Influences on entrepreneurial learning and opportunity identification: Comparing green and conventional startups

Abstract

Purpose
The study examines how the micro, meso, and macro-levels influence learning (forward-facing and backward-facing) and opportunity identification among young entrepreneurs in the UK and China starting green and conventional businesses.

Design/methodology/approach
The study is based on 20 young (18 to 30) entrepreneurs in the UK and China. Thematic and content analysis identified and categorised various themes. The data were then analysed using *ORIGIN Graphpad* software to identify statistical differences and their significance levels.

Findings
General influences on starting a business were relatively evenly spread across the micro (individual), meso (family and social networks) and macro levels (institutional) for the two groups; the only exception was the higher micro-level influences for the green entrepreneurs. The barriers to startup were concentrated at the meso and macro levels, but there were significant differences between the green and conventional startups.

Originality
The findings demonstrate the importance of considering the interplay between micro, meso, and macro levels on both forward-facing cognitive and backward-facing experiential learning in entrepreneurship. The multilevel impacts provide a more nuanced understanding of the influences shaping entrepreneurial learning and opportunity identification among young entrepreneurs starting businesses with different sustainability orientations.

Practical implications
A noteworthy finding was the dominance of experiential over cognitive learning among entrepreneurs, including those starting green businesses. Considering the importance of young people establishing environmentally-friendly companies, this lack of focus on forward-looking cognitive learning represents a significant educational gap. Greater emphasis should be placed on encouraging green entrepreneurs to devote more attention to the forward-facing, cognitive dimensions of learning.

Keywords: sustainable business, sustainable entrepreneurship, green entrepreneurship, entrepreneurial learning, opportunity identification

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Comparing green and conventional startups

1 INTRODUCTION

Lamont (1972), the first author to explicitly refer to entrepreneurial learning, examined experienced entrepreneurs engaging in experiential learning. Since the 1990s, research focusing on entrepreneurial learning has increased steadily and is now a key concept in the literature (Erikson, 2003, Haneberg and Aaboen, 2021, Hyams-Ssekasi and Caldwell, 2018). Many authors have confirmed the importance of experiential learning for acquiring basic entrepreneurship skills (Cope, 2005, Corbett, 2005, Hyams-Ssekasi and Caldwell, 2018, Politis *et al.*, 2019, Wang and Chugh, 2014).

Scholars have also proposed various frameworks to examine how entrepreneurial learning occurs. Notably, Berends *et al.* (2016) highlight the importance of distinguishing between forward-facing (cognitive) learning and backward-facing (experiential) learning when analysing how entrepreneurs acquire knowledge (Crossan *et al.*, 1999, Dutta and Crossan, 2005). Additionally, Karatas-Ozkan and Chell (2010) suggest that entrepreneurial learning is influenced by three distinct levels: micro, meso, and macro (Bourdieu, 1977, 1986). The micro-level focuses on an entrepreneur's orientation and dispositions (Chen *et al.*, 2021). The meso-level examines the influences of close relationships and social networks (Eller *et al.*, 2020, English *et al.*, 2021), while the macro-level considers the broader institutional context, including the market, law and other social norms (He *et al.*, 2020, Meek *et al.*, 2010, Pacheco *et al.*, 2010).

Building on this understanding of learning as a multilevel phenomenon, it is possible to explore how entrepreneurship is linked to positive transformations associated with sustainable development. The potential for entrepreneurship to drive sustainability may be

influenced by the interplay between individual entrepreneurs, their social capital, and the broader institutional context. According to Johnson and Schaltegger (2020, p.1143), 'if research strives to develop theories linking entrepreneurial efforts to positive transformations towards sustainable development, then explanations should be founded on the causal links between micro, meso and macro-levels'. Therefore, researchers should investigate how entrepreneurial learning at different levels contributes to sustainable development outcomes.

In line with this research, young people's growing interest in entrepreneurship presents an opportunity to explore how they engage with sustainable entrepreneurship. This trend is driven by a combination of factors, including a lack of job opportunities in larger organisations and a growing emphasis on enterprise education in higher education (Fayolle *et al.*, 2019), which encourages many graduates to consider careers in entrepreneurship (Breznitz and Zhang, 2020, Hickie, 2011). Additionally, young people in the 18 to 34 age group are more likely to engage in sustainable entrepreneurship as they are more aware of the threats posed by climate change and see the connections between green entrepreneurship and environmental concerns (Eller *et al.*, 2020, Kelley *et al.*, 2016, Masciarelli and Leonelli, 2020).

Green entrepreneurship is a scholarly term that has grown in popularity recently (Antolin‐Lopez *et al.*, 2019, Toledano, 2022). Entrepreneurs can help solve significant social and environmental problems by acting as change agents to create value, including financial rewards and personal fulfilment (Toledano, 2022). Green entrepreneurship has numerous definitions (Antolin-Lopez *et al.*, 2019), but it essentially draws on a sustainability agenda, encompassing a broader range of issues that extend to sustainable development goals (Chen *et al.*, 2021). Sustainable entrepreneurship was first defined by the World Commission on Environment and Development (WCED) in 1987 as meeting the needs of the present without compromising the ability of future generations to fulfil their own needs (WCED, 1987). This

definition acknowledges that there are limits to all physical systems and that the survival of humanity depends on accepting these limits (Hall *et al.*, 2010, Santillo, 2017). As a result, sustainable development requires the consideration of social and environmental factors alongside economic and financial issues (Elkington, 1999, Haugh and Talwar, 2010, Johnsen *et al.*, 2018).

