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Entrepreneurship education: Time for a change in research direction?

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ABSTRACT

Entrepreneurship education has blossomed as an area of research due to its practical significance and role in expediting the economic wellbeing of the global economy. Despite its popularity there is still some way to go before we fully understand the nature and ability of entrepreneurship education to transform society. The goal of this article is to highlight the current trends in entrepreneurship education by providing some paths for future research that take an anthropcosmic view of education. This will help more researchers embrace the distinctive nature of entrepreneurship by tying it to new emerging employment trends such as the gig economy and the digital transformation of the workplace. Suggestions for how entrepreneurship education needs to further progress are given as a way of shaping the future development of the field.

1. Introduction

Entrepreneurship education is one of the fastest growing subject areas in the world with increased interest being placed on it for its ability to link current business practices with academic theory. In conjunction with more teaching emphasis on entrepreneurship education has been increased research interest in the topic. Although Snuggs and Jevons (2018: p. 180) state "the term 'teach or perish' is not bandied around in the same way 'publish or perish' is". Thus, whilst significant contributions have been made to entrepreneurship education there is still much room for improvement in the research space in terms of teaching practices. As Turner and Gianiodis (2018: p. 131) state "whereas the scholarship and pedagogy within the field of entrepreneurship education has matured considerably over the last 20 years, major gaps remain to what content to teach, how to teach it, who qualifies to teach, and to what type of student". Often academic literature is behind practice so it is important to raise awareness of emerging topics that can help guide future research.

In order to increase efficiency, there needs to be substantial investments in entrepreneurship education in terms of money, time and effort (Longva & Foss, 2018). There are new pedagogies emerging and different teaching practices that are shifting the way entrepreneurship education is perceived by society. The goal of this article is to contribute positively to understanding the future trajectory of entrepreneurship scholarship by analysing existing research strands in order to identify potential research gaps. This will enable entrepreneurship educators to exchange ideas that facilitate collective learning and help inform researchers about the current state of research and how to develop a future research agenda. This article will focus on the prevailing themes on entrepreneurship education in order to present some ideas for future research. From this a research agenda can emerge that benefits both scholars and practitioners, which will be helpful in developing new research and understanding what policy interventions are needed.

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2. Defining entrepreneurship education

Entrepreneurship education is characterised by interactive learning that is linked to business and community initiatives (Boon, Van der Klink, & Janssen, 2013). This means there is a sense of industry connection in entrepreneurship education due to its experience-based learning approach. Often guest speakers and case studies are part of the entrepreneurship education experience as teaching methods are not static but dynamic and subject to change with increasing usage of social media in the learning experience (Chawinga, 2017). This means it is important to target educational efforts by designing relevant courses that are embedded in practice but developed by research efforts (Fayolle, 2013).

The two main schools of thought about entrepreneurship have been the causal and effectuation approach (Fayolle & Gailly, 2008). The causal approach views entrepreneurship being more related to economic plans and strategies as it focuses on how education impacts business development rates. The effectuation approach takes into account uncertain environments by suggesting entrepreneurs use available resources in terms of what is available to them (Gertz, Huang and Cry, 2018; Sarasvathy, 2001). Effectuation as a learning method can be helpful to understand how ideas can be developed then delivered into the marketplace (Ilonen & Heinonen, 2018).

The goal of entrepreneurship education is to change student's minds in terms of how they view innovative and risk taking activities in business (Jones, Penaluna, & Pittaway, 2014). In order to determine if student's behaviour has changed as a result of entrepreneurship education, it is useful to focus on entrepreneurial learning in terms of affective, cognitive and skill-based outcomes (Fisher, Graham, & Compeau, 2008, p. p313). Affective outcomes refer to changes in attitudes in terms of wanting to start a new business or be involved in innovation within an existing business (Kyro, 2008). Cognitive outcomes involve the critical thinking derived from new knowledge, which is important in today's complex business environment. This includes comprehension and information obtained about the reasons for starting a business (Jones & Colwill, 2013). Skill-based outcomes involve the tools needed to be an entrepreneur. Increasingly more digital based tools are becoming important for entrepreneurs.

