the staff and students' different belief systems; students who value or have experienced more teacher-centred approaches may reject the SCL approach because it is drastically different from past approaches they are used to.

In summary, SCL is closely related to and dependent on active learning, which is generally considered the primary form of active learning (Watters, 2014). This is not only because some specific characteristics are similar to those of active learning (e.g., student autonomy, self-directed and interdependent between teachers and students) but also involves a shift in emphasis from teacher to student. This shift is essential to improve students' learning responsibility and learning intention.

### 3.7.2.4.3 Blended learning and the 'flipped' classroom

Blended learning has become increasingly popular in recent years, which combines e-learning and face-to-face teaching (Cockbain et al., 2009; Garrison & Vaughan, 2008; Ginns & Ellis, 2007; Moore & Gilmartin, 2010; Oliver & Trigwell, 2005; Shi et al., 2020). Like pre-recorded PowerPoint lectures with narration or other e-learning activities such as discussion forums, online resources can encourage students to engage more with the subject and be more prepared to interact for face-to-face meetings (Cockbain et al., 2009). Moore and Gilmartin (2010) have adopted a blended approach in their undergraduate teaching, which retains some of the lectures but redesigned them to increase interaction with and between students. Prunuske et al. (2012) also discussed the concept of student pre-learning through recorded online lectures before participating in a face-to-face teaching session called a flipped classroom. In recent years, its concept has aroused great interest in the educational context, especially in higher education. The flipped classroom as a teaching approach of active learning redirects the learning process by reversing traditional classroom activities and extracurricular activities (Lage et al., 2000). In the flipped classroom, activities have been repurposed to make the class time more like a workshop where students can explore the lecturer's ideas in their video/podcast lectures (Prunuske et al., 2012). The purpose of this approach is to give students the opportunity to pause and revisit the lecture content so that they can learn at their own pace. It also encourages students to be better prepared for face-to-face teaching/seminars and to work cooperatively. These changes offer students opportunities to engage and interact in teacher-directed learning activities in face-to-face classroom learning while supported by personalised technology-mediated instruction during extracurricular learning (Bishop & Verleger, 2013). Therefore, the flipped classroom replaces the previous in-class lecture content with the previous out-of-class homework (Pierce & Fox, 2012), which realises student-centred learning practices and moves away from the traditional teacher-centred pedagogies.

More and more lecturers favour the flipped classroom because it may increase the level of engagement without sacrificing the lecture-based teaching approach's inherent teaching content and teaching efficiency (Strayer, 2012). Many studies have



reported that flipped classroom instruction positively impacts student learning outcomes by developing critical and creative thinking skills (e.g., Day, 2018; Horn, 2013), improving learning interest, satisfaction and engagement (e.g., Awidi & Paynter, 2019; Ojennus, 2015; Ramnanan & Pound, 2017), increasing academic performance (e.g., Lax et al., 2017; Weaver & Sturtevant, 2015), and enhancing self-efficacy and self-regulation (e.g., Enfield, 2013; Ng, 2018). Combined with the procedural advantages of particular teaching approaches, these research results have enhanced the universality of flipped classroom implementation in higher education.

In short, blended learning and flipped classrooms as the variant forms of active learning provide many significant advantages for students and teachers. However, there are difficulties in employing these approaches. For instance, recording lectures requires time and preparation; students may miss traditional lecture formats and be unwilling to fully participate in face-to-face meetings; and some students may experience problems accessing the internet (Watters, 2014). Despite these possible challenges, blended learning and flipped classrooms have much to offer to develop active learning in higher education.

#### 3.7.2.4.4 Problem-based learning

Problem-based learning (PBL) is about building courses around solving real-world problems (Albanese & Mitchell, 1993; Miller, 2004) and trying to help students bridge the gap between what is learned at university and how it may be applied in a real-life situation (Watters, 2014). Barrows (1986) points out that the PBL originated with the educational pragmatism espoused by John Dewey, who believed that problems are the engine of thinking and knowledge is meaningful only through the interaction between the student and his/her environment. Moreover, students must learn the subject's basic principles in the learning process to find a solution for the problem (Miller, 2004).

PBL is frequently connected with active learning because it gives equal attention to both content and the learning process (Watters, 2014). It is based on a different teaching model that relies on the teacher's didactic delivery of material (Greening,

1998). When problems arise in real life, encourage students to become self-directed learners; they must design possible answers and solutions as a group (or individuals) (Prince, 2004). Students must solve problems in their own way and provide their own answers instead of them being given by the "all-knowing" teacher (Prince, 2004). Savin-Baden (2003) states that PBL, as a method of teaching students to learn with complexity, helps students to realise that learning and living take place in context, and context influences various accessible and possible solutions. Miller (2004) applied PBL to the organisational behaviour curriculum in business schools, drawing on the concept of PBL in service-learning in which students learn by performing some services to the community.

PBL enhances the ideal of a constructivist learning environment, which has become prevalent in higher education and is used to improve open inquiry, critical thinking, teamwork and lifelong learning (Mackenzie et al., 2003). However, PBL has been criticised for its lack of "real", whereby the problems are too well-structured, the instructors can be too directive and PBL is heavily dependent on students to be able to work together harmoniously while in fact, many tutorial groups can be dysfunctional (Dolmans et al., 2005). Moreover, Fenwick and Parsons (1997) believe that PBL assumes the possibility of a detached knower and fails to account for real-life situations in which other factors significantly impact decision-making, such as gender, place, time, social status and relationships.

In short, PBL can be regarded as a form of active learning because it distracts the role of teachers and improves student independence, autonomy and learning intention. By undermining the teacher's role, some would argue that PBL is a risky method of learning and teaching; nevertheless, Savin-Baden (2003) refutes this by suggesting that teachers' role in the PBL approach has not been diminished. Spronken-Smith and Harland (2009) point out that PBL frequently challenges the traditional teacher-centred approach in higher education because it has a solid philosophical and epistemological foundation. Moreover, making this shift in which teachers cede some control and become facilitators can be complicated, particularly for those with a teacher-centred or didactic conception of learning and teaching (Kember, 1997).

#### 3.7.2.4.5 Collaborative and cooperative learning

The terms of collaborative learning and cooperative learning are often connected with active learning because they improve student engagement and group work (Watters, 2014). Although these two terms are often used interchangeably, cooperative learning is more structurally defined than collaborative learning (Cooper & Robinson, 1998). Rockwood (1995) described the differences between collaboration and cooperation methodologies as a kind of knowledge and power; cooperative learning is the methodology of choice for basic knowledge and traditional knowledge, while collaborative learning is related to the social constructivists' perspective that knowledge is a social construct. Rockwood (1995) also believes that the tasks are less open-ended, and the teachers remain an authoritative role in cooperative learning; in contrast, the tasks are relatively open-ended, and the teachers often need to return some of their authority to the students in collaborative learning. Prince (2004) argues that collaborative learning occurs when students work together for a similar objective and are frequently evaluated as a whole group. Dillenbourg (1999) states that collaborative learning strategy involves two or more individuals studying or trying to learn something together; this collaboration is based on a model that knowledge can be generated in a group where members can positively interact by sharing and exchanging experiences.

Baker and Clark (2010) suggest that cooperative learning is conducted in a stable, formal group consisting of two or more students who work together and share the workload fairly to reach the assessment results. According to Johnson et al. (2006), there are five basic elements necessary for the group to develop cooperative learning: active interdependence, face-to-face interaction (to promote each other's success), accountability of individuals and groups (no social loafing), and social skills, group processing ability or feedback. Cooperative learning in small groups can maximise each student's learning as one helps another when these five elements are present. Furthermore, if cooperative learning is not correctly arranged and supported by the teacher, it will have an adverse effect on learning, whilst if it is appropriately implemented, cooperative learning can promote cross-cultural understanding,

enhance interpersonal skills and, most importantly, prepare students for a modern participatory workplace (Baker & Clark, 2010).

Baker and Clark (2010) demonstrate that successful cooperative learning faces several challenges in higher education, especially when the group is diverse in terms of ethnicity, culture and language. Their study illustrates that cooperative learning is both new and alien for many non-Western students. For instance, some students find it challenging to participate in group discussions or lively debates in China. This is because, so far, their educational experience prioritises other forms of learning, which are more competitive, individualistic and adhered to cultural rules such as respect and non-confrontation with others (Wang, 2012). Thus, it is evident that cooperative learning is not a panacea for good teaching in this case. Many factors need to be considered when attempting cooperative learning, including students' language ability, cultural variations and attitudes towards teamwork (Watters, 2014). Baker and Clark (2010) maintain that students and teachers should discuss the possible pitfalls and group work process before starting cooperative learning. Each student must understand their requirements and expectations, and the teacher must also be aware of their role as an instructor and facilitator in this learning process.

Collaborative learning and cooperative learning have been criticised. Vreven and McFadden (2007) found no meaningful added advantage from cooperative learning in their three-week psychology courses study. Moreover, Van Dijk et al. (1999) believe that the lecturer's abilities and skills are more critical than collaborative tasks. However, Sharan (2010) states that since cooperative learning requires pairs or groups of students to share ideas and information on a topic or plan to learn something together, this enables students to make their experience and knowledge crucial in the learning process. Sharan (2010) also contends that educators need to embrace the space that allows students to integrate themselves and their own experiences into their learning, encouraging students to make immediate sense of what they are learning and engaging them on a level they can understand. Thus, when the student population is diverse, students should be permitted to bring their own knowledge, experiences, and ways of creating knowledge in the learning process in order to enhance their chances

of success.

To sum up, collaborative learning usually occurs when students are given the freedom to complete a task together, which is not as structured as cooperative learning. Collaborative learning is founded on the premise that students naturally gather together and master the control and ownership of learning with other students. While cooperative learning generally occurs because the person in charge of the teaching has arranged and structured the learning in this manner (Watters, 2014). Students are frequently, but not always, placed in predetermined pairs or groups and assigned specific tasks with specific end goals or results. As variants of active learning, collaboration and cooperative learning have some critical features related to active learning, such as peer interaction, promoting student autonomy and engagement, and learner interdependence and responsibility.

#### 3.7.2.4.6 Participatory learning and experiential learning

As variants of active learning, both participatory learning and experiential learning emphasise students' participation in the learning process. Participatory learning is defined as involving the student in the learning process and giving him or her an opportunity to choose activities and/or assignments in the class (Mills-Jones, 1999). For instance, students can be allowed to select elements in the syllabus, write test questions, or participate in some class project scoring. Students will take responsibility and be accountable for the positive results in the class by allowing them to choose some direction of the course.

Experiential learning can be described as a kind of participatory learning, which is a related concept that students can learn from the relevant experiences provided in the teaching process (Kolb, 2014). It involves the students synthesising information in an active and immersive environment in a series of psychological processes (Feinstein et al., 2002). In this process, knowledge is created by transforming experience (Kolb, 2014), and reflection is the means to interpret and transform the experience. This approach is different from traditional instructor-led passive learning, paying more attention to experiential learning, action-oriented, problem-solving and project-based

teaching styles (Jones & English, 2004). Moreover, according to Kolb (2014), learning is not a result but a process, which comes from experience, needs to solve the opposite requirements of dialectics, is holistic and integrated, needs the interaction between the individual and the environment and leads to knowledge creation. In addition, experiential learning is also reflected in entrepreneurship education research; this activity-based, student-centred approach has been recognised by related researchers (e.g. Fiet, 2001; Krueger, 2007; Löbner, 2006).

In summary, active learning has different forms or variations, among which seminars and tutorials are the most widely used in higher education. These forms all follow the student-centred principle and student-centred learning can sometimes be used interchangeably with active learning. Although each variant of active learning has different emphases and has been subject to critical research by scholars, its purpose is to improve student participation, autonomy and motivation. Next, the application of active learning in the field of entrepreneurship education will be discussed.

#### *3.7.2.5 The embodiment of active learning in entrepreneurship education*

With the development of student-centred educational concepts, entrepreneurship education has undergone a transition from passive learning to active learning. Harris et al. (2000) believed that entrepreneurship education's approach emphasises transferring information and knowledge based on traditional university education pedagogy. Educators adopted traditional business and management pedagogy in the early stage of entrepreneurship education (Aronsson, 2004; Gibb, 1993; Henderson & Robertson, 1999; Hytti & O'Gorman, 2004; Rae, 2003; Vinten & Alcock, 2004; Weinrauch, 1984). This traditional approach is based on "the idea that those who know can teach, was coupled with the notion of students as empty containers into which instructors poured their wisdom, and it led to the 'passive' educational paradigm that prevails in most university settings today" (Wright et al., 1994, p.10). However, Gibb (1993) argues that this approach is inconsistent with the actual learning way of entrepreneurs. Herrmann et al. (2008) argue that in the interest of providing students with techniques that can be applied in the real world, there should be a shift from the delivery models of teaching (learning 'about') to experiential learning

(learning 'for') in entrepreneurship education.

The increase in adopting traditional practices in entrepreneurship education has been criticised. For instance, some argue that there is an overemphasis on management and new business start-up skills while lacking attention to learning and developing enterprising traits, skills and behaviours (motivation, creativity, self-confidence) (Gibb, 1987, 1993; Hynes, 1996; Hytti & O'Gorman, 2004). Others criticised the use of traditional teaching approaches, which overemphasise the theoretical and conceptual thinking of teacher-centred learning (passive learning) (Garavan & O'Kinneide, 1994; Leitch & Harrison, 1999; Plaschka & Welsch, 1990; Collins & Robertson, 2003; Sexton & Bowman, 1984; Solomon & Fernald, 1991; Ulrich & Cole, 1987; McMullan & Long, 1987; Badwan, 2018), or because functional knowledge is perceived as an 'end' rather than a 'means' (Aronsson, 2004; Gibb, 1993; Henderson & Robertson, 1999; Hytti & O'Gorman, 2004; Rae, 2003; Vinten & Alcock, 2004; Weinrauch, 1984).

Compared with managers, many believe that entrepreneurs have different learning styles. Traditional teaching approaches may limit the development of entrepreneurial traits, skills and abilities (Collins & Robertson, 2003; Gibb, 1993; Gorman et al., 1997; Hytti & O'Gorman, 2004; McMullan & Long, 1987; Badwan, 2018). The debate about whether entrepreneurs are born or made also complicates the situation (Aronsson, 2004). This view is supported by Gendron (2004), who believes that the debate is no longer whether entrepreneurship can or should be taught, but how to continuously enhance entrepreneurial course content and delivery to meet students' needs. Besides, research on the effectiveness of entrepreneurship education pedagogy on entrepreneurial intention has attracted scholars' attention (Fayolle & Gailly, 2015; Michael et al., 2013). Consequently, this has triggered a debate on the variation of active learning in entrepreneurship education, which is a means of autonomy support that can stimulate students' internal autonomy and learning intention (Table 3-4).

*Table 3-4 Variants of active learning in entrepreneurship education*

Pedagogy	Resources
Multiple/holistic approach: learn by doing, learn from mistakes, learn from stakeholders' feedback and interaction, learn to deal with pressure, ambiguity and complexity, learn to find problems as well as design solutions, learn from discovery, learn from formal and informal environment and learn from multi-disciplinary perspective.	(Gibb 1987; Hills 1988; Gibb 1993; Hynes 1996; Henderson and Robertson 1999; Ibrahim and Soufani 2002; Ladzani and Vuuren 2002)
Problem-based learning: to deal with complexity, ambiguity and multi-functional roles.	(Sexton and Bowman 1984; Gibb 1987; McMullan and Long 1987; Ulrich and Cole 1987; Sexton and Bowman-Upton 1988; Plaschka and Welsch 1990; Gibb 1993)
Learn through apprenticeship	(Aronsson 2004; Gendron 2004)
Action learning and experiential learning	(Ulrich and Cole 1987; Haines Jr. 1988; Nelson 1992; Low et al. 1994; Porter 1994; Feldman 1995; Leitch and Harrison 1999; Hindle 2002; Gendron 2004; Taylor et al. 2004; Ulijn et al. 2004)
Competition	(Li et al. 2003)
Role-play, scenario, simulation and games.	(Haines Jr. 1988; Clouse 1990; Stumpf et al. 1991; Low et al. 1994; Mitchell and Chesteen 1995; Winch and McDonald 1999; Fiet 2000a; 2000b; Hindle 2002; Schwartz and Teach 2002; Theroux and Kilbane 2004; Ulijn et al. 2004)
Visioning, creativity and opportunity identification activities.	(Harris et al. 2000b; Rae and Carswell 2000; Rae 2003; Detienne and Chandler 2004; Gendron 2004)
Learn from reflection or critical incidents	(Cope and Watts 2000; Rae and Carswell 2000; Cope 2003)
Multi-media case studies	(Robertson and Collins 2003; Theroux and Kilbane 2004)
Problem-base and/or goal orientated activities and, activity that leads to reflection, presentation and discussion.	(Sexton and Bowman-Upton 1988; Garavan and O'Cinneide 1994b; 1994a; Cope and Watts 2000; Lawless et al. 2000; Cope 2003; Rae 2003; Robertson and Collins 2003; Gendron 2004)

Source: (Jones & Lourenço, 2006, p.117)

According to Table 3-4, the main variants of active learning are also reflected in entrepreneurship education. It takes various forms, mainly based on activities, action learning and experiential learning, which emphasises that students construct learning through the process of "doing" (Jones & Lourenço, 2006). Experiential learning is considered one of the most effective teaching approaches for entrepreneurship education and has been recognised by scholars of entrepreneurship pedagogy in



recent years (Badwan, 2018; Higgins & Elliott, 2011; Wahid et al., 2016). In this case, learning is not passive but a dynamic, active, constructive and goal-oriented process (Shuell, 1986; Wittrock, 1978). In other words, in entrepreneurship education, teachers can create a classroom climate for their students through active teaching methods to support students' autonomous experience (Badwan, 2018), and students build knowledge in the process of "doing" through this experience and behavioural learning, combining theory with practice. Therefore, in the various forms of active learning in entrepreneurship education, students' participation and autonomy are improved through their personal experience of practical activities. This active learning process reflects the progression of students' efforts toward their goals and expectations.

In summary, the various forms of active learning as a way of autonomy support have been valued and widely discussed in higher education, including in entrepreneurship education. Entrepreneurs have different learning styles, and entrepreneurship education is aimed at creating students' entrepreneurial characteristics, skills and abilities. This requires active teaching approaches to provide more opportunities for students to participate in the activities. Some educators suggest that entrepreneurship education should be integrated with practice and be seen by students to be practical, thereby encouraging them to develop the skills necessary for success as an entrepreneur (Arvanites et al., 2006). Constructing learning through the process of "doing" improves students' autonomy to learn and is a kind of in-depth learning. The various forms of active learning in higher education are implemented based on different types of activities, which aims to make students deeply understand the learning content and goals through interaction to achieve better learning outcomes. Next, the impact of active and passive learning on students' learning will be discussed.

#### *3.7.2.6 The impact of active and passive learning on students' learning*

In higher education, research on active and passive learning mainly focuses on teaching styles and teaching approaches to enhance students' learning. However, research to date has been controversial concerning the effectiveness of active learning on student learning outcomes. Some studies state that active learning is more

effective than passive learning (Benek-Rivera & Mathews, 2004; Dorestani, 2005; Sarason & Banbury, 2004). Nevertheless, some other studies have shown that active learning does not lead to significant differences in student learning outcomes (e.g., El-Banna et al., 2017; Kim et al., 2014; Ryan & Reid, 2016), or has even been found to have a negative impact on students' cognitive learning outcomes (e.g., Krahenbuhl, 2017). Although scholars intuitively believe that active learning should be better than passive learning, it turns out that this advantage has proved difficult to quantify (Whetten & Clark, 1996). Another difficulty is the wide range of activities that can be defined as active learning (Michel et al., 2009). Although teaching approaches in active learning were specifically developed to improve passive teaching, quantifying its effectiveness has encountered mixed results. Table 3-5 is an overview of previous empirical research that includes the variables examined and the research results of most business-related studies in this field. Still, it is not meant to represent all active learning studies (Michel et al., 2009).

Table 3-5 Review of active learning empirical studies

Review of active learning empirical studies in the business school context			
Empirical Studies	Assessment	Variables	Results
Benek-Rivera and Matthews (2004)	Qualitative	Student class participation	Active > passive
		Student teamwork	Active > passive
		Student learning	Active > passive
Berger (2002)	Qualitative	Student research and field work	Active > passive
		Student accountability for learning	Active > passive
		Student reflection exercises	Active > passive
Cook and Hazelwood (2002)	Qualitative	Student class participation	Active > passive
Ebert-May et al. (1997)	Qualitative	1. Student answers to a "self-efficacy" instrument	1. Active > passive
		2. Student scores on the content portion of a standardized test	2. No difference
		3. Student scores on the process portion of a standardized test	3. Active > passive
Miller (2004)	Qualitative	Student ability to develop problems and solutions	Active > passive
Sarason and Banbury (2004)	Qualitative	Student class participation	Active > passive
Seipel and Tunnell (1995)	Qualitative	Student writing assignments	Active > passive
Strow and Strow (2006)	Qualitative	Student class participation	Active > passive
Berg et al. (1995)	Quantitative	Student course grades	Active > passive
Dorestani (2005)	Quantitative	1. Student exam grades (3) under same teaching approach	1. No difference
		2. Student exam grade (1) under different teaching approach	2. Active > passive
		3. Student teacher evaluations	3. Active > passive
Krumweide and Blin (1997)	Quantitative	Student ability to develop and solve problems/cases	Active > passive
Michel et al. (2009).	Quantitative	student cognitive outcomes	
		1. Class-specific learning outcomes	1.Active > passive
		2. Broad student learning outcomes	2.No difference
Miner et al. (1984)	Quantitative	1. Student satisfaction	1. No difference
		2. Student exam grades (tested each class)	2. No difference
		3. Student exam grades (tested one month after last class)	3. No difference
Serva and Fuller (2004)	Quantitative	Student evaluation of instructional performance	Active > passive
Stewart-Wingfield and Black (2005)	Quantitative	1. Student class grades	1. No difference
		2. Student perceptions of:	
		(a) how well the class was run	2(a). No difference
		(b) usefulness for future job	2(b). Active > passive
Van Eynde and Spencer (1988)	Quantitative	3. Student satisfaction with course	3. No difference
		Retention of student learning	
		1. Near term (2 weeks)	1. No difference
		2. Long term (13 weeks)	2. Active > passive

Source: (Michel et al., 2009)

As seen in Table 3-5, the list of "variables" shows that active learning studies have looked into everything from classroom involvement and problem-solving to student performance and satisfaction. The "Results" column indicates whether active learning was determined to be superior or inferior to passive learning with a < or > sign, and "no difference" is used when the two teaching approaches did not produce any different results.

Of the 16 papers listed in Table 3-5, 8 are qualitative, and 8 are quantitative studies. Regardless of the research variables, all qualitative studies have concluded that active learning was "better" than passive learning. However, the results of quantitative studies were not so one-sided. Two quantitative studies explicitly stated that active learning was superior to passive learning; five quantitative papers found that active learning was better than passive learning only in some instances; and one clearly said no difference existed between active and passive learning. In general, the large amount of evidence supporting active learning is then qualitative in nature. In contrast, the extent to which active learning affects students' learning effects in quantitative research remains unclear. Next, the influence of active and passive learning in entrepreneurship education will be discussed.

#### *3.7.2.7 The impact of active and passive learning on students' learning in entrepreneurship education*

In entrepreneurship education, active and passive learning on students' learning outcomes has also attracted scholars' attention. Because of its particularity, the purpose of entrepreneurship education differs from other educational fields (Badwan, 2018). Unlike management education that teaches students the necessary skills to supervise and control established businesses, entrepreneurship education is understood as a form of "actionable theory" education, which combines theoretical and practical content to cultivate students' personalities and enable them to acquire entrepreneurial thinking and entrepreneurial capabilities, so as to plan and set up firms cognitively and practically (Currie & Knights, 2003; Neck et al., 2014; Täks et al., 2014; Urban, 2006). Providing extracurricular activities is an active teaching method, which is a manifestation of active learning in entrepreneurship education. Some

research focuses on the benefits of extracurricular activities for students and compares the impact of curriculum and extracurricular activities on students' entrepreneurial intentions. Peterman and Kennedy (2003) believe that the formal curriculum will not stimulate entrepreneurial intention. On the contrary, extracurricular activities such as business plan competitions, entrepreneurial speeches and entrepreneurial incubator projects are the driving forces for entrepreneurship (Souitaris et al., 2007). Besides, Arranz et al. (2017) state that curriculum and extracurricular education have an unbalanced impact on students, and formal curriculum and extracurricular activities play a moderating role in forming entrepreneurial intentions and other abilities. Furthermore, in the previous literature, the active learning of formal curriculum in the classroom of entrepreneurship education varies from simple lectures and presentations to group discussions and role modelling (Henry et al., 2005). The researchers have focused on which teaching methods are more useful for entrepreneurship education, but there is no uniform answer. Some researchers have pointed out that those engaged in entrepreneurship education should recognise each teaching approach's function and importance and create complementary or collaborative teaching styles for active learning and passive learning, which links the 'instruction' and 'construction' approaches to achieving the purpose of learning entrepreneurship education (Jones & Lourenço, 2006). However, few studies have measured the impact of active entrepreneurship pedagogy on behaviour and business outcomes (Lorz et al., 2013). Chrisman et al. (2005) argued that interactive active teaching methods improve tacit knowledge. Other scholars (e.g., Gartner & Vesper, 1994; Souitaris et al., 2007) claim that business plans and case studies are the most common teaching methods in entrepreneurship education. Liao and Gartner (2007) found that business planning activities promote the possibility of starting a business. Scholars (Fayolle & Gailly, 2015; Piperopoulos & Dimov, 2015; Von Graevenitz et al., 2010) urged future research to explain the impact of specific entrepreneurship education variables on students' learning.

Reviewing the research of active teaching methods to enhance student autonomy in the education field, one weakness that can be identified from both entrepreneurship education and most business-related studies on active and passive learning is a lack

of attention to the learning process, particularly students' learning expectations about the dynamic learning process. According to self-determination theory (Ryan & Deci, 2000), although students determine their internal autonomy and stimulate conscious learning behaviour through having opportunities to engage in self-selection (Deci, & Ryan, 1985), teachers' autonomy support can initiate students' intentional learning behaviour by increasing their internal endorsement of classroom activities (Reeve et al., 2004; Reeve, 2006; Reeve & Jang, 2006). Compared with the autonomy control of passive learning, autonomy support of active learning can improve students' inner autonomy, thereby stimulating their internal motivational resources. Teacher's positive teaching methods can help students build a sense of consistency between learning behaviour and their internal motivational resources (Reeve & Jang, 2006).

However, students' learning expectation as an important internal motivational resource has been neglected in their learning process. The teachers' positive teaching methods as autonomy support in active learning can stimulate students' learning expectations, helping them establish a sense of consistent learning behaviour with their learning expectations, while autonomy control in passive learning is relatively unachievable. In other words, the active teaching method in the UK's entrepreneurship education can stimulate students' learning expectations more than the passive teaching method in China. This is a reflection of different educational concepts under the UK and China's institutional context.

Hence, from the education perspective of teachers' behaviour, active teaching methods promoting student autonomy, leads to the hypothesis that the UK students will have higher learning expectations of course content and design (ability to identify business opportunities, understanding the process of a business start-up, writing a business plan, marketing knowledge and skills, access to finance, and management skills for a business start-up), teaching methods and resources (tutors' entrepreneurial experience, tutors' academic qualification, access to real-life entrepreneurs, interactive teaching methods, hands-on business start-up opportunities, and network opportunities), expected input (self-expectation in study hours) and pre-course entrepreneurial intention (self-expectation in careers) than Chinese students.

### 3.7.3 Student autonomy impacts students' learning expectations under different entrepreneurship education policies in the UK and China's institutional context

Combining the discussions in 3.7.1 and 3.7.2, most of the research on the influence of student autonomy of learning motivation on students' learning behaviour has focused on students' learning outcomes. Whether the student autonomy as an individual intrapsychic factor in the psychology field or the teachers' behaviour to promote student autonomy in the education field (Skinner & Belmont, 1993), one significant shortcoming that can be identified is a lack of attention to the learning process, particularly students' learning expectations about the dynamic learning process. Students' autonomy is the key antecedent of influencing students' learning expectations. According to self-determination theory, student autonomy enhances intrinsic motivation (Ryan & Deci, 2000). Learning expectations, as students' internal motivational resources, are affected by student autonomy. Specifically, student autonomy affects students' learning expectations in two aspects. First, in the psychology field, students' internal autonomy can be reflected by self-selection on courses before class (Ryan & Deci, 2000). Students who voluntarily choose to take the course have higher inner autonomy than those forced to participate, which should lead to higher learning expectations. Second, in the education field, active teaching behaviours as autonomy support can improve the student's internal endorsement of classroom activities to stimulate the student's learning expectations in the learning process (Ryan & Deci, 2000). In other words, compared with passive learning, the positive teaching methods in active learning can stimulate students' learning expectations more. In light of this, student autonomy is a fundamental reason that affects students' learning expectations throughout the learning process.

From the comparative analysis of British and Chinese entrepreneurship education in the institutional context, the UK's active learning offers students the option of entrepreneurial courses under a voluntary education policy. This leads to a high degree of internal autonomy for British students who voluntarily choose to participate in entrepreneurship courses and therefore have high learning expectations. As critical thinking is advocated in active learning and seminars are provided in the UK, the teacher's autonomy support can stimulate students' learning expectations. On the

contrary, under a compulsory education policy of passive learning in China, entrepreneurship education is a public foundation course that students must attend without any choice. Therefore, Chinese students who are forced to participate in an entrepreneurial course have relatively low internal autonomy, resulting in low learning expectations. Moreover, there are no seminars in Chinese entrepreneurial courses; the teaching method is mainly based on lectures that focus on knowledge transmission, so the teacher's autonomy control is relatively unable to stimulate students' learning expectations. In this more controlled educational environment, students, whether interested or disinterested in entrepreneurship education, are deprived of autonomy, which affects their learning expectations and, in turn, learning outcomes.

To conclude, by incorporating the national-level institutional context within the context of individual-level university entrepreneurship education learning, it can be argued that student autonomy under different education policies in the UK and China gives rise to the different students' learning expectations throughout the learning process. Considering both the student autonomy from within and the autonomy inspired by the teacher's active teaching methods, British students studying in active learning under a voluntary education policy will have higher learning expectations of the course content and design, teaching methods and resources, expected input, and pre-course entrepreneurial intention than Chinese students studying in passive learning under a compulsory education policy.

Hence, this leads to the following overarching hypothesis as to course content and design (as discussed in sections 3.5.1.1, 3.7.1.4 and 3.7.2.7):

**H1: UK students' learning expectations of overall course content and design of EE will be significantly higher than Chinese students.**

And a series of individual and more detailed hypotheses:

H1a: UK students' learning expectations of the importance of the ability to identify business opportunities will be significantly higher than Chinese students.

H1b: UK students' learning expectations of the importance of understanding the process of business start-up will be significantly higher than Chinese students.



H1c: UK students' learning expectations of the importance of writing a business plan will be significantly higher than Chinese students.

H1d: UK students' learning expectations of the importance of marketing knowledge and skills will be significantly higher than Chinese students.

H1e: UK students' learning expectations of the importance of access to finance will be significantly higher than Chinese students.

H1f: UK students' learning expectations of the importance of management skills for a business start-up will be significantly higher than Chinese students.

Similarly, the learning expectations of teaching methods and resources can be expected to differ between the two groups (as discussed in sections 3.5.1.2, 3.7.1.4 and 3.7.2.7), both overall:

**H2: UK students' learning expectations of overall teaching methods and resources of EE will be significantly higher than Chinese students.**

And for individual aspects of teaching and learning:

H2a: UK students' learning expectations of the importance of tutors' entrepreneurial experience will be significantly higher than Chinese students.

H2b: UK students' learning expectations of the importance of tutors' academic qualification will be significantly higher than Chinese students.

H2c: UK students' learning expectations of the importance of access to real-life entrepreneurs will be significantly higher than Chinese students.

H2d: UK students' learning expectations of the importance of interactive teaching methods will be significantly higher than Chinese students.

H2e: UK students' learning expectations of the importance of hands-on business start-up opportunities will be significantly higher than Chinese students.

H2f: UK students' learning expectations of the importance of network opportunities will be significantly higher than Chinese students.