Building on the understanding of entrepreneurial learning as a multilevel phenomenon and the potential of entrepreneurship to drive sustainable development, this study explores how young entrepreneurs navigate the early phases of their entrepreneurial journey. There is limited understanding of how the micro, meso, and macro-levels influence young entrepreneurs during the critical period of identifying new business opportunities. This study will address this knowledge gap by examining the following research question: How do the micro, meso, and macro levels influence entrepreneurial learning during opportunity identification and development for young entrepreneurs?

To better understand the entrepreneurial learning experiences of young entrepreneurs, it is necessary to consider the diverse contexts in which they operate. Previous studies suggest that there are significant differences between entrepreneurs in emerging or transition economies, such as China, compared to developed countries in the West. For example, differences have been found in terms of entrepreneurial networks (Burt, 2019), motivation and resources (Anokhin *et al.*, 2008), institutions (Puffer *et al.*, 2010, Tan, 2002), entrepreneurial identity (Bell *et al.*, 2019), motivation, intention and perceived barriers (Giacomin *et al.*, 2011), and attitudes (Stimpson *et al.*, 1990).

Given the significance of contextual factors in shaping entrepreneurial experiences, this study will investigate the learning journeys of young entrepreneurs in two distinct contexts. The study will employ a comparative analysis of semi-structured interviews with 20 young entrepreneurs in Liverpool, UK, and Macao S.A.R., China, engaging in green and conventional

(non-green) business startups. Despite their differing socio-economic contexts, these regions were chosen due to their shared commitment to fostering young entrepreneurship and advancing sustainability initiatives.

Liverpool and Macao S.A.R. offer an interesting contrast regarding their socio-economic context and policies towards youth entrepreneurship. Liverpool is grappling with a shortage of quality graduate employment opportunities and high levels of youth unemployment, prompting the city to institute policies to stimulate entrepreneurship among younger demographics (Hickie, 2011, Pelikh and Rowe, 2024). In contrast, Macao S.A.R.'s youth entrepreneurship policies are geared towards diversifying an economy heavily dependent on tourism and hospitality (Macao Special Administration Region, 2023). Notably, while sustainability and its associated technologies are gaining traction within developed cities, Macao S.A.R. has yet to embrace this trend entirely.

In the following section, literature related to entrepreneurial learning and sustainable entrepreneurship is reviewed, which leads to a theoretical framework illustrated in Figure 1. The research methods, the sample, and the data analyses are outlined. The results are presented, followed by a discussion of the findings based on the conceptual framework. Finally, the study demonstrates the links between various forms of entrepreneurial learning and factors impacting young entrepreneurs' opportunity identification and development processes.

2 LITERATURE REVIEW

2.1 Entrepreneurial Learning

The importance of context in shaping entrepreneurial learning has been widely acknowledged for more than 20 years (Cope, 2005, Cope and Watts, 2000, Hunter and Lean, 2018, Munawaroh *et al.*, 2023, Politis, 2005, Politis *et al.*, 2019, Rae, 2004, 2005). Most of this

work draws heavily on Kolb's (1984) seminal contribution to our understanding of the experiential learning cycle. According to Kolb (1984), learning occurs as a result of two 'dialectical processes', which are described as understanding experience and applying that experience. The learning cycle comprises four modes: abstract conceptualisation, active experimentation, concrete experience and reflective observation (Kolb, 1984). These four modes are part of a continuous and cumulative learning cycle rather than a single event (Taylor and Thorpe, 2004).

Building on Kolb's (1984) theory, researchers have further explored the concept of experiential learning in entrepreneurship. Cope's work (2003, 2005) emphasises action-oriented and co-participation among groups of learners, providing a foundation for experiential learning in entrepreneurship. This emphasis on practice resulted in attempts to blend cognitive and social learning in entrepreneurship education (Cope and Down, 2010). Marshall (2008, p.419) claims cognition and social learning are opposite sides of the same coin because they explain "how unfolding social realities are constituted and enacted".

In addition to experiential learning, other scholars emphasise the importance of establishing organisational routines for new entrepreneurs based on their habits, heuristics, and sensemaking abilities (Aldrich and Yang, 2012, Jones and Li, 2017). Several key authors argue that entrepreneurial learning occurs due to their actions and activities (Revans, 2016). Such learning is based on individuals making sense of previous events through 'reflective observation' (Kolb, 1984).

Furthermore, the distinction between experiential and cognitive learning has been a topic of interest among scholars. According to Berends *et al.* (2016), experiential learning is essentially 'backwards-facing' as it relies on new entrepreneurs gaining some practical experience (Erikson, 2003, Hamilton, 2011, Munawaroh *et al.*, 2023, Politis, 2008, Rae and Carswell, 2001). In contrast to backwards-facing experiential learning, other authors (Dew *et*

al., 2015, Gavetti and Levinthal, 2000, Simon, 1991) suggest that entrepreneurs pursue actions based on cognitive representations of their business plans or business models, which is a hallmark of forward-facing cognitive learning (Massa *et al.*, 2017). This approach closely resembles the distinction between feedforward learning flows and feedback learning flows in the 4i model of organisational learning (Crossan *et al.*, 1999).

Applying the 4i model to opportunity identification, Dutta and Crossan (2005) suggest that intuition, the preconscious recognition that an opportunity exists, is the starting point for any entrepreneur. Interpreting is both a cognitive activity, as entrepreneurs engage in sensemaking related to the potential of the opportunity and a social activity in which the idea is discussed with friends and family. Integrating involves further engagement with a broader network of contracts, including other entrepreneurs. Institutionalisation is based on incorporating learning into the development of tangible business ideas. Reflection on the learning processes stimulates the feedback learning flows associated with the 4i model (Dutta and Crossan, 2005).