Another way to measure the effectiveness of entrepreneurship education is by examining affective learning, cognition and conation (Kyro, 2008). Affective learning refers to changes in emotions and perceptions coming from the education experience. This might include an individual become more knowledgeable about the joys or hardships from entrepreneurship (Jones, Jones, Packham, & Miller, 2008, pp. 597–614). Cognitive learning involves obtaining a new skill set that can be used in a business context (Koronios, Kriemadis, Dimitropoulos, & Papadopoulos, 2019). Conation involves the feelings people have about the process of entrepreneurship, which can include thinking it is a good part of business practice (Fisher et al., 2008, p. p313). All these different types of approaches to the teaching of entrepreneurship are important in today's society.

Entrepreneurship has progressed from teaching students about how to start a new business to recognising entrepreneurial opportunities and how to start digital ventures (Nowinski, Haddoud, Lancaric, Egerova, & Czegledi, 2019). This diversity in learning approaches is attributed to the changing focus in education on experiential learning (Ferreira, Fayolle, Ratten, & Raposo, 2018). This means helping students learn in a real setting specific skills and knowledge (Packham, Jones, Miller, Pickernell, & Thomas, 2010). To do this a blended learning approach combining different learning approaches such as case studies and business plan competitions is being used.

Entrepreneurship education contributes to the development of business through a variety of different ways (Souitaris, Zerbinati, & Al Laham, 2007). Common entrepreneurship education goals include “openness to change, willingness to adapt to new situations and ability to work in an uncertain environment” (Van Auken, 2013, p. 261). These goals are changing though as entrepreneurship education is moving towards focusing more on design thinking and creativity skills (Kickul, Gundry, Mitra, & Bercot, 2018). This is due to the emphasis on self efficacy, which involves the ability of an individual to follow a course of action based on their goals.

Entrepreneurship education involves experiential learning as it is action based. This learning process is built on the acquisition of competences, which are needed for entrepreneurship and include assessment of opportunities and recognition of possibilities for future engagement. Entrepreneurial competences are broadly defined as the “identification and development of opportunities aiming toward new ventures, innovation or strategic renewal” (Lans, Verstegen, & Mulder, 2011, p. 697). Frequently associated with entrepreneurial competences are the ability to assess and exploit value creating opportunities (Morris, Webb, Fu, & Singhal, 2013). This involves utilising social networks and resources in a way that leverages the discovery of possible forms of action.

3. Current challenges

The field of entrepreneurship education has grown rapidly with more research being conducted on the topic. This has increased the methodological and theoretical rigour whilst increasing its visibility in the general education field. The benefit of entrepreneurship education is that it can be applied in a range of settings and contexts but there are also current challenges that need to be addressed. Much of the research around entrepreneurship has tended to be based on social psychology in terms of attitudes, actions, beliefs and behaviours whilst neglecting other theoretical frameworks (Linan & Fayolle, 2015). This has meant there has been a tendency to generalize the topic thereby stagnating the research in terms of finding the distinctive nature of entrepreneurship education. In order to further advance the field new research themes and lines of inquiry are needed.

Entrepreneurship educators need to adjust their curriculum to take into account cultural differences in learning (Bandera, Eminet, Passerim, & Pon, 2018). There has been a global trend towards moving towards a United States model of education that values entrepreneurship. In Asia, there has been a large increase in the number of students studying overseas particularly from China. This has resulted in an emphasis on schools that teach skills that can be applied to business practices in the student's home country. In addition, the involvement of students in competitions has increased. In the United States there has been the entrepreneur's in

residence program that enables foreign students to have a role in a business related to their studies (Anderson, 2012). This has meant that entrepreneurship education needs to be contextually appropriate given the market environment (Bandera et al., 2018).