Moreover, student input, as a self-expectation in study hours, can also be expected to differ between the two groups (as discussed in sections 3.5.2.1, 3.7.1.4 and 3.7.2.7):

**H3. UK students' expected input will be significantly higher than Chinese students.**

Finally, student pre-course entrepreneurial intention, as a self-expectation in careers, can be expected to differ between the two groups (as discussed in sections 3.5.2.2, 3.7.1.4 and 3.7.2.7):

**H4: UK students' pre-course entrepreneurial intention to create a start-up within three years of graduation will be significantly higher than Chinese students.**

On the other hand, scholars pointed out that affective development related to moods, feelings and emotions is an essential key to the entrepreneurial learning process, which is often overlooked in entrepreneurship research (Gibb, 2002). Learning expectation is related to emotion and is the expression of one's inner feelings. The expectation is dynamic (Pike, 2006) and represents students' individual affective development in the learning process. Scholars have found that emotions can moderate the relationship between knowledge and cognitive skills (Loon & Bell, 2018), highlighting the importance of learning expectations in student entrepreneurship learning. In addition, as consumers of university institutions, the gap between students' expectations and the university services' actual performance is identified as the main driver of the level of satisfaction (Huong et al., 2017). The rating for expectations and perceived learning is considered the highest level of learning to research and critically evaluate literature (Möller & Shoshan, 2019), highlighting the importance of the relationship between students' pre-course learning expectations and post-course perceptions of what they actually learn. Many researchers proved expectation positively impacts student behaviour (Price, 2019; Rauch & Hulsink, 2015), performance (Schunk & Zimmerman, 1998), self-study behaviour (Rovers et al., 2018), and learning experience (Huong et al., 2017; Kilic-Cakmak et al., 2009; Stevenson et al., 2006; Zhou & Todman, 2008).

According to the previous discussions, British students' learning expectations will be higher than Chinese students in course content and design, teaching methods and resources, expected input, and pre-course entrepreneurial intention under different education policies, resulting in higher satisfaction than Chinese students. Hence, this leads to the following overarching hypothesis:

**H5: UK students' satisfaction with overall course content and design of EE will be significantly higher than Chinese students.**

And to a series of individual hypotheses:

H5a: UK students' satisfaction with the ability to identify business opportunities will be significantly higher than Chinese students.

H5b: UK students' satisfaction with understanding the process of a business start-up will be significantly higher than Chinese students.

H5c: UK students' satisfaction with writing a business plan will be significantly higher than Chinese students.

H5d: UK students' satisfaction with marketing knowledge and skills will be significantly higher than Chinese students.

H5e: UK students' satisfaction with access to finance will be significantly higher than Chinese students.

H5f: UK students' satisfaction with management skills for a business start-up will be significantly higher than Chinese students.

Similar hypotheses can be made for satisfaction with teaching methods and resources:

**H6: UK students' satisfaction with overall teaching methods and resources of EE will be significantly higher than Chinese students.**

And to a series of individual hypotheses:

H6a: UK students' satisfaction with tutors' entrepreneurial experience will be significantly higher than Chinese students.

H6b: UK students' satisfaction with tutors' academic qualification will be significantly higher than Chinese students.

H6c: UK students' satisfaction with access to real-life entrepreneurs will be significantly higher than Chinese students.

H6d: UK students' satisfaction with interactive teaching methods will be significantly higher than Chinese students.

H6e: UK students' satisfaction with hands-on business start-up opportunities will be significantly higher than Chinese students.

H6f: UK students' satisfaction with network opportunities will be significantly higher than Chinese students.

When students have more positive self-expectation in learning, they are more likely to engage and commit more to the program (Price, 2019; Rauch & Hulsink, 2015; Rovers et al., 2018), hence:

**H7. UK students' actual input will be significantly higher than Chinese students.**

Finally, when they finish the course, student post-course entrepreneurial intentions, a function of their expectation and the course content, will differ between the two groups due fundamentally to differences in policy and teaching methods.

**H8. UK students' post-course entrepreneurial intention to create a start-up within three years of graduation will be significantly higher than Chinese students.**

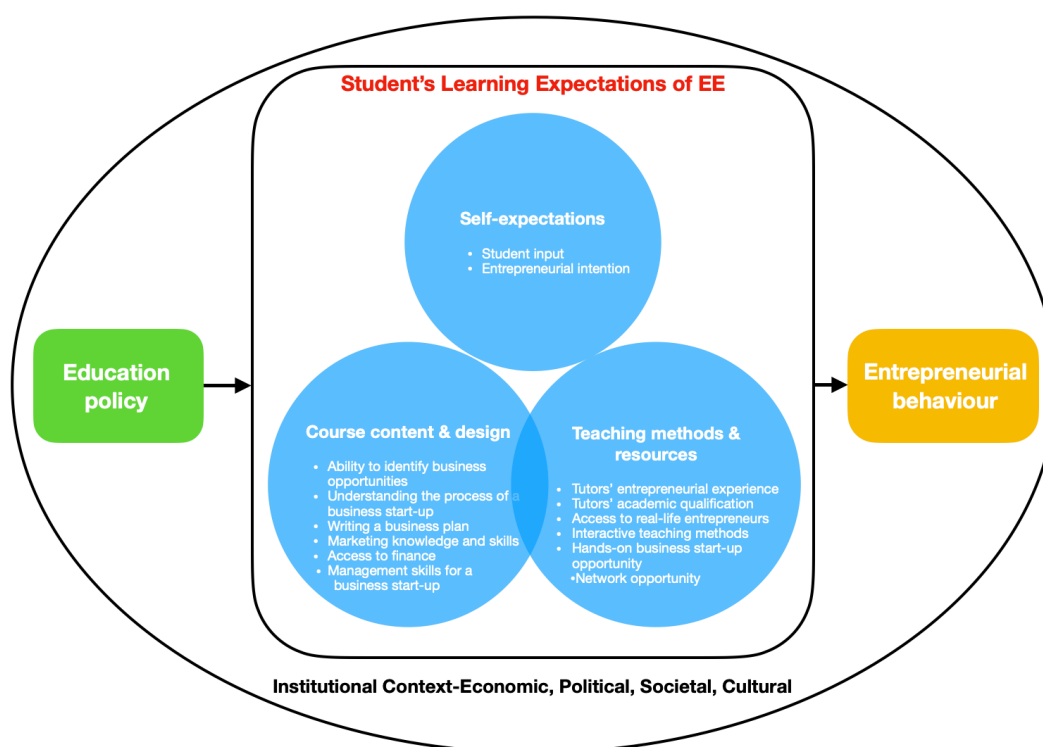
In conclusion, the present thesis is designed to provide a new perspective on the research into entrepreneurship education and student entrepreneurial learning, focusing on the effects of students' learning expectations as both an internal motivational resource and an emotional factor on students' learning process and satisfaction. It also explores whether the antecedent influencing students' learning expectation is student autonomy caused by different education policies and presents related hypotheses. Specifically, combining individual-level entrepreneurial learning and national-level institutional context, building upon self-determination theory, this thesis investigates the differences in students' learning expectations under different education policies in the UK and China, leading to differences in learning outcomes. Building upon this, the conceptual framework of this research project will be discussed in the following section.

### 3.8 Conceptual framework

Taking forward the earlier discussion, a conceptual framework of students' learning expectations of entrepreneurship education in the learning process was developed and is illustrated in diagrammatic form in Figure 3-1.

The diagram illustrates a comprehensive conceptual framework that incorporates different factors to advance understanding of the complex process of students' learning expectations in their entrepreneurial learning and interprets the mechanism

of how entrepreneurship education policy in the institutional context influences the students' learning expectations. Moreover, under different institutional contexts, the impact of students' learning expectations on their behaviour is demonstrated in the framework.



*Figure 3-1 Conceptual framework*

This conceptual framework takes into account the relationships among entrepreneurship education policy, students' learning expectations and their behaviour in entrepreneurial learning, incorporating the institutional context, that is, the economic, political, societal and cultural environments, which may positively or negatively influence students' learning expectations. It demonstrates the interplay between the national-level institutional context into the organisational-level university entrepreneurship education and individual-level entrepreneurial learning, which in turn influences students' entrepreneurial behaviour and entrepreneurial activities. Specifically, this thesis focuses on the relationship between education policy and students' learning expectations, where education policy is hypothesised to influence the learning expectations of course content and design, teaching methods and resources, and self-expectations, and these in turn influence learning outcomes.

### 3.9 Hypothesis summary

Focusing on the research question; this thesis assumes eight groups of 32 theoretical hypotheses based on relevant theories and the logical relationship between constructs. From Table 3-6, the first four groups of hypotheses concern students' pre-course learning expectations on course content and design, teaching methods and resources, student expected input, and entrepreneurial intention. The last four groups of hypotheses concern students' post-course satisfaction with the same factors.

*Table 3-6 Hypothesis summary*

<b>Hypothesis summary</b>
<b>H1. UK students' learning expectations of overall course content and design of EE will be significantly higher than Chinese students</b>
H1a. UK students' learning expectations of the importance of the ability to identify business opportunities will be significantly higher than Chinese students
H1b. UK students' learning expectations of the importance of understanding the process of a business start-up will be significantly higher than Chinese students
H1c. UK students' learning expectations of the importance of writing a business plan will be significantly higher than Chinese students
H1d. UK students' learning expectations of the importance of marketing knowledge and skills will be significantly higher than Chinese students
H1e. UK students' learning expectations of the importance of access to finance will be significantly higher than Chinese students
H1f. UK students' learning expectations of the importance of management skills for a business start-up will be significantly higher than Chinese students
<b>H2. UK students' learning expectations of overall teaching methods and resources of EE will be significantly higher than Chinese students</b>
H2a. UK students' learning expectations of the importance of tutors' entrepreneurial experience will be significantly higher than Chinese students
H2b. UK students' learning expectations of the importance of tutors' academic qualification will be significantly higher than Chinese students
H2c. UK students' learning expectations of the importance of access to real-life entrepreneurs will be significantly higher than Chinese students
H2d. UK students' learning expectations of the importance of interactive teaching methods will be significantly higher than Chinese students
H2e. UK students' learning expectations of the importance of hands-on business start-up opportunities will be significantly higher than Chinese students
H2f. UK students' learning expectations of the importance of network opportunities will be significantly higher than Chinese students
<b>H3. UK students' expected input will be significantly higher than Chinese students</b>

<b>H4. UK students' pre-course entrepreneurial intention to create a start-up within three years of graduation will be significantly higher than Chinese students</b>
<b>H5. UK students' satisfaction with overall course content and design of EE will be significantly higher than Chinese students</b>
H5a. UK students' satisfaction with the ability to identify business opportunities will be significantly higher than Chinese students
H5b. UK students' satisfaction with understanding the process of a business start-up will be significantly higher than Chinese students
H5c. UK students' satisfaction with writing a business plan will be significantly higher than Chinese students
H5d. UK students' satisfaction with marketing knowledge and skills will be significantly higher than Chinese students
H5e. UK students' satisfaction with access to finance will be significantly higher than Chinese students
H5f. UK students' satisfaction with management skills for a business start-up will be significantly higher than Chinese students
<b>H6. UK students' satisfaction with overall teaching methods and resources of EE will be significantly higher than Chinese students</b>
H6a. UK students' satisfaction with tutors' entrepreneurial experience will be significantly higher than Chinese students
H6b. UK students' satisfaction with tutors' academic qualification will be significantly higher than Chinese students
H6c. UK students' satisfaction with access to real-life entrepreneurs will be significantly higher than Chinese students
H6d. UK students' satisfaction with interactive teaching methods will be significantly higher than Chinese students
H6e. UK students' satisfaction with hands-on business start-up opportunities will be significantly higher than Chinese students
H6f. UK students' satisfaction with network opportunities will be significantly higher than Chinese students
<b>H7. UK students' actual input will be significantly higher than Chinese students</b>
<b>H8. UK students' post-course entrepreneurial intention to create a start-up within three years of graduation will be significantly higher than Chinese students</b>

In the next chapter, a coherent methodology that has the potential to address the research aims and objectives will be discussed.

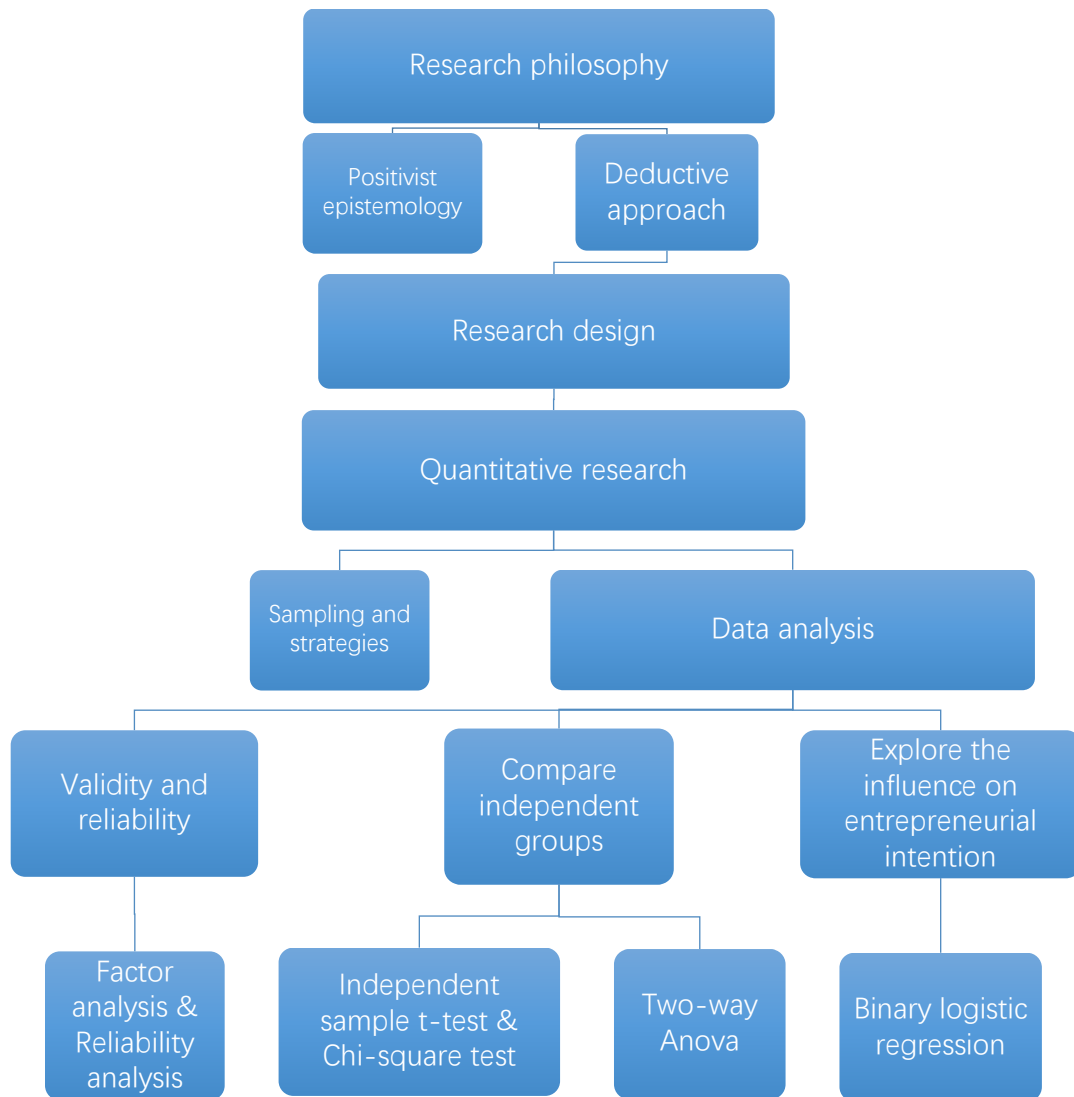
## Chapter 4: Methodology

### 4.1 Introduction

This chapter explains an overview of the research methodology adopted for the present study. In Chapter 3, by critically reviewing the relevant literature, drawing upon notions of student expectation, institutional theory, self-determination theory and entrepreneurship education characteristics, a conceptual framework looking into the relationship among education policy, students' learning expectations and entrepreneurial behaviour in the institutional context has been developed. This conceptual framework has the potential to aid understanding of learning expectations and their impact on the learning process. It helps to depict the interplay of entrepreneurship education policies, institutional context and students' learning expectations, leading to differences in student learning outcomes. Eight key hypotheses are proposed. In this chapter, a coherent research methodology will be developed in order to achieve the research aims and objectives.

This chapter will cover research methodology based on the main philosophical paradigms and research procedures adopted in existing entrepreneurship education literature. Subsequently, further to the research objectives, different data analysis methods are discussed. The structure of this chapter can be seen as follows.





*Figure 4-1 Methodology structure overview*

## 4.2 Research philosophy

Research can be considered a process of developing knowledge and seeking truth through systematic methods (Ghauri & Grønhaug, 2005; Saunders et al., 2016). In this process, the research will make a range of assumptions (Burrell & Morgan, 1979). These assumptions can affect how a researcher understands his or her research questions, the methods to be used, and how findings are interpreted (Crotty, 1998; Johnson & Clark, 2006). In other words, it will serve as the foundation for the methodological choices, research strategy and data collection methods and analysis procedures in the research. In the social sciences, perception has several constituent components, including epistemology, axiology and ontology, all of which are

influenced by human nature and behaviour (Bell et al., 2018). They include assumptions about human knowledge (epistemological assumptions), the reality of encounters in research (ontological assumptions), and the personal values of the researcher that are influential and valuable in the research (axiological assumptions) (Burrell & Morgan, 1979; Guba & Lincoln, 1994; Krauss, 2005; Saunders et al., 2016).


The philosophy of entrepreneurship education studies is well acknowledged to be adaptable. It changes depending on the study's goals and the researcher's beliefs (Hannon, 2006). As a result, a researcher needs to be aware of their philosophical viewpoint and perform research accordingly (Alvesson & Sköldberg, 2017; Johnson & Clark, 2006). According to Morgan and Smircich (1980), all approaches to social science are based on interrelated sets of assumptions regarding ontology, epistemology and human nature. This study will focus on the two most commonly used philosophical assumptions in entrepreneurship education studies, ontology and epistemology, which will be covered in the following sections.

#### 4.2.1 *Ontology and epistemology*

Research philosophies differ based on research assumptions. Ontology refers to assumptions about the nature of reality and how it is formed in human cognition (Pittaway, 2005; Saunders et al., 2016). Assumptions concerning human behaviour's characteristics focus on how ontological variance between societal phenomena and natural science research subjects should be considered (McAuley et al., 2007). Epistemology refers to the process of communicating and achieving knowledge based on how we perceive acceptable reality (Saunders et al., 2016). It is concerned with the extent to which knowledge can or should be produced objectively or subjectively (Quinlan et al., 2015). Saunders et al. (2016, p.127) and Burrell and Morgan (1979) defined epistemology as "A branch of philosophy concerned with assumptions about knowledge, what constitutes acceptable, valid and legitimate knowledge, and how we can communicate knowledge to others". Such definition underlines the importance of the monitoring process: how phenomena change over time in relation to their context (Sine et al., 2006).

In contrast to ontological assumptions, which are concerned with the nature of the real world, epistemological assumptions are concerned with the nature of reasoning (Guarino, 1995). As shown in Table 4-1, Morgan and Smircich (1980) compiled a general overview of ontology and epistemology, focusing primarily on interpretive and functionalist paradigms.

*Table 4-1 Network of basic assumptions characterising the subjective-objective debate within social science*

Subjectivist approaches to social science				Objectivist approaches to social science		
						
<b>Core Ontological assumptions</b>	reality as a projection of human imagination	reality as a social construction	reality as a realm of symbolic discourse	reality as a contextual field of information	reality as a concrete process	reality as a concrete structure
<b>Basic Epistemological Stance</b>	to obtain phenomenological insight, revelation	to understand how social reality is created	to understand patterns of symbolic discourse	to map contexts	to study systems, process, change	to construct a positivist science

*Source:* (Morgan & Smircich, 1980)

Positivism, critical realism, interpretivism, post-modernism, and pragmatism are the five major philosophies in business and management, according to Saunders et al. (2016). Positivism relates to the philosophical stance of the natural scientist and entails working with an observable social reality to produce law-like generalisations. It guarantees unambiguous and accurate knowledge. Positivism focuses on a strictly scientific (or science) empiricist method designed to yield pure data and facts uninfluenced by human interpretation or bias (Saunders et al., 2016).

This research does not propose to discuss all the possible research philosophies in depth which would be beyond its scope but only to discuss epistemological positivism in detail and to explain why it was chosen for this study.

#### 4.2.2 Epistemological positivism

Due to the complexity of entrepreneurship education, previous studies did not analyse entrepreneurship education from an ontological and epistemological point of view (Fayolle, 2018; Hannon, 2006). This presents a challenge but also an opportunity for a methodological contribution for the study.

This study's primary purpose is to investigate students' learning expectations of entrepreneurship education in the UK and China, i.e. under different institutional contexts, explore any differences, and discover the key factors that give rise to the different students' learning expectations. Therefore, in nature, it focuses on discovering observable and measurable facts and regularities epistemologically. Consequently, the phenomena that have been observed and measured could lead to the production of credible and meaningful data (Crotty, 1998). As a positivist, the researcher would also try to remain neutral and detached from the research and data to avoid influencing findings (Crotty, 1998). As an epistemological positivist, the researcher aspires to undertake the study using measurable and quantifiable data collected in a value-free manner as much as is feasible. Table 4-2 summarises the features of positivism identified for the purpose of this thesis.

*Table 4-2 Characteristics of positivism*

Characteristics	Description
Aim	Develop universal laws in order to predict and control behavior
Assumptions about Reality	There is one reality
Assumptions about Knowledge	Objectivity must be reproducible
Assumptions about Method	Theory already out there; seeks to identify method; scientific method; hypothetical deductive
Stance toward Values	Neutral-to avoid bias
Stance toward Persons Studied	Participants are “things,” “its”
Stance toward Validity	No validity without reliability; seek to reduce error
Research v. Practice	Researcher passes knowledge on
Whose Voice is Represented in Accounts?	Passive; those not researched

*Source:* (Kavita, 2020, p.112)

#### 4.2.3 Deductive approach

A deductive approach is used to explain the relationships between variables that have been identified and justified through gaps in the literature review (Saunders et al., 2016). This study employs the deductive reasoning approach based on the notion that the research starts with a theory, which is developed through a review of the academic literature and then a research strategy is designed to test the theory. Researchers use this approach to generate hypotheses to build a theoretical framework that establishes the research premises to begin statistically measuring the effects between exogenous and endogenous variables (Ali & Birley, 1999; Blaikie & Priest, 2019). Furthermore, the deductive approach can investigate objective variables, create an instrument in the form of a questionnaire (Ali & Birley, 1999), and then either accept or disprove the relationships and effects between variables (Saunders et al., 2016).

### 4.3 Research design

#### 4.3.1 Methodological choice in entrepreneurship education research

Methodological choice as the critical element in research design is vital to decide how the researcher intends to achieve the study's aims and objectives – with quantitative, qualitative or mixed methods (Saunders et al., 2016).

Many entrepreneurship and entrepreneurial intention studies have adopted a qualitative method to discover the relationship between entrepreneurship education and individual intentions using surveys and interviews (e.g., Piperopoulos & Dimov, 2015; Farani et al., 2017). To some extent, this supported educators in recognising the best practices in entrepreneurship programmes. However, the relationship between explored variables based on statistical explanations in entrepreneurship education research also needs to be investigated (Chandler & Lyon, 2001; Gustafsson, 2009). Blenker et al.'s (2014) systematic literature review in entrepreneurship education research methods shows that 52% of existing studies implemented a qualitative method while only 29% applied a quantitative design method. Moreover, as noted in 3.7.2.6, within the research of active and passive learning in the business school context that this thesis focuses on, a large amount of evidence supports active learning rather than passive learning in qualitative research, while quantitative research remains unclear on the issue. It is argued in this thesis that the quantitative approach has the potential to advance understanding of the interrelationship of the factors related to entrepreneurship education.

The decision on whether to use qualitative or quantitative research approaches relies on whether the research objectives and aims focus on building theoretical propositions or testing variables in a model (Charreire & Durieux, 2001). This research works towards testing a set of hypotheses within the relationship of education policy, students' learning expectations and outcomes in entrepreneurship education between the UK and China. According to Newman et al. (1998), the quantitative approach enables uncovering casual relationships with a wide range of data and affirm probabilistic causal laws. This enables generalisation about nature (Creswell & Creswell, 2017; Phillips & Burbules, 2000). Therefore, mono quantitative research

appears to be the most adequate approach and is therefore adopted in this study as the key issues can be quantified and tested statistically.

#### 4.3.2 Mono method quantitative

Quantitative research is generally associated with positivism, functionalism and radical structuralism, which study objective realities with an aim to explain relationships between variables using statistical analysis, especially when used with predetermined and highly-structured data collection techniques (Burrell & Morgan, 1979; Saunders et al., 2016). Moreover, it is typically connected with a deductive approach in which the focus is on using data to test the theory. Quantitative research investigates relationships between variables measured numerically and analysed using various statistical and graphical techniques (Saunders et al., 2016).

Since this study adopts an epistemological positivism philosophy and a deductive approach, a quantitative method that analyses the data through a statistical procedure was chosen as the foundation of the research analysis (Molina-Azorín et al., 2012; Saunders et al., 2016). The quantitative research in the study would enable the author to examine relationships between variables and use data to test the theory. In addition, in this study, data are collected in a standard manner using online questionnaires as a single data collection technique, so it is a mono method quantitative study.

#### 4.3.3 Research strategy

Since this study is built on positivism, deductive reasoning and quantitative research, it should follow a survey design, experimental method or a case study strategy (Saunders et al., 2016; Schwab, 2013).

Some previous studies have applied the experimental method when researching the impact of entrepreneurship education on intentions. A common practice is to divide students into an experimental group that received entrepreneurship content and a control group that was not exposed to entrepreneurship material (Sánchez, 2019; Souitaris et al., 2007; Farani et al., 2017). However, these experimental designs typically aim to examine the change of semantic cognitive elements (Harmeling &

Sarasvathy, 2013; Krueger, 2007) instead of testing the influence of an external variable on the intention cognitive antecedents (Fretschner, 2014). This research aims to discover and analyse the key factors that give rise to the different students' learning expectations between entrepreneurship education in the UK and China, in other words, in an institutional context. Adopting an experimental method, including students who have not received EE, would divert the study away from its objectives and add unnecessary complexity.

Therefore, the study adopts a survey research strategy with variables, as mentioned in the hypotheses in Chapter 3 and discussed earlier. With this strategy, the current study is able to combine both correlational research that aims to study relationships between variables and causal-comparative research that compares the effect of one variable on another from different groups (Johnson, 2001).

In addition, scholars have claimed that the rating for expectations and perceived learning is the highest level of learning to research and critically evaluate literature (Möller & Shoshan, 2019), which highlights the importance of the relationship between students' pre-course learning expectations and post-course perceptions of what they actually learn (the before and after approach). In this study, a post-course study is adopted so that the sample includes only students who have attended entrepreneurship education, and completed modules related to new venture creation or enterprise skills. To capture students pre-study expectations, a section that covers students' expectations before they attended the course is included in the questionnaire. This allows comparison between pre-study and post-study of students' expectations of entrepreneurship education.

#### 4.3.4 Cross-sectional studies

Cross-sectional studies collect data at a single point in time (Schwab, 2013). Longitudinal studies, on the other hand, refer to data collected over an extended period of time, which help in studying the development and changes in variables as well as the dynamics and interactions between projects and their context (Saunders et al., 2016).



This study requires students to recall their learning expectations before attending their EE courses and to assess their perceptions of learning outcomes after taking the EE course, reducing the complexity of data collection while enlarging the data sample and discovering if there is any trend. Its purpose is to analyse the impact of education policies on students' learning expectations and observe the change that entrepreneurship education brings to students' learning expectations. Therefore, although this study is a cross-sectional study, it has some characteristics of a longitudinal study. For the study's aim, a combination of cross-sectional and longitudinal elements would contribute to the research objectives, which provides support for exploring the antecedents that affect students' learning expectations in different countries and offers a dynamic perspective on the possible influential direction of the mechanism across time periods.

#### 4.4 Questionnaires as a data collection method

The collection of data can be considered one of the most critical aspects of research since it is during this process that the researcher obtains the necessary information for the development of a study (Fletcher, 2007). Questionnaires are a valuable alternative to interviews; however, certain features may be appropriate in some situations and inappropriate in others (Panwar Seth, 2020). For instance, in an interview, the survey should be carefully designed to maximise its impact. Like the interview, the questionnaire is helpful when the purpose is to understand participants' overall feelings, opinions, and experiences (Saunders et al., 2016). Questionnaires with items that have closed responses are a suitable means for collecting large volumes of data.

In this study, questionnaire items are mostly based on those having been tried and tested in previous studies. Moreover, several pre-tests were conducted in both the UK and China to test it, and reliability tests, Cronbach alpha value (e.g.,  $\alpha > 0.7$ ) ( DeVellis, 2003), were performed to ensure the reliability of scales. Thus, the reliability of the questionnaire can be confirmed. A complete list of questions is provided in Appendix A.

#### 4.4.1 Likert scale

A Likert scale is a tool for measuring or collecting data widely used in quantitative research (Bell et al., 2018; Jamieson, 2004). It is a type of additive scale with an ordinal level of measurement. The main defining factor in the Likert data is that it appears ordinal on its own. Although these scales are technically ordinal in that they consist of a series of ordered categories, various scholars have investigated this feature of Likert type data, which have found consistent support for using these variables as approximately continuous (Johnson & Creech, 1983; Norman, 2010; Sullivan & Artino, 2013; Zumbo & Zimmerman, 1993). In light of this, a Likert scale can be assumed to be a continuous variable and can be used in parametric analysis methods.

The Likert scale comprises a series of items or judgments as statements to which the subject's reaction is requested. The item displayed to the subject represents the property that the researcher aims to measure. Here answers are requested regarding degrees of agreement or disagreement that the subject has with a specific statement. Each category is assigned a numerical value, which leads the subject to a total score from the scores of all items. The variable to be measured must be accurately indicated, and each item is a sentence or judgment, to which the respondent must express a degree of agreement or disagreement (Antwi & Hamza, 2015). The final score indicates the position of the subject's response within the scale.

The typical steps to follow in developing a Likert scale are as follows: 1) knowing the variable to be measured, 2) elaborating the items related to the variable to be measured, 3) administering the scale in relation to a sample of subjects acting as judges, 4) assigning the item scores in accordance with their positive or negative position, 5) assigning the total scores to the subjects by type of response in each item, 6) performing validation and reliability analysis, 7) integrating the selected items into the final scale, and 8) applying the final scale to the population in which the instrument is validated (Jamieson, 2004; Panwar Seth, 2020; Pierce et al., 2007).

Most related studies have applied a five-point Likert scale. Given that expectation is a variable mental state and a predictive cognition based on the individual (Pike, 2006; Tolman, 1945), different students may have different learning expectations in the learning process, with the possibility of high degrees of expectations, low degrees of expectations or even no expectations, which may lead to similar degrees of satisfaction. To better evaluate students' real learning expectations and satisfaction with entrepreneurship education, the author introduced another point, point 0 - never thought about it - into the scale.

Therefore, in this study, the six-point Likert scale of student pre-course learning expectations is, 0=never thought about it, 1 = not important at all, 2 = somewhat unimportant, 3 = neither important nor unimportant, 4 = important, 5 = extremely important; and the six-point Likert scale of student post-course satisfaction is, 0=never thought about it, 1 = not satisfied at all, 2 = somewhat dissatisfied, 3 = neither satisfied nor dissatisfied, 4 = satisfied, 5 = extremely satisfied. Respondents are required to choose the option that best supports their experience. A full list of questions is shown in Appendix A. The reliability analysis of the scales, shown in Table 5-2, shows both Cronbach alpha coefficients are greater than .90, suggesting the measures are reliable (DeVellis, 2003).

#### 4.4.2 Distribution and collection

Based on the epistemological positivism philosophical stance, the author determines the list of possible responses as part of the design process, and the authors' values would not influence the answers given by the respondent. Using an internet questionnaire the respondent is able to self-select from responses predetermined by the research (Saunders et al., 2016).

Due to the study's purpose, the author needed to select an online form distributing platform widely received in both the UK and China to ensure consistency and validity. Therefore, MikeCRM (<https://www.mikecrm.com>) as an online form builder was chosen. The questionnaire was distributed and collected from the platform, and no incentives were used. Moreover, to reduce the error of recalling pre-course learning

expectations, the questionnaire was distributed online at the end of the entrepreneurship course for university students to ensure its authenticity. The survey was performed in English, translated into Chinese for Chinese respondents, and then back-translated into English by another expert translator to test for equivalence and inconsistencies.

Furthermore, the purpose and confidentiality of the questionnaire have been explained in the introduction section. Respondents were asked to tick the appropriate box in response to the questionnaire. Completing and submitting this questionnaire signifies consent to the author's use of the answers for the purposes stated at the beginning of the study. All information collected during the research process will be kept strictly confidential so that only the researcher conducting the research can have access to such information. This questionnaire is anonymous. All responses will be treated with the utmost confidence. Respondents can skip any questions that they do not want to (or cannot) answer.