In summary, entrepreneurial learning encompasses action and cognition, but the sequences differ between experiential and cognitive learning. Experiential learning involves putting actions before understanding, while cognitive learning emphasises understanding before taking action (Berends *et al.*, 2016). This distinction sheds light on the iterative nature of learning in entrepreneurship and offers insights into the interplay between actions, cognition, and learning processes.

2.2 Sustainable Entrepreneurship

Sustainability and sustainable entrepreneurship have become increasingly important in recent years (Gast *et al.*, 2017, Terán-Yépez *et al.*, 2020). Earlier, scholars suggested that the

role of entrepreneurship in sustainable development required further exploration (Dean and McMullen, 2007, Hall *et al.*, 2010). In response to this gap, a notable amount of research has been conducted on sustainable entrepreneurship, resulting in a substantial increase in publications (Di Vaio *et al.*, 2022, Gupta *et al.*, 2023, Holzmann and Gregori, 2023, Terán-Yépez *et al.*, 2020).

Building on this growing body of research, sustainable entrepreneurship has been further explored and defined. For instance, Shepherd and Patzelt (2011, p. 145) suggest that 'sustainable entrepreneurship is focused on the preservation of nature, life support, and community in the pursuit of perceived opportunities to bring into existence future products, processes, and services for gain, where the gain is broadly construed to include economic and non-economic gains to individuals, the economy and society'. The entrepreneurial process involves a series of phases, including recognising social or ecological problems and opportunities, developing double and triple-bottom-line solutions, and creating or entering sustainable markets (Belz and Binder, 2017).

The view of entrepreneurship as a series of processes in a multilevel practice suggests that it is important to understand the various stages at which sustainability issues can be discussed in entrepreneurship. Specifically, sustainability issues can be examined at the macro-level (ozone depletion, climate change, global warming), the meso-level (market and regional issues), and the micro-level (individual) (Chen *et al.*, 2021, Eller *et al.*, 2020, Johnson and Schaltegger, 2020). Argade *et al.* (2021) argue that the interaction between individuals and their contextual elements influence opportunity identification, highlighting the importance of considering the interplay between the various levels.

At the macro level, various institutional factors create or constrain sustainable opportunities (Pacheco *et al.*, 2010), external variables, and unforeseen events (Gray *et al.*, 2014). Market imperfections (Cohen and Winn, 2007), changing social factors (Liu and van

Witteloostuijn, 2020) and social networks (Upson *et al.*, 2017) are examples of meso-level phenomena. Micro-level factors that promote greater sustainability awareness among individuals include direct exposure to sustainability issues (Belz and Binder, 2017, Patzelt and Shepherd, 2010, Sharafizad *et al.*, 2022) *via* social embeddedness (Fraccastoro *et al.*, 2021). At micro-level, an individual's entrepreneurial knowledge (Shepherd and Patzelt, 2011), experience and personality (Aloulou *et al.*, 2023), entrepreneurial intent (Kuckertz and Wagner, 2010), entrepreneurial identity (Cesinger *et al.*, 2022), sustainability orientation (Sharafizad *et al.*, 2022), and recognition of the negative environmental consequences contribute to the desire to exploit green opportunities (Eller *et al.*, 2020).

By considering sustainability across these different levels, researchers and practitioners can understand the complex interplay between individual characteristics, contextual factors, and the broader institutional and market dynamics that influence opportunity identification in sustainable entrepreneurship. This multilevel perspective allows for a more detailed analysis of the drivers, barriers, and potential pathways for sustainable entrepreneurship, enabling the development of effective strategies and interventions to foster sustainable business practices.

The same concepts can be applied to study young entrepreneurs engaging in business startups, where individual dispositions (micro) are influenced by a complex interplay of social and familial relationships (meso) and institutional factors, including education, the legal system, and the market, which are shaped by prevailing political structures (macro) (Bourdieu, 1986, Johnson and Schaltegger, 2020, Karatas-Ozkan and Chell, 2010). Figure 1 illustrates the three levels of influence (Bourdieu, 1986, Karatas-Ozkan, 2011, Karatas-Ozkan and Chell, 2010) that interact with experiential learning (backwards-facing) and cognitive learning (forward-facing) as young entrepreneurs engage in the process of opportunity identification/development and sustainable business startup (Fearon *et al.*, 2021, Haneberg and Aadland, 2020). By adopting a multilevel framework, researchers can provide a more comprehensive

understanding of the various influences on entrepreneurs pursuing sustainable business opportunities, as highlighted by Johnson and Schaltegger (2020).

In conclusion, the literature review highlights the significance of forward and backward learning processes and the influences of macro, meso, and micro factors on sustainable entrepreneurship. Building upon this literature review, the present study explores the interplay between forward and backward learning and the impact of macro, meso, and micro influences on conventional and green business opportunity identification among young entrepreneurs in the U.K. and China. By examining these factors, the study seeks to gain insights into how entrepreneurial learning modes and contextual factors shape the entrepreneurial journey of young entrepreneurs. The following methods section outlines the research design and analyses used to investigate these dynamics and contribute to understanding sustainable entrepreneurship among young entrepreneurs in different socio-economic contexts.

