

A Review of Entrepreneurial Success in Relation to Entrepreneurial Education

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ABSTRACT

Small and Medium Enterprises (SMEs) are vital to developing economies, yet many fail in their early stages. Extensive research has explored the factors that contribute to their success, with entrepreneurial education receiving significant attention. However, the impact of such education on entrepreneurial success remains unclear. This review seeks to examine the theoretical foundations linking entrepreneurial education and success, while identifying key indicators and predictors of success in order to improve educational approaches for SMEs, which are crucial economic indicators. The analysis reveals a lack of literature specifically addressing how education influences success, particularly from psychosocial and technological perspectives. Moreover, few studies consider the roles of learner autonomy and digital literacy as mediators or moderators in the relationship between entrepreneurship education and success. This highlights a need for further research on these aspects. The review offers insights for various stakeholders, including researchers, educators, entrepreneurs, governments, and policymakers. By incorporating these factors into research, policy, and training programs, it aims to enhance entrepreneurial education, drive SME success, and contribute to global economic growth.

Keywords: Entrepreneurial Success; entrepreneurial education; learner autonomy; digital literacy; indicators and predictors

INTRODUCTION

Small and medium enterprises (SMEs) are widely recognized as the cornerstone of most developing economies worldwide (Chittithaworn et al., 2011). In China, for instance, SMEs contributed over 50% of tax revenue, more than 60% of GDP, over 70% of technological

innovations, and accounted for more than 80% of urban labor employment in 2023. Hence, the development and success of SMEs are considered crucial economic and financial indicators. As a result, many countries are turning to entrepreneurship as a means to stimulate the growth and formalization of SMEs (Nungsari et al., 2023). Concurrently, entrepreneurial education has emerged as a way to educate the future workforce globally (Munawar et al., 2023). Since 2014, the Chinese government has been promoting “mass entrepreneurship and innovation.” Since 2015, higher education institutions in China have been required to incorporate innovation and entrepreneurship courses into their curricula to foster entrepreneurial competencies among university students.

Nearly ten years has passed since these policies were implemented. What is the current situation and effectiveness of entrepreneurial education (EE) in China? Does it contribute to economic development, and are there any areas for improvement to achieve better outcomes? Two reports provide insights into the outcomes of EE in China and identify some challenges. The Entrepreneurship Report of Chinese College Students published annually since 2016, revealed that 96.1% of students had or still have intentions to start a business in 2021 (Jiye Mao, 2021), indicating a positive impact of EE. However, the Research Report on Employability of College Students published by Zhilian Recruitment, China’s largest recruitment website, showed that the self-employment rate in China is 13.2%, and the self-startup rate is only 0.7% in 2023, compared to 1.9% in 2022 (Zhilianzhaopin, 2022, 2023).

Data indicate a high intention to start businesses among university students, but actual entrepreneurial action is slow. This raises questions about what’s happening to students, education, and society. How can we bridge the gap between intentions and behavior, and what role does entrepreneurial education play?

Research on the entrepreneurship intention-behavior gap becomes a burgeoning field. Prior studies examined individual and environmental factors like personality and context separately (Boyd & Vozikis, 1994; Gelderen et al., 2015; Obschonka et al., 2017). From 2010-2021, interest grew in understanding how intentions translate into actions (Rohanaraj, 2023b). Numerous scholars have investigated entrepreneurial action/behavior by examining entrepreneurial intention. However, entrepreneurial intentions only explain about 30% of the variance in subsequent behavior (Ajzen, 1991). There must be other factors involved in the intention-to-action gap/transition. Therefore, this paper explores the role of EE in addressing the intention-action/behavior gap and focus on entrepreneurial behaviors predicting entrepreneurial success which is related to the economy/GDP and partly influenced by entrepreneurial education.

Entrepreneurial success is of paramount importance for SMEs, as it significantly impacts their strength, resilience, sustainability, and overall survival amidst inherent vulnerabilities (Zakaria, 2021). Despite extensive financial aid and governmental support, numerous MSMEs, particularly during their initial startup phase, have unfortunately failed (Klimas & Zhao, 2020). This prevalent issue has prompted extensive research efforts aimed at identifying the key factors contributing to their business success. Numerous publications have provided a detailed analysis and overview of the various factors that influence business success,

but there is no definitive consensus. Collecting and analyzing relevant literature can improve understanding and offer a comprehensive historical perspective on the topic, guiding future research efforts.

To address this gap, the present study aims to conduct a literature review, focusing on the indicators (instruments) and predictors (antecedent factors) that contribute to the business success of MSMEs.

LITERATURE REVIEW

The significance of entrepreneurial success cannot be overstated, as fostering such achievements is pivotal for economic growth and enhancement of Gross Domestic Product (Oliveira, 2018). In the realm of entrepreneurship research, prior investigations have meticulously examined both the metrics signifying accomplishment and the prognosticators enabling predictions of potential success.

Theoretical Foundations of Entrepreneurial Success

Before exploring the instruments of entrepreneurial success, this paper sympathizes with four theories related to entrepreneurial success, which provide foundational perspectives on the subject. These theories offer insights into the various dimensions and factors that contribute to entrepreneurial success and have been widely used and tested in empirical research.

Human Capital Theory

Human capital, as defined by Becker, encompasses the knowledge and skills acquired through education and work experience (Elsafty et al., 2020; Unger et al., 2011). It includes both general human capital, like education and work experience, and specific human capital, such as industry-specific experience and entrepreneurial capabilities (Ucbasaran et al., 2008). Entrepreneurs with specific human capital, particularly those with high levels of business education and relevant experience, tend to establish successful ventures (Ganotakis, 2012). Human capital is a crucial asset for measuring entrepreneurial success (Pickernell et al., 2011) and increases the survival probabilities of small firms. Strong background experience of founders allows businesses to succeed with less financial capital (Chandler, 1998).