Due to increased usage of social media and online technologies the practice of entrepreneurship education is still dealing with how to incorporate digital technologies. This presents a tension and source of discontent in the research as to unknown future circumstances. There is now a digital learning ecosystem that has internationalised and commercialised entrepreneurship education with more free online courses being offered as well as short youtube videos about education issues (Gunkel, 2017, p. p147). This has meant challenges around how to engage with students in a personal way but also achieve economies of scale. Holograms are predicted to be incorporated into teaching and virtual reality teaching methods will grow. Whilst some research has indicated the growing use of robots and automated technology in teaching more innovative research is needed. This includes understanding how multiple technology platforms can be used in entrepreneurship education both in the classroom and then after the course has finished (Minogue, 2017).

There are predictions that many future occupations do not currently exist (La Grandeur & Hughes, 2017, p. p1). This leads to a need for entrepreneurship educators to look into what emerging employment trends are occurring and how educators can teach these skills (Pepin, 2018). Whilst open content courses have gained attention in the media there is a sense of global entrepreneurship courses that do not take into account local cultures (Patru & Balaji, 2016).

The current business environment is dynamic with technological advancements changing the way people teach and learn. This age of fluidity has resulted in uncertainty but also opportunities for change. Much of this fluidity is a result of more emphasis on the knowledge and service economy. The role of a teacher in the classroom has changed due to increased engagement with technology devices. The unprecedented access to data in any location has further transformed the way individuals interact in society. Mobile technologies and the internet-of-things have enabled students to access knowledge and learn from any geographic location. This has opened the door for entrepreneurship educators to provide information in a new way that takes into account changes in the business environment. In addition, online teaching tools like Turnitin and Ithenticate have meant that large online repositories of existing work can be checked for plagiarism. Thus, students have access to large amounts of data but there are new technologies to make sure their work is an original contribution. In conjunction with this has been contract cheating, which is on the rise as students outsource their assignments.

Whilst there has been an assumption that future entrepreneurship education will use more technology, there has also been a trend in the maker movement. This is when people use their own handmade skills to make things. There has also been the change in increased casual employment rates and student's working multiple jobs at certain points of their work life. This is referred to as the gig economy and is defined as “paid work facilitated by digital technologies that match economic demands with the supply they need without implicit or explicit contract or the potential for long-term employment” (Nguyen, 2018, p. 81). The gig economy has disrupted traditional employment practices particularly for young university graduates.

There has been a change towards more usage of critical thinking skills in business education, which is reflected in the Association to Advance Collegiate Schools of Business (AACSB) establishing critical thinking in students as an accreditation need (Dahl, Peltier, & Schibrowsky, 2018). Critical thinking enables a person to identify relevant issues and work out possible solutions (Abrami et al., 2008). This means an individual needs to apply rigorous reading in a way that takes into account relevant information (Carlson, 2013). By accurately evaluating different possibilities there can be a better interpretation of information (Abrami et al., 2015). This is part of the education experience for entrepreneurship students who analyse and evaluate ideas in a way that develops their cognitive skills. Students studying entrepreneurship do this by building on their content knowledge (Pittaway & Cope, 2007). The cognitive abilities in critical thinking can be classified as technical reasoning or philosophical assessment (Dahl et al., 2018). Technical reasoning focuses on interpreting scientific data to derive solutions. Dahl et al. (2018: p. 102) states “critical thinking as technical reasoning involves a range of cognitive processing activities such as active processing, logical assessment, analytical thinking and problem resolution”. Philosophical assessment involves thinking about the value of ideas based on beliefs and perceptions. This means understanding assumptions and then changing this based on environmental factors (Dahl et al., 2018).

4. Entrepreneurship education philosophy

An anthropcosmic view of education needs to be integrated more into the teaching of entrepreneurship. Rather than focusing on an individual and what they gain from education, an anthropocosmic view takes into account the interconnections an individual has and relationship s in communities (Lu & Jover, 2019). More schools and universities have promoted entrepreneurship education in order to help students post-graduation (Ilonen & Heinonen, 2018). This is achieved by emphasising the five main levels of expertise embedded in affective learning: receiving, responding, valuing, organisation and characterization (Krathwohl, Bloom, & Masia, 1964).