<<<Figure 1. Conceptual model: entrepreneurial learning and business creation>>>

3 RESEARCH METHODS

This study was designed to examine how the micro, meso, and macro-levels influence the learning of young entrepreneurs (18 to 30 years of age) and their opportunity identification and development processes. To do so, the researchers selected matched samples of green and conventional (non-green) startups in the U.K. (Liverpool) and China (Macao). The two cities are similar in size and population and have a long history as ports. Twenty semi-structured interviews were conducted with the young entrepreneurs, lasting up to one and a half hours (Table 1). The entrepreneurs were encouraged to outline their experiences of business startups and explain the nature of their knowledge acquisition and learning.

The researchers selected 20 young entrepreneurs in Liverpool and Macao by drawing on existing links between their universities and the entrepreneurial ecosystem. Initially, purposive sampling was adopted to identify young entrepreneurs engaged in starting either a green or a conventional business. A relatively small sample size was considered suitable because of the rarity of green businesses among young entrepreneurs and the exploratory nature of the study (Motoyama and Knowlton, 2017, Parrish, 2010, Süß and Sayah, 2013, Wing Yan Man, 2012). The selection criteria for the sample were as follows: 1) Each individual had established either a green or a conventional business; 2) Each individual had to be between 18 and 30 years old when they started their businesses.

<<<Table 1. Details of the sample>>>

The researchers adopted an exploratory approach using a mixed-method sequential exploratory design (Creswell, 2003, Hanson *et al.*, 2005, Srnka and Koeszegi, 2007). Initially, qualitative data were generated via in-depth and semi-structured interviews with open-ended questions lasting up to one and a half hours. This offers a complex textual description of how young people experience a given research issue and allows the interviewees to explain their understanding of various topics (Björk and Kauppinen-Räisänen, 2019).

The interviews were designed to explore several widely studied areas related to entrepreneurial intentions, startups, and nascent entrepreneurship. These areas include the motivation for starting a business and the central stimuli to business startups (Degeorge and Fayolle, 2011, Douglas and Shepherd, 2002, Gregori *et al.*, 2024), the opportunity identification process (Patzelt and Shepherd, 2010, Perez Nuñez and Musteen, 2020), the barriers and support to starting a business, the advantages and disadvantages of being young entrepreneurs (Al Halbusi *et al.*, 2024, Duong and Vu, 2023, Kouriloff, 2000), and the focus

on the longer-term growth of their businesses (Davis and Shaver, 2012, Lau and Busenitz, 2001, Liu *et al.*, 2023).

While these six generic areas provided a broad scope for exploration, this study explicitly targets two further distinct concepts associated with starting a new business: the role of learning strategies and the impact of micro-meso-macro-level factors on young entrepreneurs. In particular, the study explores how two differing learning strategies—cognitive learning (forward-facing) and experiential learning (backwards-facing)—influence young entrepreneurs during the startup process (Berends *et al.*, 2016, Crossan *et al.*, 1999, Dutta and Crossan, 2005, El-Awad, 2023). Moreover, the study investigates how the micro, meso, and macro levels shape the entrepreneurial experience of young entrepreneurs, with a focus on understanding the complex interactions between these levels and the learning strategies employed by young entrepreneurs (Bourdieu, 1977, 1986, Karatas-Ozkan and Chell, 2010).

The interviews were audio-recorded, and verbatim transcriptions were subsequently completed. The participating entrepreneurs verified the transcripts and key information to ensure accuracy. The research was guided by an interpretive methodology, utilising thematic analysis to identify patterns and gather data for each theme (Spencer *et al.*, 2021). All interviews were coded according to six attitudinal variables (motivation, opportunity, stimuli, barriers and support, advantages and disadvantages, and growth), two learning variables (forward-facing cognitive learning and backward-facing experiential learning), and three levels of influence (micro, meso, and macro). This was followed by content analysis focusing on the frequency of occurrences associated with the various categories and themes (Bell *et al.*, 2022).

The data were then analysed to examine within and between group variations using ORIGIN GraphPad [1] software, which produced chi-square results highlighting statistical differences and their corresponding significance levels. However, the aggregated data derived from interview responses yielded a sample size that was too small to perform inferential analysis using standard statistical software packages.

4 THE FINDINGS

4.1 Influences on Entrepreneurial Attitudes: U.K. versus China

All interview data related to entrepreneurial attitudes to business startups were coded, and each relevant code was categorised into three levels of impact: micro, meso and macro. The results are summarised in Table 2. In total, 285 (108+84+93) codes were derived from Chinese responses and 308 (143+102+63) from UK-based entrepreneurs' comments. The China-based interviews produced 108 micro-level codes, 84 meso-level codes and 93 macro-level codes. The ratios for the UK-based entrepreneurs were somewhat different: 143 micro-level codes, 102 meso-level codes and 63 macro-level codes. A comparison of the overall scores reveals statistically significant differences ($p<0.05$) between the U.K. and China groups.

Given the significant difference in attitudes to starting a business between groups based on location and the three levels of influence, a further analysis was conducted to examine the six factors associated with attitudes to sustainable venturing. This analysis aimed to identify the key variables that influence those attitudes and establish a deeper understanding of the differences between the groups. As shown in Table 2, three factors exhibited statistically significant differences when comparing the Chinese entrepreneurs to those in the U.K. (across

[1] https://www.originlab.com/

both green and conventional businesses) in terms of the influence of the micro, meso, and macro-levels. These findings are discussed in more detail below.