Social Capital Theory

Social capital is defined by network relationships, including the strength of ties, the frequency of interactions, and participation in social events (Davidsson & Honig, 2003). It consists of three dimensions: structural, relational, and resources (Fornoni et al., 2012). Social capital provides access to information, financial resources, visibility, and legitimacy within a social structure. High social capital helps entrepreneurs access to key stakeholders, such as potential

customers or venture capitalists (Baron & Markman, 2003). The entrepreneur's social capital has a positive correlation with their awareness of alternative financing options (Seghers et al., 2012), leading to successful business decisions (Gibson, 1992). Social capital enables entrepreneurs to access finance and is crucial for building relationships in their network (Rosemond, 2018). Building relationships with customers and acquaintances grants access to strategic information, which helps drive business profitability and growth (Audretsch, 2003; Davidsson & Honig, 2003).

Psychological Capital Theory

Entrepreneurs need psychological capital (PsyCap) to withstand business challenges and uncertainty. Financial, human, and social capital are essential but no longer sufficient (Luthans et al., 2007; Wach et al., 2018). Psychological capital, consisting of confidence, optimism, resilience, and hope, forms the core of self-efficacy (Bandura, 2009). These psychological capacities are states that can be learned and developed (Girişken, 2024; Luthans et al., 2004). Psychological capital is related to performance and satisfaction and is vital for entrepreneurs facing shortages of other resources (Hmieleski & Carr, 2008). Psychological capital provides the mental and emotional strengths needed to meet the challenges of the entrepreneurial process (Paul V, 2018). Integrating human, social, and psychological capital is crucial for reaching full potential (Luthans et al., 2007), and PsyCap has a greater impact than human or social capital alone (Luthans et al., 2007; Wach et al., 2018).

Human Value Theory

Business owners' definitions of success reflect their value orientations (Gorgievski et al., 2011). Values are stable, trans-situational goals that serve as guiding principles in people's lives. Values guide decision-making and motivate behavior (De Dreu & Nauta, 2009; Schwartz & Bardi, 2001; Schwartz, 2008). Schwartz's Theory of Basic Human Values proposes ten fundamental human values that motivate behavior across cultures, stemming from basic needs: individual needs, needs for social coordination, and group needs for survival and prosperity (Gorgievski et al., 2011). These values form a circular structure, reflecting how they can be complementary or conflicting. Business owners' evaluations of success criteria align with their personal values, such as profitability and contributing back to society (Laal & Laal, 2012).

METHODOLOGY

To achieve the primary objective, the following three databases were selected due to their relevance to entrepreneurial success in the context of entrepreneurial education: Google Scholar, ScienceDirect, and ProQuest. The search was conducted in August 2024, focusing on abstracts and keywords in the English language. Only research articles and book chapters were retained. The aim was to identify a comprehensive set of entrepreneurial success areas and

topics. To accomplish this, a systematic review was performed using the following synonymous keywords: ‘entrepreneurial success’, ‘entrepreneurial performance’, ‘entrepreneurial behavior’, and ‘entrepreneurial outcome’. Five keyword combinations were employed in the search: “entrepreneurial success AND entrepreneurial education”, “entrepreneurial success AND entrepreneurship education”, “entrepreneurial performance AND entrepreneurial education”, “entrepreneurial performance AND entrepreneurship education”, and “entrepreneurial behavior AND entrepreneurial education”.

A sequential systematic search was conducted across the aforementioned databases. Duplicate papers were manually excluded. Initially, 58 papers were retained. Further exclusion criteria were then applied. Full-text items in English were selected, resulting in the exclusion of one paper due to the unavailability of the full text and nine papers published before 2010. Consequently, a total of 48 papers were analyzed. Appendix provided a detailed list of these papers with full references.

Indicator/Measurement of Entrepreneurial Success

This section delves into the indicators underlying entrepreneurial success measurement. Given the multitude of definitions, researchers hold varying views on how to quantify entrepreneurial success. Caliendo and Kritikos (2013) measure it by the number of employees hired after a venture’s launch, while others consider goal achievement, economic and lifestyle success, and company growth (Caliendo et al., 2023; Rauch & Frese, 2000). While some rely on objective indicators, others emphasize the significance of subjective indicators (Fisher et al., 2014).

Fried and Tauer (2009) propose an index considering total costs, owner hours, total revenue, and revenue growth. Loderer and Peyer (2010) suggest performance factors including industry-adjusted scales, aggregate income, and return on initial capital (Loderer). Moreover, Fisher (2014) pointed out that the simplest definition of entrepreneurial success is the continuation of business operations and market presence (Fisher et al., 2014 2014). However, the importance of non-financial indicators cannot be overlooked (Rasmus & Laguna, 2018).

Success is perceived both objectively and subjectively (Fisher et al., 2014; Marcin W. Staniewski & Katarzyna Awruk, 2019). Wach et al. (2018) stress the need for subjective criteria in assessing success, acknowledging that many entrepreneurs do not equate success with wealth (Alstete, 2008) and value work-life balance (Bullini Orlandi, 2017). Subjective success is often assessed through entrepreneurs’ self-reporting of satisfaction with business performance, growth, and status (Powell & Eddleston, 2008). Orser and Dyke (2009) view subjective entrepreneurial success as multi-dimensional, encompassing market acceptance, professional autonomy, financial outcomes, and work-life balance (Orser, 2009).