#### 4.5 Sampling

The purpose of this study is to explore the differences between British and Chinese students' learning expectations of entrepreneurship education in their institutional contexts. In the light of this, the survey participants are British students who studied entrepreneurship education courses in the UK universities and Chinese students who studied entrepreneurship education courses in Chinese universities. All had attended an entrepreneurship education course of at least one module. Feedback from 78 participants with Chinese nationality but studying in the UK was removed to maintain the accuracy and generalisability of the findings.

A total of 400 questionnaires were collected, including 200 questionnaires in the UK and 200 questionnaires in China. Apart from the questionnaires with speeding and missing data, not filled or selected "others" as the first language, and Chinese students studying in the UK, 84 questionnaires were collected from the UK and 163 questionnaires from China. Finally, 247 valid questionnaires were obtained. The effective questionnaire response rate was 61.8%.

#### 4.5.1 The UK and China samples

Figures 4-2 and 4-3 below demonstrate the geo-plots; the universities were distributed across both the UK and China. As shown in the UK geographic map, 200 students from 22 UK universities (Table B-1) responded. In the China geographic map, 200 students from 34 Chinese universities (Table B-2) from more than 17 provinces and autonomous regions responded. Thus, responses provide a relatively general overview of EE in the UK and China.



Figure 4-2 Map with the geo-plots of the universities in the UK



*Figure 4-3 Map with the geo-plots of the universities in China*

#### 4.6 Justification of the choice of variables

Based on the conceptual framework that was developed in this project, the author designed three sections in the questionnaire to test the hypotheses: demographics, pre-course learning expectations and post-course learning outcomes. The unit of analysis for this research is the individual, i.e. the student. Saunders et al. (2016) introduced the primary unit of analysis as the individual, group or organisations. As the study is to analyse the impact of the treatment applied to individuals, the statistical unit of analysis is the individual student.

As stated in 3.5, the questionnaire items were based on those having been tried and tested in previous studies, reflecting the characteristics and cutting-edge entrepreneurship education issues. According to Jones and English's (2004) idea of simultaneously focusing on students' personal development and enterprise development, this thesis combined Roach's (1999) objectives for an entrepreneurship course, Ajzen's (1991, 2002) recommendations regarding the theory of planned behaviour, and Kuratko (2005) and Cui et al.'s (2019) emphasis upon the

influence of tutors and teaching resources on entrepreneurship education as the primary basis for selecting variables. Individual variables will be discussed in the following section.

#### 4.6.1 Demographic

The first part of the questionnaire, Section A demographic, was based on demographic information about a participants' gender, year of birth, current year of study, and first language. A total of 247 participants (110 female, 137 male) took part in the survey; British and Chinese respondent demographics are given in Tables 4-3 to 4-5.

*Table 4-3 Descriptive statistics of participants' gender*

<b>Country</b>		<b>Frequency</b>	<b>Percent</b>
UK	Female	23	27.4
	Male	61	72.6
	Total	84	100.0
China	Female	87	53.4
	Male	76	46.6
	Total	163	100.0

*Table 4-4 Descriptive statistics of participants' year of birth*

<b>Country</b>		<b>Frequency</b>	<b>Percent</b>
UK	1974-1989	7	8.3
	1990-1994	16	19.0
	1995-1996	18	21.4
	1997-2000	43	51.2
	Total	84	100.0
China	1974-1989	33	20.2
	1990-1994	39	23.9
	1995-1996	36	22.1
	1997-2000	55	33.7
	Total	163	100.0

*Table 4-5 Descriptive statistics of participants' current year of study*

<b>Country</b>		<b>Frequency</b>	<b>Percent</b>
UK	1st	14	16.7
	2nd	24	28.6
	3rd	21	25.0
	Postgraduate	8	9.5
	Graduated	17	20.2
	Total	84	100.0
China	1st	6	3.7
	2nd	19	11.7
	3rd	52	31.9
	4th	16	9.8
	Postgraduate	26	16.0
	Graduated	44	27.0
	Total	163	100.0

#### 4.6.2 Student pre-course learning expectations

The second part, Section B, student pre-course learning expectations, include B1 course-related expectations and B2 self-expectations. Students needed to recall their expectations before attending their entrepreneurship courses and consider the importance of course content and design, teaching methods and resources, input and entrepreneurial intention.

##### 4.6.2.1 Course-related expectations

###### 4.6.2.1.1 Students' learning expectations on the importance of course content and design

Entrepreneurship course content and design are crucial elements in entrepreneurship education, focusing on both student personal development and enterprise development (Jones & English, 2004). It is the process of providing students with the ability to identify business opportunities and take action on their insight, self-esteem, knowledge and skills (Jones & English, 2004). Therefore, related items were set as follows:

To test H1, students' learning expectations on overall course content and design are represented as Overall 7Q Learning expectations on course content and design, calculated as the mean value from 7a to 7f as follows.



- a) **Ability to identify business opportunities** – represented as 7a) Ability to identify business opportunities, corresponding to H1a;  
How important, do students think, is the ability to identify business opportunities?
  
- b) **Understanding the process of a business start-up** - represented as 7b)  
Understanding the process of a business start-up, corresponding to H1b;  
How important, do students think, is understanding the process of a business start-up?
  
- c) **Writing a business plan** - represented as 7c) Writing a business plan, corresponding to H1c;  
How important, do students think, is writing a business plan?
  
- d) **Marketing knowledge and skills** - represented as 7d) Marketing knowledge and skills, corresponding to H1d;  
How important, do students think, is marketing knowledge and skills?
  
- e) **Access to finance** - represented as 7e) Access to finance, corresponding to H1e;  
How important, do students think, is access to finance?
  
- f) **Management skills for a business start-up** - represented as 7f) Management skills for a business start-up, corresponding to H1f.  
How important, do students think, are management skills for a business start-up?

#### 4.6.2.1.2 Students' learning expectations on the importance of teaching methods and resources

Teachers' entrepreneurial experience, academic qualification, and teaching methods play an essential role in students' overall learning outcomes (Oplatka, 2014; Zheng et al., 2017; Kolb, 1976; Cheng et al., 2009). Moreover, other than curricular courses, EE as a subject related closely to reality, extracurricular activities play an essential part in developing students' skills and mindset in need for successful entrepreneurship (Arvanites et al., 2006; Cui et al., 2019). Therefore, the related items are set as follows.

To test H2, the students' learning expectations on overall teaching methods and resources are represented as Overall 8Q Learning expectations on teaching methods and resources, calculated as the mean value from 8a to 8f as follows.

- a) **Tutors' entrepreneurial experience** – represented as 8a) Tutors' entrepreneurial experience, corresponding to H2a;  
How important, do students think, is a tutors' entrepreneurial experience?
- b) **Tutors' academic qualification** - represented as 8b) Tutors' academic qualification, corresponding to H2b;  
How important, do students think, is a tutors' academic qualification?
- c) **Access to real-life entrepreneurs** - represented as 8c) Access to real-life entrepreneurs, corresponding to H2c;  
How important, do students think, is access to real-life entrepreneurs?
- d) **Interactive teaching methods** - represented as 8d) Interactive teaching methods, corresponding to H2d;  
How important, do students think, are interactive teaching methods?
- e) **Hands-on business start-up opportunities** - represented as 8e) Hands-on business start-up opportunities, corresponding to H2e;  
How important, do students think, are hands-on business start-up opportunities?
- f) **Network opportunities** - represented as 8f) Network opportunities, corresponding to H2f;  
How important, do students think, are network opportunities?

#### *4.6.2.2 Self-expectations*

Learning is a student-led behaviour, and students play a central role in the learning process. Student input is the most direct self-expectation; it can be measured as time spent studying, representing the degree of student effort and desire to learn (Jung et

al., 2016). The key to examining the university education process and effectiveness is study time, which is one of the most critical inputs for determining a student's academic performance (Jung et al., 2016; Stinebrickner & Stinebrickner, 2004; Tetteh, 2016). In terms of students' self-expectation of a future career, the entrepreneurial intention is the core factor explaining the impact of entrepreneurship education and is a useful construct for exploring potential entrepreneurs' entrepreneurial behaviour (Hmieleski & Corbett, 2006; Wilson et al., 2007). Therefore, a set of questions were raised as follows:

1. **Student input** – represented as 9Q Student expected input, corresponding to H3;  
Before attending the course, how many hours did students expect themselves to spend each week on the course (excluding the lecture and seminar)? (6 options: 0 hours, 1-2 hours, 3-4 hours, 5-6 hours, 7-8 hours, and above 9 hours).
2. **Entrepreneurial intention** – represented as 10Q Student pre-course entrepreneurial intention, corresponding to H4;  
Did students expect to set up their own business within three years of graduation? (Yes/No)

#### 4.6.3 Student post-course satisfaction

The third part, section C post-course satisfaction, assesses students' perception of learning outcomes after taking the EE course, including C1 student satisfaction level of entrepreneurship education and C2 student satisfaction level of self-expectation. The set of questions is similar as raised to test H1-4. Again, the participants are required to select the one that is most relevant to their satisfaction at the current stage: 0=never thought about it, 1 = not satisfied at all, 2 = somewhat dissatisfied, 3 = neither satisfied nor dissatisfied, 4 = satisfied, 5 = extremely satisfied.

#### Student satisfaction level of entrepreneurship education

1. To test H5, students' satisfaction with overall course content and design are represented as Overall 11Q Satisfaction with course content and design, calculated as the mean value from 11a to 11f as follows.

- a) Ability to identify business opportunities - represented as 11a) Ability to identify business opportunities, corresponding to H5a;
- b) Understanding the process of a business start-up - represented as 11b) Understanding the process of a business start-up, corresponding to H5b;
- c) Writing a business plan - represented as 11c) Writing a business plan, corresponding to H5c;
- d) Marketing knowledge and skills - represented as 11d) Marketing knowledge and skills, corresponding to H5d;
- e) Access to finance - represented as 11e) Access to finance, corresponding to H5e;
- f) Management skills for a business start-up - represented as 11f) Management skills for a business start-up, corresponding to H5f.

2. To test H6, students' satisfaction with overall teaching methods and resources are represented as Overall 12Q Satisfaction with teaching methods and resources, calculated as the mean value from 12a to 12f as follows.

- a) Tutors' entrepreneurial experience - represented as 12a) Tutors' entrepreneurial experience, corresponding to H6a;
- b) Tutors' academic qualification - represented as 12b) Tutors' academic qualification, corresponding to H6b;
- c) Access to real-life entrepreneurs - represented as 12c) Access to real-life entrepreneurs, corresponding to H6c;
- d) Interactive teaching methods - represented as 12d) Interactive teaching methods, corresponding to H6d;
- e) Hands-on business start-up opportunities - represented as 12e) Hands-on business start-up opportunities, corresponding to H6e;
- f) Network opportunities - represented as 12f) Network opportunities, corresponding to H6f.

### **Student satisfaction level of the self-expectation**

1. Student input - represented as 13Q Student actual input, corresponding to H7;
2. Entrepreneurial intention - represented as 14Q Student post-course entrepreneurial intention, corresponding to H8.

#### **4.7 Statistical methods**

Data analysis is about processing and analysing the collected data and turn them into information (Saunders et al., 2016). This section focuses on selecting appropriate statistical methods to examine relationships and trends in the collected data. At this stage of the analysis, IBM SPSS Software (version 26) is utilised to analyse and evaluate the impact of variables.

##### **4.7.1 Factor analysis**

Factor analysis is a technique generally used by researchers to identify, reduce, and organise numerous questionnaire items into groups that correspond to the distinct constructs underpinning a variable in their study (Pallant, 2007). Large datasets with multiple variables can be simplified by looking for 'groups' of variables (factors), that is, factor analysis organises common variables into descriptive categories (Panwar Seth, 2020). Factor analysis is useful for research with a few or hundreds of variables, items from surveys that can be reduced to a smaller set, identifying an underlying concept and facilitating interpretations (Yong & Pearce, 2013).

As discussed in 3.5 and 4.6, the original questionnaire in this study contains two multivariate measures (course content and design with six items, and teaching methods and resources with six items) selected based on the entrepreneurship education literature. Therefore, factor analysis will be performed first to ensure that the two multi-item scales can be separated.

To gain the loading matrix, assume there are  $p$  variables  $x_1, x_2, \dots, x_p$  with means of  $\mu_1, \mu_2, \dots, \mu_p$ , measured on a sample of  $n$  subjects, then variable  $i$  can be expressed as a linear combination of  $m$  factors  $F_1, F_2, \dots, F_m$  where,  $m < p$ . Thus,

$$x_i - \mu_i = a_{i1}F_1 + a_{i2}F_2 + \cdots + a_{im}F_m + e_i$$

Where the  $a_{is}$  are the factor loadings for variable  $i$  and  $e_i$  is the part of variable  $x_i$  that cannot be 'explained' by the factors (Cornish, 2007),  $e_i$  are unobserved stochastic error terms with zero mean and finite variance.

Then, assume  $F$  and  $e$  are independent,  $E(F) = 0$  (the expectation of  $F$ ),  $L$  as the loading matrix, and factors are uncorrelated,

$$Cov(x - \mu) = Cov(LF + e)$$

In addition, the factor loadings for the items from individual factor analyses will be used to calculate Average Variance Extracted (AVE) and Construct Reliability (CR) to test validity. AVE values above 0.7 are considered very good, and the level of 0.5 is acceptable; the acceptable value of CR is 0.7 and above (Fornell & Larcker, 1981). A reliability analysis (Cronbach alpha) will also be conducted, which will be discussed in the following section.

#### 4.7.2 Reliability analysis

Reliability analysis is used to test a scale's internal consistency (Pallant, 2007). This study applies Cronbach's alpha coefficient as the indicator of internal consistency. The rule of Cronbach coefficient will use a 0 to 1 scale where  $\geq 0.90$  stands for excellent reliability, 0.70-0.90 shows high reliability, 0.50-0.70 means moderate reliability and  $\leq 0.50$  stands for low reliability (DeVellis, 2003).

As mentioned earlier, this study designed two multi-item scales, including course content and design scale with six items (the ability to identify business opportunities, understanding the process of a business start-up, writing a business plan, marketing knowledge and skills, access to finance, and management skills for a business start-up), and teaching methods and resource scale with six items (tutors' entrepreneurial experience, tutors' academic qualification, access to real-life entrepreneurs, interactive teaching methods, hands-on business start-up opportunities, and network

opportunities). Thus, Cronbach alpha will be tested separately for the two multi-item scales.

Where  $X_i$  as the observed score of item  $i$ ,  $X = (X_1 + X_2 + \dots + X_k)$  as the sum of all items in a test consisting of  $k$  items,  $\sigma_{ij}$  as the covariance between  $X_i$  and  $X_j$ ,  $\sigma_i^2 (= \sigma_{ii})$  as the variance of  $X_i$ , and  $\sigma_X^2$  as the variance of  $X$ , the calculation for the Cronbach's alpha coefficient is as follows:

$$\rho_T = \frac{k}{k-1} \left( 1 - \frac{\sum_{i=1}^k \sigma_i^2}{\sigma_X^2} \right)$$

#### 4.7.3 Independent sample T-test

Independent samples t-test is used to determine the likelihood that the values of a numerical data variable for two independent samples or groups are different. It evaluates the possibility of any difference between these two groups occurring by chance alone (Saunders et al., 2016).

As discussed in 4.4.1, a Likert scale can be assumed to be a continuous variable (Johnson & Creech, 1983; Norman, 2010; Sullivan & Artino, 2013; Zumbo & Zimmerman, 1993). Therefore, the independent sample t-test is conducted to compare the mean score for the students of the two different countries to test the hypotheses. Specifically, it will be used to examine the differences in students' pre-course learning expectations of EE in the UK and China (Section B in the questionnaire) and verify the differences in their post-course learning outcomes (Section C in the questionnaire).

Depending on whether or not equal variances are assumed, the independent samples t-test, test statistic takes one of two forms. One relies on the first row of output if the significance level of Levene's test is  $p > 0.05$  (Equal variances assumed). Alternatively, one uses the second row of output if the significance level of Levene's test is  $p < 0.05$  (Equal variances are not assumed) (Pallant, 2007).

The test statistic for an Independent samples t-test is denoted  $t$ . When the two independent samples are assumed to be drawn from populations with **equal variances**, the test statistic  $t$  is calculated as follows:

$$t = \frac{\bar{x}_1 - \bar{x}_2}{S_p \sqrt{\frac{1}{n_1} + \frac{1}{n_2}}}$$

with

$$S_p = \sqrt{\frac{(n_1 - 1)S_1^2 + (n_2 - 1)S_2^2}{n_1 + n_2 - 2}}$$

Where

$\bar{x}_1$  = Mean of first sample

$\bar{x}_2$  = Mean of second sample

$n_1$  = Sample size of first sample

$n_2$  = Sample size of second sample

$S_1$  = Standard deviation of first sample

$S_2$  = Standard deviation of second sample

$S_p$  = Pooled standard deviation

When the two independent samples are assumed to be drawn from populations with **unequal variances**, the test statistic  $t$  is calculated as follows:

$$t = \frac{\bar{x}_1 - \bar{x}_2}{\sqrt{\frac{s_1^2}{n_1} + \frac{s_2^2}{n_2}}}$$

Where

$\bar{x}_1$  = Mean of first sample

$\bar{x}_2$  = Mean of second sample

$n_1$  = Sample size of first sample

$n_2$  = Sample size of second sample

$S_1$  = Standard deviation of first sample

$S_2$  = Standard deviation of second sample



If the significance level of the t-test  $p < 0.05$ , the result is seen as significant (the hypothesis is supported).

#### 4.7.4 Chi-square test

With the purpose of investigating the relationship between two categorical variables, the Chi-square test is used. It compares the frequency of cases found in the various categories of one variable across the different categories of another variable (Pallant, 2007). For example, if the table is 2 by 2 (each variable has only two categories), one can use the Continuity Correction value in the Chi-square test. In this study, the Chi-square test for independence (with Yates Continuity Correction) is conducted to investigate whether there is a statistically significant association between country (UK/China) and students' entrepreneurial intention (yes/no).

Where df is the degrees of freedom (the number of categories minus 1), O as the observed value and E as the expected value, the Chi-square value is calculated as follows (Pearson, 1900):

$$\chi^2_{df} = \sum \frac{(O_i - E_i)^2}{E_i}$$

P-value can be obtained from the significance table. If  $p < 0.05$ , the output is seen as significant (the hypothesis is supported).

#### 4.7.5 Two-way ANOVA

Two-way ANOVA examines two independent variables' individual and their joint effect on a single dependent variable (Pallant, 2007). In other words, the advantage of using a two-way design enables testing of the main effect for each independent variable and investigating the possibility of an interaction effect. An interaction effect occurs when the effect of one independent variable on the dependent variable is dependent on the level of a second independent variable (Pallant, 2007).

In the study, a two-way ANOVA is conducted to explore the joint and main effect of country variable (the UK and China) and education variable (before and after the EE) on course content and design, teaching methods and resources, student input and entrepreneurial intention. It is a more in-depth examination of the reasons for the support and non-support of the relevant hypothesis.

#### 4.7.6 Binary logistic regression

Binary logistic regression allows testing models to predict categorical outcomes with two categories or values. In a single model, the independent variables can be categorical, continuous, or a combination of both (Pallant, 2007). Binary logistic regression can be used to assess the relative contribution of each variable, the predictive power of the set of variables and whether a specific predictor variable can still predict after the effects of another variable are controlled. According to Pallant (2007), the approach allows for a more sophisticated exploration of the interrelationships among a set of variables, despite being based on correlation. Furthermore, it summarises the accuracy of case classification based on mode, allowing for the calculation of the model's sensitivity and specificity, as well as the positive and negative predictive values.

In the study, binary logistic regression is used to explore the reasons for the changes in students' entrepreneurial intentions pre and post EE courses after controlling for the influence of control variables (age, gender, country and current year of study). Apart from the control variables, the model also contains 14 test variables, including students' pre-course entrepreneurial intention, students' satisfaction with course content and design (ability to identify business opportunities, understanding the process of a business start-up, writing a business plan, marketing knowledge and skills, access to finance, and management skills for a business start-up), students' satisfaction with teaching methods and resources (tutors' entrepreneurial experience, tutors' academic qualification, access to real-life entrepreneurs, interactive teaching methods, hands-on business start-up opportunities, and network opportunities), and students' actual input.

In this binary case, the probability of yes is  $p$ , and the probability of no is  $1-p$ , and  $Y$  is the binary outcome variable indicating no (0) or yes (1),  $p=P(Y=1)$ . When a linear relation is assumed, with  $p$  as the probability of the dependent variable,  $n$  as the number of total observations,  $x_1, x_2, \dots$  and  $x_k$  as predictors, and  $\beta$  gives the odds ratio of the dependent variable, the logistic regression of  $Y$  is as follows:

$$\text{logit}(p) = \ln \left( \frac{p}{1-p} \right) = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \dots \beta_k x_k$$

and

$$p = \frac{\exp(\beta_0 + \beta_1 x_1 + \beta_2 x_2 + \dots \beta_k x_k)}{1 + \exp(\beta_0 + \beta_1 x_1 + \beta_2 x_2 + \dots \beta_k x_k)}$$

If  $p < 0.05$ , the result is significant (the hypothesis is supported).

#### 4.8 Ethical considerations

This project has been approved by the University of Chester School of Business and Management's Ethic Committee. The thesis complies with the research ethics policy and guidelines formulated by the University of Chester. Before undertaking the research, the author had carefully read the University of Chester Faculty of Business Research Institute's ethical standards and framework and audited the research project by utilising its 'Research Ethics Checklist' to ensure that it follows ethical standards. Supporting documentation requested by the committee was provided and can be found in Appendix G. In terms of research access, permission was acquired from gatekeepers (Saunders et al., 2016) at each university to virtually distribute the questionnaire to students. After gaining approval, the participation information sheet, consent form and other necessary documents were given to all participants together with the questionnaire. Participant information sheets with consent forms were used for this study to gain permission from students to participate and inform them that the survey is voluntary. They may withdraw at any time without any risks. The participant information sheet contained information about the research, participants' rights, who will access the data and how long the data will be stored.

Anonymity and confidentiality were maintained throughout. It assures participants that the researcher will not expose their personal data and other individuals will not have access to their personal data. The data set is for statistical analysis and cannot be traced back to individual projects. Anonymity and confidentiality were mentioned and clarified to students in the consent form, participation information sheet and introductory page of the questionnaire. Furthermore, the research is to fulfil the author's doctoral study requirement, and no external interest is involved.

#### 4.9 Summary

The chapter has set out details of ethical considerations, research philosophy, and methods used in order to carry out the proposed research efficiently and systematically. The chapter started by exploring the two fundamental philosophical assumptions in social science – ontology and epistemology. The author adopted an epistemological positivist stance to explain and predict behaviour and events in their context. This research is based on a mono quantitative approach related to a deductive approach to test hypotheses. Surveys using internet questionnaires have been adopted as they are feasible, effective and efficient in addressing the research question. The sampling, data collection, and analytical methods were also discussed with appropriate justification. In the next chapter, the results and findings of this study will be covered.

## Chapter 5: Data Analysis and Findings

### 5.1 Introduction

This chapter uses SPSS version 26 to test the hypotheses formed by logical reasoning based on self-determination theory by providing new field-based insights from the UK and China. It presents the results of quantitative data analysis to fulfil the research objectives 1, 2 and 3. First, factor analysis was performed to ensure that the two multi-item scales (course content and design, teaching methods and resources) could be separated. Second, reliability analysis was used to check the internal consistency of the relevant variables in the scales. Third, students' pre-course learning expectations and post-course learning outcomes about EE in the UK and China are indicated using descriptive statistics. Fourth, focusing on the country factor, an independent sample t-test and Chi-squared test were conducted to test relevant hypotheses to verify the differences in entrepreneurship learning expectations between British and Chinese students, leading to the differences in satisfaction. Fifth, two-way ANOVA was used to examine the interaction and main effect of the national factor (the UK and China) and university educational factor (before EE and after EE) that affect students' entrepreneurship learning. Finally, binary logistic regression was performed to explore the reasons for the changes in students' entrepreneurial intentions before and after EE after controlling for the influence of age, gender, country and current year of study.

### 5.2 Factor analysis

The questionnaire of this study includes two multivariate measures (course content and design with six items and teaching methods and resources with six items). Factor analysis was performed to ensure that the two multi-item scales could be separated.

The suitability of data for factor analysis is evaluated prior to undertaking principal components analysis (PCA). Inspection of the correlation matrix revealed the presence of many coefficients of .3 and above. As shown in Appendix C, the Kaiser-Meyer-Olkin value is .91, greater than the recommended value of .6 (Kaiser, 1974), and Bartlett's Test of Sphericity (Bartlett, 1954) reached statistical significance, supporting the factorability of the correlation matrix.

From Appendix C, principal components analysis demonstrated the presence of two components with eigenvalues exceeding 1. The two-component solution explained a total of 73.58% of the variance, with Component 1 contributing 57.34% and Component 2 contributing 16.24%; an inspection of the scree plot revealed a clear break after the second component. As a result of factor analysis, only two components emerged, as expected.

To aid in the interpretation of these two components, varimax rotation was performed. The rotated solution revealed the presence of simple structure (Thurstone, 1947), with both components showing several strong loadings and all variables loading substantially on only one component. As seen in Table 5-1, the interpretation of the two components was consistent with the scales designed by the author, with variables suggesting learning expectations of course content and design loading strongly on **Component 1** (ability to identify business opportunities, understanding the process of a business start-up, writing a business plan, marketing knowledge and skills, access to finance, and management skills for a business start-up), and variables suggesting learning expectations of teaching methods and resources loading strongly on **Component 2** (tutors' entrepreneurial experience, tutors' academic qualification, access to real-life entrepreneurs, interactive teaching methods, hands-on business start-up opportunities, and network opportunities).

Table 5-1 Rotated component matrix

Rotated Component Matrix <sup>a</sup>		
	Component	
	1	2
7a) Ability to identify business opportunities	<b>.804</b>	.174
7b) Understanding the process of a business start-up	<b>.828</b>	.200
7c) Writing a business plan	<b>.808</b>	.267
7d) Marketing knowledge and skills	<b>.860</b>	.260
7e) Access to finance	<b>.804</b>	.386
7f) Management skills for a business start-up	<b>.857</b>	.251
8a) Tutors' entrepreneurial experience	.202	<b>.845</b>
8b) Tutors' academic qualification	.150	<b>.871</b>
8c) Access to real-life entrepreneurs	.244	<b>.885</b>
8d) Interactive teaching methods	.280	<b>.813</b>
8e) Hands-on business start-up opportunities	.280	<b>.754</b>
8f) Network opportunities	.373	<b>.631</b>

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.<sup>a</sup>

a. Rotation converged in 3 iterations.

No item from one scale loaded above 0.4 onto the other. In short, factor analysis has first ensured that the two multi-item scales (course content and design, teaching methods and resources) could be separated, and the items for each component were as expected. The factor loadings for the items from individual factor analyses were then used to calculate AVE and CR to test validity. As shown in Table 5-2, the questionnaire in this study surpasses the requirement for AVE (> .5) and CR (> .7) (Fornell & Larcker, 1981), respectively.

### 5.3 Reliability analysis

Reliability tests were conducted to ensure the internal consistency of scales in the questionnaire. The main variables of students' course-related expectations have been confirmed as two multi-item scales: course content and design and teaching methods and resources scales. As seen in Table 5-2, course content and design scale ( $\alpha=.93$ ) with six items (the ability to identify business opportunities, understanding the process of a business start-up, writing a business plan, marketing knowledge and skills, access to finance, and management skills for a business start-up); and teaching methods and resources scale ( $\alpha=.92$ ) with six items (tutors' entrepreneurial experience, tutors' academic qualification, access to real-life entrepreneurs, interactive teaching methods, hands-on business start-up opportunities, and network opportunities). According to DeVellis (2003), Cronbach alpha  $\geq 0.90$  means excellent reliability. Thus, the two multi-item scales have acceptable internal consistency.

*Table 5-2 Cronbach alpha\*AVE\*CR*

	<b>Cronbach Alpha</b>	<b>AVE</b>	<b>CR</b>
Course content and design	.933	.752	.948
Teaching methods and resources	.917	.710	.936

### 5.4 Descriptive statistics

In this section, descriptive data analysis will be presented. In sections 5.5 and 5.6, data analysis to test the hypothesis will be presented and discussed.

#### 5.4.1 Comparison of British and Chinese students' learning expectations of EE

##### 5.4.1.1 Course content and design

From Table 5-3, descriptive statistics indicate that British students ( $M=3.30$ ,  $SD=1.27$ ) have higher Overall 7Q learning expectations on course content and design than Chinese students ( $M=2.39$ ,  $SD=1.01$ ).

Students in the UK have higher learning expectations on 7a) Ability to identify business opportunities ( $M=3.47$ ,  $SD=1.56$ ), 7c) Writing a business plan ( $M=3.34$ ,  $SD=1.50$ ) and 7d) Marketing knowledge and skills ( $M=3.34$ ,  $SD=1.46$ ), the lowest learning



expectation is 7e) Access to finance (M=3.08, SD=1.57). While in China, students have higher scores of 7f) Management skills for a business start-up (M=2.54, SD=1.07), 7e) Access to finance (M=2.48, SD=1.25) and 7d) Marketing knowledge and skills (M=2.44, SD=1.03), the lowest score is 7b) Understanding the process of a business start-up (M=2.15, SD=1.23).

*Table 5-3 Descriptive statistics of students' learning expectations on course content and design*

<b>Country</b>		<b>N</b>	<b>Mean</b>	<b>Std. Deviation</b>
UK	Overall 7Q learning expectations on course content and design	83	3.30	1.27
	7a) Ability to identify business opportunities	84	3.47	1.56
	7b) Understanding the process of a business start-up	84	3.25	1.37
	7c) Writing a business plan	84	3.34	1.50
	7d) Marketing knowledge and skills	84	3.34	1.46
	7e) Access to finance	84	3.08	1.57
	7f) Management skills for a business start-up	83	3.33	1.43
China	Overall 7Q learning expectations on course content and design	162	2.39	1.01
	7a) Ability to identify business opportunities	163	2.27	1.33
	7b) Understanding the process of a business start-up	163	2.15	1.23
	7c) Writing a business plan	163	2.40	1.27
	7d) Marketing knowledge and skills	162	2.44	1.03
	7e) Access to finance	163	2.48	1.25
	7f) Management skills for a business start-up	163	2.54	1.07

In sum, British students have higher learning expectations on course content and design than Chinese students on all items. Students in both countries have relatively high learning expectations for entrepreneurial abilities and skills. UK students most value the ability to identify business opportunities, and Chinese students most value management skills for a business start-up. Simultaneously, their learning expectations for basic knowledge are relatively low, such as understanding the process of a business start-up. Formal tests of these and other differences to identify if all are significant are presented in section 5.5.

#### *5.4.1.2 Teaching methods and resources*

From Table 5-4, descriptive statistics demonstrate that for Overall 8Q learning expectations on teaching methods and resources, British students ( $M=4.04$ ,  $SD=1.08$ ) are higher than Chinese students ( $M=3.51$ ,  $SD=1.32$ ).

The UK students show higher degrees on 8e) Hands-on business start-up opportunities ( $M=4.27$ ,  $SD=1.18$ ), 8b) Tutors' academic qualification ( $M=4.26$ ,  $SD=1.34$ ) and 8c) Access to real-life entrepreneurs ( $M=4.26$ ,  $SD=1.29$ ), the lowest degree is 8f) Network opportunities ( $M=3.55$ ,  $SD=1.49$ ). By contrast, students in China provided lower scores on 8e) Hands-on business start-up opportunities ( $M=3.87$ ,  $SD=1.39$ ), 8f) Network opportunities ( $M=3.86$ ,  $SD=1.46$ ) and 8c) Access to real-life entrepreneurs ( $M=3.55$ ,  $SD=1.53$ ), and the lowest is 8a) Tutors' entrepreneurial experience ( $M=3.15$ ,  $SD=1.65$ ).