Motivation-related comments were most prevalent at the micro-level for both groups, with little evidence suggesting that meso or macro-level factors significantly shaped their motivation. Consequently, the differences in counts between the three levels were not statistically significant (see Table 2). In contrast, regarding *opportunity identification*, U.K. entrepreneurs reported a significantly higher influence at the micro-level, with the meso-level exerting a notable impact. Conversely, the Chinese entrepreneurs reported some influence at the micro and meso-levels, but the macro-level was dominant. These between-group differences were statistically significant at the $p<0.01$ level. Notably, the Chinese group frequently referred to the role of government or the market in influencing the identification of new opportunities.

Motivation – Micro influences

I have wanted to have my own publishing house since middle school. However, when I actually operated the business, I discovered that a publishing house does not earn much money. Despite this, I am committed to sticking with it. If I want to earn money, I would prefer to start another type of business rather than give up my dream (Ms CC, China)

Opportunity – Micro influences

My first startup was a basic shoe; people weren't emotional about it. It was something for them to work in, not something special. As a designer, it left me thinking about how to get someone to fall in love with a product. Obviously, that isn't just about finding an opportunity; you have to create the opportunity and do something new. So, I decided to go in a different direction and start Piergetti, not because of an opportunity I saw in the market (Ms GP, U.K.).

General *stimuli* influencing the decision to start a business were predominantly micro-level factors for both groups. However, the U.K. entrepreneurs also reported a significant influence at the meso-level, whereas the Chinese entrepreneurs scored higher at the macro level, with this difference being statistically significant at $p<0.05$. In contrast, the meso and macro-level influences on the *barriers and support* associated with starting a new business were consistently high for both groups, with no statistically significant differences (Table 2).

Macro-level influences on the *advantages and disadvantages* of being a young entrepreneur were minimal for both groups, with micro-level factors playing a significantly more dominant role. Specifically, Chinese entrepreneurs were primarily influenced by micro-level factors, followed by meso-level factors, when considering the advantages and disadvantages of entrepreneurship. The U.K. entrepreneurs were mainly influenced by micro-level factors, with only 50% of the mentions associated with the Chinese group. Notably, the *advantages and disadvantages* of the two groups were not statistically significant (Table 2). Furthermore, the Chinese entrepreneurs did not prioritise *growth* to any great extent, whereas the U.K. group reported relatively high micro-level influences on future venture growth, which were statistically significant at $p<0.05$.

Stimuli – Macro influences

The government put significant effort into facilitating entrepreneurship. I also participated in various associations that frequently held entrepreneurship seminars. These seminars encouraged me and boosted my confidence in the entrepreneurial prospects in Macao. Consequently, I decided to start my business. Therefore, government assistance programs are closely related to my entrepreneurial intentions (Mr. AC, China).

Barriers and Support – Meso influences

From my family's perspective, they did not support my venture creation initially because I did not have any income at the beginning of my entrepreneurial journey. During that period, I was unable to

provide financial support to my parents. However, in October, I was able to give them money and still had a net income after covering all costs. Since then, my family has begun to support me. Initially, they wanted me to become a civil servant because they believed that entrepreneurship would involve many difficulties and pressures (Ms CC, China)

Advantages and Disadvantages – Micro influences

I think it is better to start early, experience failure, and understand the reasons behind it, so you can decide whether to try again or back out. If you wait until you are older to try and then fail, it can be more challenging. However, when you are younger and approach older people for sponsorship, they may feel you are too young to make sound business decisions or lack the necessary exposure and working experience. So, there are both advantages and disadvantages to starting young; it's really a mix of ups and downs (Ms EF, U.K.)

Growth – Micro influences

I don't completely know, and I've been thinking about it a lot. I do want to see new places and I really enjoy business, which is why I'm considering the possibility of going abroad to set up a business there. I would like to achieve deep financial security, enabling me to travel with my kids, let them see the world, and teach them about different cultures. That would be fantastic (Mr GM, U.K.)

<<<Table 2. Geographical influences on entrepreneurial attitudes>>>

4.2 Entrepreneurial Attitudes: Green Versus Conventional Entrepreneurs

Differences between the green and conventional (non-green) entrepreneurs were examined based on the same six categories (Table 3). The green entrepreneurs had 332 codes (163+77+82), and the conventional entrepreneurs had 261 codes (88+109+64). Notably, green entrepreneurs had far more codes at the micro level, 163, compared to 88 for the non-green group. Overall, the micro-level dominated green influences (163), with 77 at the meso-level

and 92 at the macro level. The conventional group reported more influences at the meso-level (109) compared with 88 at the micro level and 64 at the macro level. A comparison of the overall scores reveals statistically significant differences ($p<0.05$) between the green and conventional entrepreneurs.

Regarding *motivation*, micro-level factors dominated green entrepreneurs, with statistically significant differences at the $p<0.05$ level. In contrast, entrepreneurs starting conventional businesses mentioned their motivation relatively little. Although the differences were not statistically significant, green entrepreneurs reported substantially higher levels of influence on *opportunity identification*, with 97 codes compared to 50 for conventional entrepreneurs. Similarly, the general *stimuli* for starting a business were relatively evenly distributed across micro, meso, and macro-levels for both groups, except for the notable exception of a higher micro-level impact for green entrepreneurs.

Influences on *barriers* to startup were predominantly concentrated at the meso and macro-levels, similar to the U.K./China groups. Statistically significant differences emerged between the green and non-green groups ($p>0.05$). Specifically, the meso-level had a more significant influence on conventional entrepreneurs, whereas the macro level was the most critical barrier for green entrepreneurs (statistically significant at $p>0.05$). In contrast, the *disadvantages* associated with being a young entrepreneur were primarily concentrated at the micro level for both groups, with some influence from the meso-level, although this did not reach statistical significance. Similarly, the micro level was the primary driver of *growth* for both groups, with mentions of the meso and macro-levels being almost entirely absent and failing to reach statistical significance.