Evaluating success should consider diverse criteria. Research by Gorgievski et al. (2011) provides evidence for the multi-dimensionality of success. Classifying success into organizational and personal criteria provides a comprehensive framework. Entrepreneurs define success differently, indicating a multi-factorial structure (Wach et al., 2016). Wach et al. (2018) developed the SES-IS and SES-AS to measure success based on firm performance,

workplace relationships, personal fulfillment, community impact, and personal financial rewards (Wach et al., 2018). Furthermore, Wach et al. (2018) explored how entrepreneurs assess their achieved success and provided a new conceptualization and measurement instrument, the Subjective Entrepreneurial Success–Achievement Scale (SES-AS) (Wach et al., 2018). The study established the factorial structure of ‘entrepreneurs’ achieved success’ and replicated it in two cultures. The SES-AS measures success based on five facets: firm performance, workplace relationships, personal fulfillment, community impact, and personal financial rewards (Wach et al., 2018). Besides, Angel et al. (2018) identify personal fulfillment, customer satisfaction, community impact, and firm growth as meanings of success to entrepreneurs (Angel et al., 2018).

Predictors/ Antecedents of Entrepreneurial Success

Entrepreneurial success and its underlying factors are crucial for the continuation, growth, and prosperity of entrepreneurial businesses (Elsafty et al., 2020). With only 10% of small businesses surviving three years of operation (Vesper, 1990), achieving success, defined as being established for at least three years (Ismail et al., 2015; Taormina, 2007; Vesper, 1990; Watson et al., 1998), poses a formidable challenge. Research in entrepreneurship calls for an investigation into the factors that facilitate the sustainable development of small businesses.

Multiple factors contribute to entrepreneurial success, including self-efficacy, education, gender, age, and social context (Krueger, 2008; Shahab et al., 2018), all of which are equally important (Rohanaraj, 2023b). Typical success factors include gender, motivational traits, experience, expertise, skills, knowledge, cultural attitudes, a well-defined concept, extensive planning, target market clarification, family support, location, competition awareness, work-life balance, innovative activities, and documented business plans. However, there's no consensus among scholars regarding the most significant factors (Jardim et al., 2021; Kanaan-Jebna et al., 2022; Kurczewska et al., 2020; Lee & Park, 2014; Yeoh & Popovič, 2016; Zakaria, 2021).

Some literature divides these influencing factors into three major groups: individual level factors (related to potential and actual entrepreneurs), interpersonal factors (such as social networks and entrepreneurial role models), and societal-level factors (including social, economic, and political context) (Baron, 2007). Other classifications categorize factors into internal (individual and organizational) and external (social, financial, societal, and contextual) (Zakaria, 2021). Still, other literature held that entrepreneurial success factors can fall into two categories: environmental factors (accessibility of financial resources, government support, social capital, training programs, consulting services, and physical infrastructure) and personal factors (psychological traits, educational attainment, motivation, and engagement) (Aly et al., 2021; Gupta & Mirchandani, 2018; Ramadani et al., 2015). The following parts will explore the factors influencing entrepreneurial success in details.

Internal Factors and External Factors

Many scholars have identified both internal and external factors which affect entrepreneurial success. For instance, Ullah Khan et al. (2021) identified internal factors (need for high achievements, risk-taking, and self-confidence) and external factors (economic and socio-culture) as antecedents of business success among Pakistani women entrepreneurs (Khan et al., 2021). Suminah & Anantanyu (2020) found that internal factors (learning process and self-efficacy) and social support impact business success among poor household women in Indonesia (Suminah & Anantanyu, 2020). Mielniczuk & Laguna (2020) also held that self-efficacy and innovative behavior affect business success (Mielniczuk & Laguna, 2020). Shakeel et al. (2020) argued that internal factors (individual personalities) and external factors (environments and support, national culture) positively influence business success among women entrepreneurs in Pakistan (Shakeel et al., 2020). According to Dahari et al. (2020), sufficiency of savings and intrinsic motivations (internal factors) and funding and extrinsic motivations (external factors) lead to business success among women entrepreneurs in Saudi Arabia (Dahari, 2020).

Furthermore, Zakaria (2021) identified individual-level factors (drive for achievement, self-efficacy, innovative mindset, competence, resilience, creativity, aversion to failure, business knowledge, education, and practical experience) and business-specific factors (size, type, age, and location) as crucial for MSME success (Zakaria, 2021). External factors also include societal support, government aid, availability of funding, and economic and political interventions.

Moreover, entrepreneurial-oriented personality traits like proactiveness, resourcefulness, and entrepreneurial alertness help individuals overcome structural barriers (Nungsari et al., 2023). Specific characteristics like prior knowledge, entrepreneurial alertness, opportunity recognition, motivation, and intention predict entrepreneurial behavior (Adeel et al., 2023).

Besides, Pronowo et al. (2020) found that entrepreneurial competency and innovation capability influence business success (Pranowo et al., 2020). Kanapathipillai & Azam (2019) identified education status, innovation, and access to capital as critical business success factors among Malaysian women entrepreneurs (Kanapathipillai & Azam, 2019). Batool and Ullah (2023) believed that motivation, personality trait, and family factors positively impact women's entrepreneurial business success in Pakistan. In addition, Zakaria (2021) emphasized that External factors like social, financial, societal, and contextual elements influence business success, and there's no one-size-fits-all solution (Zakaria, 2021).