*Table 5-4 Descriptive statistics of students' learning expectations on teaching methods and resources*

<b>Country</b>		<b>N</b>	<b>Mean</b>	<b>Std. Deviation</b>
UK	Overall 8Q learning expectations on teaching methods and resources	84	4.04	1.08
	8a) Tutors' entrepreneurial experience	84	4.14	1.34
	8b) Tutors' academic qualification	84	4.26	1.34
	8c) Access to real-life entrepreneurs	84	4.26	1.29
	8d) Interactive teaching methods	84	3.76	1.17
	8e) Hands-on business start-up opportunities	84	4.27	1.18
	8f) Network opportunities	84	3.55	1.49
China	Overall 8Q learning expectations on teaching methods and resources	163	3.51	1.32
	8a) Tutors' entrepreneurial experience	163	3.15	1.65
	8b) Tutors' academic qualification	163	3.25	1.66
	8c) Access to real-life entrepreneurs	163	3.55	1.53
	8d) Interactive teaching methods	163	3.39	1.59
	8e) Hands-on business start-up opportunities	163	3.87	1.39
	8f) Network opportunities	163	3.86	1.46

In short, apart from the network opportunities item, British students have higher learning expectations on teaching methods and resources than Chinese students on all other items. Students in both countries have the highest learning expectations for hands-on business start-up opportunities. However, China scores the second-highest

for its learning expectations for network opportunities, while the UK scores the lowest.

#### 5.4.1.3 Student expected input

It can be seen from Table 5-5 that 37 out of 84 British students think they will spend 3-4 hrs each week (excluding lectures and seminars) to learn EE courses, which peak at 44%. By contrast, 52 out of 163 Chinese students will use 1-2 hrs each week to learn EE, which reaches the highest point at 31.9%. Moreover, it should be mentioned that 12.3% of Chinese students do not want to spend any time on the EE course. In brief, the expected input of British students is greater than that of Chinese students.

*Table 5-5 Descriptive statistics of student expected input*

Country		Frequency	Percent
UK	0hr	-	-
	1-2hrs	10	11.9
	3-4hrs	37	44.0
	5-6hrs	16	19.0
	7-8hrs	18	21.4
	Above 9hrs	3	3.6
	Total	84	100.0
China	0hr	20	12.3
	1-2hrs	52	31.9
	3-4hrs	40	24.5
	5-6hrs	35	21.5
	7-8hrs	8	4.9
	Above 9hrs	8	4.9
	Total	163	100.0

#### 5.4.1.4 Pre-course entrepreneurial intention

Table 5-6 illustrates that before EE, 47.6% of British students planned to start their own firm within three years of graduation, while 52.4% did not. In comparison, 46% of Chinese students expected to build a business, whereas 54% did not. In other words, the UK students' pre-course entrepreneurial intention is slightly higher than Chinese students. However, the levels of entrepreneurial intention in both countries have not reached 50%.

*Table 5-6 Descriptive statistics of students' pre-course entrepreneurial intention*

Country		Frequency	Percent
UK	Yes	40	47.6
	No	44	52.4
	Total	84	100
China	Yes	75	46.0
	No	88	54.0
	Total	163	100

#### 5.4.2 Comparison of British and Chinese students' satisfaction with EE

##### 5.4.2.1 Course content and design

As seen in Table 5-7, descriptive statistics describe that British students ( $M=3.46$ ,  $SD=1.14$ ) have higher Overall 11Q satisfaction with course content and design than Chinese students ( $M=2.49$ ,  $SD=0.91$ ).

The UK students have higher satisfaction with 11b) Understanding the process of a business start-up ( $M=3.57$ ,  $SD=1.18$ ) and 11c) Writing a business plan ( $M=3.52$ ,  $SD=1.31$ ), and the lowest is 11e) Access to finance ( $M=3.21$ ,  $SD=1.44$ ). While in China, students have higher scores in 11f) Management skills for a business start-up ( $M=2.65$ ,  $SD=0.98$ ) and 11c) Writing a business plan ( $M=2.64$ ,  $SD=1.32$ ), the lowest score is 11a) Ability to identify business opportunities ( $M=2.12$ ,  $SD=1.16$ )

*Table 5-7 Descriptive statistics of student satisfaction with course content and design*

<b>Country</b>		<b>N</b>	<b>Mean</b>	<b>Std. Deviation</b>
UK	Overall 11Q Satisfaction with course content and design	84	3.46	1.14
	11a) Ability to identify business opportunities	84	3.35	1.39
	11b) Understanding the process of a business start-up	84	3.57	1.18
	11c) Writing a business plan	84	3.52	1.31
	11d) Marketing knowledge and skills	84	3.52	1.25
	11e) Access to finance	84	3.21	1.44
	11f) Management skills for a business start-up	84	3.49	1.25
China	Overall 11Q Satisfaction with course content and design	159	2.49	.91
	11a) Ability to identify business opportunities	161	2.12	1.16
	11b) Understanding the process of a business start-up	162	2.54	1.16
	11c) Writing a business plan	162	2.64	1.32
	11d) Marketing knowledge and skills	160	2.58	1.10
	11e) Access to finance	160	2.39	1.11
	11f) Management skills for a business start-up	160	2.65	.98

In short, British students have higher satisfaction levels for course content and design than Chinese students in all areas. Students in both countries have relatively high satisfaction with entrepreneurial knowledge (e.g., writing a business plan) while relatively low with entrepreneurial abilities. British students are least satisfied with access to finance, and Chinese students are least satisfied with the ability to identify

business opportunities. Formal tests of these and other differences to identify if all are significant are presented in section 5.5.

#### *5.4.2.2 Teaching methods and resources*

From Table 5-8, descriptive statistics explain that for Overall 12Q satisfaction with teaching methods and resources, British students ( $M=4.14$ ,  $SD=1.07$ ) are higher than Chinese students ( $M=3.37$ ,  $SD=1.29$ ).

British students gave higher response on 12b) Tutors' academic qualification ( $M=4.40$ ,  $SD=1.24$ ) and 12a) Tutors' entrepreneurial experience ( $M=4.31$ ,  $SD=1.28$ ), the lowest degree is 12f) Network opportunities ( $M=3.71$ ,  $SD=1.49$ ). By contrast, Chinese students gave higher scores for 12e) Hands-on business start-up opportunities ( $M=3.46$ ,  $SD=1.40$ ) and 12b) Tutors' academic qualification ( $M=3.44$ ,  $SD=1.39$ ), and the lowest score is 12a) Tutors' entrepreneurial experience ( $M=3.19$ ,  $SD=1.48$ ).

In short, British students have higher satisfaction with teaching methods and resources than Chinese students in all items.

*Table 5-8 Descriptive statistics of student satisfaction with teaching methods and resources*

<b>Country</b>		<b>N</b>	<b>Mean</b>	<b>Std. Deviation</b>
UK	Overall 12Q Satisfaction with teaching methods and resources	84	4.14	1.07
	12a) Tutors' entrepreneurial experience	84	4.31	1.28
	12b) Tutors' academic qualification	84	4.40	1.24
	12c) Access to real-life entrepreneurs	84	4.23	1.24
	12d) Interactive teaching methods	84	3.92	1.15
	12e) Hands-on business start-up opportunities	84	4.27	1.05
	12f) Network opportunities	84	3.71	1.49
China	Overall 12Q Satisfaction with teaching methods and resources	154	3.37	1.29
	12a) Tutors' entrepreneurial experience	159	3.19	1.48
	12b) Tutors' academic qualification	158	3.44	1.39
	12c) Access to real-life entrepreneurs	159	3.39	1.39
	12d) Interactive teaching methods	156	3.38	1.43
	12e) Hands-on business start-up opportunities	158	3.46	1.40
	12f) Network opportunities	159	3.33	1.58



#### 5.4.2.3 Student actual input

Table 5-9 outlines that in the UK, 25 out of 84 students' actual input was 3-4 hours each week (excluding lectures and seminars) to learn EE, reaching the highest point at 29.8%. In comparison, 57 out of 158 Chinese students picked 1-2 hours per week the highest at 36.1%. It is worth noting that 25.3% of Chinese students did not spend any time on entrepreneurship courses. One possible explanation is that Chinese students are forced to attend entrepreneurship courses and under passive learning within a compulsory education policy; the literature would suggest that this promotes low autonomy (Jones & Lourenço, 2006; Wright et al., 1994), leading to low input. In a nutshell, British students' actual input is higher than Chinese students.

*Table 5-9 Descriptive statistics of student actual input*

Country		Frequency	Percent
UK	0hr	1	1.2
	1-2hrs	19	22.6
	3-4hrs	25	29.8
	5-6hrs	22	26.2
	7-8hrs	11	13.1
	Above 9hrs	6	7.1
	Total	84	100.0
China	0hr	40	25.3
	1-2hrs	57	36.1
	3-4hrs	18	11.4
	5-6hrs	25	15.8
	7-8hrs	10	6.3
	Above 9hrs	8	5.1
	Total	158	100.0

#### 5.4.2.4 Post-course entrepreneurial intention

Table 5-10 shows that 52.4% of British students aspire to start their own company after entrepreneurship courses within three years after graduation, compared to 46.8% of Chinese students. After completing the entrepreneurship course, more than half of British students intend to set up a business, while the proportion of Chinese students is still less than half. In short, British students' post-course entrepreneurial intention is higher than Chinese students.

*Table 5-10 Descriptive statistics of students' post-course entrepreneurial intention*

Country		Frequency	Percent
UK	Yes	44	52.4
	No	40	47.6
	Total	84	100.0
China	Yes	74	46.8
	No	84	53.2
	Total	158	100.0

As discussed in 5.4, the descriptive statistics results reveal similarities and differences in pre-course learning expectations and post-course satisfaction between British and Chinese students of their entrepreneurship education. First, students in both countries have relatively higher learning expectations for entrepreneurial skills and abilities than entrepreneurial knowledge, while their satisfaction ratings were relatively lower than it. Second, students' learning expectations and satisfaction with teaching methods and resources are higher than with course content and design in both countries. Third, Chinese students have high pre-course learning expectations for network opportunities, but low post-course satisfaction compared with British students. Fourth, both countries have relatively low expected input and actual input levels, with British students' ratings being slightly higher than those for Chinese students. Fifth, the students' entrepreneurial intention in both countries were around

50% before and after class; British students' pre and post-course entrepreneurial intentions are higher than Chinese students.

In summary, British students' learning expectations are higher in course content and design, teaching methods and resources (except network opportunities), student expected input and pre-course entrepreneurial intention than Chinese students. Similarly, the UK students' satisfaction with course content and design, teaching methods and resources, students' actual input, and post-course entrepreneurial intentions are higher than Chinese students. Formal tests of these differences to identify if all are significant will be presented in the next section.

### 5.5 Hypothesis test using independent samples t-test or chi-square test

Independent samples t-test and Chi-square test were conducted to test the relevant hypotheses, which focused on the country factor. First, the differences in pre-course learning expectations between British and Chinese students are examined, followed by differences in their post-course learning outcomes.

Specifically, the independent samples t-test compares the mean score on a continuous variable between two different groups of subjects. If the results of Levene's test for equality of variances is significant ( $< .05$ ), a slightly different version of the test is used (equal variances not assumed). The Chi-square test for independence (with Yates Continuity Correction) determines whether two categorical variables are related. It compares the frequency of cases found in the various categories of one variable across the different categories of another variable. Bootstrapping was used throughout and based on 1000 bootstrap samples. This helps avoid issues with any outliers which might create misleading output. If bootstrap  $p < .05$ , the result is seen as significant (the hypothesis is supported). A complete list of independent t-test and Chi-square test results are provided in Appendix D.

### 5.5.1 The differences in pre-course learning expectations of EE in the UK and China

#### 5.5.1.1 *The differences in students' learning expectations of course content and design*

Independent samples t-tests were conducted to compare the differences between British and Chinese students' learning expectations of course content and design. As demonstrated by Table 5-11, British students ( $M=3.30, SD=1.27$ ) reported significantly higher levels of Overall 7Q learning expectations on course content and design than Chinese students ( $M=2.39, SD=1.01$ ),  $t(202.168) = 6.152, p < .001$ .

There was a similar statistically significant difference in scores of 7a) Ability to identify business opportunities  $t(245)=5.973, p<.001$ , for the UK ( $M=3.47, SD=1.56$ ) and China ( $M=2.27, SD=1.33$ ); 7b) Understanding the process of a business start-up  $t(245)=6.15, p<.001$ , for the UK ( $M=3.25, SD=1.37$ ) and China ( $M=2.15, SD=1.23$ ); 7c) Writing a business plan  $t(245)=4.867, p<.001$ , for the UK ( $M=3.34, SD=1.50$ ) and China ( $M=2.40, SD=1.27$ ); 7d) Marketing knowledge and skills  $t(221.214)=5.592, p<.001$ , for the UK ( $M=3.34, SD=1.46$ ) and China ( $M=2.44, SD=1.03$ ); 7e) Access to finance  $t(204.38)=3.291, p=.001$ , for the UK ( $M=3.08, SD=1.57$ ) and China ( $M=2.48, SD=1.25$ ); and 7f) Management skills for a business start-up  $t(209.891)=4.857, p<.001$ , for the UK ( $M=3.33, SD=1.43$ ) and China ( $M=2.54, SD=1.07$ ).

*Table 5-11 T-test: students' learning expectations of course content and design*

	Country	Mean	Std. Deviation	t	df	Bootstrap <sup>a</sup> Sig. (2- tailed)
Overall 7Q learning expectations on course content and design	UK	3.30	1.27	6.152	202.168	.001
	China	2.39	1.01			
7a) Ability to identify business opportunities	UK	3.47	1.561	5.973	245	.001
	China	2.27	1.329			
7b) Understanding the process of a business start-up	UK	3.25	1.366	6.15	245	.001
	China	2.15	1.227			
7c) Writing a business plan	UK	3.34	1.500	4.867	245	.001
	China	2.40	1.272			
7d) Marketing knowledge and skills	UK	3.34	1.458	5.592	221.214	.001
	China	2.44	1.034			
7e) Access to finance	UK	3.08	1.571	3.291	204.38	.001
	China	2.48	1.246			
7f) Management skills for a business start-up	UK	3.33	1.427	4.857	209.891	.001
	China	2.54	1.074			

To conclude:

- Students' learning expectations on overall course content and design, ability to identify business opportunities, understanding the process of a business start-up, writing a business plan, marketing knowledge and skills, access to finance and management skills for a business start-up in the UK are significantly higher than those in China.

Therefore, H1, H1a, H1b, H1c, H1d, H1e and H1f are supported.

#### *5.5.1.2 The differences in students' learning expectations of teaching methods and resources*

The independent samples t-test was used to explore country differences in students' learning expectations of teaching methods and resources. As shown in Table 5-12, British students ( $M=4.04$ ,  $SD=1.08$ ) reported significantly higher levels of Overall 8Q learning expectations on teaching methods and resources than Chinese students ( $M=3.51$ ,  $SD=1.32$ ),  $t(198.721) = 3.39$ ,  $p=.001$ .

There was a similar statistically significant difference in scores of 8a) Tutors' entrepreneurial experience  $t(201.287)=5.106$ ,  $p<.001$ , for the UK ( $M=4.14$ ,  $SD=1.34$ ) and China ( $M=3.15$ ,  $SD=1.65$ ); 8b) Tutors' academic qualification  $t(202.074)=5.171$ ,  $p<.001$ , for the UK ( $M=4.26$ ,  $SD=1.34$ ) and China ( $M=3.25$ ,  $SD=1.66$ ); 8c) Access to real-life entrepreneurs  $t(194.751)=3.869$ ,  $p<.001$ , for the UK ( $M=4.26$ ,  $SD=1.29$ ) and China ( $M=3.55$ ,  $SD=1.53$ ); 8d) Interactive teaching methods  $t(216.035)=2.108$ ,  $p=.036$ , for the UK ( $M=3.76$ ,  $SD=1.17$ ) and China ( $M=3.39$ ,  $SD=1.59$ ); and 8e) Hands-on business start-up opportunities  $t(245)=2.271$ ,  $p=.024$ , for the UK ( $M=4.27$ ,  $SD=1.18$ ) and China ( $M=3.87$ ,  $SD=1.39$ ).

However, there was no statistically significant difference in scores of 8f) Network opportunities  $t(245)=-1.578$ ,  $p=.116$ , for the UK ( $M=3.55$ ,  $SD=1.49$ ) and China ( $M=3.86$ ,  $SD=1.46$ ).

Table 5-12 T-test: Students' learning expectations of teaching methods and resources

	Country	Mean	Std. Deviation	t	df	Bootstrap <sup>a</sup> Sig. (2- tailed)
Overall 8Q learning expectations on teaching methods and resources	UK	4.0417	1.08194	3.39	198.721	.003
	China	3.5102	1.31660			
8a) Tutors' entrepreneurial experience	UK	4.14	1.337	5.106	201.287	.001
	China	3.15	1.653			
8b) Tutors' academic qualification	UK	4.26	1.336	5.171	202.074	.001
	China	3.25	1.661			
8c) Access to real-life entrepreneurs	UK	4.26	1.291	3.869	194.751	.001
	China	3.55	1.532			
8d) Interactive teaching methods	UK	3.76	1.168	2.108	216.035	.038
	China	3.39	1.588			
8e) Hands-on business start-up opportunities	UK	4.27	1.176	2.271	245	.021
	China	3.87	1.388			
8f) Network opportunities	UK	3.55	1.492	-1.578	245	.109
	China	3.86	1.457			

To conclude:

- Students' learning expectations on overall teaching methods and resources, tutors' entrepreneurial experience, tutors' academic qualification, access to real-life entrepreneurs, interactive teaching methods, and hands-on business start-up opportunities in the UK are significantly higher than those in China.
- There is no statistically significant difference in students' learning expectations of network opportunities between the UK and China.

Therefore, H2, H2a, H2b, H2c, H2d and 2e are supported, while H2f is not supported.

### 5.5.1.3 The differences in students' expected input

The independent samples t-test was administered to compare students' expected input scores in the UK and China. As demonstrated by Table 5-13, British students (M=3.61, SD=1.06) reported significantly higher levels than Chinese students (M=2.90, SD=1.29),  $t(245) = 4.35$ ,  $p < .001$ . Therefore, H3 is supported.

Table 5-13 T-test: students' expected input

	Country	Mean	Std. Deviation	t	df	Bootstrap <sup>a</sup> Sig. (2-tailed)
9Q. Student expected input	UK	3.61	1.064	4.35	245	.001
	China	2.90	1.289			

### 5.5.1.4 The differences in students' pre-course entrepreneurial intention

A Chi-square test for independence (with Yates Continuity Correction) was used to investigate country (UK/China) differences in students' pre-course entrepreneurial intention status (yes/no). From Table 5-14, there was no significant association between country and students' pre-course entrepreneurial intention,  $\chi^2 (1, n = 247) = .01$ ,  $p = .916$ ,  $\phi = .015$ . Hence, H4 is not supported.

Table 5-14 Chi-square test: Country\*students' pre-course entrepreneurial intention

		Uk (%) (N=84)	China (%) (N=163)	Total (%) (N=247)	Value (Continuity Correction)	df	Asymp. Sig. (2-sided)	Effect size (Phi)
10Q. Student pre-course entrepreneurial intention	Yes	47.6	46.0	46.6	.011	1	.916	.015
	No	52.4	54.0	53.4				



## 5.5.2 The differences in post-course learning outcomes of EE in the UK and China

### 5.5.2.1 *The differences in students' satisfaction with course content and design*

The independent samples t-test was conducted to compare the differences between British and Chinese students' satisfaction with course content and design. As demonstrated by Table 5-15, British students ( $M=3.46$ ,  $SD=1.14$ ) reported significantly higher levels of Overall 11Q Satisfaction with course content and design than Chinese students ( $M=2.49$ ,  $SD=0.91$ ),  $t(203.997) = 7.213$ ,  $p<.001$ .

There was a similar statistically significant difference in scores of 11a) Ability to identify business opportunities  $t(197.226)=7.396$ ,  $p<.001$ , for the UK ( $M=3.35$ ,  $SD=1.39$ ) and China ( $M=2.12$ ,  $SD=1.16$ ); 11b) Understanding the process of a business start-up  $t(244)=6.536$ ,  $p<.001$ , for the UK ( $M=3.57$ ,  $SD=1.18$ ) and China ( $M=2.54$ ,  $SD=1.16$ ); 11c) Writing a business plan  $t(244)=4.954$ ,  $p<.001$ , for the UK ( $M=3.52$ ,  $SD=1.31$ ) and China ( $M=2.64$ ,  $SD=1.32$ ); 11d) Marketing knowledge and skills  $t(242)=5.77$ ,  $p<.001$ , for the UK ( $M=3.52$ ,  $SD=1.25$ ) and China ( $M=2.58$ ,  $SD=1.10$ ); 11e) Access to finance  $t(209.166)=4.937$ ,  $p<.001$ , for the UK ( $M=3.21$ ,  $SD=1.44$ ) and China ( $M=2.39$ ,  $SD=1.11$ ); and 11f) Management skills for a business start-up  $t(207.203)=5.779$ ,  $p<.001$ , for the UK ( $M=3.49$ ,  $SD=1.25$ ) and China ( $M=2.65$ ,  $SD=0.98$ ). This is summarised in the table below.

*Table 5-15 T-test: students' satisfaction with course content and design*

	Country	Mean	Std. Deviation	t	df	Bootstrap <sup>a</sup> Sig. (2- tailed)
Overall 11Q	UK	3.4581	1.14153			
Satisfaction with course content and design	China	2.4881	.91132	7.213	203.997	.001
11a) Ability to identify business opportunities	UK	3.35	1.389			
	China	2.12	1.155	7.396	197.226	.001
11b) Understanding the process of a business start-up	UK	3.57	1.184			
	China	2.54	1.156	6.536	244	.001
11c) Writing a business plan	UK	3.52	1.310			
	China	2.64	1.323	4.954	244	.001
11d) Marketing knowledge and skills	UK	3.52	1.254			
	China	2.58	1.100	5.77	242	.001
11e) Access to finance	UK	3.21	1.438			
	China	2.39	1.109	4.937	209.166	.001
11f) Management skills for a business start-up	UK	3.49	1.249			
	China	2.65	.976	5.779	207.203	.001

To conclude:

- Students' satisfaction with overall course content and design, ability to identify business opportunities, understanding the process of a business start-up, writing a business plan, marketing knowledge and skills, access to finance, and management skills for a business start-up in the UK are significantly higher than those in China.

Therefore, H5, H5a, H5b, H5c, H5d, H5e and H5f are supported.

#### *5.5.2.2 The differences in students' satisfaction with teaching methods and resources*

The independent samples t-test was conducted to explore country differences in students' satisfaction with teaching methods and resources. As seen in Table 5-16, British students ( $M=4.14$ ,  $SD=1.07$ ) reported significantly higher levels of Overall 12Q Satisfaction with teaching methods and resources than Chinese students ( $M=3.37$ ,  $SD=1.29$ );  $t(199.578) = 4.931$ ,  $p < .001$ .

There was a similar statistically significant difference in scores of 12a) Tutors' entrepreneurial experience  $t(191.552) = 6.143$ ,  $p < .001$ , for the UK ( $M=4.31$ ,  $SD=1.28$ ) and China ( $M=3.19$ ,  $SD=1.48$ ); 12b) Tutors' academic qualification  $t(186.353) = 5.534$ ,  $p < .001$ , for the UK ( $M=4.40$ ,  $SD=1.24$ ) and China ( $M=3.44$ ,  $SD=1.39$ ); 12c) Access to real-life entrepreneurs  $t(187.293) = 4.80$ ,  $p < .001$ , for the UK ( $M=4.23$ ,  $SD=1.24$ ) and China ( $M=3.39$ ,  $SD=1.39$ ); 12d) Interactive teaching methods  $t(203.251) = 3.161$ ,  $p = .002$ , for the UK ( $M=3.92$ ,  $SD=1.15$ ) and China ( $M=3.38$ ,  $SD=1.43$ ); and 12e) Hands-on business start-up opportunities  $t(214.257) = 5.126$ ,  $p < .001$ , for the UK ( $M=4.27$ ,  $SD=1.05$ ) and China ( $M=3.46$ ,  $SD=1.40$ ).

However, there was no statistically significant difference in scores of 12f) Network opportunities  $t(241) = 1.854$ ,  $p = .065$ , for the UK ( $M=3.71$ ,  $SD=1.49$ ) and China ( $M=3.33$ ,  $SD=1.58$ ).

Table 5-16 T-test: students' satisfaction with teaching methods and resources

	Country	Mean	Std. Deviation	t	df	Bootstrap <sup>a</sup> Sig. (2- tailed)
Overall 12Q	UK	4.1409	1.06781			
Satisfaction with teaching methods and resources	China	3.3701	1.29286	4.931	199.578	.001
12a) Tutors' entrepreneurial experience	UK	4.31	1.280			
	China	3.19	1.481	6.143	191.552	.001
12b) Tutors' academic qualification	UK	4.40	1.243			
	China	3.44	1.389	5.534	186.353	.001
12c) Access to real- life entrepreneurs	UK	4.23	1.236			
	China	3.39	1.391	4.8	187.293	.001
12d) Interactive teaching methods	UK	3.92	1.153			
	China	3.38	1.434	3.161	203.251	.001
12e) Hands-on business start-up opportunities	UK	4.27	1.045			
	China	3.46	1.403	5.126	214.257	.001
12f) Network opportunities	UK	3.71	1.494			
	China	3.33	1.577	1.854	241	.076

To conclude:

- Students' satisfaction with overall teaching methods and resources, tutors' entrepreneurial experience, tutors' academic qualification, access to real-life entrepreneurs, interactive teaching methods, and hands-on business start-up opportunities in the UK are significantly higher than those in China.
- There is no statistically significant difference in students' satisfaction with network opportunities between the UK and China.

Therefore, H6, H6a, H6b, H6c, H6d and H6e are supported, while H6f is not supported.

#### 5.5.2.3 *The differences in students' actual input*

The independent samples t-test was administered to compare students' actual input scores in the UK and China. As demonstrated by Table 5-17, British students (M=3.49, SD=1.22) reported significantly higher levels than Chinese students (M=2.57, SD=1.44),  $t(240) = 4.98, p < .001$ . Thus, H7 is supported.

*Table 5-17 T-test: students' actual input*

	Country	Mean	Std. Deviation	t	df	Bootstrap <sup>a</sup> Sig. (2-tailed)
13Q. Student actual input	UK	3.49	1.217	4.98	240	.001
	China	2.57	1.438			

#### 5.5.2.4 *The differences in students' post-course entrepreneurial intention*

A Chi-square test for independence (with Yates Continuity Correction) was performed to investigate country (UK/China) differences in students' post-course entrepreneurial intention status (yes/no). As seen in Table 5-18, there was no significant association between country and students' post-course entrepreneurial intention,  $\chi^2(1, n = 242) = .47, p = .492, \phi = .053$ . Hence, H8 is not supported.

*Table 5-18 Chi-square test: Country\*students' post-course entrepreneurial intention*

		Uk (%) (N=84)	China (%) (N=158)	Total (%) (N=242)	Value (Continuity Correction)	df	Asymp. Sig. (2-sided)	Effect size (Phi)
14Q. Student post-course entrepreneurial intention	Yes	52.4	46.8	48.8	.471	1	.492	.053
	No	47.6	53.2	51.2				

To conclude, based on the discussion in 5.5, for students' pre-course learning expectations, H1, H1a, H1b, H1c, H1d, H1e, H1f, H2, H2a, H2b, H2c, H2d, H2e and H3 are supported, while H2f and H4 are not supported; for students' post-course learning outcomes, H5, H5a, H5b, H5c, H5d, H5e, H5f, H6, H6a, H6b, H6c, H6d, H6e and H7 are supported, whereas H6f and H8 are not supported.

One possible reason for the unsupported hypotheses is that they may be affected by the interaction of the country factor and the education factor. With the aim of exploring this question further, a two-way ANOVA analysis will be carried out next, taking into account both country factor (UK/China) and university entrepreneurship education factor (before EE/after EE).

## 5.6 Hypothesis test using two-way ANOVA

Two-way ANOVA was conducted to explore the joint and main effect (Pallant, 2007) of the country factor (China=0 and UK=1) and university educational factor (before EE=0 and after EE=1) on students' levels of course content and design, teaching methods and resources, input and entrepreneurial intention.

### 5.6.1 Effects of country and EE on students' rating levels for course content and design

As seen in Table 5-19, a two-way ANOVA between-groups analysis of variance was conducted to investigate the impact of country and EE on students' overall course content and design level.

The corrected model for overall course content and design was statistically significant,  $p < .001$ . The interaction effect between country and EE was not statistically significant,  $F(1, 484) = .06$ ,  $P = .810$ . According to Cohen's rules of thumb on the effect size of ANOVA, a value of 0.14 is considered large, 0.06 is moderate, and 0.01 is small (Cohen, 2013). The statistically significant main effect of nationality on overall course content and design,  $F(1, 484) = 76.47$ ,  $p < .001$ ,  $\eta_p^2 = .14$ , can be considered large. In other words, nationality was the main effect of the difference in the overall course content and

design (before EE:  $M_{UK}=3.30>M_{China}=2.39$ , after EE:  $M_{UK}=3.46>M_{China}=2.49$ ), and the effect size was large. However, there was no statistically significant main effect for EE,  $F(1, 484)=1.42$ ,  $p=.234$ .

*Table 5-19 ANOVA test: Country\*EE & Overall course content and design*

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	100.028 <sup>a</sup>	3	33.343	26.051	.000	.139
Intercept	3717.634	1	3717.634	2904.603	.000	.857
Country	97.879	1	97.879	76.474	.000	.136
EE	1.816	1	1.816	1.419	.234	.003
Country * EE	.074	1	.074	.058	.810	.000
Error	619.477	484	1.280			
Total	5281.111	488				
Corrected Total	719.505	487				

a. R Squared = .139 (Adjusted R Squared = .134)

Overall course content and design	UK	China
Mean (SD)		
Before EE	3.30(1.27)	2.39(1.01)
After EE	3.46(1.14)	2.49(0.91)

Among course content and design items, from the Appendix E (Tables E-1 to E-5), there was also a statistically significant main effect of the country on the ability to identify business opportunities, writing a business plan, marketing knowledge and skills, access to finance and management skills for a business start-up. However, there were statistically significant main effects of both country and EE on understanding the process of a business start-up (Table 5-20).

As shown in Table 5-20, the corrected model for understanding the process of a business start-up was statistically significant,  $p < .001$ . The interaction effect between country and EE was not statistically significant,  $F(1, 489) = .06$ ,  $P = .806$ . According to Cohen's rules of thumb on the effect size of ANOVA, a value of 0.14 is considered large, 0.06 is moderate, and 0.01 is small (Cohen, 2013). The statistically significant effect for the country,  $F(1, 489) = 79.88$ ,  $p < .001$ ,  $\eta_p^2 = .14$  can be considered large (before EE:  $M_{UK} = 3.25 > M_{China} = 2.15$ , after EE:  $M_{UK} = 3.57 > M_{China} = 2.54$ ). And the statistically significant effect for EE,  $F(1, 489) = 8.77$ ,  $P = .003$ ,  $\eta_p^2 = .018$  can be considered small (UK:  $M_{before} = 3.25 < M_{after} = 3.57$ , China:  $M_{before} = 2.15 < M_{after} = 2.54$ ).

*Table 5-20 ANOVA test: Country\*EE & Understanding the process of a business start-up*

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	139.200 <sup>a</sup>	3	46.400	29.706	.000	.154
Intercept	3664.082	1	3664.082	2345.763	.000	.827
Country	124.771	1	124.771	79.879	.000	.140
EE	13.701	1	13.701	8.772	.003	.018
Country * EE	.095	1	.095	.061	.806	.000
Error	763.818	489	1.562			
Total	5473.000	493				
Corrected Total	903.018	492				

a. R Squared = .154 (Adjusted R Squared = .149)

Understanding the process of a business start-up		
	UK	China
Mean (SD)		
Before EE	3.25(1.37)	2.15(1.23)
After EE	3.57(1.19)	2.54(1.16)



To conclude, the UK students have higher scores on all course content and design items both before and after EE than Chinese students, including overall course content and design, ability to identify business opportunities, understanding the process of a business start-up, writing a business plan, marketing knowledge and skills, access to finance and management skills for a business start-up. Two-way ANOVA indicates that the statistically significant main effect is nationality, and the effect size on overall course content and design is large. Moreover, the difference in understanding the process of a business start-up is due to both country and EE; the effect size of the country is large while EE is small.

Therefore, considering both country and EE factors, hypotheses of students' pre-course learning expectations H1, H1a, H1b, H1c, H1d, H1e, H1f and hypotheses of students' post-course learning outcomes H5, H5a, H5b, H5c, H5d, H5e, H5f are supported. This is consistent with the results of the independent samples T-test discussed in 5.5.1.1 and 5.5.2.1.

#### 5.6.2 Effects of country and EE on students' rating levels for teaching methods and resources

As demonstrated by Table 5-21, a two-way ANOVA between-groups analysis of variance was used to investigate the influence of country and EE on levels of overall teaching methods and resources.