Micro influences on conventional (non-green) entrepreneurs – Motivation

I was doing my PhD at Microengineering, which looked at what affects our D.N.A. and wellbeing. I got frustrated as an awful lot of money was invested into curing diseases. If more money was invested in what they were eating and how they were living, it could have a more significant impact. That put me onto the scent of a green startup, and Aquaponics is a sustainable way to produce food. So, I got interested in it, I started playing around with it, created a system (Mr. PA, U.K.)

Meso influences on conventional (non-green) entrepreneurs - Enabler

I started this business because of my mom. At that time, my mom bought much stock in Lehman Brothers Holding Inc and lost all her money. I think this incident happened because of her lack of knowledge. And I think about this: in Macao, most people don't know much about financial markets. So, I chose to study finance so I could gain more knowledge. Then, I met a friend, and we tried to start foreign exchange investment in Macao. (Mr JL, China)

<<<Table 3. Influences on entrepreneurial attitudes: Green versus Conventional>>>

4.3 Entrepreneurial Learning

The learning literature distinguishes between experiential learning (backwards-facing) and cognitive learning (forward-facing). To explore how the three levels (micro, meso, and macro) influenced these two forms of learning, an analysis was conducted (Table 4). This analysis produced a total of 173 codes for the U.K. group and 129 codes for the China group. Examining the differences between the two geographical groups, the U.K. entrepreneurs reported the highest level of influence at the micro level (101 codes), which declined to 46 codes at the meso-level and 26 codes at the macro level. Similarly, the Chinese entrepreneurs also scored higher at the micro-level (64 codes in total) when their learning was mapped at different levels of influence, followed by the macro (37 codes) and meso (28 codes) levels.

Both groups reported significantly higher experiential (backwards-facing) learning levels than cognitive (forward-facing) learning at all three levels. Additionally, both groups had the highest backwards and forwards learning levels at the micro-level. When comparing learning differences between the two groups (U.K. vs China) across the three levels of influence (micro, meso, and macro), a statistically significant difference was found in experiential learning at the $p<0.01$ level. In contrast, the two groups found no statistically significant difference in cognitive learning.

Forward-facing micro influences

I am learning about this market from a niche point of view because I am looking at comfort shoe brands – I am looking at making shoes for flat-footed people with Plantar Fasciitis. Of course, I am not saying it will cure the foot condition, but if you have a more comfortable shoe, you can take longer walks and with longer walks, you can lead a healthier lifestyle, and that is the general objective of my business. (Ms EF, U.K.)

Backward-facing macro influences

Because Macau's economic environment is good and that time, saying 2008, not much of competitor in the market. And I feel like I have enough experience to start up the business (Mr JC, China)

<<<Table 4. Geographical differences in entrepreneurial learning>>>

Table 5 compares the green and conventional (non-green) groups of entrepreneurs and yields some unexpected results. Learning was a significantly more prominent theme among the green entrepreneurs (223 codes) than the conventional entrepreneurs (79 codes). Both groups identified the micro-level as the primary influence on experiential (backward) learning, but the number of codes derived from green entrepreneur interviews was three times greater than the

number of codes from conventional entrepreneurs (98 and 32). Notably, the green entrepreneurs reported similar levels of influence from the meso and macro-levels (36 and 38 codes) on experiential learning. The between-group differences observed concerning experiential learning were found to be statistically significant at the $p<0.01$ level.

Regarding forward (cognitive) learning, green entrepreneurs mentioned associated practices 51 times, with 31 of these codes attributed to the micro level of influence and the remaining 20 codes split between the meso (8) and macro (12) levels. In contrast, conventional entrepreneurs made few mentions of forward-facing learning at any of the three levels. This suggests that green entrepreneurs were generally more aware of the need to adopt a cognitive learning style than those starting conventional businesses, with this difference statistically significant at the $p<0.05$ level.

Backward-facing micro influence on green entrepreneurs

I have been designing shoes now for 17 years, so I have been through lots of different companies and different markets and I realised that women still want something beautiful and different, although you have 1000's and 1000's of shoes being produced every day, millions actually, I wanted to start something that wasn't highly competitive in the sense of just like a popular market but doing something that people fall in love with (Ms.GP, U.K.)

Forward-facing micro influence on green entrepreneurs

It is very difficult to look for a job that will motivate you. If you can't find your dream job, you are actually working for money only and when you are at 50 you look back, you will not know what is your accomplishment and your achievement in your life, nothing. So, you don't do what you want to do, do what you believe is right. And I was affected by the western culture as I have been there for a long time and had been influenced by them, think out of the box and do somethings out of the box (Mr GC, China)

<<<Table 5. Orientation differences in entrepreneurial learning>>>

5 DISCUSSION

This study examined the impact of the micro, meso, and macro-levels on entrepreneurial attitudes and entrepreneurial learning in the U.K. and China. The U.K. group demonstrated a strong micro-level focus (Table 2), with opportunity identification particularly prominent for green entrepreneurs (Table 3). In contrast, Chinese entrepreneurs placed greater emphasis on the macro and meso-levels, perceiving them as having a more significant impact on opportunity identification than the micro-level. This disparity may be attributed to cultural and institutional factors shaping China's entrepreneurial landscape. Specifically, China's collectivist culture (Bourdieu, 2005, Hofstede, 2001, Hofstede, 2015) and regulatory environment (Kong and Qin, 2021), may contribute to the relative absence of micro-level influences among the Chinese group. As a result, opportunities in China appear to be primarily driven by social networks (meso) and institutional factors (macro), with limited evidence of individualistic behaviours (Strauß *et al.*, 2021).