Entrepreneurial Ecosystem: Entrepreneurial Education's Impact on Entrepreneurial Success

An entrepreneurial ecosystem is a network that helps new businesses start and grow. Factors

like innovation, founder skills, resources, orientation and a supportive environment contribute to success (Boldureanu et al., 2020; Cho & Lee, 2018; Din et al., 2016; Li & Li, 2024; Maziriri et al., 2024; Mesri W. N. M., 2023; Ummah, 2012). As nations invest in education and infrastructure, studying entrepreneurial ecosystems is crucial. Entrepreneurial education, as part of this ecosystem, has garnered significant attention is important, but its impact is still unclear.

Fayolle (2013) noted the equivocal nature of EE programs' impact on attitudes and behavior, with studies reporting both positive and negative outcomes (Dickson et al., 2008; Fayolle, 2013; Martin et al., 2013; Thompson et al., 2010). Cui (2021) identified a direct positive effect of EE on entrepreneurial behavior (EB) and its positive association with entrepreneurial success through innovation (Jun Cui, 2021). Munawar (2023) empirically proved that EE fosters a positive entrepreneurial attitude, leading to an entrepreneurial mindset. This mindset promotes professional growth, which ultimately drives entrepreneurial success through innovation (Munawar et al., 2023; Othman & Othman, 2019). Othman (2019) also emphasized that EE not only generates entrepreneurial intentions but also develops attitudes, competencies, motivations, and facilitates entrepreneurial behaviors (Othman & Othman, 2019).

However, some evidence suggests that entrepreneurship education can have a negative effect due to the realization of involved difficulties (Fayolle & Gailly, 2015; Graevenitz et al., 2010). Therefore, the influence of EE on entrepreneurial success warrants further exploration.

Entrepreneurial Intentions

Literature emphasizes the importance of entrepreneurship education for entrepreneurial intentions (Arthur et al., 2012; Bauman & Lucy, 2021). Both knowledge and experience from EE are the most influential factors in a student's entrepreneurial intention (Song, 2023). Ajzen's Theory of Planned Behavior (TPB) supports this, asserting that education—training, experience, and knowledge acquisition—reforms students' overall increase in self-efficacy and attitude, being the most influential element in determining their entrepreneurial intention (Ajzen, 1985). EE courses enhance students' entrepreneurial intention, knowledge, and experience, giving them a sense of improved self-efficacy (Song, 2023). Research has focused on understanding factors influencing entrepreneurial intention, believing it precedes action and directly correlates with it (Rohanaraj, 2023a). However, research should not solely rely on TPB's drivers of entrepreneurial intention due to the complexity of the entrepreneurship process, which requires multiple actions and involves various sequences in dynamic situations (Cui & Bell, 2022; Kautonen et al., 2015). According to Liñán & Chen (2011), entrepreneurial intentions explain about 30% of the variance in subsequent behavior. Further research is anticipated to delve into the pivotal role and influential impact of entrepreneurial ecosystems, especially entrepreneurial education in fostering and advancing the success of entrepreneurs (Liñán et al., 2011).

Transformation of Entrepreneurial Intention to Action

Based on prior research, many scholars have emphasized the role of entrepreneurial education in influencing entrepreneurial behavior through entrepreneurial intention. Nevertheless, the transformation of entrepreneurial intention into action has emerged as a relatively recent research focus that has garnered considerable interest over the past decade (2011–2020) (Jingwei, 2013). Research identifying factors influencing this transformation has gradually grown, with publications between 2016-2020 reaching the highest point, representing 46% of articles published over the past two decades (Rohanaraj, 2023a). It's found that 48% of intention-to-action studies originated from European and Asian regions, with minimal contribution from other regions such as the USA, Middle East, Africa, Australia, and New Zealand. This indicates a shift in research interest and the need for more studies from other regions (Rohanaraj, 2023a).

Rohanaraj (2023) found that entrepreneurial mindset, family background, gender, behavioral control, and entrepreneurial ecosystems were the main focuses of entrepreneurship research from 2001 to 2020. Interest in the entrepreneurial ecosystem has grown, peaking in 2017-2020. Rohanaraj identified 13 out of 48 articles focusing on the ecosystem. The following sections will discuss the ecosystem's influence on entrepreneurial behavior and success (Rohanaraj, 2023b).

THE INFLUENCE OF ENTREPRENEURIAL EDUCATION

Entrepreneurial Skills and Knowledge

Entrepreneurship education enhances students' entrepreneurial knowledge, skills, attitudes, and personal qualities, shaping their entrepreneurial intentions and actions (Wu et al., 2021). Formal education expands basic skills, while informal education focuses on critical thinking and problem-solving (Shen & Huang, 2023). Research highlights the positive correlation between entrepreneurship education (EE) and the acquisition of crucial entrepreneurial skills and knowledge (Dunkelberg et al., 2013; Hill, 2019; Jones, 1991; Raharjo et al., 2023). EE provides a foundation of knowledge and inspires entrepreneurial thinking (Kickul et al., 2018; Shen & Huang, 2023). Entrepreneurship requires various competences, with psychological and social skills being central (Morris, 2013). These include leadership, interactive, personality, and knowledge competences (Colombo & Grilli, 2005; Hood, 1993; Mitchelmore & Rowley, 2010). Communication is a key ability for graduates aspiring to become entrepreneurs (Avdeeva et al., 2019). High risks and uncertainties in entrepreneurship increase the importance of communication skills (Rudhumbu et al., 2020; Shen & Huang, 2023). Establishing a business requires significant communication skills, particularly at the initial stages (Al-Musalli, 2019; Khamis & Wahi, 2021; Peña-Acuña & Sánchez-Cobarro, 2017). Training in entrepreneurial culture is effective in fostering favourable competences for starting a business (Autio, 1997; Krueger, 1993). University education positively influences students' perception of skills and competences acquired for creating companies (Dohse & Walter, 2010; Liñán &

Chen, 2009).