The corrected model for overall teaching methods and resources was statistically significant,  $p < .001$ . The interaction effect between country and EE was not statistically significant,  $F(1, 481) = 1.04$ ,  $P = .309$ . According to Cohen's rules of thumb on the effect size of ANOVA, a value of 0.14 is considered large, 0.06 is moderate, and 0.01 is small (Cohen, 2013). The statistically significant main effect of the country on overall teaching methods and resources,  $F(1, 481) = 30.73$ ,  $p < .001$ ,  $\eta_p^2 = .06$ , can be considered moderate. In other words, nationality was the main effect of the difference in overall teaching methods and resources (before EE:  $M_{UK} = 4.04 > M_{China} = 3.51$ , after EE:  $M_{UK} = 4.14 > M_{China} = 3.37$ ), and the effect size was moderate. However, there was no statistically significant main effect for EE,  $F(1, 481) = 0.03$ ,  $p = .862$ .

Table 5-21 ANOVA test: Country\*EE & Overall teaching methods and resources

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	48.233 <sup>a</sup>	3	16.078	10.618	.000	.062
Intercept	6226.763	1	6226.763	4112.131	.000	.895
Country	46.536	1	46.536	30.732	.000	.060
EE	.046	1	.046	.030	.862	.000
Country * EE	1.572	1	1.572	1.038	.309	.002
Error	728.351	481	1.514			
Total	7298.361	485				
Corrected Total	776.583	484				

a. R Squared = .062 (Adjusted R Squared = .056)

Overall teaching methods and resources	UK	China
Mean (SD)		
Before EE	4.04(1.08)	3.51(1.32)
After EE	4.14(1.07)	3.37(1.29)

Among the items of teaching methods and resources, from the Appendix E (Tables E-6 to E-10), there was also a statistically significant main effect of the country on tutors' entrepreneurial experience, tutors' academic qualification, access to real-life entrepreneurs, interactive teaching methods and hands-on business start-up opportunities. However, there was a statistically significant interaction effect between country and EE on network opportunities (Table 5-22).

As seen in Table 5-22, the corrected model for network opportunities was statistically significant,  $p=.015$ . There was a statistically significant interaction effect between country and EE,  $F(1, 486)=5.91$ ,  $p=.015$ ,  $\eta^2=.012$ , the effect size was small (Cohen, 2013). The influence of EE on network opportunities is different for British and Chinese students. More specifically, for British students, network opportunities scores increased with EE, while for Chinese students, it decreased (UK:  $M_{\text{before}}=3.55 < M_{\text{after}}=3.71$ , China:  $M_{\text{before}}=3.86 > M_{\text{after}}=3.33$ ). There was no statistically significant main effect for country  $F(1, 486)=.07$ ,  $p=.792$ , and EE  $F(1, 486)=1.62$ ,  $p=.204$ .

*Table 5-22 ANOVA test: Country\*EE & Network opportunities*

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	24.067 <sup>a</sup>	3	8.022	3.523	.015	.021
Intercept	5760.925	1	5760.925	2529.871	.000	.839
Country	.159	1	.159	.070	.792	.000
EE	3.681	1	3.681	1.616	.204	.003
Country * EE	13.466	1	13.466	5.914	.015	.012
Error	1106.701	486	2.277			
Total	7510.000	490				
Corrected Total	1130.767	489				

a. R Squared = .021 (Adjusted R Squared = .015)

Network opportunities	UK	China
Mean (SD)		
Before EE	3.55(1.49)	3.86(1.46)
After EE	3.71(1.45)	3.33(1.58)

To sum up, UK students have higher scores on overall teaching methods and resources, tutors' entrepreneurial experience, tutors' academic qualification, access to real-life entrepreneurs, interactive teaching methods, and hands-on business start-up opportunities both before and after EE than Chinese students. Two-way ANOVA demonstrates that the key factor behind these differences is nationality, and the effect size on overall teaching methods and resources is moderate. Moreover, when it comes to network opportunities items, British nationals are lower before and higher after EE, whereas Chinese nationals are higher before and lower after EE. There is a significant interaction effect between country and EE.

Therefore, considering both country and EE factors, hypotheses of students' pre-course learning expectations H2, H2a, H2b, H2c, H2d, H2e and hypotheses of students' post-course learning outcomes H6, H6a, H6b, H6c, H6d, H6e are supported. It is consistent with the results of the independent samples T-test discussed in 5.5.1.2 and 5.5.2.2. Although H2f and H6f are not supported using independent samples T-tests by country, two-way ANOVA explains that the difference is due to a statistically significant interaction effect between country and EE.

### 5.6.3 Effects of country and EE on student input

As seen in Table 5-23, a two-way between-groups analysis of variance was performed to explore the effect of country and EE on levels of student input.

The corrected model for student input was statistically significant,  $p=.003$ . The interaction effect between country and EE was not statistically significant,  $F(1, 485)=3.60$ ,  $P=.058$ . Although there was a statistically significant main effect for the country,  $F(1, 485)=8.46$ ,  $p=.004$ ,  $\eta_p^2=.017$ , the effect size was small (Cohen, 2013). In other words, nationality was the main effect of the difference in student input (before EE:  $M_{UK}=3.61 > M_{China}=2.90$ , after EE:  $M_{UK}=3.49 > M_{China}=2.57$ ). However, there was no statistically significant main effect for EE,  $F(1, 485)=3.25$ ,  $p=.072$ .

Table 5-23 ANOVA test: Country\*EE & Student input

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	24.907 <sup>a</sup>	3	8.302	4.645	.003	.028
Intercept	4110.444	1	4110.444	2299.485	.000	.826
Country	15.116	1	15.116	8.456	.004	.017
EE	5.805	1	5.805	3.248	.072	.007
Country * EE	6.438	1	6.438	3.601	.058	.007
Error	866.962	485	1.788			
Total	5341.000	489				
Corrected Total	891.869	488				

a. R Squared = .028 (Adjusted R Squared = .022)

Student Input	UK	China
Mean (SD)		
Before EE	3.61(1.06)	2.90(1.29)
After EE	3.49(1.22)	2.57(1.44)

To conclude, UK students have higher scores on student input before and after EE than Chinese students. Two-way ANOVA demonstrates that the only statistically significant main effect is nationality. However, the effect size is small.

Therefore, considering both country and EE factors, the hypothesis of students' expected input H3 and the hypothesis of students' actual input H7 are supported. It is consistent with the results of the independent samples T-test discussed in 5.5.1.3 and 5.5.2.3.

#### 5.6.4 Effects of country and EE on students' entrepreneurial intention

As demonstrated by Table 5-24, a two-way between-groups analysis of variance was conducted to investigate the impact of country and EE on students' entrepreneurial intention levels.

The corrected model for students' entrepreneurial intention was statistically significant,  $p=.032$ . The interaction effect between country and EE was not statistically significant,  $F(1, 485)=1.29$ ,  $P=.256$ . There was a statistically significant main effect for EE,  $F(1, 485)=7.19$ ,  $p=.008$ ,  $\eta_p^2=.015$ ; the effect size was small (Cohen, 2013). In other words, EE was the main effect of the difference in students' entrepreneurial intention (UK:  $M_{\text{before}}=0.48 < M_{\text{after}}=0.52$ , China:  $M_{\text{before}}=0.46 < M_{\text{after}}=0.47$ ). However, there was no statistically significant main effect for the country,  $F(1, 485)=1.81$ ,  $p=.179$ .

Table 5-24 ANOVA test: Country\*EE & Student entrepreneurial intention

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	2.200 <sup>a</sup>	3	.733	2.969	.032	.018
Intercept	93.871	1	93.871	380.093	.000	.439
Country	.447	1	.447	1.809	.179	.004
EE	1.775	1	1.775	7.185	.008	.015
Country * EE	.319	1	.319	1.292	.256	.003
Error	119.780	485	.247			
Total	233.000	489				
Corrected Total	121.980	488				

a. R Squared = .018 (Adjusted R Squared = .012)

Student entrepreneurial intention	UK	China
Mean (SD)		
Before EE	0.48(0.50)	0.46(0.50)
After EE	0.52(0.50)	0.47(0.50)

To conclude, students' entrepreneurial intentions have increased in both countries after studying EE, especially in the UK. Two-way ANOVA illustrates the difference caused by EE. It shows the effectiveness of EE in both countries and may suggest that the UK seems to have a more effective EE than China.

Therefore, considering both country and EE factors, although hypotheses of students' pre-course entrepreneurial intention H4 and students' post-course entrepreneurial intention H8 are not supported using Chi-square tests by country, two-way ANOVA explains the difference is due to a statistically significant main effect of EE.

As discussed in 5.6, when country and EE variables were considered simultaneously, the hypothesis test results of two-way ANOVA were consistent with the independent samples t-test and Chi-square test results, and the unsupported hypotheses were explained. Specifically, two-way ANOVA revealed that country is the vital factor that causes students' differences in overall course content and design (effect size is large), overall teaching methods and resources (effect size is moderate), and their input (effect size is small). Furthermore, two-way ANOVA also explained a statistically significant interaction effect of country and EE on network opportunities, and EE is a statistically significant main effect on understanding the process of a business start-up and students' entrepreneurial intention.

Given that the EE factor is the statistically significant main effect on students' entrepreneurial intention, a binary logistic regression will be conducted next to further explore the reasons for the changes in entrepreneurial intentions before and after EE after controlling for the influence of age, gender, country and current year of study.

### 5.7 Additional test using Binary logistic regression

Binary logistic regression was performed to assess the impact of a set of predictors on the change of students' entrepreneurial intentions before and after EE courses, after controlling for four control variables (age, gender, country and current year of study). Apart from the control variables, the model contained 14 test variables, including students' pre-course entrepreneurial intention, satisfaction with course content and

design (6 items), satisfaction with teaching methods and resources (6 items), and actual input.

As seen in Appendix F, age, gender, country and current year of study were entered in Block 1,  $\chi^2 (4, N=236) = 36.443, p < .001$ , explaining between 14.3% (Cox and Snell R square) and 19.1% (Nagelkerke R squared) of the variance in entrepreneurial intention status and correctly classified 65.3% of cases, an improvement over the 50.4% in Block 0. After entry of students' pre-course entrepreneurial intention, satisfaction with course content and design (6 items) and with teaching methods and resources (6 items), and actual input in Block 2,  $\chi^2 (18, N=236) = 166.052, p < .001$ , explaining between 50.5% (Cox and Snell R square) and 67.4% (Nagelkerke R squared) of the variance in entrepreneurial intention status and correctly classified 87.7% of cases; an improvement over the 65.3% in Block 1. The 14 test variables explained an additional 36.2% (Cox and Snell R square) and 48.3% (Nagelkerke R squared) of the variance in entrepreneurial intention status, after controlling for age, gender, country and current year of study responding.

As seen in Table 5-25, control variables were introduced first in Block 1; students' post-course entrepreneurial intentions were statistically significantly different in age ( $B=-0.52, OR=0.595, p=.002$ ) and gender ( $B=1.203, OR=3.329, p<.001$ ). However, there was no statistically significant difference in country ( $B=-0.033, OR=0.967, p=.917$ ) and current year of study ( $B=-0.172, OR=0.842, p=.196$ ). When control variables and test variables were introduced in Block 2, country became significant. Together this indicates that older students are more willing to start their own businesses than younger ones ( $B=-0.617, OR=0.540, p=.019$ ); men have higher entrepreneurial intentions than women ( $B=1.144, OR=3.138, p=.024$ ); British respondents also appeared to be more willing to establish their own company after the EE course compared to Chinese respondents ( $B=2.048, OR=7.751, p=.006$ ), although it should be noted that country was not significant when the controls were introduced on their own. Further, when the same data were analysed using the Chi-square test ( $\chi^2 (1, n = 242) = 0.47, p = .492$ ) (Table 5-18), no differences were found, suggesting that differences due to country may not be large enough to be significant.



Moreover, focusing on test variables in Block 2, there was a significant **positive impact** of students' pre-course entrepreneurial intention ( $B=3.614$ ,  $OR=37.116$ ,  $p<.001$ ), understanding the process of a business start-up ( $B=1.126$ ,  $OR=3.083$ ,  $p=.001$ ), hands-on business start-up opportunities ( $B=0.985$ ,  $OR=2.677$ ,  $p=.008$ ), and students' actual input ( $B=0.485$ ,  $OR=1.625$ ,  $p=.008$ ) on students' post-course entrepreneurial intention. On the contrary, there was a significant **negative impact** of tutors' academic qualification ( $B=-1.070$ ,  $OR=0.343$ ,  $p=.010$ ) on students' post-course entrepreneurial intention. Apart from students' entrepreneurial intention before EE, the second strongest test variable of entrepreneurial intention was understanding the process of a business start-up, recording an odds ratio of 3.08. It indicated that respondents who were satisfied with understanding a business start-up process were 3.08 times more likely to have entrepreneurial intentions. However, the odds ratio of 0.34 for tutors' academic qualification was less than 1, showing that respondents who were satisfied with tutors' academic qualification were 0.34 times less likely to have entrepreneurial intention.

*Table 5-25 Logistic regression: reasons for the change of students' entrepreneurial intentions*

DV=Students' post-course entrepreneurial intention

		Block 1			Block 2		
		B	P	Odds Ratio (OR)	B	P	Odds Ratio (OR)
<b>Control variables</b>	Age	-0.52	0.002	0.595	-.617	.019	.540
	Gender	1.203	0.00	3.329	1.144	.024	3.138
	Country	-0.033	0.917	0.967	2.048	.006	7.751
	Current year of study	-0.172	0.196	0.842	.045	.811	1.046
<b>Test variables</b>	10Q Student pre-course entrepreneurial intention				3.614	.000	37.116
	11a) Ability to identify business opportunities				.214	.447	1.239
	11b) Understanding the process of a business start-up				1.126	.001	3.083
	11c) Writing a business plan				.347	.249	1.415
	11d) Marketing knowledge and skills				-.558	.143	.573
	11e) Access to finance				-.015	.957	.985
	11f) Management skills for a business start-up				-.152	.601	.859
	12a) Tutors' entrepreneurial experience				-.011	.977	.990
	12b) Tutors' academic qualification				-1.07	.010	.343
	12c) Access to real-life entrepreneurs				-.079	.836	.924
	12d) Interactive teaching methods				-.295	.326	.744
	12e) Hands-on business start-up opportunities				.985	.008	2.677
	12f) Network opportunities				-.396	.135	.673
	13Q Student actual input				.485	.008	1.625
Cox and Snell R square		0.143			0.505		
Nagelkerke R square		0.191			0.674		
Hosmer and Lemeshow test (Sig.)		p=0.446			p=0.345		
Omnibus tests of Model Coefficients (Sig.)		p<.001			p<.001		

To conclude, after controlling for the influence of age, gender, country and current year of study, the change in students' entrepreneurial intentions before and after EE is explained by the following significant factors:

- Understanding the process of a business start-up, hands-on business start-up opportunities, and students' actual input have a significant positive impact on the change in students' entrepreneurial intentions.
- Tutors' academic qualification has a significant negative impact on the change in students' entrepreneurial intentions.
- Country, gender and age have a significant impact on the change in students' entrepreneurial intentions.

## 5.8 Hypothesis test results

The study used SPSS Version 26, primarily using the independent sample t-test and Chi-square test (country factor) and two-way ANOVA (country and EE factors) to conduct statistical tests on the hypotheses formed by the conceptual framework proposed in Chapter 3. The hypothesis test results are shown in Table 5-26.

*Table 5-26 Hypothesis test results*

<b>Hypothesis test results</b>	
<b>H1. UK students' learning expectations of overall course content and design of EE will be significantly higher than Chinese students</b>	<b>Supported</b>
H1a. UK students' learning expectations of the importance of ability to identify business opportunities will be significantly higher than Chinese students	Supported
H1b. UK students' learning expectations of the importance of understanding the process of a business start-up will be significantly higher than Chinese students	Supported
H1c. UK students' learning expectations of the importance of writing a business plan will be significantly higher than Chinese students	Supported
H1d. UK students' learning expectations of the importance of marketing knowledge and skills will be significantly higher than Chinese students	Supported
H1e. UK students' learning expectations of the importance of access to finance will be significantly higher than Chinese students	Supported
H1f. UK students' learning expectations of the importance of management skills for a business start-up will be significantly higher than Chinese students	Supported
<b>H2. UK students' learning expectations of overall teaching methods and resources of EE will be significantly higher than Chinese students</b>	<b>Supported</b>
H2a. UK students' learning expectations of the importance of tutors' entrepreneurial	Supported

experience will be significantly higher than Chinese students	
H2b. UK students' learning expectations of the importance of tutors' academic qualification will be significantly higher than Chinese students	Supported
H2c. UK students' learning expectations of the importance of access to real-life entrepreneurs will be significantly higher than Chinese students	Supported
H2d. UK students' learning expectations of the importance of interactive teaching methods will be significantly higher than Chinese students	Supported
H2e. UK students' learning expectations of the importance of hands-on business start-up opportunities will be significantly higher than Chinese students	Supported
H2f. UK students' learning expectations of the importance of network opportunities will be significantly higher than Chinese students	Not supported
<b>H3. UK students' expected input will be significantly higher than Chinese students</b>	<b>Supported</b>
<b>H4. UK students' pre-course entrepreneurial intention to create a start-up within three years of graduation will be significantly higher than Chinese students</b>	<b>Not supported</b>
<b>H5. UK students' satisfaction with overall course content and design of EE will be significantly higher than Chinese students</b>	<b>Supported</b>
H5a. UK students' satisfaction with the ability to identify business opportunities will be significantly higher than Chinese students	Supported
H5b. UK students' satisfaction with understanding the process of a business start-up will be significantly higher than Chinese students	Supported
H5c. UK students' satisfaction with writing a business plan will be significantly higher than Chinese students	Supported
H5d. UK students' satisfaction with marketing knowledge and skills will be significantly higher than Chinese students	Supported
H5e. UK students' satisfaction with access to finance will be significantly higher than Chinese students	Supported
H5f. UK students' satisfaction with management skills for a business start-up will be significantly higher than Chinese students	Supported
<b>H6. UK students' satisfaction with overall teaching methods and resources of EE will be significantly higher than Chinese students</b>	<b>Supported</b>
H6a. UK students' satisfaction with tutors' entrepreneurial experience will be significantly higher than Chinese students	Supported
H6b. UK students' satisfaction with tutors' academic qualification will be significantly higher than Chinese students	Supported
H6c. UK students' satisfaction with access to real-life entrepreneurs will be significantly higher than Chinese students	Supported
H6d. UK students' satisfaction with interactive teaching methods will be significantly higher than Chinese students	Supported
H6e. UK students' satisfaction with hands-on business start-up opportunities will be significantly higher than Chinese students	Supported
H6f. UK students' satisfaction with network opportunities will be significantly higher than Chinese students	Not supported
<b>H7. UK students' actual input will be significantly higher than Chinese students</b>	<b>Supported</b>
<b>H8. UK students' post-course entrepreneurial intention to create a start-up within three years of graduation will be significantly higher than Chinese students</b>	<b>Not supported</b>

## 5.9 Summary

Based on 247 respondents' university students from the UK (84) and China (163), this Chapter described the quantitative data analysis results and listed hypothesis test results to fulfil three research objectives. It involved factor analysis, reliability analysis, descriptive statistics, independent sample t-test, chi-square test, two-way ANOVA and binary logistic regression analysis.

Specifically, factor analysis confirmed that the two multi-item scales could be separated, and the items for each component were as expected. Second, reliability analysis ensured the internal consistency of scales in the questionnaire. Third, descriptive statistics results revealed similarities and differences in British and Chinese students' learning expectations and learning outcomes in entrepreneurship education. Fourth, focusing on the country factor, the hypotheses were tested using independent sample T-tests or Chi-square tests; some hypotheses were supported, and some were not. Fifth, focusing on both country and EE factors, two-way ANOVA analysis was performed to verify the interaction and main effect of factors related to students' entrepreneurship learning, which is a more in-depth analysis of the reasons for the support or non-support of the relevant hypotheses. Sixth, binary logistic regression explained the reasons for the changes in students' entrepreneurial intentions before and after entrepreneurship education courses after controlling for the influence of age, gender, country and current year of study.

The main results and other findings of the study will be discussed further in Chapter 6, which will combine the theoretical insights of Chapter 3 with the theory-testing by means of statistical data analysis in this Chapter.

## Chapter 6: Discussion

### 6.1 Introduction

Chapter 5 reviewed the research hypotheses and reported its test results using data collected in the UK and China. This chapter explains and discusses the results, which is helpful in answering the research question and achieving the research objectives. This thesis puts forward the vital role of learning expectations in the students' entrepreneurship learning process and explores the antecedents that affect it. Specifically, the study investigates the relationship between entrepreneurship education policy, students' learning expectations and learning outcomes, and takes into account the institutional context of British and Chinese economic, political, societal and cultural factors, which may positively or negatively influence students' learning expectations. Under the different education policies, the differences in British and Chinese students' learning expectations of course content and design, teaching methods and resources, input, and entrepreneurial intention, leading to differences in satisfaction, are discussed in this chapter. This chapter will review and discuss the results of these assumptions proposed in the extant literature.

### 6.2 Main results

#### 6.2.1 Voluntary and compulsory education policies are the antecedents that affect students' learning expectations

Voluntary or compulsory education policies are the two options for entrepreneurship education development strategy, formulated by the state and based on its institutional context. This in turn reflects the country's economic, political, societal and cultural characteristics, and feedback on shared values and shared understandings in education and entrepreneurship. Students' autonomy in the learning process varies under different education policies.

Autonomy is the internal recognition of a person's behaviour (Deci & Ryan, 1987). It is the ability to make motivation emerge from internal loci and volitional sources of motivation rather than external loci or nonvolitional causality (Deci & Ryan, 1985; Reeve et al., 2003). The more autonomous a person's motivation is, the higher the

quality of persistence, and learning and emotional experience are enhanced (Niemic & Ryan, 2009). In addition, students are more likely to see the value in a given learning task and become more involved in the learning activity when they feel autonomous (Deci et al., 1996; Grolnick et al., 1991; Reeve & Jang, 2006; Ryan & Deci, 2000b).

According to self-determination theory, the influence of autonomy on students' learning process is manifest in two aspects. First, translating the importance of autonomy to instructional choice has led to increasing attention on enabling students to take an active role in their learning process (Evans & Boucher, 2015). Students who voluntarily choose to attend a course have a higher inner autonomy than those forced to participate. This is based on the growing realisation that students must be given the opportunity to choose and study autonomously in order to improve their learning intention and intrinsic motivation to engage in learning activities. The positive influence of supplying students with well-designed, meaningful choices has been demonstrated across academic fields and large student populations (Assor et al., 2002; Martin et al., 2003; Rengiah & Sentosa, 2015).

Second, apart from student autonomy from within, autonomy support in teaching can cultivate, support and increase students' internal endorsement of classroom activities to initiate students' intentional learning behaviour (Reeve et al., 2004; Reeve, 2006; Reeve & Jang, 2006). In other words, the teachers' primary purpose of autonomy support is to find ways to allow students to work from their own internal motivational resource base (Gelderen, 2010). This is reflected in teachers' positive behaviours to promote student autonomy; teaching methods in active learning (student-centred) and passive learning (teacher-centred) affect student autonomy (Skinner & Belmont, 1993). Specifically, students who play a positive role in active learning within voluntary education are constructors, discoverers and creators of knowledge with high autonomy, leading to personal interactions among students and between institutions and students. In contrast, students who play a negative role in passive learning within compulsory education, received knowledge from a system containing knowledge with low autonomy, resulting in an impersonal relationship among students and between institutions and students (Jones & Lourenço, 2006; Wright et al., 1994).

This research demonstrates that UK students within a voluntary education policy have significantly higher learning expectations than Chinese students within a compulsory education policy in Overall 7Q Course content and design (H1,  $M_{UK}=3.30>M_{China}=2.39$ ,  $t(202.168) = 6.152$ ,  $p<.001$ ); 7a) Ability to identify business opportunities (H1a,  $M_{UK}=3.47>M_{China}=2.27$ ,  $t(245)=5.973$ ,  $p<.001$ ); 7b) Understanding the process of a business start-up (H1b,  $M_{UK}=3.25>M_{China}=2.15$ ,  $t(245)=6.15$ ,  $p<.001$ ); 7c) Writing a business plan (H1c,  $M_{UK}=3.34>M_{China}=2.40$ ,  $t(245)=4.867$ ,  $p<.001$ ); 7d) Marketing knowledge and skills (H1d,  $M_{UK}=3.34>M_{China}=2.44$ ,  $t(221.214)=5.592$ ,  $p<.001$ ); 7e) Access to finance (H1e,  $M_{UK}=3.08>M_{China}=2.48$ ,  $t(204.38)=3.291$ ,  $p=.001$ ); 7f) Management skills for a business start-up (H1f,  $M_{UK}=3.33>M_{China}=2.54$ ,  $t(209.891)=4.857$ ,  $p<.001$ ); Overall 8Q Teaching methods and resources (H2,  $M_{UK}=4.40>M_{China}=3.51$ ,  $t(198.721) = 3.39$ ,  $p=.001$ ); 8a) Tutors' entrepreneurial experience (H2a,  $M_{UK}=4.14>M_{China}=3.15$ ,  $t(201.287)=5.106$ ,  $p<.001$ ); 8b) Tutors' academic qualification (H2b,  $M_{UK}=4.26>M_{China}=3.25$ ,  $t(202.074)=5.171$ ,  $p<.001$ ); 8c) Access to real-life entrepreneurs (H2c,  $M_{UK}=4.26>M_{China}=3.55$ ,  $t(194.751)=3.869$ ,  $p<.001$ ); 8d) Interactive teaching methods (H2d,  $M_{UK}=3.76>M_{China}=3.39$ ,  $t(216.035)=2.108$ ,  $p=.036$ ); 8e) Hands-on business start-up opportunities (H2e,  $M_{UK}=4.27>M_{China}=3.87$ ,  $t(245)=2.271$ ,  $p=.024$ ); and 9Q Students' expected input (H3,  $M_{UK}=3.61>M_{China}=2.90$ ,  $t(245)= 4.35$ ,  $p<.001$ ). Therefore, hypotheses H1, H1a, H1b, H1c, H1d, H1e, H1f, H2, H2a, H2b, H2c, H2d, H2e and H3 are supported.

Applying self-determination theory to explain this phenomenon, the UK's active learning context offers students the option of entrepreneurship courses under a voluntary education policy. This leads to a high degree of internal autonomy for British students who voluntarily choose to participate in entrepreneurship courses. As critical thinking is advocated in active learning and seminars are provided in the UK (Wang, 2018), the teacher's autonomy support can stimulate students' autonomy. On the contrary, under a compulsory education policy and passive learning in China, entrepreneurship education is a public foundation course that students must attend without any choice, leading to relatively low internal autonomy. Moreover, there are no seminars in Chinese entrepreneurial courses; the teaching method is mainly based on lectures that focus on knowledge transmission (Tan, 2017; Wang, 2018), so the



teacher's autonomy control is relatively unable to stimulate students' autonomy. These factors indicate that students' autonomy differs under voluntary and compulsory education policies. Based on self-determination theory, student autonomy promotes intrinsic motivation (Ryan & Deci, 2000). Learning expectations, as students' internal motivational resources, are influenced by students' autonomy. In other words, student autonomy positively affects learning expectations. From the perspectives of the internal autonomy of self-selected courses and the autonomy promoted by teacher's behaviour, British students within a voluntary education policy have higher autonomy than Chinese students within a compulsory education policy, resulting in higher learning expectations. Therefore, this output supports the idea that voluntary and mandatory education policies are the main reasons for the differences in learning expectations between British and Chinese students.

However, there is no statistically significant difference between the UK and China in students' learning expectations of some factors, 8f) Network opportunities (H2f,  $M_{UK}=3.55 < M_{China}=3.86$ ,  $t(245)=-1.578$ ,  $p=.116$ ), and 10Q Student's pre-course entrepreneurial intention (H4,  $\chi^2(1, n = 247) = .01$ ,  $p = .916$ ). Therefore, H2f and H4 are not supported. One possible explanation is that students may have unrealistic or vague expectations about network opportunity and entrepreneurial intention before their entrepreneurship courses. This will be further explored in 6.2.4 and 6.2.5.

## 6.2.2 Students' learning expectations in different education policies lead to different learning outcomes

Student expectations are a crucial consideration in higher education and a valuable source of information for teachers and universities (Hill, 1995; Voss et al., 2007). As customers of university institutions, the gap between students' expectations and the university services' actual performance is identified as the main driver of the level of satisfaction (Huong et al., 2017). Scholars propose that the rating for expectations and perceived learning is the highest level of learning to research and critically evaluate literature (Möller & Shoshan, 2019), highlighting the importance of the relationship between students' pre-course learning expectations and post-course perceptions of what they actually learn.

Students' learning expectations play a pivotal role in the learning process. Given that expectations underline the strong relationship between the individual's role and the expectations within or with these roles (Davis, 2015), this thesis focuses on students' central role in learning, defines learning expectation as the anticipation of external information for learning course content, design, teaching methods, and resources, as well as the internal demand for promoting learning behaviour, which includes course-related expectations and self-expectations. Moreover, it highlights that learning expectation is a "process" variable that changes over time with students' learning (Pike, 2006).

The results of hypothesis testing of students' post-course learning outcomes are the same as the students' pre-course learning expectations results. It supports that, in comparison with Chinese students within a passive learning environment under a compulsory education policy, British students within an active learning environment under a voluntary education policy have higher learning expectations, leading to higher satisfaction. Specifically, UK students have significantly higher satisfaction than Chinese students in Overall 11Q Course content and design (H5,  $M_{UK}=3.46 > M_{China}=2.49$ ,  $t(203.997) = 7.213$ ,  $p < .001$ ); 11a) Ability to identify business opportunities (H5a,  $M_{UK}=3.35 > M_{China}=2.12$ ,  $t(197.226)=7.396$ ,  $p < .001$ ); 11b) Understanding the process of a business start-up (H5b,  $M_{UK}=3.57 > M_{China}=2.54$ ,  $t(244)=6.536$ ,  $p < .001$ ); 11c) Writing a business plan (H5c,  $M_{UK}=3.52 > M_{China}=2.64$ ,  $t(244)=4.954$ ,  $p < .001$ ); 11d) Marketing knowledge and skills (H5d,  $M_{UK}=3.52 > M_{China}=2.58$ ,  $t(242)=5.77$ ,  $p < .001$ ); 11e) Access to finance (H5e,  $M_{UK}=3.21 > M_{China}=2.39$ ,  $t(209.166)=4.937$ ,  $p < .001$ ); 11f) Management skills for a business start-up (H5f,  $M_{UK}=3.49 > M_{China}=2.65$ ,  $t(207.203)=5.779$ ,  $p < .001$ ); Overall 12Q Teaching methods and resources (H6,  $M_{UK}=4.14 > M_{China}=3.37$ ,  $t(199.578) = 4.931$ ,  $p < .001$ ); 12a) Tutors' entrepreneurial experience (H6a,  $M_{UK}=4.31 > M_{China}=3.19$ ,  $t(191.552)=6.143$ ,  $p < .001$ ); 12b) Tutors' academic qualification (H6b,  $M_{UK}=4.40 > M_{China}=3.44$ ,  $t(186.353)=5.534$ ,  $p < .001$ ); 12c) Access to real-life entrepreneurs (H6c,  $M_{UK}=4.23 > M_{China}=3.39$ ,  $t(187.293)=4.80$ ,  $p < .001$ ); 12d) Interactive teaching methods (H6d,  $M_{UK}=3.92 > M_{China}=3.38$ ,  $t(203.251)=3.161$ ,  $p = .002$ ); 12e) Hands-on business start-up opportunities (H6e,  $M_{UK}=4.27 > M_{China}=3.46$ ,  $t(214.257)=5.126$ ,  $p < .001$ ); and 13Q Students' actual input (H7,  $M_{UK}=3.49 > M_{China}=2.57$ ,

$t(240) = 4.98, p < .001$ ). However, identical to the students' pre-course learning expectations results, there is no statistically significant difference between the UK and China in students' satisfaction with 12f) Network opportunities ( $H6f, M_{UK}=3.71 > M_{China}=3.33, t(241)=1.854, p=.065$ ), and 14Q Student's post-course entrepreneurial intention ( $H8, \chi^2(1, n = 242) = .47, p = .492$ ). Therefore, hypotheses  $H5, H5a, H5b, H5c, H5d, H5e, H5f, H6, H6a, H6b, H6c, H6d, H6e$  and  $H7$  are supported, while  $H6f$  and  $H8$  are not.