Nabi, Linan, and Fayolle (2017) suggest that the main outcomes of entrepreneurship education are attitude changes, knowledge and skills changes, feasibility, entrepreneurial intention, socio-economic impact, business start up rates and business performance. Entrepreneurship educators need to tear down the inefficient walls and barriers with other professions and teaching settings by fostering a more open learning system that is tied to the community. There is more interest in lifelong learning rather than just taking an education course at school or university (Agosto & Abbas, 2017). This has resulted in increased rates of online courses but also people who need to keep their professional standing up to date. For entrepreneurship educators, this is a new potential untapped market that needs more attention (Ankrah & Omar, 2015). Additional courses need to be developed that do not necessarily have assessment but rather take an experiential approach. Alumni can help collaborate in these new courses to make learning a more enjoyable but also community approach. Whilst the perceived value of entrepreneurship education is high, it can increase when

teachers and learners partner more with practitioners. Due to the emphasis on graduate employability, students who have peer mentors might transition into the market more easily (Holmes, 2013).

Brentnall, Rodriguez, and Culkin (2018: p. 405) suggests three categories for entrepreneurship education: "the contextual application of entrepreneurial characteristics and qualities (entrepreneurship); a state of being (entrepreneurial) and the creation of an entrepreneurial climate and support structure (entrepreneurism)". These different types of entrepreneurship education can be measured in a number of ways including affective, behavioural, cognitive, conative and skill-based (Longva & Foss, 2018). Affective measures include evaluating how an individual's passion towards entrepreneurship changes after studying entrepreneurship. For some people learning about entrepreneurship will inspire them to start their own business whilst others might change their attitude towards entrepreneurial behaviour in their organisation. Behavioural measures involve the entrepreneurial intensity of an individual in terms of behaviour. Cognitive measures improving knowledge about entrepreneurship, which can include improving comprehension about the business venture creation process. Conative measures involve assessing entrepreneurial self-efficacy. Skill-based measures involve assessing critical thinking skills developing and opportunity recognition.

5. Trends in entrepreneurship education

The particular learning methods students use in entrepreneurship education remains scantily investigated in terms of how they influence entrepreneurial intention (Bonesso, Gerli, Pizzi, & Cortellazzo, 2018). The preference for self-employment is an indicator of whether a student will take an entrepreneurship course but in the competitive job market, students are trying to distinguish themselves in terms of skills, abilities and attitudes. This has resulted in more interest in extra-curricular activities that juxtapose the education a student already has received in a more formal setting (Roulin & Bangerter, 2013). Extra-curricular activities in conjunction with entrepreneurship education help to solidify the knowledge taught in classes. Increasingly entrepreneurship educators are using outside environments such as living labs, site visits and excursions to show in reality what is being taught in the classroom. Prior research by Cordea (2014) suggests that extracurricular activities can have a big impact on the learning process if used in the right way. This is important in more vocational courses that have a more practical attitude to what is being taught. However, higher education institutions like universities are moving to this model as a way to build better engagement with the community. Due to multiple work pressures, students need to be able to manage their time but also develop outside networks. Entrepreneurship education is a way for this to occur as it enables students to take the initiative in the next step of their career development. International student exchanges have also increased in popularity as government policy makers realise the value of cultural studies. As more students are also international it has lead to more transnational entrepreneurs who live and work amongst two or more countries and conduct business amongst both. In addition, the diaspora of some countries in particular India have made large inroads into technology company's particularly in Silicon Valley thereby exposing the value of international employees for entrepreneurial firms. Thus, whilst there are increased numbers of international student exchanges, more emphasis should be placed on teaching students about commitment and persistence. This is important in emerging and transition economies that might have challenging political environments for entrepreneurs. The ability to act and pursue entrepreneurship in these countries requires some training. Volunteering has been encouraged in entrepreneurship courses especially those with a social focus as enabling students to build their civic engagement. There are numerous benefits from volunteering including personal growth and self-assurance (Myers, Higgins, Oddsson, Pricea, & Goulbda, 2013).