Entrepreneurial Mindset and Attitude

EE influences entrepreneurial behavior and success through entrepreneurial attitude and mindset. The entrepreneurial mindset (EM) orients human conduct towards entrepreneurial activities and outcomes (Cui & Bell, 2022). EM is malleable and can evolve through interaction with the environment and EM encompasses cognitive, emotional, and behavioral aspects (Kuratko, 2020). While the cognitive and affective perspectives of EM suggest how entrepreneurs think and feel about opportunities, it remains unclear how these cognitions and emotions translate into actual entrepreneurial actions (Cui & Bell, 2022). Entrepreneurship education impacts students' in-plant mindset, which is more valuable short term than intentions and behavior (Cui & Bell, 2022). A behavioral entrepreneurial mindset is an impact indicator of EE and plays a mediating role in the formation of entrepreneurial intentions (Cui & Bell, 2022). Entrepreneurial attitude influences the entrepreneurial mindset, enhancing professional growth and innovation for entrepreneurial success (Munawar et al., 2023). Entrepreneurship is influenced by various social, cultural, environmental, demographic, and economic factors (Stamboulis, 2014). Psychological factors, such as commitment, perseverance, achievement drive, and opportunity orientation, also play a role (Kuratko, 1997), which can be gained through various entrepreneurial education.

Entrepreneurial Self-efficacy

Self-efficacy, proposed by Albert Bandura, is an individual's belief in their ability to succeed. Entrepreneurial self-efficacy predicts behavior and initiation (Wu et al., 2021). Cultural values influence entrepreneurial self-efficacy, intentions, and actions (Le et al., 2023). Entrepreneurship education moderates these links and impacts entrepreneurial passion (Mahi Uddin a, 2022). Entrepreneurship education is linked to increased self-efficacy, and lower entrepreneurial self-efficacy in women explains their lower participation in entrepreneurship (Chowdhury, 2005; Elliott et al., 2020b). Entrepreneurship education has a greater impact on entrepreneurial self-efficacy (ESE) for women than for men (Wilson, 2009). High entrepreneurial self-efficacy directly affects the development of entrepreneurial intentions (Bird, 1988). Training and education programs affect entrepreneurial self-efficacy, with a stronger effect for women than for men (Chowdhury, 2005; Elliott et al., 2020a).

Research has shown that self-efficacy, conscientiousness, locus of control, need for achievement, and innovativeness are key personal traits that predict entrepreneurial intention and success. Entrepreneurs with high self-efficacy set ambitious goals, persevere, and recover quickly from setbacks. Entrepreneurs with high levels of self-efficacy tend to set ambitious goals and persist in achieving them, even under challenging and stressful circumstances. They are more likely to recover quickly from setbacks and failures (Bandura, 2009). Besides, entrepreneurial self-efficacy specifically relates to an individual's perception of their ability to

successfully perform the various roles and tasks associated with entrepreneurship. This includes tasks such as managing finances, building a team, and developing innovative products or services (Chen et al., 1998; Jung et al., 2001). Furthermore, Research has shown that general self-efficacy is positively linked with entrepreneurial performance. Entrepreneurs who have a strong belief in their abilities are more likely to succeed in their ventures (Chen, 2009; Marcin W. S. & Katarzyna Awruk, 2019).

Entrepreneurial Learning Motivation

Charles Y. Murnieks (2020) found that entrepreneurial motivation drives essential behaviors related to business start-up, growth, and exit. However, different types of motives need to be integrated to promote behavior (Murnieks et al., 2020). Entrepreneurial learning enhances knowledge and skills, leading to better opportunity identification, decision-making, and business management (Kyndt, 2015). It also indirectly influences success by developing entrepreneurial abilities like innovation, risk-taking, networking, and opportunity recognition (Zhang & Zhao, 2017).

Besides, the relationship between entrepreneurial learning and entrepreneurial success is also influenced by contextual factors such as the entrepreneurial environment, market conditions, and available resources. For instance, entrepreneurial learning may be more effective in environments that foster experimentation, tolerate failure, and provide access to necessary resources (Polne & Izboru, 2012).

Psychological Disposition

Entrepreneurial education can enhance the appropriate psychological disposition, including subjective norms that affect entrepreneurial behavior (Ndofirepi, 2020). Emotions, especially in uncertain environments, play a crucial role in transforming intentions into actions, with both positive and negative emotions having supportive effects (Van Gelderen, 2015).

Research by Wei Hu et al. (2022) analyzed the impact of entrepreneurial passion on success, mediated by individual psychological capital, and promoted by external entrepreneurial policy support (Hu et al.). Entrepreneurial passion serves as a positive signal to investors about motivation and stimulates higher intentions to start a new business, inventive use of resources, persistence, creativity, and self-efficacy (Baron, 2008; Cardon et al., 2013; Cardon & Kirk, 2015; Li, 2013; Stamboulis & Barlas, 2014; Stenholm & Renko, 2016; Warnick et al., 2018).

Besides, Shroder et al. (2021) found fear of failure and networking correlate with business success among Taiwanese women entrepreneurs (Shroder, 2021). While fear of failure is a key construct, its moderation effect on start-up intention-action correlation is limited (Duong, 2022; Kong et al., 2020). Fear of failure negatively affects entrepreneurial activities and weakens the transmission from attitude and intention to action (Duong, 2022; Gabriella Cacciotti, 2020). However, desire to control career outcome and be successful can overcome

negative emotions like doubt and fear (Nungsari et al., 2023). Anticipated regret, a negative emotion, supports the transformation of intentions into action, especially when combined with proactive personality and positive thinking (Juhás, 2020).