The outputs support the idea that students' learning expectations under a voluntary entrepreneurship education policy, have a positive effect on their learning outcomes. These results are consistent with previous studies' findings that expectation positively influences student behaviour (Price, 2019; Rauch & Hulsink, 2015), performance (Schunk & Zimmerman, 1998), self-study behaviour (Rovers et al., 2018), and learning experience (Huong et al., 2017; Kilic-Cakmak et al., 2009; Stevenson et al., 2006; Zhou & Todman, 2008). Such findings indicate the vital role of learning expectations in the students' learning process, highlighting that managing expectation means managing behaviour (Price, 2019). Moreover, it verifies that expectation, as a predictive cognition (Pike, 2006; Tolman, 1945), has a predictive effect on learning outcomes, thus laying a solid foundation for the focus of this thesis, which is to explore the antecedents that affect students' learning expectations.

### 6.2.3 National environment resources are perceived to be more important than university-controlled education resources in students' entrepreneurship learning

Entrepreneurship education has been given high priority at the country level, evidenced by long-term investments to promote entrepreneurial activities. It has aroused scholars' academic interest in the relationship between the national institutional environment, entrepreneurship education and entrepreneurial activities. Two research streams have emerged: the first research stream focuses on how entrepreneurship education as university-controlled resources drives students' intended or actual career choices (e.g., Boubker et al., 2021; Dickson et al., 2008; Gorman et al., 1997; Paray & Kumar, 2020; Pittaway & Cope, 2007); the second research stream based on institutional theory, focuses on how national-level

institutions are beneficial or detrimental to entrepreneurship (North, 1990; Walter & Block, 2016; Whitley, 1999). In particular, many studies have emphasised that public policies significantly impact the development of entrepreneurial activities (e.g., Brush et al., 2009; Dou et al., 2019; Katz, 2003; Yoon et al., 2018). Two aspects that impact entrepreneurial activities have been investigated in two diverse, relatively isolated study streams (Walter & Block, 2016). However, little is known about how entrepreneurship education learning is affected by the external environmental context (Dou et al., 2019; Walter & Block, 2016), that is, public policy. How to integrate the institutional context into the university-based entrepreneurship education to influence students' learning process has not received enough attention.

When integrating national environment resources into university-based entrepreneurship education to explore the impact on student's learning process, that is, both country factor and university educational factor are considered, this study demonstrates that nationality is the significant main effect of the difference in overall course content and design (before EE:  $M_{UK}=3.30>M_{China}=2.39$ , after EE:  $M_{UK}=3.46>M_{China}=2.49$ ,  $F(1, 484)=76.47$ ,  $p<.001$ ,  $\eta_p^2=.14$ , effect size is large); overall teaching methods and resources (before EE:  $M_{UK}=4.04>M_{China}=3.51$ , after EE:  $M_{UK}=4.14>M_{China}=3.37$ ,  $F(1, 481)=30.73$ ,  $p<.001$ ,  $\eta_p^2=.06$ , effect size is moderate); and student input (before EE:  $M_{UK}=3.61>M_{China}=2.90$ , after EE:  $M_{UK}=3.49>M_{China}=2.57$ ,  $F(1, 485)=8.46$ ,  $p=.004$ ,  $\eta_p^2=.017$ , the effect size is small). In other words, national environment resources (education policy) matter for students' entrepreneurship learning and are even perceived to be more crucial than university-controlled resources (EE), which is consistent with the findings of Dou et al. (2019). Such output highlights the value of considering external environment factors in entrepreneurship education.

#### 6.2.4 National factor and university educational factor have a significant interaction effect on students' levels of network opportunity

Earlier studies have pointed out that there is sufficient evidence that the decision to start a business is a social decision (e.g., Burt, 2009; Dobrev & Barnett, 2005; Qin & Estrin, 2015; Shu et al., 2018). Entrepreneurs' social network capital is linked to

entrepreneurial activities (Kenney & Goe, 2004). Social networks are crucial to entrepreneurship in any culture because business is virtually conducted through a person-context interaction (Brandstätter, 2011; Herron & Sapienza, 1992; Learned, 1992; Naffziger et al., 1994). The networks of entrepreneurs and related personnel facilitate exchanging ideas, knowledge and opportunities (Dou et al., 2019). More importantly, social networks provide valuable opportunities for students' future entrepreneurial activities (Dou et al., 2019) and play a vital role in achieving business success (Wang, 2012).

The current study identifies a statistically significant interaction effect between the country factor and university-controlled education factor on network opportunities (UK:  $M_{\text{before}}=3.55 < M_{\text{after}}=3.71$ , China:  $M_{\text{before}}=3.86 > M_{\text{after}}=3.33$ ,  $F(1, 486)=5.91$ ,  $p=.015$ ,  $\eta_p^2=.012$ ) but the effect size is small. Specifically, the influence of national factors on network opportunity levels depends on whether students have participated in entrepreneurship courses. For British students, network opportunity scores increased with EE, whilst for Chinese students, it decreased.

There is no statistically significant main effect for country factor (the UK and China) on the difference in network opportunities,  $F(1, 486)=.07$ ,  $p=.792$ . This result supports the idea that Chinese people are more enthusiastic about building and maintaining social networks (Lam, 2004; Wang, 2012) than British people. Because in China, establishing and maintaining personal connections is basically a survival strategy (Redding, 1993), reflecting the importance of social networking in traditional Chinese society and culture (Lam, 2004; Wang, 2012). Thus, it helps to explain the descriptive data that Chinese students' learning expectations for network opportunities rank second in teaching methods and resources. After attending entrepreneurship education courses, Chinese students may gain a relatively correct and realistic perception of the importance of network opportunities to entrepreneurship, thus explaining why their average score is lowered in the post-course results.

Entrepreneurial knowledge, skills, and abilities also contribute to starting a business, rather than relying solely on personal connections. The output highlights that people's

shared values and shared understanding of entrepreneurship are different in different institutional contexts, reflecting the country's characteristics (Lam, 2004; Wang, 2012) as well as confirming that institutional theory is a powerful perspective for examining various phenomena involving the cross-country difference in entrepreneurial activities (e.g., Bruton et al., 2010; Jennings et al., 2013; Minniti, 2008; Walter & Block, 2016; Welter & Smallbone, 2011). Simultaneously, students must be prepared to face more realistic expectations because having vague expectations will seriously affect learning and performance (Chavan & Carter, 2018; Rovers et al., 2018). This emphasises the positive role of university-controlled resources - entrepreneurship education - on students' establishment of realistic entrepreneurship expectations and perceptions.

Another possible reason is that, compared with the UK's mature professional entrepreneurship education system, China's university-based entrepreneurship education cannot provide students with real opportunities for entrepreneurial networking due to the traditional Chinese educational approach. As a public basic course, teaching pays more attention to knowledge transmission while neglecting entrepreneurial practice activities. One consequence is failure to meet students' learning expectations for networking opportunities. This underlines that students' expectations have a major impact on performance (Schunk & Zimmerman, 1998), learning experience (Huong et al., 2017; Kilic-Cakmak et al., 2009; Stevenson et al., 2006; Zhou & Todman, 2008) and behaviours (Price, 2019; Rauch & Hulsink, 2015).

#### 6.2.5 University educational factor is the significant main effect of understanding the process of a business start-up and students' entrepreneurial intention

Since entrepreneurial activity was discovered to be an essential prerequisite for innovation capacity and economic competitiveness (e.g., Galindo & Méndez, 2014; Pagano et al., 2018; Ratten & Usmanij, 2021; Rotger et al., 2012; Walter & Block, 2016), many countries have invested in entrepreneurship education (e.g., Dou et al., 2019; Jones & Iredale, 2014; Lin & Xu, 2017; Walter & Block, 2016), aiming to embed enterprise and entrepreneurship notions at all levels of the educational system (Hannon, 2006; Matlay, 2006).

As an essential component of economic and business development, entrepreneurship education as a university-controlled resource has become a popular subject in educational institutions (Dou et al., 2019; Jones & Iredale, 2014; Lin & Xu, 2017; Ratten & Usmanij, 2021; Walter & Block, 2016). This popularity has aroused scholarly attention to examine the achievements of entrepreneurship education (e.g., Boubker et al., 2021; Dickson et al., 2008; Gorman et al., 1997; Jena, 2020; Pittaway & Cope, 2007), especially entrepreneurial intentions. Entrepreneurial intention is highly related to entrepreneurship education and is the core factor explaining the impact of entrepreneurship education (Fayolle & Liñán, 2014; Paray & Kumar, 2020; Pittaway & Cope, 2007). Also, it is the most critical and sustainable construct for exploring potential entrepreneurs' entrepreneurial behaviour (Hmieleski & Corbett, 2006; Wilson et al., 2007). So far, research in the entrepreneurial field has confirmed the predictive ability of entrepreneurial intentions on entrepreneurial behaviour (Ajzen, 1991; Krueger et al., 2000; Shapero & Sokol, 1982).

However, previous research seems to imply a mixed effect of entrepreneurship education (Bae et al., 2014). In fact, some question whether the educational course alone can change students' intentions to start a business (e.g., Oosterbeek et al., 2010; von Graevenitz et al., 2010). The current study adds to this ongoing debate meaningfully by providing new field-based insights from the UK and China. The research indicates that when national environment resources are integrated into university-based entrepreneurship education, considering both country factor and university-controlled education factor, EE has a statistically significant main effect on the difference in understanding the process of a business start-up (UK:  $M_{\text{before}}=3.25 < M_{\text{after}}=3.57$ , China:  $M_{\text{before}}=2.15 < M_{\text{after}}=2.54$ ,  $F(1, 489)=8.77$ ,  $p=.003$ ,  $\eta_p^2=.018$ ) although the effect size is small; and students' entrepreneurial intention (UK:  $M_{\text{before}}=0.48 < M_{\text{after}}=0.52$ , China:  $M_{\text{before}}=0.46 < M_{\text{after}}=0.47$ ,  $F(1, 485)=7.19$ ,  $p=.008$ ,  $\eta_p^2=.015$ ) where again the effect size is highly significant but small. It can be seen that after studying EE, both British and Chinese students achieve a better understanding of the entrepreneurship process, and their entrepreneurial intentions have been improved. Simultaneously, it suggests that the UK seems to have a more effective EE than China. This output supports prior research findings that entrepreneurship

education promotes students' entrepreneurial intentions (Boubker et al., 2021; Fayolle & Gailly, 2015; Fayolle et al., 2006; Franke & Lüthje, 2004; Paray & Kumar, 2020; Pittaway & Cope, 2007). In particular, the result of this study highlights that university-controlled resources - entrepreneurship education - positively affects students' entrepreneurial intention, which justifies the role universities play in developing entrepreneurial activities (Dou et al., 2019).

There is no statistically significant main effect for the country (the UK or China) on the difference in students' entrepreneurial intention,  $F(1, 485)=1.81$ ,  $p=.179$ . This contradicts the findings of Karimi et al. (2016) and Rengiah and Sentosa (2015), who found that students' entrepreneurial intention was significantly boosted by an optional course but not by mandatory coursework. One possible explanation for the unsupported H4 (pre-course) and H8 (post-course) notions is that British and Chinese students may have vague self-expectations about entrepreneurial intentions as their future career goals before taking their entrepreneurship courses. Descriptive data of the study outlines that, although British students in a voluntary education policy have slightly higher entrepreneurial intentions before entrepreneurship courses than Chinese students in a compulsory education policy, both countries' pre-course entrepreneurial intention levels have not reached 50%. Most students in the two countries do not expect to start a business within three years of graduation. In other words, although British students who self-select courses are better able to determine their interest and needs in entrepreneurship education than Chinese students, they have not formed a complete and systematic understanding of the entrepreneurial process and lack expertise in starting a business (Belwal et al., 2015), which may result in vague self-expectations of entrepreneurial intention.

Another possible explanation is that starting a business may not be the sole purpose of students' taking entrepreneurship education courses. Entrepreneurship education pays attention to both personal development and enterprise development (Jones & English, 2004), and provides students with information about career choices and allows them to select the most appropriate occupations (Von Graevenitz et al., 2010). Even if students do not choose to set up their own company, studying



entrepreneurship will benefit their future employment (Bridge et al., 2010). This is because entrepreneurship education not only teaches entrepreneurship-related knowledge but also cultivates students' creativity, innovation, adventure spirit, and the ability to plan and manage a project to achieve its goals (Curavic, 2011). In other words, the mission of entrepreneurship education is not just to start one's own business but to become an entrepreneurial and enterprising person in whatever they do in life.

### 6.3 Other findings

#### 6.3.1 Understanding the process of a business start-up and hands-on business start-up opportunities have a significant positive impact on the change in entrepreneurial intentions

Many scholars have shown that entrepreneurship education substantially impacts students' entrepreneurial intentions (Boubker et al., 2021; Fayolle & Gailly, 2015; Fayolle et al., 2006; Franke & Lüthje, 2004; Paray & Kumar, 2020; Pittaway & Cope, 2007). The purpose of entrepreneurship education differs from other educational fields because of its practicality (Badwan, 2018). In higher education, entrepreneurship education takes many forms, including curricular courses (theoretical learning) and extracurricular activities (practical learning) (Cui et al., 2019; Nabi et al., 2018). Theoretical learning usually produces knowledge acquisition, while practical learning usually develops students' new skills and abilities through experiential learning (Cui et al., 2019). Entrepreneurship education is understood as a form of actionable theory education, which combines theoretical and practical content to develop students' personalities and enable them to obtain entrepreneurial thinking and entrepreneurial abilities so as to promote them to plan and build companies cognitively and practically (Currie & Knights, 2003; Neck et al., 2014; Täks et al., 2014; Urban, 2006).

The study illustrates that understanding the process of a business start-up ( $B=1.01$ ,  $OR=2.75$ ,  $p=.002$ ) and hands-on business start-up opportunities ( $B=0.937$ ,  $OR=2.55$ ,  $p=.010$ ) significantly and positively impact student's post-course entrepreneurial intentions after controlling for the influence of age, gender, country, and current year

of study. Understanding the entrepreneurial process is basic entrepreneurial knowledge, which can be obtained by teaching students various aspects of entrepreneurship and operation in theoretical courses (e.g., Oosterbeek et al., 2010). Simultaneously, hands-on business start-up opportunity is a practice-oriented extracurricular activity that enables students to acquire entrepreneurial skills and competencies, also the entrepreneurial spirit and values that universities spread (Cui et al., 2019). In other words, this study demonstrates that both theoretical learning and practical learning of entrepreneurship education positively impact students' entrepreneurial intention. This output supports previous research findings that extracurricular activities are the driving forces for entrepreneurship (Souitaris et al., 2007). However, and contrary to prior findings, the formal curriculum cannot stimulate entrepreneurs' intention (Peterman & Kennedy, 2003). Such results are helpful to further deepen the exploration of the relationship between understanding the process of a business start-up (theoretical learning), hands-on business start-up opportunity (practical learning) and students' entrepreneurial intention in entrepreneurship education.

The descriptive data in this study shows that both British and Chinese students have the highest learning expectations for hands-on business start-up opportunities within the factors tested for teaching methods and resources, highlighting the great importance students attach to entrepreneurship practice. Therefore, it confirms that entrepreneurship education integrated with practice is seen by students as practical, thus encouraging them to develop the skills necessary for successful entrepreneurship and to be entrepreneurs (Arvanites et al., 2006).

### 6.3.2 Student input has a significant positive impact on the change in entrepreneurial intentions

Student input as the most direct self-expectation is a core theme in university student learning and development. It can be measured by time spent on a study to represent the degree of effort and desire to learn (Jung et al., 2016) and is connected to students' internal autonomy (Reeve & Jang, 2006; Sheldon & Elliot, 1998). Study time is one of the most critical inputs in determining a students' academic performance and is the

key to assessing the university education process and effectiveness (Jung et al., 2016; Stinebrickner & Stinebrickner, 2004; Tetteh, 2016). Although student input is the most crucial element that students can control, there have been relatively few studies on the link between study time and students' learning outcomes (Andrietti & Velasco, 2015) and the published results are inconsistent. Given that entrepreneurial intention is the main measure of entrepreneurship education learning outcomes (Nabi et al., 2018; Tessema Gerba, 2012) and a direct predictor of entrepreneurial behaviour (Bird & Jelinek, 1989; Krueger et al., 2000), the current study aims to fill this knowledge gap by investigating the relationship between student input and entrepreneurial intention.

The study demonstrates that after controlling for the influence of age, gender, country, and current year of study, students' actual input has a significantly positive impact on students' post-course entrepreneurial intentions ( $B=0.485$ ,  $OR=1.625$ ,  $p=.008$ ). This result backs up earlier study findings that study time positively affects student performance (Andrietti & Velasco, 2015; Jung et al., 2016; Michaels & Miethe, 1989; Stinebrickner & Stinebrickner, 2008; Tetteh, 2016, 2018). Entrepreneurial intention as the most important learning outcome of entrepreneurship education is influenced by the learning time invested by students, which is explained by self-determination theory. Persistence and efforts are related to students' internal autonomy (Reeve & Jang, 2006; Sheldon & Elliot, 1998). The longer a student's study time, the higher the autonomy and vice versa. According to self-determination theory, student autonomy can promote intrinsic motivation (e.g., Benware & Deci, 1984a; Deci et al., 1981; Grolnick & Ryan, 1987; Kage & Namiki, 1990; Ryan & Deci, 2000; Ryan & Grolnick, 1986; Standage et al., 2006). Entrepreneurial intention is a self-expectation of future careers and belongs to internal motivational resources, which can be affected by student internal autonomy. Therefore, entrepreneurial intention is positively influenced by student input.

Such a result highlights the crucial role of students in the entrepreneurial learning process and in entrepreneurship education effectiveness, as well as deepening the understanding of the relationship between student input and entrepreneurial intention. Moreover, it appears to imply that greater attention should be devoted to

whether and how to attain student autonomy in entrepreneurship education (Gelderen, 2010) in order to improve student input and, as a consequence, boost the willingness to start a business. In other words, student autonomy could be considered the guiding principle of entrepreneurship education (Gelderen, 2010), and a good understanding of students' learning expectations will motivate them to devote more time to entrepreneurship learning in order to pursue future entrepreneurship.

### 6.3.3 Tutor's academic qualification has a significant negative impact on the change in entrepreneurial intentions

Entrepreneurial intentions and entrepreneurship education are highly correlated (Fayolle & Liñán, 2014; Pittaway & Cope, 2007). In higher education, with teachers as supporting resources, their academic qualification is considered a tool for evaluating human resources' competitiveness in universities (Sotnikova & Mikhailova, 2020). Especially in entrepreneurship education, teachers' academic qualifications can play a vital role (Oplatka, 2014; Zheng et al., 2017), and the current demand for teachers with accredited academic qualifications and abilities to develop entrepreneurship education remains high (Kuratko, 2005). Scholars have proposed that the development of entrepreneurship education is closely related to the teachers' academic development in this field. The effectiveness of entrepreneurship education is also associated with the teacher's skills and his (or her) knowledge of using different teaching methods (Cheng et al., 2009). In other words, the tutor's academic qualification is considered to positively affect students' entrepreneurship learning and aid them in enhancing entrepreneurial intention. However, a surprising finding of this study is that the tutor's academic qualifications ( $B=-1.06$ ,  $OR=0.35$ ,  $p=.010$ ) significantly and negatively impacts students' post-course entrepreneurial intentions after controlling for the influence of age, gender, country, and current year of study.

One possible explanation is that the higher the tutor's academic qualification, the more students think about entrepreneurship from an academic perspective, a more rational perspective, reducing the impulse to start a business because of the risk involved. Entrepreneurial activities are complex. It is challenging for entrepreneurs to identify business opportunities in a highly uncertain environment to start a firm. The

high rate of business failure is a pervasive problem globally (GEM, 2019). Most new ventures face an existential crisis and the proportion of successful start-ups is small (Lam, 2004). Choosing to start a business means choosing a demanding and challenging career. For college students, most of them acquire and form their cognition and perception of entrepreneurship through indirect experience, especially university-based entrepreneurship education. On the entrepreneurship learning process, tutors play a critical role in teaching and guiding students to learn entrepreneurial knowledge and skills, understand the risks of business start-up (Bae et al., 2014) and the entrepreneurial environment (Badwan, 2018) in order to provide students with information about career options to help them choose the most appropriate occupations (Von Graevenitz et al., 2010). The learning outcomes of entrepreneurship education not only verify students' mastery of entrepreneurial knowledge and skills but also reflect students' interest and willingness in entrepreneurship. Therefore, the higher academic qualifications of entrepreneurship education tutors, the deeper their knowledge and understanding of entrepreneurship, the more they will combine the complexity of the external environment to deeply explain the common problems and possible risks encountered in the entrepreneurial process and focus on cultivating students' entrepreneurial spirit and rational cognition of entrepreneurship. This possible explanation highlights that strengthening the academic qualifications of entrepreneurship education teachers is the need for discipline construction and popularisation (Kuratko, 2005). Nevertheless, more importantly, through entrepreneurship education, high-qualification tutors can help students think and evaluate their entrepreneurial possibilities based on their actual situation, gain insight into the problems and risks faced by start-ups, and rationally plan for future entrepreneurship.

Another possible explanation is that tutors' high academic qualifications represent their interest and emphasis on academic research, which may lead to a greater tendency to explain theories and knowledge when teaching entrepreneurship courses, thus forming teacher-led passive learning. In passive learning, students can only get information from the teacher and internalise it but cannot get feedback (Michel et al., 2009), and students' own interests and needs are ignored. Tutors' autonomy control

in passive learning can only provide superficial motivation is less effective in motivating students' inner endorsement or leading to conscious learning behaviour (Reeve et al., 2004; Reeve, 2006; Reeve & Jang, 2006). According to self-determination theory (Ryan & Deci, 2000), autonomy control of passive learning cannot improve students' inner autonomy to stimulate their internal motivational resources. In other words, entrepreneurial intention as a self-expectation of future careers, which belongs to students' internal motivational resources, cannot be inspired by tutors' autonomy control in passive learning. Therefore, this may be one of the reasons why the tutor's higher academic qualification leads to lower entrepreneurial intentions.

Finally, some tutors on entrepreneurship courses are probably recruited because of their entrepreneurial experience rather than their academic qualifications. Guest speakers may be judged by their ability to cite practical examples, rather than their ability to refer to the latest academic research. One implication is that leaders of entrepreneurship courses might wish to seek to balance the inputs of highly qualified staff with those from practitioners.

The finding contributes to further exploration of the link between tutors' academic qualifications and students' entrepreneurial intentions in entrepreneurship education.

#### 6.3.4 Gender, age and country have a significant impact on the change in entrepreneurial intentions

**Gender** influences have gained greater focus in the studies of entrepreneurship education and entrepreneurial intention (Miranda et al., 2017; Paray & Kumar, 2020; Voegel & Voegel, 2019; Yukongdi & Lopa, 2017). Prior work has compared entrepreneurial intentions between males and females (e.g., García-Rodríguez et al., 2013). However, the results of gender and entrepreneurship research offered contradictory evidence. After controlling for confounding variables, the current study finds that men have higher entrepreneurial intentions than women ( $B=1.144$ ,  $OR=3.138$ ,  $p=.024$ ), which supports the findings of Paray and Kumar (2020), Díaz-García and Jiménez-Moreno (2010) and Schwarz et al. (2009).

**Age** has long been used as a key factor in social science research to categorise individuals and explain differences between them (Aapola, 2002). However, few studies have investigated the link between age and entrepreneurial intentions (Reynolds, 1997), and the results have been mixed. This study found that older students are more willing to start their own businesses than younger ones ( $B=-0.617$ ,  $OR=0.540$ ,  $p=.019$ ) after controlling for confounding variables, which is consistent with the findings of Schwarz et al. (2009) and Kautonen et al. (2011) but contradicts the results of Fung et al. (2001), Lévesque and Minniti (2006) and Sajilan et al. (2015).

The influence of the **country** on entrepreneurship education and entrepreneurial intention has aroused scholarly attention. The national culture has been regarded as a valid predictor of entrepreneurial potential (Mueller et al., 2002). At the same time, it can also affect a country's entrepreneurship education effectiveness, which is thought to depend on each country's distinct background (Lee & Peterson, 2000). This study indicates that British respondents appeared to be more willing to establish their own company after the EE course than Chinese respondents ( $B=2.048$ ,  $OR=7.751$ ,  $p=.006$ ), although that country was not significant when the controls were introduced on their own should be noted. It implies that country effects appear to be relevant in understanding what causes entrepreneurial intentions. Such a result supports the findings of Chukwuma-Nwuba (2019), which argued that certain norms, values, and socio-cultural practices in a country's institutional context are more likely to promote or inhibit entrepreneurial intentions.

British students are more optimistic about entrepreneurship. By contrast, Chinese students hold a more pessimistic view. This is probably because, compared with the UK, autonomy as a basic human need (Ryan & Deci, 2000) is not prominent in China's institutional context (Wang, 2012). As far as parenting is concerned, familyism and attitudes towards filial piety have led the Chinese to emphasise more attributes including strict discipline, socially desirable and culturally approved behaviour (Wu & Tseng, 1985). Its culture does not encourage autonomy and the expression of incompatible ideas with a harmonious environment (Wang, 2012). As proactiveness is probably a universal feature of entrepreneurs (McGrath & MacMillan, 1992), a

cultural value that discourages being proactive is unlikely to promote entrepreneurship in the Chinese institutional context (Wang, 2012). Moreover, influenced by Confucianism, traditional Chinese familyism is inclined to decent work and stable income rather than risky entrepreneurship (Wang, 2012), mainly because Confucianism traditionally disparages merchants and emphasises rote learning and learning for careers in government bureaucracies (Lam et al., 1994; Lam, 2004; Liao & Sohmen, 2001; Wang, 2012).

Additionally, as far as school education is concerned, unlike the British teaching methods that focus on critical thinking to encourage students to be more proactive (Wang, 2018), the traditional Chinese teaching method is more controlling and pays more attention to knowledge transmission, which is also reflected in entrepreneurship education in both countries. Such a controlled educational atmosphere often makes students lose autonomy and learn less effectively (Wang, 2012). In the Chinese institutional context, students are usually pure receptors of their teachers' instruction, and they rarely doubt what their teacher has talked about because doubt is often perceived as disrespectful (Chan, 1999). Students who are brought up in this environment are less likely to pose questions because of a lack of critical thinking encouragement. Instead, they are accustomed to seeking answers from the authorities (Wang, 2012). Thus, based on this traditional Chinese educational philosophy, most Chinese students are not willing to choose risk-ridden entrepreneurial careers, in which they have to solve various problems autonomously (Wang, 2012).

Therefore, in the different institutional contexts, the values and understanding of entrepreneurship and educational concepts between British and Chinese students differ. Such findings underline the importance of country effects in understanding what encourages or discourages entrepreneurial intentions.



#### 6.4 Summary

This chapter has discussed the study's main results and other findings to fulfil three research objectives, combining the theoretical insights of Chapter 3 with the theory-testing by means of statistical data analysis in Chapter 5. The research, focusing on both the individual-level and country-level, investigates the antecedents that affect students' learning expectations in the institutional context and the impact of learning expectations on learning outcomes. It is of great significance for promoting student entrepreneurial behaviour and achieving a country's goal of encouraging entrepreneurial activities.

According to data analysis and discussion, there are five significant outcomes of integrating the institutional environment into university-based entrepreneurship education research and four other findings of further exploring the reasons for changes in students' entrepreneurial intentions before and after EE after controlling for the influence of age, gender, country and current year of study. Based on these findings, the research objectives were achieved.

The next chapter will aim to discuss the results to fulfil the research aim and objectives and their contribution to theory and practice.

## Chapter 7: Conclusion and Implications

### 7.1 Introduction

This chapter provides an overview summary of the study's main findings, aiming to highlight this thesis's contributions, value and implications to relevant parties. In Chapters 5 and 6, the results and discussions were presented, and their connection to the literature and conceptual framework were discussed. Taking this forward, this chapter explains how the study aims, objectives and questions were fulfilled by featuring the significant gaps and findings. It also emphasises critical areas for extending and adding value to past theories, research and arguments.

### 7.2 Meeting the research aim and objectives

Chapter 1 outlined the thesis's aims and objectives. Broadly, the present thesis is designed to provide a new perspective on entrepreneurship education research, one which focuses on the effects of students' learning expectations. Given that expectations underline the strong relationship between the individual's role and the expectations within or with these roles (Davis, 2015), this thesis focuses on students' central role in learning and defines learning expectations as course-related expectations (course content and design, and teaching methods and resources) and self-expectations (Bennett & Kottasz, 2006). Moreover, it highlights that learning expectation is a process variable that changes over time with students' learning (Pike, 2006).

Taking forward previous studies by other researchers and combining the entrepreneurship education characteristics, the study selected relevant factors to achieve research objective one. Specifically, this study aims to explore students' learning expectations on entrepreneurship course content and design (ability to identify business opportunities, understanding the process of a business start-up, writing a business plan, marketing knowledge and skills, access to finance, and management skills for a business start-up), entrepreneurship teaching methods and resources (tutors' entrepreneurial experience, tutors' academic qualifications, interactive teaching methods, access to real-life entrepreneurs, hands-on business

start-up opportunities, and network opportunities) and self-expectations (student input and entrepreneurial intention).

Furthermore, in conjunction with the institutional context, the current study investigates the differences in learning expectations for entrepreneurship education between British and Chinese students, as well as the causes for the differences, in order to accomplish research objectives two and three. Based on self-determination theory and institutional theory, combined with the actual situation of entrepreneurship education in the UK and China, a conceptual framework and related assumptions of students' learning expectations of entrepreneurship education in the learning process has been developed, which helps advance understanding of the complex process of students' learning expectations in their entrepreneurial learning. This comprehensive conceptual framework takes into account the relationships among entrepreneurship education policy, student learning expectations and their behaviour in entrepreneurial learning, incorporating the institutional context, that is, the economic, political, societal and cultural environments, which may positively or negatively influence students' learning expectations. It demonstrates the interplay between the national-level institutional context into organisational-level university-based entrepreneurship education and individual-level entrepreneurial learning, which in turn influence students' entrepreneurial behaviour and entrepreneurial activities.

Using an objective approach, based on 247 respondents, university students from the UK (84) and China (163), this research uses a number of ways to test the hypotheses and clarify the relationship between the relevant variables. The results explain the mechanism of how entrepreneurship education policy in the institutional context affects students' learning expectations, leading to differences in student learning outcomes. The objectives of this thesis have been met based on the findings. The key findings will be outlined next.

### 7.3 Summary of key findings

From the data analysis and discussion in Chapters 5 and 6, there are five main results from the current study relevant to integrating the institutional environment into university-based entrepreneurship education.

**1. Entrepreneurship education policy is an antecedent that affects students' learning expectations.**

This study indicates that voluntary and mandatory education policies are the main reasons for the differences in learning expectations between British and Chinese students, which are reflected in overall course content and design, overall teaching methods and resources, and student input. According to self-determination theory, this is due to the fact that students' autonomy in the learning process varies depending on education policies. Earlier reference is made that student autonomy promotes intrinsic motivation (Ryan & Deci, 2000), which influences students' learning expectations about entrepreneurship education. However, it does not explain the differences in pre-course entrepreneurial intention (as a self-expectation of future careers) between British and Chinese students.

**2. Students' learning expectations in different education policies lead to different learning outcomes.**

The current study illustrates that in comparison with Chinese students in a passive learning environment under a compulsory education policy, British students in an active learning environment under a voluntary education policy have higher learning expectations, leading to higher satisfaction. Such a finding demonstrates the vital role of learning expectations in the students' entrepreneurial learning process, which suggests that managing expectations means managing behaviour (Price, 2019). It also supports that expectation, as a predictive cognition (Pike, 2006; Tolman, 1945), has a predictive effect on the effectiveness of entrepreneurship education, thus laying a solid foundation for the focus of this thesis, which is to explore the antecedents that affect students' learning expectations.

3. **National environment resources (education policy) matter for students' entrepreneurship learning and can be perceived to be more crucial than university-controlled educational resources (EE).**

This study shows that state policies are the main effect of the difference in overall course content and design, overall teaching methods and resources, and student input. Such a result emphasises the important role policymakers play in entrepreneurship education, a finding which is consistent with Dou et al. (2019).

4. **The country factor and university educational factor have an interaction effect on the students' levels of network opportunity.**

According to the current study, network opportunity ratings increased with EE for British students but declined for Chinese students. This result supports the idea that Chinese people are more enthusiastic about building and maintaining social networks than British people and illustrates the importance of social networking in traditional Chinese society and culture (Lam, 2004; Wang, 2012). It also reveals the positive effect of entrepreneurship education on students' establishment of realistic expectations and perceptions. Such a finding reflects that people's shared values and understanding of entrepreneurship differ across institutional contexts (Lam, 2004). It confirms that institutional theory is a powerful perspective for examining various phenomena involving the cross-country difference in entrepreneurial activities (e.g., Bruton et al., 2010; Jennings et al., 2013; Minniti, 2008; Walter & Block, 2016; Welter & Smallbone, 2011).