Neal (2017) suggests that students need to be immersed in poverty contexts in order to learn first hand about the reality but also business opportunities. Students who go into new environments can acquire a unique learning outcome that is different to traditional classroom contexts (Santos, Neumeyer, & Morris, 2018). This results in a symbiotic relationship where both the student and community learns together thereby increasing the social wellbeing of society.

6. The dark side of entrepreneurship education

Despite the positives to entrepreneurship education there is a dark side in that not everyone is able to think or act entrepreneurially. There tends to be a focus on positive outcomes from entrepreneurship education (Longva & Foss, 2018; Wilson, Kickul, & Marline, 2007) but there can also be negative effects (Mentoor & Friedrich, 2007). Recent research by Kohler, Landis, and Cortina (2017) suggests that there needs to be more methodological rigor in education studies to improve the quality of research. Research related to entrepreneurship education tends to take a stereotypical view that anything is possible. In reality, this might not be so due to environmental pressures. There can be tensions created from being entrepreneurial as current mundane but profitable activities might fall by the wayside whilst looking for the next big breakthrough. In addition, there can be headaches for individuals who go too quickly into entrepreneurship education without taking time to adjust. This is magnified by media attention on start-ups that assume a get rich quick mentality without considering the hard work and hurdles that go into entrepreneurship. An over reliance on successful entrepreneurs has also meant an overload of positive education case study examples. Timing and the concept of chance need to be researched in more depth.

The field of entrepreneurship education tends to borrow from general education research and apply it to an entrepreneurship setting. Whilst this was useful in the initial stages of research, the time has come to develop a more distinctive entrepreneurship education body of knowledge. This will enable a more insightful and reflective approach on what makes entrepreneurship education distinctive. By proactively seeking to develop new theoretical frameworks for entrepreneurship education it will improve the research on the topic.

Woollard (2010) suggests that due to the variety of meanings and contexts of entrepreneurship education that it has resulted in an

'atheoretical' field. This means that rather than having a unified theoretical framework or common core to entrepreneurship education it depends on the context. For some entrepreneurship education is about how to build a business or develop a start up, which means the theory taught tends to focus on new venture creation. However, for others they are interested in lifestyle entrepreneurship and how it can be integrated into their current way of living. Thus, diverse perspectives need to be considered in entrepreneurship education in order to find both the commonalities but also contradictions in teaching styles (Clinkard, 2018). This will stimulate new teaching and learning approaches that whilst focusing on a general consensus of what entrepreneurship education is also acknowledge the anomalies.

The main point of departure for entrepreneurship education compared to other types of education courses is instilling a sense of intuition into practice. In the past, more rational thought processes were taught that were based on a predetermined set of criteria. This has changing with a realization that one school of thought does not suit all circumstances and there needs to be some flexibility. Thus, individuals need to be aware of the importance of intuition in recognising opportunity but also acquiring and deploying resources.

7. Implications for theory

Our article's distinctive contribution to the literature on entrepreneurship education justifies more interest on the topic. The focus on entrepreneurship education responds to the call for more comprehensive studies on the topic that derive from different theoretical perspectives (Ratten, 2017). This article acknowledges the vast amount of literature already existing on entrepreneurship education but emphasises that there is still much way to go in terms of building the scholarship. The analysis produces several useful outcomes that are important to theory and practice. Digital technologies are clearly going to change the way entrepreneurship is taught and learnt. This means new theory that takes a digitalization perspective is required. It is worthy to further explore the nexus between digital entrepreneurship and education in order to appreciate better the anomalies of digital teaching methods (Nixon, Scullion, & Hearn, 2018). The digitalization of education needs to be studied in more depth in order to derive new patterns and explanations for entrepreneurship. Traditional education theories can merge with new ones in order to create more holistic theoretical frameworks (Sousa & Magalhaes, 2019). This increases the explanatory power of education but also produces original results. Scholars should take more care in trying to incorporate well tested existing theories with proposing new ones.