Furthermore, learner autonomy, a personal disposition, influences the transition from entrepreneurial intention to behavior (Krueger Jr, 2007; Van Praag & Versloot, 2007). Entrepreneurship education (EE) aims to educate potential entrepreneurs with knowledge, skills, attitude, mindset, psychological preparation, and promote the transformation from intention to action and success (Joensuu-Salo et al., 2020).

RESEARCH GAP AND SUGGESTIONS

Kgagara (2011) believed that entrepreneurial education can be defined as “purposeful intervention by the educator in the life of the learner to impart entrepreneurial qualities and skills to confirm that the learner is capable of living in the business world” (Kgagara, 2011). The above part has discussed and reviewed many mediating/intermediary factors of entrepreneurship education that promote entrepreneurial success.

Entrepreneurial education, learner autonomy and entrepreneurial success

Learner autonomy and entrepreneurial success

Learner autonomy or capacity to learn plays a very vital role in determining the academic success of individuals (Ng et al., 2014) and it is also regarded as personal psychosocial disposition and individual characteristics leading to behavior (Confessore, 2006). Ummah (2012) pointed out that the need for achievement, autonomy, and self-confident are the most important personality factors for the business success of women entrepreneurs (Ummah, 2012). Nikki Blacksmith (2023) believed that autonomy was a pillar of entrepreneurship performance (Blacksmith & Schmittzehe, 2023). van Gelderen (2010) further pointed out that if autonomy is lacking, entrepreneurs may give up in spite of financial success (van Gelderen, 2010). Moreover, Chris Carosa (2022) proposed that this drive for autonomy represents a key trait of successful entrepreneurs (Carosa, 2022).

Furthermore, Ng, Confessore et al. (2014) identified that the degree to which an individual is engaged in functional learner autonomy is expressed in the extent to which the learner (entrepreneurs in entrepreneurial context) optimizes the learning process by making efficient and appropriate use of their personal resources and the resources of others, which will lead to the success in learning/working/entrepreneurship (Ng et al., 2014).

Entrepreneurial education and learner autonomy

Learner autonomy is a personal or individual characteristics leading to behavior or process of autonomous learning (Ng et al., 2014). van Gelderen (2010) held that autonomy as the guiding

aim of entrepreneurship education (van Gelderen, 2010). Similarly, Matlay and Van Gelderen (2008) also argued that autonomy should have a significant role in education and modelling education systems and entrepreneurship courses (Matlay, 2008). Furthermore, Stouraitis, V et al., (2020) pointed out that autonomy is firstly significantly associated with education as a variable, and secondly should be tested as components (Stouraitis & M., 2020).

Entrepreneurial education, digital literacy, entrepreneurial success

Digital literacy and entrepreneurial success

Harris (2021) argues that digital literacy is vital to the success of adults everywhere, whether in life, academia, or employment. Moreover, digital literacy and language skills mean a prerequisite for any candidate to have a chance to succeed (Dvorakova & Polents, 2021). Furthermore, Ip (2024) illustrated that the entrepreneurs' digital literacy is recognized as a crucial element for their entrepreneurial success. Digital literacy is identified as a critical element for fostering social entrepreneurial intentions and behaviors (Ip, 2024).

Entrepreneurial education and digital literacy

Digital literacy is the “awareness, attitude and ability” to use digital technology to take social action and reflect on the use of technology by appropriately utilizing digital resources to build knowledge, create content, and communicate in all aspects of life (Martin et al., 2013). Digital literacy and digital competence can be used interchangeably.

In the digital literacy survey conducted by Boakye (2022), 55.32% of participants identified their teachers as the first to teach them about computers (Boakye et al., 2022), and 72.73% noted that teachers were most influential in helping them gain digital literacy skills (Snyder, 2024). The ever-changing advances in technology require digital literacy skills and mentor for success in the workplace (D'Oria et al., 2025; Millan et al., 2014).

Through above reviewing and discussion, this study found that little literature analyzes the impact of education on success from psychosocial and technological aspects. Few literatures identified the mediating or moderating effects of learner autonomy and digital literacy between entrepreneurship education and entrepreneurial success. Future research should be conducted from the above two perspectives.

SUMMARY

This comprehensive review delves into the theoretical foundations that underlie the intricate relationship between entrepreneurial education and entrepreneurial success. It seeks to unravel the complex interplay between the knowledge, skills, and attitudes acquired through entrepreneurial education and the subsequent achievements/success and accomplishments of entrepreneurs in their respective ventures.

The review examines a wide array of indicators that are commonly used to measure entrepreneurial success, ranging from financial performance and market penetration to innovation and social impact. By analyzing these indicators, the review aims to provide a nuanced understanding of what constitutes entrepreneurial success and how it can be effectively evaluated and advanced.

Furthermore, the review identifies key predictors that influence entrepreneurial success, including internal factors (individual characteristics) such as resilience, creativity, and risk-taking abilities, as well as external factors such as market conditions, access to resources, and supportive ecosystems (Fallahi et al., 2024; Hossain et al., 2024; Ipate & Pârvu, 2014; Salaheldeen, 2024; Schneider et al., 2017; Valerio et al., 2014; Zafar et al., 2019; Zhou et al., 2024). By elucidating these predictors, the review seeks to shed light on the multifaceted nature of entrepreneurial success and the various factors that contribute to it.

Lastly, the review outlines an agenda for future research, highlighting areas that require further investigation to deepen our understanding of how entrepreneurial education contributes to entrepreneurial success.