5. **Entrepreneurship education, as the university-controlled resource, positively impacts an understanding of the entrepreneurial process and students' entrepreneurial intention.**

This research indicates that the university educational factor is the main effect in understanding the process of a business start-up and students' entrepreneurial intention, which justifies the role universities play in developing entrepreneurial activities (Dou et al., 2019). After studying EE, both British and Chinese students achieve a better understanding of the entrepreneurship process, and their entrepreneurial intentions have been improved. Simultaneously, it also suggests

that the UK seems to have a more effective EE than China. This output supports prior research findings that entrepreneurship education promotes students' entrepreneurial intentions (Boubker et al., 2021; Fayolle & Gailly, 2015; Fayolle et al., 2006; Franke & Lüthje, 2004; Pittaway & Cope, 2007; Zahoor & Kumar, 2020).

Furthermore, after controlling for the influence of age, gender, country and current year of study, this study yielded four additional findings when delving deeper into the reasons for changes in student entrepreneurial intentions before and after EE.

1. **Understanding the process of a business start-up and hands-on business start-up opportunities favourably influence the change in entrepreneurial intentions, justifying that both theoretical and practical learning within entrepreneurship education can enhance students' entrepreneurial intention.**

This outcome chimes with earlier research findings that extracurricular activities are the driving forces for entrepreneurship (Souitaris et al., 2007). However, contrary to prior studies (Peterman & Kennedy, 2003), the formal curriculum did not stimulate entrepreneurs' intention.

2. **Students' actual input positively influences the change in entrepreneurial intentions, emphasising the crucial role of students in the entrepreneurial learning process as well as in entrepreneurship education effectiveness.**

Students differ in the amount of time they are willing to devote to a course (Jung et al., 2016) and this is a useful measure when understanding entrepreneurial intention in the context of entrepreneurship education. This finding then deepens the understanding of the link between student input and entrepreneurial intention in entrepreneurship education.

3. **The tutor's academic qualification has a detrimental influence on the change in entrepreneurial intentions, underlining the tutor's important role in students' rational thinking about entrepreneurship and course delivery.**

This finding was unexpected but can add to a better understanding of the relationship between tutors' academic qualifications and students' entrepreneurial intentions in entrepreneurship education.

#### **4. Gender, age and country influence the change in entrepreneurial intentions.**

This study indicates that men have higher entrepreneurial intentions than women, which supports the findings of Zahoor and Kumar (2020), Díaz-García and Jiménez-Moreno (2010) and Schwarz et al. (2009), and that older students are more willing to start their own businesses than younger ones, which is consistent with Schwarz et al. (2009) and Kautonen et al. (2011). Moreover, British respondents also appeared to be more willing to establish their own company than Chinese respondents, although it should be noted that country was not significant when the controls were introduced on their own. This implies that country effects appear to be relevant in understanding what causes entrepreneurial intentions. This result supports Chukwuma-Nwuba's (2019) and the contention that certain norms, values, and socio-cultural practices in a country's institutional context are more likely to promote or inhibit entrepreneurial intentions.

Given the findings in this thesis, the study deepens the understanding of the relationship between entrepreneurship education policies, learning expectations, and learning outcomes in the institutional context from the perspective of student autonomy. Thus, it makes an original contribution to knowledge, which will be addressed more below.

### **7.4 Novelty and theoretical contribution**

#### **7.4.1 Understanding the vital role of learning expectations in the learning process**

Entrepreneurship education is a specialised education that focuses on demonstrating the benefits of entrepreneurship compared to other career options (Chukwuma-Nwuba, 2019). Its ultimate goal is to cultivate students with entrepreneurial intentions and abilities to promote entrepreneurial activities, emphasising that students play a central role in entrepreneurship learning. Therefore, this thesis is based on the lens of students to understand the impact of entrepreneurship education.

In Chapter 2, the supply-side literature revealed that the influence of personal factors on entrepreneurship education effectiveness has evolved from static (personality (McClelland, 1961) and demographic (Botha & Bignotti, 2017)) to dynamic (attitude) elements (Bazkiaei et al., 2020; Engle et al., 2010; Schlaegel & Koenig, 2014; Schwarz et al., 2009; Zampetakis et al., 2009). One significant weakness is a lack of attention to students' learning expectations in the dynamic learning process. Students' expectations are a valuable source of information for lecturers and universities to evaluate their educational achievements (Voss et al., 2007). As a predictive cognition (Pike, 2006; Tolman, 1945), expectations exist in every learning stage. Expectations are dynamic, which means that students will have the potential to change their expectations as they learn new information about their environment (Pike, 2006). It has long been established that students' expectation has a significant impact on their behaviour (Price, 2019; Rauch & Hulsink, 2015), performance (Schunk & Zimmerman, 1998), self-study behaviour (Rovers et al., 2018) and learning experience (Huong et al., 2017; Kilic-Cakmak et al., 2009; Stevenson et al., 2006; Zhou & Todman, 2008), yet this is an area that is largely ignored in the entrepreneurship education literature.

A key contribution is that learning expectation plays a crucial role in the students' learning process, thus deepening an understanding of entrepreneurship education. Another contribution of this study is to define learning expectations, which encompass not only students' expectations for course content and design and teaching methods and resources but also self-expectations. Given that managing expectations means managing behaviour (Price, 2019), seeking students' realistic learning expectations for entrepreneurship education has become a vital issue. It has a significant impact on students' learning behaviour and even entrepreneurial behaviour.

#### 7.4.2 In search of reasons for affecting learning expectations

In Chapter 2, reference is made to extant exploratory studies of entrepreneurship education from different perspectives across countries. Although numerous quantitative and qualitative studies on the relationship between entrepreneurship education and entrepreneurial intentions have been performed in Western and Eastern nations, the results have been mixed (Chukwuma-Nwuba, 2019; Oosterbeek



et al., 2010; Rengiah & Sentosa, 2015; Souitaris et al., 2007; von Graevenitz et al., 2010; Zahoor & Kumar, 2020). Scholars have argued an urgent need for an in-depth comparative international study on entrepreneurship education beyond national or regional boundaries (Kuratko, 2005; Matlay, 2008).

One of the main contributions of this study is that it not only meaningfully adds to the ongoing debate on entrepreneurial intentions by providing new field-based insights from the UK and China, but it also explores the causes that may affect students' learning expectations based on the comparative analysis of entrepreneurship education in the UK and China, thus constituting a theoretical contribution. As discussed in 3.6, entrepreneurship education in the UK is a voluntary education policy, while it is a compulsory education policy in China. The entrepreneurship education policy formulated by the two countries based on their institutional context is a manifestation of national economic, political, societal, and cultural characteristics and feedback on shared values and shared understandings in education and entrepreneurship.

#### 7.4.3 Core contribution: building bridges across perspectives on the entrepreneurship learning process

Through the analysis of Chapter 2, it can be recognised that the main stakeholders involved in entrepreneurship education are policymakers, educators and students. On the one hand, there is a tendency for the supply-side literature to adopt an 'outside-looking-in' perspective on entrepreneurship education, focusing on policymakers as external support resources and educators as university educational resources that have made significant contributions to the development of entrepreneurship education and the promotion of entrepreneurial activities. It emphasised the important influence of the country's cultural background and course design and delivery on the effectiveness of entrepreneurship education. On the other hand, the demand-side literature adopts the trend of an 'inside-looking-out' perspective, and the research pays attention to students' learning outcomes and the impact of personal factors on entrepreneurship education effectiveness. One common shortcoming is that prior research has failed to appreciate the research contributions from different

fields. Individuals and their social relations are interactive; to focus on a person, one must consider the social environment in which they are embedded (Lam, 2004). To date, little is known about how entrepreneurship education learning is affected by the environmental context (Dou et al., 2019; Walter & Block, 2016). Simultaneously, considering how to integrate the institutional context into the university-based entrepreneurship education to influence students' learning process has not received enough attention, particularly students' learning expectations about the learning process.

One of the thesis's core contributions is that it draws on different approaches to build connections between the different perspectives on entrepreneurship education and extend this into a more advanced conceptual framework. An original conceptual framework thus created has the potential to enhance understanding of different entrepreneurship education studies, their influences, linkages and how they can be related to the field of entrepreneurship education as a whole.

#### 7.4.4 Understanding entrepreneurship learning process from a self-determination theory perspective

One of the main contributions of this thesis is to apply self-determination theory to connect the different perspectives of entrepreneurship education, thereby exploring their interplay and assessing their impacts on students' learning process. The original conceptual framework takes into account the relationships among entrepreneurship education policy, students' learning expectations and their behaviour in entrepreneurial learning, incorporating the institutional context, that is, the economic, political, societal and cultural environments, which may positively or negatively influence students' learning expectations. It demonstrates the interplay between the national-level institutional context into organisational-level (university-based entrepreneurship education) and individual-level entrepreneurial learning, which in turn influence students' entrepreneurial behaviour and entrepreneurial activities. This comprehensive conceptual framework contributes to advancing an understanding of entrepreneurship education from different perspectives of stakeholders.

Taking forward self-determination theory, incorporating it with institutional theory and extending it to entrepreneurship education, this study provides an alternative view that contributes to advancing an understanding of entrepreneurship education and filling a theoretical knowledge gap. According to self-determination theory, student autonomy promotes intrinsic motivation (Ryan & Deci, 2000; Standage et al., 2006). Students' learning expectations, as an intrinsic motivational resource, are affected by student autonomy. Students' autonomy in the learning process varies depending on education policies. From the perspectives of the internal autonomy of self-selected courses and the autonomy inspired by teachers' behaviour, this study shows that British students in an active learning environment within a voluntary education policy have higher autonomy than Chinese students in a passive learning environment within a compulsory education policy, thus having higher learning expectations, leading to higher satisfaction. In other words, the positive relationship between autonomy and learning expectations is established, which adds a new dimension to self-determination theory. Therefore, integrating the institutional context (national-level) into university-based entrepreneurship education (organisation-level) to impact students' learning (individual-level) in the dynamic learning process has been understood. This is of great significance for promoting students' entrepreneurial behaviour and achieving a country's goal of encouraging entrepreneurial activities.

#### 7.4.5 Understanding the reasons for the change in entrepreneurial intentions before and after EE

In Chapter 2, entrepreneurial intention as a major measure of entrepreneurship education learning outcomes (Nabi et al., 2018; Tessema Gerba, 2012) has been widely examined and has shown varying results. One shortcoming in the previous studies is that they did not control potential confounders, implying that the changes in entrepreneurial intentions before and after EE courses require additional in-depth investigation.

One contribution of this thesis is to take steps to control for the shortcoming identified in previous studies, which deepens the understanding of the link between entrepreneurship education and entrepreneurial intentions. The present study indicates that the change in students' entrepreneurial intentions before and after EE is explained by understanding the process of a business start-up (positive), hands-on business start-up opportunities (positive), students' actual input (positive) and tutors' academic qualification (negative). Especially, by investigating students' actual input and tutors' academic qualification on entrepreneurial intentions help to shed new light on the process of entrepreneurship education.

### 7.5 Implications

The thesis makes contributions to both theory and practice. The findings have far-reaching implications for different stakeholders, including policymakers, educators, practitioners and researchers.

This study contributes to multiple entrepreneurship education stakeholders' understanding of the impact of integrating institutional background (national-level) into university-based entrepreneurship education (organisation-level) on entrepreneurial learning (individual-level), which is critical for promoting students' entrepreneurial behaviour and achieving a country's goal of encouraging entrepreneurial activities. The findings of this study can assist policymakers and educators better understand the important role of learning expectations in entrepreneurship education and examine the influence of student autonomy on the dynamic learning process. Understanding, managing, and guiding students' learning expectations benefits policy formulation and teaching quality improvement in entrepreneurship education.

The thesis's implications will now be generally discussed from both the supply and demand sides, with policymakers, educators, and students as primary stakeholders in entrepreneurship education.

### 7.5.1 Policymakers

This study is beneficial for policymakers who are responsible for education policy and educational interventions such as funding. The findings of this thesis support that national-level education policy plays a decisive role in students' learning and is even seen as more critical than organisational-level university entrepreneurship education. This is because selecting voluntary or compulsory education policies in entrepreneurship education is directly related to student autonomy and may have an encouraging or discouraging effect on it, which in turn affects students' learning expectations and leads to differences in learning outcomes. This demonstrates that integrating national education policies into university-based entrepreneurship education has a substantial influence on students' entrepreneurship learning process, emphasising the pivotal role of policymakers as entrepreneurship education supporters. The findings will assist policymakers in developing a thorough understanding of the link between entrepreneurship education policies, students' learning expectations, and behaviours from the perspective of student autonomy. Students' learning expectations concerned in this thesis are an effective means to measure the effectiveness of entrepreneurship education, and the results can provide a framework for the policy reform of entrepreneurship education. Therefore, policymakers need to consider how to improve entrepreneurship education policies and direct the operations of public institutions based on an understanding of students' learning expectations with a view to promoting student autonomy and cultivating an entrepreneurial culture and achieving sustainable economic growth.

Furthermore, this study indicates that entrepreneurship education promotes entrepreneurial intention, underlining that educators as providers of entrepreneurship education are becoming a crucial factor in shaping the economy. Given the current high demand for educators with certified qualifications and abilities (Kuratko, 2005), policymakers need to formulate and implement clear policies on training practitioners to enhance the development of entrepreneurship education. Thus, Government policy in this respect should be effectively articulated, well-coordinated, and explicitly conveyed and executed to improve educators' abilities and the quality of entrepreneurship education. In particular, one key message from this

study is that education can be encouraged and supported but cannot be “forced”. In China, where entrepreneurship education is mandatory, despite meeting the target of “entrepreneurship education for every university student”, relatively little is gained in terms of students’ entrepreneurial intention and actual entrepreneurial activities. In other words, mandatory entrepreneurship education is not a quick fix for the lack of university students’ innovation and entrepreneurship. More resources must be invested in enhancing the enterprise culture, thus making entrepreneurship education desirable for students.

### 7.5.2 Educators

Educators, who carry out state policies for entrepreneurship education implementers, shall find the results of this study beneficial. The thesis’s results confirm the vital role of educators in entrepreneurship education and reveal the influence of educators’ personal factors on students’ entrepreneurial intention. Research demonstrates that both theoretical and practical learning directed by the tutor promotes entrepreneurial intention; however, the tutor’s academic qualifications inhibit entrepreneurial intention. This might imply that educators can improve entrepreneurial intention by offering theoretical and practical learning, but also can reduce the impulse to start a business by providing an academic perspective because of the risk involved. It helps educators deepen their understanding of the relationship between course content and design, teaching methods and resources, and learning outcomes from the perspective of students’ learning expectations.

As a valuable source of information, students’ learning expectations can shape entrepreneurship learning outcomes and serve as a basis for developing entrepreneurship education into an effective and mature programme, which can eventually contribute to increasing entrepreneurial activities and achieving socio-economic goals. Learning expectations provide educators with a clearer view of what students genuinely believe about entrepreneurship and entrepreneurship education, which helps them identify weak points of teaching and the areas to focus on for improvements. Clearly achieving a balance between traditional and experiential teaching methods is important. Simultaneously, educators should make attempts to

effectively shape and manage students' learning expectations and help them establish correct and realistic entrepreneurship concepts, not only to provide a satisfactory student experience but also to benefit them in future entrepreneurship and employment.

### 7.5.3 Students

Students, who are an essential demand side of entrepreneurship education, can profit from this thesis's findings. The findings support the central role of students in the entrepreneurial learning process. Students' autonomy affects learning expectations, resulting in differences in learning outcomes. Moreover, students' actual input positively impacts entrepreneurial intention. The thinking in this work can help to empower students and make them realise the essential role they play in the success (or failure) of entrepreneurship education. It is not uncommon for students to blame the course, tutors or the institutions if their study is not as successful as they wished. The results of this study help to remind students that it is them, the learners, their expectations and input that can make the difference between the success or failure of their study. In particular, the result of this study can assist students in deepening their understanding and thinking about learning and entrepreneurial behaviour. As a result, selecting suitable and interested majors or optional courses based on personal interest and expectations will optimise autonomy and enhance participation in order to attain a pleasant learning experience. This would not only apply to entrepreneurship education but also to other fields of study.

Additionally, it is important for students to realise that entrepreneurship education helps to address misconceptions or misunderstandings that they might have about entrepreneurship. Establishing realistic and correct learning expectations of entrepreneurial concepts would enhance students' inner self-understanding and allow them to thoroughly analyse their entrepreneurial feasibility, which would help them succeed in their future entrepreneurship.

## 7.6 Concluding remarks

Encouragement of the economy and promotion of employment has been a concern for all countries. Entrepreneurship is recognised as a crucial factor and a key driver of worldwide competitiveness, economic growth and innovation (Başçı & Alkan, 2015; Ratten & Usmanij, 2021; Wong et al., 2005). Given the acknowledgement of entrepreneurial activities in economic growth and the important contribution to employment creation, many countries, including the UK and China, have substantially invested in entrepreneurship education (Dou et al., 2019; Jones & Iredale, 2014; Lin & Xu, 2017; Walter & Block, 2016) with the anticipation of a boost in both the quantity and quality of entrepreneurship (Matlay, 2012). Especially in China, university entrepreneurship education is in its infancy and has been directly promoted by the Chinese government, using a compulsory education policy (Lavelle, 2021; MOE, 2012). The mission of entrepreneurship education is to enhance entrepreneurial knowledge and skills and foster students' entrepreneurial abilities and intentions, hoping that it will lead to them becoming entrepreneurs and contribute to economic growth. Given that entrepreneurship education involves several stakeholders, the need to connect the different perspectives of entrepreneurship education to explore their interplay and evaluate their impacts on students' entrepreneurial learning process has become apparent. This thesis took up the challenge to address this demand.

The investigation is premised on the belief that the importance and sustained investment of stakeholders in both the UK and China in entrepreneurship education necessitates using students' learning expectations as valuable feedback to assess the effectiveness of entrepreneurship education. Exploring the relationship between students' pre-course learning expectations and post-course perceptions of what they actually learn (satisfaction) might assist in enhancing teaching, coordinating teaching and learning activities, and thus improving the quality of entrepreneurship education. On the other hand, entrepreneurship education helps students establish correct and realistic learning expectations and entrepreneurial expectations that will benefit them in future entrepreneurship and employment. Therefore, understanding and shaping students' learning expectations is a critical first step in optimising entrepreneurship education teaching and learning.



Given that shared values and shared understandings are formed by national economic, political, societal and cultural environments, which may also promote or inhibit students' expectations of entrepreneurship and entrepreneurship education. This thesis builds bridges across the national-level institutional context, organisational-level university-based entrepreneurship education and individual-level entrepreneurial learning, aiming to explore the antecedents that affect students' learning expectations in the institutional background and investigate its impact on learning outcomes.

One of the study's key findings is that entrepreneurship education policy is an antecedent that influences students' learning expectations, which is reflected in a difference in student autonomy. National-level education policy is vital for students' entrepreneurial learning and can be perceived to be more crucial than organisational-level university entrepreneurship education. This is because voluntary or compulsory education policies may either encourage or discourage student autonomy. Given this finding, voluntary entrepreneurship education policy can enhance students' autonomy and positively affect their learning expectations to achieve educational goals and boost entrepreneurial activities, in contrast to a compulsory entrepreneurship education policy.

Furthermore, the present study meaningfully adds to the ongoing debate on entrepreneurial intentions by providing new field-based insights from the UK and China. British students appeared to be more willing to establish their own business than Chinese students, although their country was not significant when the controls were introduced on their own, implying that country effects appear to be relevant in understanding what causes entrepreneurial intentions. This study demonstrates that both theoretical and practical learning of entrepreneurship education favourably affect entrepreneurial intentions, justifying the role universities play in fostering entrepreneurial activities. Additionally, students' actual input (positive) and tutor's academic qualification (negative) also impact entrepreneurial intentions, representing original contributions to knowledge.

This thesis applies self-determination theory as a cornerstone to connect the different perspectives of entrepreneurship education, thereby exploring the interplay between entrepreneurship education policy, students' learning expectations, and their behaviour in entrepreneurial learning within the institutional context. The relationship between autonomy and learning expectations is established, which adds a new dimension to self-determination theory and makes a significant contribution to understanding students' dynamic learning process and the effectiveness of entrepreneurship education. As previously stated, the research has policy, theory and practice implications, and it is expected to generate further research in entrepreneurship education. Recognising students' learning expectations of entrepreneurship and entrepreneurship education would aid government in its educational interventions and improve the quality and delivery of university-based entrepreneurship education. Simultaneously, students would obtain various aspects of entrepreneurial knowledge and skills while also establishing correct and realistic learning expectations and entrepreneurship concepts through entrepreneurship education. However, unlike an accountant, engineer, or medical doctor, meeting graduation requirements does not result in a professional qualification. Given the findings of this thesis, perhaps most significantly, entrepreneurship education necessitates linking multiple stakeholders to promote student autonomy based on an understanding of students' learning expectations in order to cultivate graduates with the ability for autonomous learning and autonomous entrepreneurial behaviour.

The closing chapter of this thesis will aim to discuss areas for future investigation.

## Chapter 8: Limitations and Further Research

This final chapter reflects on the limitations of the thesis and is aimed to pave the way for future studies.

As with any other study, this research has several limitations that provide numerous research opportunities for future studies.

In this study, just the first language was utilised to distinguish between Native Chinese and Native British respondents. However, the ethnic origin of respondents was not specified. It should be noted that this study focused on how the institutional context in which respondents reside impacts their entrepreneurial learning process, highlighting that individuals and their lived social relations are interactive (Lam, 2004). Therefore, while ethnic origin may have little impact on this study, it may be considered in future investigations.

This thesis also faced some methodological limitations. It required students to recall their learning expectations before attending their EE courses and to assess their perceptions of learning outcomes after taking the EE course, reducing the complexity of data collection while enlarging the data sample and discovering if there is any trend. Although it includes both cross-sectional and longitudinal features, one limitation is that learning expectations relied upon the respondent's memory. The author suggests that future research could employ qualitative methods to obtain feedback from respondents to deepen understanding of the questions and the outcome from the research. For instance, researchers can consider using interviews, observations, or documentary evidence to triangulate findings from different approaches; develop the link between variables, leading to a better understanding of this relationship in the proposed framework.

Another limitation of this thesis is that it is only based on two research bases, the UK and China. As the shared understanding and shared value of entrepreneurship differ worldwide, more countries could have been included in the study and have yielded deeper insights into understanding students' entrepreneurial learning and entrepreneurial behaviours in various national institutional contexts. However, the

conceptual framework that has been developed provides a solid basis for future research on different countries and cultures.

The author only selected a sample of students studying EE courses in their home countries to focus on the influence of institutional background on them, with no samples of overseas students included. A future study might look into the impact of cross-cultural differences on students' entrepreneurial learning process. For instance, whether international Chinese students who voluntarily take EE courses in the UK have the same change in learning expectations and satisfaction as UK home students may be worth investigating in the future. Moreover, whether the cross-cultural difference would impact the variables such as student input, learning styles and methods, and entrepreneurial intention could be worth exploring.

The thesis draws upon self-determination theory in conjunction with the institutional context to investigate the impact of entrepreneurship education on students' entrepreneurial learning and entrepreneurial intentions, opening up a new pathway for scholars interested in studying entrepreneurship education in the UK and China and elsewhere. This study illustrates that British students appeared to be more willing to establish their own business than Chinese students, although it should be noted that their country was not significant when the controls were introduced on their own. It implies that country effects appear to be relevant in understanding what causes entrepreneurial intentions, which can be further studied. Moreover, there are limitless factors that can affect entrepreneurial intentions. Adding more variables to the model may result in different outcomes. Therefore, the author proposes that future studies continue to investigate by employing other variables or other models of intention to deepen understanding of entrepreneurial intentions.

Intention does not always culminate in behaviour. Hence, future research focused on entrepreneurial behaviour may yield insightful findings on the impact of entrepreneurial intentions and those graduates who are genuinely embarking on a career path in entrepreneurship. However, it should be noted that this study's primary purpose is to assess if entrepreneurship expectations can help to advance

understanding of the effectiveness of entrepreneurship education at the UK and Chinese universities. In the context of this study, a future investigation on intention to identify the hard outcome of becoming entrepreneurs might be interesting to uncover the authentic influence of entrepreneurial intentions on entrepreneurial behaviour.

Despite these limitations, however, this research generated very insightful findings that contribute to advancing understanding of the connection between students' learning expectations and the effectiveness of entrepreneurship education. In particular, the resulting implications for theory, practice, and policy are demonstrated, which forms a solid contribution to knowledge.

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## Appendix A: Questionnaire

### Questionnaire: students' learning expectations of entrepreneurship education

This survey aims to explore students' experience on entrepreneurship education (EE) in the UK and China. It will be deeply appreciated if you could share your experience of EE by filling in this questionnaire provide that you have participated in the EE (even it is only one module) during your study in the university.

Please answer this questionnaire by ticking the appropriate box. By completing and submitting this questionnaire, you are giving the consent to the authors to use your answers for the purpose of this research stated in the beginning. All information which is collected about you during the course of the research will be kept strictly confidential so that only the researcher carrying out the research will have access to such information.

This questionnaire is anonymous. All responses will be treated within the utmost confidence. Please skip any questions you do not want to (or not able to) answer.

Thank you for your participation and contribution.

#### **Section A: Demographic**

1. Year of birth: .....

2. Current year of study:

a) ☐ 1<sup>st</sup>

b) ☐ 2<sup>nd</sup>

c) ☐ 3<sup>rd</sup>

d) ☐ Postgraduate

e) ☐ Graduated

3. Gender:

a) ☐ Male

b) ☐ Female

c) ☐ Prefer not to say

4. First Language:

a) ☐ English

b) ☐ Chinese

c) ☐ Others:...

**Section B: Pre-course Learning Expectations**

Recalling your expectations BEFORE attending the entrepreneurship courses, please tick the one that is most relevant to your expectation at that stage: (0=never thought about it, 1 = not important at all, 2 = somewhat unimportant, 3 = neither important nor unimportant, 4 = important, 5 = extremely important).

**B1: Student course-related expectations**

7. Students' learning expectations on the importance of course content & design

Students' learning expectations on the importance of course content & design	Never thought about it	Not important at all	Somewhat unimportant	Neither important nor unimportant	Important	Extremely important
	0	1	2	3	4	5
7a. Ability to identify business opportunities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7b. Understanding the process of a business start-up	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7c. Writing a business plan	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7d. Marketing knowledge and skills	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7e. Access to finance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7f. Management skills for a business start-up	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



8. Students' learning expectations on the importance of teaching methods & resources

Students' learning expectations on the importance of teaching methods& resources	Never thought about it	Not important at all	Somewhat unimportant	Neither important nor unimportant	Important	Extremely important
	0	1	2	3	4	5
8a. Tutors' entrepreneurial experience	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8b. Tutors' academic qualification	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8c. Access to real-life entrepreneurs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8d. Interactive teaching methods	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8e. Hands-on business start-up opportunities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8f. Network opportunities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**B2: Student self-expectations**

9. Before attending the course, how many hours did you **expect** yourself to spend each week on the course (excluding the lecture and seminar)?

- a) ☐ 0                      b) ☐ 1-2                      c) ☐ 3-4  
d) ☐ 5-6                      e) ☐ 7-8                      f) ☐ above9

10. Did you expect to set up your own business within three years of graduation?

- ☐a. Yes                                      ☐b. No

## Section C: Post-course Satisfaction (students' perceptions on outcomes)

*Now that you have **attended** the course, how **satisfied** are you in terms of the following aspects (0=Never thought about it, 1 =Not satisfied at all, 2 = somewhat dissatisfied; 3 = neither satisfied nor dissatisfied, 4 = satisfied, 5 = Extremely satisfied).*

### C1: Student satisfaction level of entrepreneurship education

#### 11. Students' satisfaction with course content & design

Students' satisfaction with course content & design	Never thought about it	Not satisfied at all	Somewhat dissatisfied	Neither satisfied nor dissatisfied	Satisfied	Extremely satisfied
	0	1	2	3	4	5
11a. Ability to identify business opportunities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11b. Understanding the process of a business start-up	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11c. Writing a business plan	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11d. Marketing knowledge and skills	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11e. Access to finance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11f. Management skills for a business start-up	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## 12. Students' satisfaction with teaching methods & resources

Students' satisfaction with teaching methods and resources	Never thought about it 0	Not satisfied at all 1	Somewhat dissatisfied 2	Neither satisfied nor dissatisfied 3	Satisfied 4	Extremely satisfied 5
12a. Tutors' entrepreneurial experience	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12b. Tutors' academic qualification	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12c. Access to real-life entrepreneurs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12d. Interactive teaching methods	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12e. Hands-on business start-up opportunities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12f. Network opportunities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## C2: Student satisfaction level of the self-expectations

13. How many hours have you **actually** spent each week on the course (excluding lectures and seminars)?

- a) ☐ 0                      b) ☐ 1-2                      c) ☐ 3-4  
d) ☐ 5-6                      e) ☐ 7-8                      f) ☐ above 9

14. Are you still planning to set up your own business within three years of graduation?

- ☐ a. Yes                                      ☐ b. No

## Appendix B: Universities in the UK and China

*Table B-1 List of the universities in the UK*

List of the Universities in the UK	
University of Chester	University of Stirling
University of Sheffield	University of Essex
Sheffield Hallam University	University of Hertfordshire
University of Manchester	University of Surrey
University of Southampton	University of Plymouth
University of Salford	Queen Mary University of London
University College London	University of Edinburgh
University of Leeds	University of Liverpool
University of York	University of Leicester
Manchester Metropolitan University	University of Birmingham
University of Nottingham	Bournemouth University

*Table B-2 List of the universities in China*

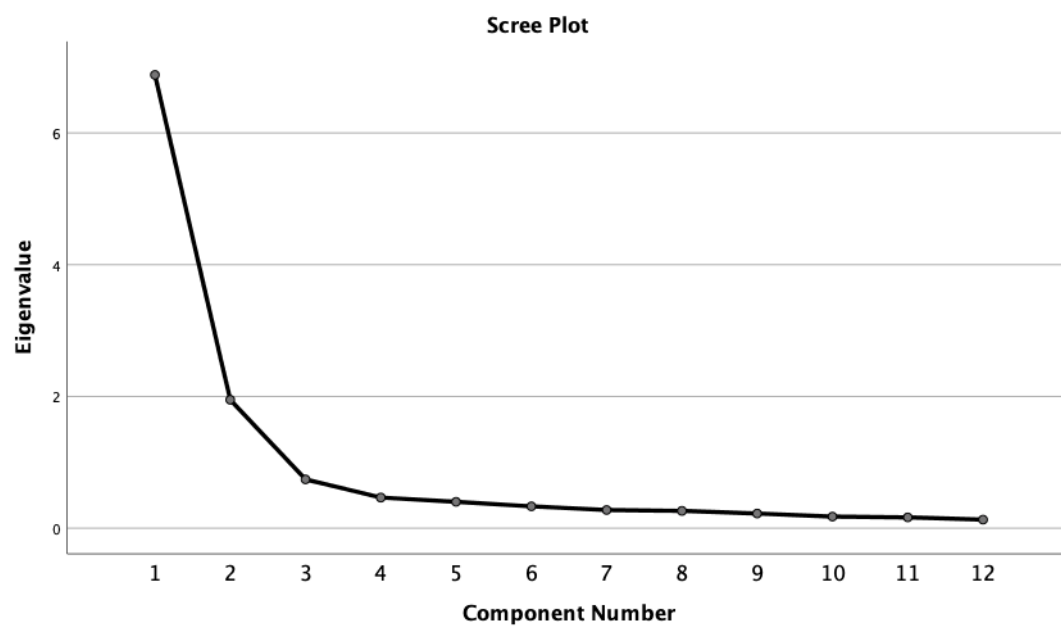
List of the Universities in China	
Guangxi Normal University	South China University of Technology
Wuhan University	Research Institute of Tsinghua University in
South-Central Minzu	Shenzhen International Education College
University	
Renmin University of China	Nanjing Audit University
HuangHuai University	Beijing Institute Of Fashion Technology
Zhengzhou University	Anhui Normal University
Jilin University	Nanjing University Of Finance & Economics
Dalian Minzu University	Beijing Youth Politics College
Huaqiao University	Beijing Institute of Technology
Beijing University of Posts and	Yunnan University
Telecommunications	University of Electronic Science and Technology of
Zhejiang University	China, Zhongshan Institute
Southeast University	Beijing University Of Agriculture
Nanjing University	Yunnan Agricultural University
Nanjing University of	North China Institute of Science and Technology
Aeronautics and Astronautics	
Wuzhou University	Liaoning Institute of Science and Technology
Huzhou University	Hunan University of Science and Technology
Henan University of	Shenyang Aerospace University
Economics and Law	Shanghai Maritime University

## Appendix C: Factor analysis result

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.911
Bartlett's Test of Sphericity	Approx. Chi-Square	2459.210
	df	66
	Sig.	.000

Total Variance Explained									
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	6.881	57.339	57.339	6.881	57.339	57.339	4.525	37.707	37.707
2	1.949	16.243	73.583	1.949	16.243	73.583	4.305	35.875	73.583
3	.741	6.174	79.757						
4	.465	3.875	83.631						
5	.400	3.336	86.967						
6	.332	2.766	89.733						
7	.276	2.301	92.035						
8	.263	2.189	94.223						
9	.223	1.859	96.083						
10	.176	1.466	97.549						
11	.165	1.371	98.920						
12	.130	1.080	100.000						

Extraction Method: Principal Component Analysis.