The results also indicate that the micro level primarily shapes green entrepreneurs' motivation to start a business compared to the conventional group (Table 3). In contrast, conventional entrepreneurs reported more influence from the meso-level compared to green entrepreneurs. The emphasis on opportunity identification among green entrepreneurs is consistent with earlier studies, which indicate that having a strong 'sustainability orientation' is an important factor in young entrepreneurs' decisions to start green businesses (Bapoo *et al.*, 2022, Kuckertz and Wagner, 2010, Shahid and Reynaud, 2022). Research by Argade *et al.* (2021) suggests that green entrepreneurs are motivated by a passion for societal change rather than personal gain, which aligns with the findings of this study.

A possible explanation is that green entrepreneurs are driven by a strong personal desire to impact the environment and society positively. This intrinsic motivation is often rooted in

their values and beliefs, fuelling their passion for starting innovative green businesses. In contrast, conventional entrepreneurs may be more extrinsically motivated by factors such as personal wealth or familial pressures to succeed, which can lead to different priorities and goals (Vuorio *et al.*, 2018). Building on previous findings, it is clear that green entrepreneurs focused more on identifying innovative opportunities than their non-green counterparts (Eller *et al.*, 2020, Masciarelli and Leonelli, 2020, Patzelt and Shepherd, 2010). This is substantiated by the nature of the ten green businesses, which are generally more innovative than the ten conventional businesses (Johnsen *et al.*, 2018).

The most significant overall contrast in the findings related to learning responses was that green entrepreneurs garnered 223 (129+44+50) codes, while conventional entrepreneurs had considerably fewer, at just 79 (36+30+13). The green group has 129 codes at the micro level compared to only 36 for the conventional group (Table 5). A possible explanation for this disparity is that green businesses in Liverpool and Macao are relatively new and uncharted, requiring more experiential learning and cognitive thinking to develop innovative solutions to sustainability challenges. Unlike conventional businesses, which often have established precedents, green businesses must tap into newer ways of thinking and sustainable practices, necessitating more learning from experience and cognitive thinking to succeed (Wang *et al.*, 2023).

Another significant factor is that the responses of both groups were primarily focused on experiential (backwards) learning rather than cognitive (forward) learning (Table 4). Although, once again, the micro level dominated the U.K. responses. The green group had significantly more codes for forward-facing learning, with 51 (31+8+12) compared to nine (4+2+3) for those starting conventional businesses (Table 5). The concentration on experiential learning among both groups of entrepreneurs reflects the dominant model of enterprise education (Hyams-Ssekasi and Caldwell, 2018), which concentrates on preparing business

plans and case study approaches (Bewayo, 2015, Jones and Penaluna, 2013, Teixeira and Pereira, 2019).

Typically, student business plans are based on existing assumptions about industry and the market, with little attention paid to developing innovative ideas or understanding the practicalities of delivering a product or service (Bridge and Hegarty, 2013, Katz, 2018, Lourenço and Jones, 2006). This approach can lead to a lack of critical thinking and problem-solving, which is essential for entrepreneurs to succeed in today's rapidly changing business environment (Haneberg and Aaboen, 2021). By prioritising cognitive learning, enterprise education can better equip students with the skills and knowledge to drive innovation and entrepreneurship.

Young entrepreneurs may face significant hurdles that can restrict their entrepreneurial process (Abatecola and Uli, 2016, O'Toole and Ciuchta, 2020, Ulvenblad *et al.*, 2013), a challenge often attributed to the liability of newness (Stinchcombe, 1965). Young entrepreneurs lack the skills, business experience, and personal networks to identify innovative business opportunities, which restricts their forward-facing learning (Haneberg and Aadland, 2020). This study reveals that there is a limited focus on forward-facing learning, particularly among young people starting conventional businesses. Building on the insights from previous research (Berends *et al.*, 2016, Björkdahl *et al.*, 2022, Crossan *et al.*, 1999, Dutta and Crossan, 2005) and the findings of this study, it is suggested that striking a balance between forward-looking (cognitive) and backward-looking (experiential) learning is crucial for effective opportunity identification and green startup success.

To address this gap, business educators should prioritise forward-facing learning by developing students' cognitive thinking skills (Lourenço, 2013, Ritter and Mostert, 2017, 2018). For instance, the IDEATE teaching approach can be used to encourage students to search for new and meaningful opportunities systematically (Cohen *et al.*, 2020). This model also helps

students develop new expertise and capabilities. Cognitive flexibility is crucial for identifying unique opportunities in a rapidly changing business environment (Ritter and Mostert, 2017). This is particularly relevant for young people starting green businesses, who need to think creatively and develop innovative solutions to sustainability challenges (Kuckertz and Wagner, 2010, Lourenço and Jayawarna, 2011).

This study contributes significantly to the entrepreneurship literature by showing how micro, meso, and macro-level factors and entrepreneurial learning affect opportunity identification and development (Figure 1). By comparing conventional and green businesses, the findings provide a better understanding of the entrepreneurial processes among young entrepreneurs. This study helps us understand how various factors influence entrepreneurial ventures, whether conventional or sustainable.