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Appendix: List of Papers(n=50) Included in Quantitative Analysis

Number	Author and Year	Title	Journal/Book
1	Adeel, S., Daniel, A. D., & Botelho, A. (2023)	The effect of entrepreneurship education on the determinants of entrepreneurial behaviour among higher education students: A multi-group analysis.	Journal of Innovation & Knowledge
2	Al-Qadasi, Nabil Zhang, Gongyi Al-Jubari, Ibrahim Al-Awlaqi, Mohammed Ali Aamer, Ammar Mohamed (2024)	Entrepreneurship education and entrepreneurial behaviour: Do self-efficacy and attitude matter?	College Quarterly
3	Aly, Maha Audretsch, David B Grimm, Heike (2021)	Emotional skills for entrepreneurial success: the promise of entrepreneurship education and policy	The Journal of Technology Transfer
4	Angel, P., Jenkins, A., & Stephens, A. (2018)	Understanding entrepreneurial success: A phenomenographic approach	International Small Business Journal: Researching Entrepreneurship

5	Arthur, Stephanie J Hisrich, Robert D Cabrera, Ángel (2012)	The importance of education in the entrepreneurial process: A world view	Journal of Small Business and Enterprise Development
6	Bauman, Antonina Lucy, Carol (2021)	Enhancing entrepreneurial education: Developing competencies for success	The International Journal of Management Education
7	Boldureanu, Gabriela Ionescu, Alina Măriuca Bercu, Ana-Maria Bedrule-Grigoruță, Maria Viorica Boldureanu, Daniel (2020)	Entrepreneurship education through successful entrepreneurial models in higher education institutions	Sustainability
8	Caliendo, M., Kritikos, A. S., & Stier, C. (2023)	The influence of start-up motivation on entrepreneurial performance	Small Business Economics
9	Cho, Yun Hee Lee, Joo-Heon (2018)	Entrepreneurial orientation, entrepreneurial education and performance	Asia Pacific Journal of Innovation and Entrepreneurship
10	Cui, J., & Bell, R. (2022).	Behavioural entrepreneurial mindset: How entrepreneurial education activity impacts entrepreneurial intention and behaviour	The International Journal of Management Education

11	Din, Badariah Hj Anuar, Abdul Rahim Usman, Mariana (2016)	The Effectiveness of the Entrepreneurship Education Program in Upgrading Entrepreneurial Skills among Public University Students	Procedia - Social and Behavioral Sciences
12	D'Oria, Laura Scheaf, David J. Michaelis, Timothy L. Lerman, Michael P. (2025)	Para-social mentoring: The effects of entrepreneurship influencers on entrepreneurs	Journal of Business Venturing
13	Elsafty, A., Abadir, D., & Shaarawy, A. (2020)	How does the entrepreneurs' financial, human, social and psychological capitals impact entrepreneur's success	Business and Management Studies
14	Fallahi, Farzaneh Samaratunge, Ramanie Wolfram Cox, Julie Prajogo, Daniel (2024)	Determinants of Middle Eastern immigrants' entrepreneurial success in Australia	International Journal of Intercultural Relations
15	Fisher, R., Maritz, A., & Lobo, A. (2014)	Evaluating entrepreneurs' perception of success	International Journal of Entrepreneurial Behavior & Research
16	Girişken and Arzu (2024)	Psychological Capital and Entrepreneurial Success: A Behavioral Perspective	

17	Gorgievski, M. J., Ascalon, M. E., & Stephan, U. (2011)	Small business owners' success criteria, a values approach to personal differences	Journal of Small Business Management, 49(2), 207-232.
18	Hill, Christopher T. (2019)	STEM Is Not Enough: Education for Success in the Post-Scientific Society	Journal of Science Education and Technology
19	Hossain, Md Alamgir Jahan, Nusrat Al Masud, Abdullah Nabi, Md Nurun Hossain, Md Shourav Ahmed, Shakil (2024)	Dynamic effect of critical success factors of SMEs on entrepreneurial performance via e-commerce performance	The Journal of High Technology Management Research
20	Ipate, Dragos Mihai Pârvu, Iuliana (2024)	Entrepreneurial education as a success factor for the Romanian SMEs	Economics, Management and Financial Markets
21	Jardim and Jacinto (2021)	Entrepreneurial skills to be successful in the global and digital world: Proposal for a frame of reference for entrepreneurial education	Education Sciences
22	Jingwen Yan, et. al. (2023)	Assessing the impact of entrepreneurial education activity on entrepreneurial intention and behavior: role of behavioral entrepreneurial mindset	Environmental Science and Pollution Research 30, 26292–26307.

23	<p style="text-align: center;">Kanaan-Jebna, JMA Alabdullah, Tariq Tawfeeq Yousif Ahmed, Essia Ries Ayyasamy, Ramesh Kumar (2022)</p>	<p style="text-align: center;">Firm Performance and the Impact of Entrepreneurial Education and Entrepreneurial Competencies</p>	<p style="text-align: center;">Business Ethics and Leadership</p>
24	<p style="text-align: center;">Kanapathipillai, K., & Azam, S. F. (2019)</p>	<p style="text-align: center;">Women entrepreneurs path to success: An investigation of the critical success factors in Malaysia. European Journal of Human Resource Management Studies. An everlasting battle between theoretical knowledge and practical skills? The joint impact of education and professional experience on entrepreneurial success</p>	<p style="text-align: center;">European Journal of Human Resource Management Studies</p>
25	<p style="text-align: center;">Kurczewska, Agnieszka Doryń, Wirginia Wawrzyniak, Dorota (2020)</p>	<p style="text-align: center;">A serial mediation model of the relation between cultural values, entrepreneurial self-efficacy, intentions and behaviors: Does entrepreneurial education matter? A multi-group analysis. Journal of Open Innovation: Technology,</p>	<p style="text-align: center;">Entrepreneurial Business and Economics Review</p>
26	<p style="text-align: center;">Le, T. T., Doan, X. H., & Duong, C. D. (2023)</p>	<p style="text-align: center;">Journal of Open Innovation: Technology, Market, and Complexity</p>	<p style="text-align: center;">Journal of Open Innovation: Technology, Market, and Complexity</p>