## Appendix D: Independent T-test and Chi-square test results

*Table D-1 T-test: students' learning expectations of course content and design*

		<b>Independent Samples Test</b>				
		Levene's Test for Equality of Variances		t-test for Equality of Means		
		F	Sig.	t	df	Sig. (2- tailed)
Overall 7Q learning expectations on course content and design	Equal variances assumed	13.332	.000	5.71	243	.000
	Equal variances not assumed			6.152	202.168	.000
7a) Ability to identify business opportunities	Equal variances assumed	2.124	0.146	5.973	245	.000
	Equal variances not assumed			6.286	192.898	.000
7b) Understanding the process of a business start-up	Equal variances assumed	3.765	0.053	6.15	245	.000
	Equal variances not assumed			6.364	184.308	.000
7c) Writing a business plan	Equal variances assumed	3.412	0.066	4.867	245	.000
	Equal variances not assumed			5.13	193.657	.000
7d) Marketing knowledge and skills	Equal variances assumed	16.749	.000	5.031	244	.000
	Equal variances not assumed			5.592	221.214	.000

7e) Access to finance	Equal variances assumed	8.988	0.003	3.058	245	0.002
	Equal variances not assumed			3.291	204.38	0.001
7f) Management skills for a business start-up	Equal variances assumed	8.734	0.003	4.436	244	.000
	Equal variances not assumed			4.857	209.891	.000

#### Bootstrap for Independent Samples Test

		Mean	Bias	Std.	Bootstrap <sup>a</sup>	95% Confidence	
		Difference		Error	Sig. (2-	Interval	
					tailed)	Lower	Upper
Overall 7Q learning expectations on course content and design	Equal variances assumed	.91796	-.00219	.14787	.001	.61270	1.18991
	Equal variances not assumed	.91796	-.00219	.14787	.001	.61270	1.18991
7a) Ability to identify business opportunities	Equal variances assumed	1.186	.000	.187	.001	.815	1.567
	Equal variances not assumed	1.186	.000	.187	.001	.815	1.567
7b) Understanding the process of a business start-up	Equal variances assumed	1.090	-.003	.169	.001	.758	1.417
	Equal variances not assumed	1.090	-.003	.169	.001	.758	1.417
7c) Writing a business plan	Equal variances assumed	.930	-.004	.187	.001	.559	1.287
	Equal variances not assumed	.930	-.004	.187	.001	.559	1.287



7d) Marketing knowledge and skills	Equal variances assumed	.894	.002	.160	.001	.544	1.194
	Equal variances not assumed	.894	.002	.160	.001	.544	1.194
7e) Access to finance	Equal variances assumed	.610	-.001	.181	.001	.260	.949
	Equal variances not assumed	.610	-.001	.181	.001	.260	.949
7f) Management skills for a business start-up	Equal variances assumed	.797	-.007	.162	.001	.460	1.098
	Equal variances not assumed	.797	-.007	.162	.001	.460	1.098

a. Unless otherwise noted, bootstrap results are based on 1000 bootstrap samples

*Table D-2 T-test: Students' learning expectations of teaching methods and resources*

Independent Samples Test		Levene's Test for Equality of Variances						t-test for Equality of Means		Sig. (2-tailed)
		F	Sig.	t	df					
Overall 8Q learning expectations on teaching methods and resources	Equal variances assumed	15.439	.000	3.186	245					0.002
	Equal variances not assumed			3.39	198.721					0.001
8a) Tutors' entrepreneurial experience	Equal variances assumed	10.238	0.002	4.774	245					.000
	Equal variances not assumed			5.106	201.287					.000

8b) Tutors' academic qualification	Equal variances assumed	15.055	.000	4.827	245	.000
	Equal variances not assumed			5.171	202.074	.000
8c) Access to real-life entrepreneurs	Equal variances assumed	11.91	0.001	3.663	245	.000
	Equal variances not assumed			3.869	194.751	.000
8d) Interactive teaching methods	Equal variances assumed	24.806	.000	1.915	245	0.057
	Equal variances not assumed			2.108	216.035	0.036
8e) Hands-on business start-up opportunities	Equal variances assumed	1.748	0.187	2.271	245	0.024
	Equal variances not assumed			2.394	193.889	0.018
8f) Network opportunities	Equal variances assumed	1.958	0.163	-1.578	245	0.116
	Equal variances not assumed			-1.566	164.247	0.119

#### Bootstrap for Independent Samples Test

		Bootstrap <sup>a</sup>					
		Mean Difference	Bias	Std. Error	Sig. (2- tailed)	95% Confidence Interval	
						Lower	Upper
Overall 8Q learning expectations	Equal variances assumed	.53144	-.00470	.15567	.001	.20956	.82291

on teaching methods and resources	Equal variances not assumed	.53144	-.00470	.15567	.003	.20956	.82291
8a) Tutors' entrepreneurial experience	Equal variances assumed	.996	-.005	.193	.001	.590	1.359
	Equal variances not assumed	.996	-.005	.193	.001	.590	1.359
8b) Tutors' academic qualification	Equal variances assumed	1.010	-.005	.192	.001	.610	1.354
	Equal variances not assumed	1.010	-.005	.192	.001	.610	1.354
8c) Access to real-life entrepreneurs	Equal variances assumed	.716	-.005	.182	.001	.341	1.042
	Equal variances not assumed	.716	-.005	.182	.001	.341	1.042
8d) Interactive teaching methods	Equal variances assumed	.375	-.001	.179	.031	.042	.726
	Equal variances not assumed	.375	-.001	.179	.038	.042	.726
8e) Hands-on business start-up opportunities	Equal variances assumed	.403	-.008	.170	.021	.054	.736
	Equal variances not assumed	.403	-.008	.170	.019	.054	.736
8f) Network opportunities	Equal variances assumed	-.311	-.004	.197	.109	-.701	.068
	Equal variances not assumed	-.311	-.004	.197	.114	-.701	.068

a. Unless otherwise noted, bootstrap results are based on 1000 bootstrap samples

Table D-3 T-test: students' expected input

		Independent Samples Test					
		Levene's Test for Equality of Variances		t-test for Equality of Means			
		F	Sig.	t	df	Sig. (2- tailed)	
9Q Student expected input	Equal variances assumed	1.644	0.201	4.35	245	.000	
	Equal variances not assumed			4.623	197.957	.000	
		Bootstrap for Independent Samples Test					
		Bootstrap <sup>a</sup>					
		Mean Difference	Bias	Std. Error	Sig. (2- tailed)	95% Confidence Interval	
						Lower	Upper
9Q Student expected input	Equal variances assumed	.711	.006	.147	.001	.419	1.017
	Equal variances not assumed	.711	.006	.147	.001	.419	1.017

a. Unless otherwise noted, bootstrap results are based on 1000 bootstrap samples

Table D-4 Chi-square test: Country\*students' pre-course entrepreneurial intention

<b>Country * 10Q Student pre-course entrepreneurial intention Crosstabulation</b>					
		10Q Student pre-course entrepreneurial intention		Total	
		no	yes		
Country	China	Count	88	75	163
		% within Country	54.0%	46.0%	100.0%
		Adjusted Residual	.2	-.2	
	UK	Count	44	40	84
		% within Country	52.4%	47.6%	100.0%
		Adjusted Residual	-.2	.2	
Total		Count	132	115	247

% within Country	53.4%	46.6%	100.0%
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Chi-Square Tests					
	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2- sided)	Exact Sig. (1- sided)
Pearson Chi-Square	.058 <sup>a</sup>	1	.810		
Continuity Correction <sup>b</sup>	.011	1	.916		
Likelihood Ratio	.057	1	.811		
Fisher's Exact Test				.893	.458
Linear-by-Linear Association	.057	1	.811		
N of Valid Cases	247				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 39.11.

b. Computed only for a 2x2 table

Symmetric Measures			
		Value	Approximate Significance
Nominal by Nominal	Phi	.015	.810
	Cramer's V	.015	.810
N of Valid Cases		247	

Bootstrap for Symmetric Measures						
				Bootstrap <sup>a</sup> 95% Confidence Interval		
		Value	Bias	Std. Error	Lower	Upper
Nominal	by Phi	.015	-.001	.065	-.114	.145
Nominal	Cramer's V	.015	.038	.040	.002	.148
N of Valid Cases		247	0	0	247	247

a. Unless otherwise noted, bootstrap results are based on 1000 bootstrap samples

*Table D-5 T-test: students' satisfaction with course content and design*

Independent Samples Test				
		Levene's Test for Equality of Variances	t-test for Equality of Means	

		F	Sig.	t	df	Sig. (2- tailed)
Overall 11Q Satisfaction with course content and design	Equal variances assumed	5.221	0.023	6.734	241	.000
	Equal variances not assumed			7.213	203.997	.000
11a) Ability to identify business opportunities	Equal variances assumed	6.924	0.009	6.982	243	.000
	Equal variances not assumed			7.396	197.226	.000
11b) Understanding the process of a business start-up	Equal variances assumed	0.061	0.805	6.536	244	.000
	Equal variances not assumed			6.586	171.701	.000
11c) Writing a business plan	Equal variances assumed	.000	0.986	4.954	244	.000
	Equal variances not assumed			4.939	166.676	.000
11d) Marketing knowledge and skills	Equal variances assumed	2.951	0.087	5.77	242	.000
	Equal variances not assumed			6.01	188.959	.000
11e) Access to finance	Equal variances assumed	8.524	0.004	4.559	242	.000
	Equal variances not assumed			4.937	209.166	.000

11f) Management skills for a business start-up	Equal variances assumed	6.211	0.013	5.357	242	.000
	Equal variances not assumed			5.779	207.203	.000

### Bootstrap for Independent Samples Test

		Mean Difference	Bias	Std. Error	Bootstrap <sup>a</sup> Sig. (2-tailed)	95% Confidence Interval	
						Lower	Upper
Overall 11Q Satisfaction with course content and design	Equal variances assumed	.96998	-.00116	.13319	.001	.70985	1.21706
	Equal variances not assumed	.96998	-.00116	.13319	.001	.70985	1.21706
11a) Ability to identify business opportunities	Equal variances assumed	1.252	-.002	.166	.001	.938	1.584
	Equal variances not assumed	1.252	-.002	.166	.001	.938	1.584
11b) Understanding the process of a business start-up	Equal variances assumed	1.062	.002	.155	.001	.766	1.354
	Equal variances not assumed	1.062	.002	.155	.001	.766	1.354
11c) Writing a business plan	Equal variances assumed	.904	.003	.177	.001	.570	1.240
	Equal variances not assumed	.904	.003	.177	.001	.570	1.240
11d) Marketing knowledge and skills	Equal variances assumed	.939	-.005	.154	.001	.636	1.255
	Equal variances not assumed	.939	-.005	.154	.001	.636	1.255

11e) Access to finance	Equal variances assumed	.821	-.005	.162	.001	.495	1.152
	Equal variances not assumed	.821	-.005	.162	.001	.495	1.152
11f) Management skills for a business start-up	Equal variances assumed	.842	.000	.144	.001	.559	1.136
	Equal variances not assumed	.842	.000	.144	.001	.559	1.136

a. Unless otherwise noted, bootstrap results are based on 1000 bootstrap samples

*Table D-6 T-test: students' satisfaction with teaching methods and resources*

		<b>Independent Samples Test</b>				
		Levene's Test for Equality of Variances		t-test for Equality of Means		
		F	Sig.	t	df	Sig. (2-tailed)
Overall 12Q Satisfaction with teaching methods and resources	Equal variances assumed	19.315	.000	4.663	236	.000
	Equal variances not assumed			4.931	199.578	.000
12a) Tutors' entrepreneurial experience	Equal variances assumed	5.902	0.016	5.874	241	.000
	Equal variances not assumed			6.143	191.552	.000
12b) Tutors' academic qualification	Equal variances assumed	4.679	0.032	5.349	240	.000
	Equal variances not assumed			5.534	186.353	.000



12c) Access to real-life entrepreneurs	Equal variances assumed	7.529	0.007	4.628	241	.000
	Equal variances not assumed			4.8	187.293	.000
12d) Interactive teaching methods	Equal variances assumed	11.995	0.001	2.963	238	0.003
	Equal variances not assumed			3.161	203.251	0.002
12e) Hands-on business start-up opportunities	Equal variances assumed	17.452	.000	4.694	240	.000
	Equal variances not assumed			5.126	214.257	.000
12f) Network opportunities	Equal variances assumed	2.622	0.107	1.854	241	0.065
	Equal variances not assumed			1.885	177.275	0.061

#### Bootstrap for Independent Samples Test

		Mean Difference	Bias	Std. Error	Sig. (2-tailed)	Bootstrap <sup>a</sup> 95% Confidence Interval	
						Lower	Upper
Overall 12Q Satisfaction with teaching methods and resources	Equal variances assumed	.77074	-.00481	.15801	.001	.45020	1.05890
	Equal variances not assumed	.77074	-.00481	.15801	.001	.45020	1.05890
12a) Tutors' entrepreneurial experience	Equal variances assumed	1.102	-.005	.189	.001	.722	1.461

	Equal variances not assumed	1.102	-.005	.189	.001	.722	1.461
12b) Tutors' academic qualification	Equal variances assumed	.970	-.006	.179	.001	.610	1.306
	Equal variances not assumed	.970	-.006	.179	.001	.610	1.306
12c) Access to real-life entrepreneurs	Equal variances assumed	.830	-.006	.175	.001	.475	1.166
	Equal variances not assumed	.830	-.006	.175	.001	.475	1.166
12d) Interactive teaching methods	Equal variances assumed	.540	-.003	.169	.001	.206	.876
	Equal variances not assumed	.540	-.003	.169	.001	.206	.876
12e) Hands-on business start- up opportunities	Equal variances assumed	.806	-.005	.161	.001	.487	1.134
	Equal variances not assumed	.806	-.005	.161	.001	.487	1.134
12f) Network opportunities	Equal variances assumed	.377	-.005	.209	.076	-.043	.772
	Equal variances not assumed	.377	-.005	.209	.078	-.043	.772

a. Unless otherwise noted, bootstrap results are based on 1000 bootstrap samples

*Table D-7 T-test: students' actual input*

Independent Samples Test					
	Levene's Test for Equality of Variances		t-test for Equality of Means		
	F	Sig.	t	df	Sig. (2- tailed)

13Q Student actual input	Equal variances assumed	3.379	0.067	4.98	240	.000
	Equal variances not assumed			5.239	195.098	.000

#### Bootstrap for Independent Samples Test

		Mean Difference	Bias	Std. Error	Sig. (2- tailed)	Bootstrap <sup>a</sup> 95% Confidence Interval	
						Lower	Upper
13Q Student actual input	Equal variances assumed	.918	.003	.178	.001	.585	1.300
	Equal variances not assumed	.918	.003	.178	.001	.585	1.300

a. Unless otherwise noted, bootstrap results are based on 1000 bootstrap samples

*Table D-8 Chi-square test: Country \* students' post-course entrepreneurial intention*

#### Country \* 14Q Student post-course entrepreneurial intention Crosstabulation

			14Q Student post-course entrepreneurial intention		Total
			no	yes	
Country	China	Count	84	74	158
		% within Country	53.2%	46.8%	100.0%
		Adjusted Residual	.8	-.8	
	UK	Count	40	44	84
		% within Country	47.6%	52.4%	100.0%
		Adjusted Residual	-.8	.8	
Total	Count		124	118	242
	% within Country		51.2%	48.8%	100.0%

#### Chi-Square Tests

Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
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Pearson Chi-Square	.675 <sup>a</sup>	1	.411		
Continuity Correction <sup>b</sup>	.471	1	.492		
Likelihood Ratio	.675	1	.411		
Fisher's Exact Test				.421	.246
Linear-by-Linear Association	.672	1	.412		
N of Valid Cases	242				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 40.96.

b. Computed only for a 2x2 table

Symmetric Measures			
		Value	Approximate Significance
Nominal by Nominal	Phi	.053	.411
	Cramer's V	.053	.411
N of Valid Cases		242	

Bootstrap for Symmetric Measures						
			Bootstrap <sup>a</sup>			
		Value	Bias	Std. Error	95% Confidence Interval	
					Lower	Upper
Nominal	by Phi	.053	.000	.064	-.072	.180
Nominal	Cramer's V	.053	.015	.049	.003	.180
N of Valid Cases		242	0	0	242	242

a. Unless otherwise noted, bootstrap results are based on 1000 bootstrap samples

## Appendix E: Two-way ANOVA test results

*Table E-1 ANOVA test: Country\*EE & Ability to identify business opportunities*

Source	Type Sum Squares	III of df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	165.096 <sup>a</sup>	3	55.032	27.948	.000	.147
Intercept	3477.595	1	3477.595	1766.129	.000	.784
Country	162.975	1	162.975	82.768	.000	.145
EE	1.971	1	1.971	1.001	.318	.002
Country * EE	.050	1	.050	.025	.873	.000
Error	960.896	488	1.969			
Total	5542.000	492				
Corrected Total	1125.992	491				

a. R Squared = .147 (Adjusted R Squared = .141)

Ability to identify business opportunities Mean (SD)	UK	China
Before EE	3.47(1.56)	2.27(1.33)
After EE	3.35(1.39)	2.12(1.16)

*Table E-2 ANOVA test: Country\*EE & Writing a business plan*

Source	Type Sum Squares	III of df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	95.529 <sup>a</sup>	3	31.843	16.918	.000	.094
Intercept	3923.179	1	3923.179	2084.326	.000	.810
Country	90.539	1	90.539	48.102	.000	.090
EE	4.865	1	4.865	2.585	.109	.005
Country * EE	.090	1	.090	.048	.827	.000
Error	920.410	489	1.882			
Total	5814.000	493				
Corrected Total	1015.939	492				

a. R Squared = .094 (Adjusted R Squared = .088)

<b>Writing a business plan</b>		
<b>Mean (SD)</b>	<b>UK</b>	<b>China</b>
Before EE	3.34(1.50)	2.40(1.28)
After EE	3.52(1.31)	2.64(1.32)

*Table E-3 ANOVA test: Country\*EE & Marketing knowledge and skills*

<b>Source</b>	<b>Type Sum Squares</b>	<b>III of df</b>	<b>Mean Square</b>	<b>F</b>	<b>Sig.</b>	<b>Partial Squared</b>	<b>Eta</b>
Corrected Model	96.210 <sup>a</sup>	3	32.070	19.947	.000	.110	
Intercept	3896.613	1	3896.613	2423.571	.000	.833	
Country	92.878	1	92.878	57.767	.000	.106	
EE	2.863	1	2.863	1.781	.183	.004	
Country * EE	.037	1	.037	.023	.880	.000	
Error	781.390	486	1.608				
Total	5630.000	490					
Corrected Total	877.600	489					

a. R Squared = .110 (Adjusted R Squared = .104)

<b>Marketing knowledge and skills</b>		
<b>Mean (SD)</b>	<b>UK</b>	<b>China</b>
Before EE	3.34(1.46)	2.44(1.03)
After EE	3.52(1.26)	2.58(1.10)

*Table E-4 ANOVA test: Country\*EE & Access to finance*

<b>Source</b>	<b>Type Sum Squares</b>	<b>III of df</b>	<b>Mean Square</b>	<b>F</b>	<b>Sig.</b>	<b>Partial Squared</b>	<b>Eta</b>
Corrected Model	57.581 <sup>a</sup>	3	19.194	9.740	.000	.057	
Intercept	3441.813	1	3441.813	1746.501	.000	.782	
Country	55.962	1	55.962	28.397	.000	.055	
EE	.067	1	.067	.034	.853	.000	
Country * EE	1.290	1	1.290	.655	.419	.001	
Error	959.726	487	1.971				
Total	5153.000	491					
Corrected Total	1017.308	490					

a. R Squared = .057 (Adjusted R Squared = .051)

<b>Access to finance</b>		
<b>Mean (SD)</b>	<b>UK</b>	<b>China</b>
Before EE	3.08(1.57)	2.48(1.25)
After EE	3.21(1.44)	2.39(1.11)

*Table E-5 ANOVA test: Country\*EE & Management skills for a business start-up*

<b>Source</b>	<b>Type Sum Squares</b>	<b>III of df</b>	<b>Mean Square</b>	<b>F</b>	<b>Sig.</b>	<b>Partial Squared</b>	<b>Eta</b>
Corrected Model	75.416 <sup>a</sup>	3	25.139	16.253	.000	.091	
Intercept	3977.325	1	3977.325	2571.496	.000	.841	
Country	72.947	1	72.947	47.163	.000	.088	
EE	2.082	1	2.082	1.346	.247	.003	
Country * EE	.068	1	.068	.044	.833	.000	
Error	751.695	486	1.547				
Total	5642.000	490					
Corrected Total	827.110	489					

a. R Squared = .091 (Adjusted R Squared = .086)

<b>Management skills for a business start-up</b>		
<b>Mean (SD)</b>	<b>UK</b>	<b>China</b>
Before EE	3.33(1.43)	2.54(1.07)
After EE	3.49(1.25)	2.65(0.98)

*Table E-6 ANOVA test: Country\*EE & Tutors' entrepreneurial experience*

<b>Source</b>	<b>Type Sum Squares</b>	<b>III of df</b>	<b>Mean Square</b>	<b>F</b>	<b>Sig.</b>	<b>Partial Squared</b>	<b>Eta</b>
Corrected Model	124.997 <sup>a</sup>	3	41.666	18.871	.000	.104	
Intercept	6035.630	1	6035.630	2733.640	.000	.849	
Country	123.625	1	123.625	55.992	.000	.103	
EE	1.195	1	1.195	.541	.462	.001	
Country * EE	.433	1	.433	.196	.658	.000	
Error	1073.044	486	2.208				
Total	7306.000	490					
Corrected Total	1198.041	489					

a. R Squared = .104 (Adjusted R Squared = .099)

<b>Tutors' entrepreneurial experience</b>		
<b>Mean (SD)</b>	<b>UK</b>	<b>China</b>
Before EE	4.14(1.34)	3.15(1.65)
After EE	4.31(1.29)	3.19(1.48)

*Table E-7 ANOVA test: Country\*EE & Tutors' academic qualification*

<b>Source</b>	<b>Type Sum Squares</b>	<b>III of df</b>	<b>Mean Square</b>	<b>F</b>	<b>Sig.</b>	<b>Partial Eta Squared</b>
Corrected Model	111.839 <sup>a</sup>	3	37.280	17.622	.000	.098
Intercept	6499.856	1	6499.856	3072.453	.000	.864
Country	107.907	1	107.907	51.007	.000	.095
EE	2.966	1	2.966	1.402	.237	.003
Country * EE	.049	1	.049	.023	.879	.000
Error	1026.030	485	2.116			
Total	7771.000	489				
Corrected Total	1137.869	488				

a. R Squared = .098 (Adjusted R Squared = .093)

<b>Tutors' academic qualification</b>		
<b>Mean (SD)</b>	<b>UK</b>	<b>China</b>
Before EE	4.26(1.34)	3.25(1.66)
After EE	4.40(1.24)	3.44(1.39)

*Table E-8 ANOVA test: Country\*EE & Access to real-life entrepreneurs*

<b>Source</b>	<b>Type Sum Squares</b>	<b>III of df</b>	<b>Mean Square</b>	<b>F</b>	<b>Sig.</b>	<b>Partial Eta Squared</b>
Corrected Model	68.341 <sup>a</sup>	3	22.780	11.640	.000	.067
Intercept	6565.724	1	6565.724	3354.757	.000	.873
Country	66.489	1	66.489	33.973	.000	.065
EE	1.015	1	1.015	.519	.472	.001
Country * EE	.400	1	.400	.204	.651	.000
Error	951.169	486	1.957			
Total	7854.000	490				



Corrected      1019.510      489  
Total

a. R Squared = .067 (Adjusted R Squared = .061)

<b>Access to real-life entrepreneurs Mean (SD)</b>	<b>UK</b>	<b>China</b>
Before EE	4.26(1.29)	3.55(1.53)
After EE	4.23(1.24)	3.39(1.39)

*Table E-9 ANOVA test: Country\*EE & Interactive teaching methods*

<b>Source</b>	<b>Type Sum Squares</b>	<b>III of df</b>	<b>Mean Square</b>	<b>F</b>	<b>Sig.</b>	<b>Partial Squared</b>	<b>Eta</b>
Corrected Model	23.978 <sup>a</sup>	3	7.993	4.059	.007	.025	
Intercept	5738.131	1	5738.131	2914.347	.000	.858	
Country	22.972	1	22.972	11.667	.001	.024	
EE	.590	1	.590	.300	.584	.001	
Country * EE	.731	1	.731	.371	.543	.001	
Error	950.991	483	1.969				
Total	7078.000	487					
Corrected Total	974.969	486					

a. R Squared = .025 (Adjusted R Squared = .019)

<b>Interactive teaching methods Mean (SD)</b>	<b>UK</b>	<b>China</b>
Before EE	3.76(1.17)	3.39(1.59)
After EE	3.92(1.15)	3.38(1.43)

*Table E-10 ANOVA test: Country\*EE & Hands-on business start-up opportunities*

<b>Source</b>	<b>Type Sum Squares</b>	<b>III of df</b>	<b>Mean Square</b>	<b>F</b>	<b>Sig.</b>	<b>Partial Squared</b>	<b>Eta</b>
Corrected Model	73.414 <sup>a</sup>	3	24.471	14.687	.000	.084	
Intercept	6553.215	1	6553.215	3932.989	.000	.891	
Country	73.414	1	73.414	44.060	.000	.084	

EE	.000	1	.000	.000	1.000	.000
Country * EE	.000	1	.000	.000	1.000	.000
Error	799.785	480	1.666			
Total	7642.000	484				
Corrected	873.198	483				
Total						

a. R Squared = .084 (Adjusted R Squared = .078)

<b>Hands-on opportunities Mean (SD)</b>	<b>business</b>	<b>start-up</b>	<b>UK</b>	<b>China</b>
Before EE			4.27(1.18)	3.87(1.39)
After EE			4.27(1.05)	3.46(1.40)

## Appendix F: Binary logistic regression result

Classification Table <sup>a,b</sup>					
Observed			Predicted		Percentage Correct
			14Q Student post-course entrepreneurial intention		
Step 0	14Q Student post-course entrepreneurial intention	no	119	0	100.0
		yes	117	0	.0
		Overall Percentage			

a. Constant is included in the model.

b. The cut value is .500

Classification Table <sup>a</sup>					
Observed			Predicted		Percentage Correct
			14Q Student post-course entrepreneurial intention		
Step 1	14Q Student post-course entrepreneurial intention	no	71	48	59.7
		yes	34	83	70.9
		Overall Percentage			65.3

a. The cut value is .500

Variables in the Equation								95% C.I. for EXP(B)	
		B	S.E.	Wald	df	Sig.	Exp(B)	Lower	Upper
Step 1 <sup>a</sup>	Age	-.520	.168	9.591	1	.002	.595	.428	.826
	Gender(1)	1.203	.299	16.142	1	.000	3.329	1.851	5.986
	Country(1)	-.033	.317	.011	1	.917	.967	.520	1.800
	Current year of study	-.172	.133	1.673	1	.196	.842	.649	1.093
	Constant	1.394	.909	2.353	1	.125	4.033		

a. Variable(s) entered on step 1: Age, Gender, Country, Current year of study.

Classification Table <sup>a</sup>					
		Predicted			
		14Q Student post-course entrepreneurial intention		Percentage Correct	
Observed		no	yes		
Step 1	14Q Student post- course	no	103	16	86.6
	entrepreneurial intention	yes	13	104	88.9
Overall Percentage					87.7

a. The cut value is .500

Variables in the Equation								95% C.I. for EXP(B)	
		B	S.E.	Wald	df	Sig.	Exp(B)	Lower	Upper
Step 1 <sup>a</sup>	Age	-.617	.262	5.544	1	.019	.540	.323	.902
	Gender(1)	1.144	.505	5.122	1	.024	3.138	1.166	8.451
	Country(1)	2.048	.747	7.525	1	.006	7.751	1.794	33.480
	Current year of study	.045	.189	.057	1	.811	1.046	.722	1.516
	10Q Student pre- course entrepreneurial intention(1)	3.614	.515	49.251	1	.000	37.116	13.527	101.836
	11a) Ability to identify business opportunities	.214	.282	.578	1	.447	1.239	.713	2.150
	11b) Understanding the process of a business start-up	1.126	.339	11.035	1	.001	3.083	1.587	5.990
	11c) Writing a business plan	.347	.301	1.327	1	.249	1.415	.784	2.554
	11d) Marketing knowledge and skills	-.558	.381	2.147	1	.143	.573	.272	1.207
	11e) Access to finance	-.015	.281	.003	1	.957	.985	.568	1.708
	11f) Management skills for a business start-up	-.152	.291	.274	1	.601	.859	.486	1.518

12a) Tutors' entrepreneurial experience	-.011	.357	.001	1	.977	.990	.491	1.994
12b) Tutors' academic qualification	-	.416	6.624	1	.010	.343	.152	.775
	1.070							
12c) Access to real-life entrepreneurs	-.079	.382	.043	1	.836	.924	.437	1.953
12d) Interactive teaching methods	-.295	.300	.966	1	.326	.744	.413	1.341
12e) Hands-on business start-up opportunities	.985	.370	7.072	1	.008	2.677	1.296	5.533
12f) Network opportunities	-.396	.265	2.236	1	.135	.673	.401	1.131
13Q Student actual input	.485	.184	6.947	1	.008	1.625	1.133	2.331
Constant	-	1.633	3.262	1	.071	.052		
	2.950							

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a. Variable(s) entered on step 1: 10Q Student pre-course entrepreneurial intention, 11a) Ability to identify business opportunities, 11b) Understanding the process of a business start-up, 11c) Writing a business plan, 11d) Marketing knowledge and skills, 11e) Access to finance, 11f) Management skills for a business start-up, 12a) Tutors' entrepreneurial experience, 12b) Tutors' academic qualification, 12c) Access to real-life entrepreneurs, 12d) Interactive teaching methods, 12e) Hands-on business start-up opportunities, 12f) Network opportunities, 13Q How many hours have you actually spent each week on the course (excluding lectures and seminars)?

## Appendix G: Ethical approval

### **University of Chester - Faculty of Business and Management/BRICC**

#### **Research involving Humans**

- All students and staff will operate with as full a consideration as is reasonably practical for the consequences of their work for society at large and groups within it.
- Students and staff will handle all confidential information with appropriate levels of discretion, compliance with the law and with due diligence as to the security of that data. As standard practice students and staff will normally seek to prevent the publication or use of information in any way that could compromise a participant's confidentiality or identity.
- Any material being prepared for submission will be produced in such a way as to reduce the possibility of breaches of confidentiality and / or identification.
- Students and staff will try to avoid overburdening the participants in their research, causing them inconvenience or intruding into their private and personal domains.
- Participants will be informed of the risk, purpose and nature of any inquiry in which they are being asked to participate.
- Students and staff will avoid misleading research participants or withholding material facts about research of which they should be aware.
- Where the research methodology allows for it, a research participant will be expected to be provided with a consent form which will also indicate a participant's right of referral and appeal to the relevant Programme Team.
- All students are required, before their work based projects and research projects begin, to complete a proposal with their tutor. Only after formal approval from their tutor (which may involve review by an Ethics Committee) will work normally be allowed to commence.
- When the research involves human beings (survey, observation, personal interview) it is vital that the lead researcher identifies whether their project

should be formally considered by an Ethics Committee. The checklist that follows this document will guide that decision.

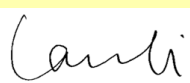
- All members of staff and all students at all levels are required to read and agree to comply with these statements and to operate them in the full spirit in which they are written.
- Failure to comply with these statements may be regarded as a matter of academic malpractice and will be dealt with according to the relevant University guidelines, regulations and procedures.
- Data collected for staff research projects are required to be held for at least 10 years (if not indefinitely).

**In signing below, I declare I am the lead researcher and agree to the ethical principles outlined above, and any updates to these which may be made after signing (which will be posted on programme areas of the University's portal):**

**PRINT your name:**

Lan Li

**Your signature:**



**Date:**

30/04/2020