Moreover, existing literature has pointed out substantial differences between entrepreneurs in emerging or transitional economies, such as China, and those in developed Western countries. These differences span aspects such as entrepreneurial networks (Burt, 2019), motivation and resources (Anokhin *et al.*, 2008), institutional frameworks (Puffer *et al.*, 2010, Tan, 2002), entrepreneurial identity (Bell *et al.*, 2019, Li *et al.*, 2020), motivation, intentions and perceived barriers (Giacomin *et al.*, 2011), and attitudes (Stimpson *et al.*, 1990). This study enriches the existing body of knowledge by providing a comparative analysis of young entrepreneurs in the U.K. and China who have embarked on green and conventional business startups. By adopting a multilevel approach, this study builds on previous research and provides a deeper insight into the entrepreneurial landscape across different economies and sustainability orientations.

6 CONCLUSION

This exploratory study investigates how micro, meso, and macro-level factors influence entrepreneurial learning and opportunity identification among young entrepreneurs starting conventional and green businesses in the U.K. and China (Figure 1). The study offers valuable insights into entrepreneurial learning and opportunity development for young entrepreneurs across different geographies and business orientations. In summary, micro-level factors were the primary source of motivation among entrepreneurs. Micro-level factors were particularly significant for green entrepreneurs regarding opportunity identification and general stimuli on business startups. In contrast, the meso-level was the most mentioned factor for conventional entrepreneurs, focusing on opportunity identification and barriers to startup.

Secondly, the study confirms the importance of backwards-facing (experiential) learning during the startup process, while forward-facing (cognitive) learning has a limited impact on the efforts of young entrepreneurs, whatever type of business they are starting. Significantly, green entrepreneurs mentioned learning almost three times more frequently than those starting conventional businesses. Green entrepreneurs also focused more on forward-facing (cognitive) learning. These findings shed deeper insights into how young entrepreneurs learn during the business startup process.

Opportunity identification tends to be shaped by macro and meso-level factors in China compared to the U.K., where micro-level influences dominate. Significant differences emerged between young entrepreneurs in the two countries regarding perceived barriers and disadvantages, reflecting contrasting contextual and institutional factors. The results also reveal a greater focus on opportunity identification and innovative ventures among green entrepreneurs than those starting conventional businesses.

In conclusion, the findings demonstrate the importance of considering the interplay between micro, meso, and macro levels on both forward-facing cognitive learning and backward-facing experiential learning in entrepreneurship (Figure 1). The multilevel impacts provide an in-depth understanding of the influences shaping entrepreneurial learning and opportunity identification among young entrepreneurs starting businesses with different sustainability orientations.

6.1 Limitations, future research and practical implications

While this research provides valuable insights into the influences on learning, some limitations suggest avenues for further research. The sample size of 20 entrepreneurs, covering two cities, limits generalisability. However, the study's exploratory nature and the limited population of young people engaging in green startups justify the small sample size. Similar constraints on sample size have been encountered in other exploratory studies in this domain (Motoyama and Knowlton, 2017, Parrish, 2010, Süß and Sayah, 2013, Wing Yan Man, 2012).

Two additional limitations are noted. First, the high education levels among participants may not be representative of the broader entrepreneurial population, and future research should strive to include participants from a range of educational backgrounds. Secondly, the small number of young sustainable entrepreneurs suggests that local ecosystems supporting green startups remain underdeveloped, and studying a wider range of geographic locations would provide a more comprehensive understanding of sustainable entrepreneurship.

This study provides valuable insights, but there are opportunities to expand the research to confirm and build on the findings. More extensive studies comparing conventional and green entrepreneurs are needed to better understand their motivations, learning, and behaviours. Longitudinal studies could also help understand how different levels of influence (micro, meso, and macro) shape the entrepreneurial journey. Expanding the research scope could lead to a

deeper understanding of sustainable entrepreneurship among young entrepreneurs in different contexts.

The significant macro-level barriers for young entrepreneurs in China point to a clear need for policymakers to reduce institutional barriers. Providing more robust entrepreneurial support through education, facilitating networking events, implementing business planning initiatives, and offering funding opportunities could help young entrepreneurs accumulate the social and financial capital necessary to launch their ventures successfully. Chinese entrepreneurs' limited family/friend support (meso-level influences) signal the value of building local ecosystems and support networks that purposefully connect young entrepreneurs with experienced mentors and role models who can provide guidance. Policy initiatives fostering these connections help compensate for the lack of role models and advisors within entrepreneurs' circles (Jones *et al.*, 2021a, b).

The minimal observable impact of enterprise education across both regions highlights shortcomings in effectively developing opportunity recognition mindsets and skills among students. Educational programmes need to increase their focus on forward-facing, cognitive learning to better assist students in opportunity identification and evaluation. One way to do this is to incorporate enterprising approaches to teaching entrepreneurship (Lourenço and Jones, 2006, Lourenço *et al.*, 2013b), such as creative thinking techniques like brainstorming and ideation can help build the critical cognitive capabilities that empower entrepreneurial growth (Ritter and Mostert, 2018).

Finally, the lack of evidence for forward-facing (cognitive) learning highlights the need for educators to prioritise teaching opportunity-driven business model development over traditional sales projection-based business plan development (Cohen *et al.*, 2020). Curricular tools like the IDEATE framework offer a model for integrating opportunity-focused entrepreneurial learning to drive innovation. Green entrepreneurs' emphasis on cognitive

learning underscores its importance in aiding the opportunity development process. This suggests that incorporating sustainability into entrepreneurship education can foster opportunity-driven sustainable entrepreneurship and highlights the need to prioritise sustainability education in entrepreneurship curricula (Lourenço, 2013, Lourenço *et al.*, 2013a). This broader imperative underscore the importance of integrating sustainability across enterprise programmes and curricula.

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