			Market, and Complexity, 9(2), 100064.	
27	Lee, Yong-hee Park, Su-hong (2014)		A study on the success factors of venture entrepreneurs and entrepreneurship education	Asia-Pacific Journal of Business Venturing and Entrepreneurship
28	Li, Xiaoxuan Zhang, Yinxuan Qi, Fangyuan Tang, Yanzhao (2024)		The lagged effect of university-based entrepreneurship education on employees' retention at entrepreneurial startups	The International Journal of Management Education
29	M. Zhou, Y. Zhou, J. Zhang, M. Obschonka and R. K. Silbereisen (2019)		Person-city personality fit and entrepreneurial success: An explorative study in China	International journal of psychology : Journal international de psychologie
30	MACS Ummah (2012)		Factors influencing on entrepreneurial success: An empirical study on women headed families in Ampara and batticaloa districts in Sri Lanka	International Journal of Business, Economics and Law

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| 31 | <p>Manafe, Mesri Welhelmina Nisriani
Ohara, Muammar Revnu
Gadzali, Silvy Sondari
Harahap, Muhammad Ade Kurnia
Ausat, Abu Muna Almaududi (2023)</p> | <p>Exploring the Relationship
Between Entrepreneurial Mindsets
and Business Success: Implications
for Entrepreneurship Education</p> | <p>Journal on
Education</p> |
| 32 | <p>Martin, B. C., McNally, J. J., & Kay, M. J. (2013)</p> | <p>Examining the formation of
human capital in entrepreneurship:
A meta-analysis of entrepreneurship
education outcomes</p> | <p>Journal of
business venturing</p> |
| 33 | <p>Maziriri, Eugene Tafadzwa
Nyagadza, Brighton
Chuchu, Tinashe (2024)</p> | <p>Innovation conviction,
innovation mindset and innovation
creed as precursors for the need for
achievement and women's
entrepreneurial success in South
Africa: entrepreneurial education as
a moderator</p> | <p>European Journal
of Innovation
Management</p> |
| 34 | <p>Millan, Jose Maria
Congregado, Emilio
Roman, Concepcion
Van Praag, Mirjam
Van Stel, André (2014)</p> | <p>The value of an educated
population for an individual's
entrepreneurship success</p> | <p>Journal of
business venturing</p> |

35	Munawar, S., Yousaf, H. Q., Ahmed, M., & Rehman, S. (2023)	The influence of online entrepreneurial education on entrepreneurial success: An empirical study in Pakistan	The International Journal of Management Education
36	Pranowo, A. S., Sutrisno, J., Sulastiono, P., & Siregar, Z. M. E. (2020)	The entrepreneurial competency, innovation capability, and business success: The case of footwear industry in Indonesia	Calitatea
37	Raharjo, I. B., Ausat, A. M. A., Risdiyanto, A., Gadzali, S. S. & Azzaakiyyah, H. K. (2023)	Analysing the relationship between entrepreneurship education, self-efficacy, and entrepreneurial performance	Journal on Education
38	Razmus, W., & Laguna, M. (2018)	Dimensions of Entrepreneurial Success: A Multilevel Study on Stakeholders of Micro-Enterprises	Frontiers in Psychology
39	Rudhumbu, Norman Du Plessis, E., Maphosa, Cosmas (2020)	Challenges and opportunities for women_ <u>entrepreneurs in Botswana</u> : revisiting the role of entrepreneurship education	Journal of International Education in Business
40	S. Zafar and I. M. Khan (2013)	<u>Examining factors of entrepreneurial success</u> : Culture,	

		gender, <u>education</u> , family, self-perception	
41	Salaheldeen, Mohamed (2024)	Building Self-Belief: The Impact of Entrepreneurial Self-Efficacy on Start-Up Success	Reference Module in Social Sciences(book
42	Schneider, Käthe Bach, C., Wagner, K., Blacher, D., Thöle, L. (2017)	Promoting the entrepreneurial success of women entrepreneurs through education and training	Science Journal of Education
43	Shen, J., & Huang, X. (2023)	The role of entrepreneurial education in determining actual entrepreneurial behavior: Does TESOL amplified communication apprehension matter?	Frontiers in Psychology
44	Valerio, Alexandria Parton, Brent Robb, Alicia (2014)	Entrepreneurship education and training programs around the world: dimensions for success	World Bank Publications
45	Wach, D., Stephan, U., & Gorgievski, M. (2016)	More than money: Developing an integrative multi-factorial measure of entrepreneurial success	International Small Business Journal
46	Wach, D., Stephan, U., Gorgievski, M. J., & Wegge, J. (2018)	Entrepreneurs' achieved success: developing a multi-faceted measure	International Entrepreneurship and Management Journal

47	X. Zhou, C. Ma, X. Su, L. Zhang and W. Liu (2024)	Knowledge is power: The impact of entrepreneurship education on the international entrepreneurship performance	The International Journal of Management Education
48	Zakaria, M., Ahmad, W.N.W., Arifin, M.A., Rosnidah, I., & Zakaria, N.B. (2021)	A systematic review on business success factors of micro, small and medium enterprises	International Journal of Entrepreneurship and Management Practices

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