8. Implications for policy improvement

Entrepreneurship education is an important way government can encourage economic growth in their regions. More resources have poured into entrepreneurship education programs particularly those focusing on early stage business star-ups. However, the rate of new business success is low and could be improved with more target policy initiatives. This includes more effective policies that take into account different characteristics of entrepreneurs. There are a range of industry segments from technology to hospitality that an entrepreneur might be interested in. Thus, entrepreneurship education programs need to tailor their teaching and learning styles to specific industry needs. Our findings suggest that the support for entrepreneurship education varies amongst industry groups thus differential programs can help policy makers to be more creative in supporting industry initiatives by having better bureaucratic processes. This includes making more resources for advisory services that support entrepreneurship education.

9. Implications for managers

This article provides multiple policy implications for entrepreneurship education managers and practitioners. First, the findings highlight the diversity of ways to teach entrepreneurship and how being an entrepreneur affects the learning dynamics. The article provides insights into the reasons for teaching entrepreneurship and its contribution to the entrepreneurial ecosystem within a community. Given increased numbers of people wanting to start their own business, the teaching of entrepreneurial skills is seen as an enabler. The findings also signify the role of education being embedded in the socio-cultural context and how it can act as a catalyst for other entrepreneurial behaviour. This means entrepreneurship teachers can drive the passion and motivation of others to become entrepreneurs. These findings will be useful for educators to change the perception of entrepreneurs and how teaching methods can be formulated to facilitate entry into specific industry segments needing entrepreneurship such as tourism, health and sport.

Second, the article has implications for educators devising strategies to pull others towards new training methods. The digital transformation of the global economy has meant it is important for entrepreneurs to develop their knowledge about digital entrepreneurship. This means learning methods need to incorporate updated information about emerging technologies. This will help to integrate digital innovation with entrepreneurship education.

10. Future research suggestions: a new vision for entrepreneurship education

10.1. Open issues

There are several issues discussed in the previous sections that have not been studied thoroughly and require more comprehensive research. There are few studies taking a longitudinal approach about the effects of entrepreneurship education on entrepreneurial ecosystems. Knowledge is learnt through entrepreneurship education but then transferred to people an individual interacts with.

Whilst simulation scenarios have been used to understand whether an individual has learnt from an entrepreneurship course, there could be more real life tests to evaluate the education. The examination of barriers to sharing knowledge from entrepreneurship education should be examined in future studies to understand the value placed on education and the competitiveness it gives an individual. Rather than just focusing on the positives of education, there should be a focus on the opportunity and knowledge sharing costs. In the real world not everyone is altruistic and willing to share knowledge so mechanisms to facilitate collaboration are needed in future research.

10.2. Intensity of courses

Dahl et al. (2018: p. 101) states that critical thinking theory "views knowledge acquisition through the lens of higher-order cognitive skills such as analysis, evaluation, reflection and inference". Entrepreneurship education involves critical thinking due to the need to analyse information and make decisions. Unlike other subjects, there is more emphasis on questioning the current status quo in entrepreneurship education to reflect on the past and build knowledge for the future. Increasingly metrics such as employment levels on exact, student satisfaction scores and teaching excellence are being used to analyse the effectiveness of entrepreneurship education (Clinkard, 2018). This has resulted in a culture focused on immediate results without taking into account that some behaviours take time to change. In order for entrepreneurial learning to take place it often needs to utilise networks (Rae, 2017).

It has been suggested that more entrepreneurship education will increase the intention of an individual to be an entrepreneur. However, not all individuals require the same length or duration of entrepreneurship education in order to be an entrepreneur or act in an entrepreneurial manner. This article contributes to the current academic knowledge about entrepreneurship education by showing that there is a diverse view of how to teach entrepreneurship that is magnified by different student's expectations. Thus, it is important to take into account changes in the environment such as the digital, gig and freelancer economy. Jones, Penaluna, Penaluna, and Matlay (2018: p. 430) states "the changing nature of employment landscapes globally is forcing a freelancer world on us all". This has meant students need to be trained for having an entrepreneurial career that involves different kinds of employment. In addition, the increased casualization of the global workforce has meant more employee turnover and less long term employment. Thus, entrepreneurship education has provided a way for individuals to change their mindset.

The core objective of entrepreneurship education is new venture or value creation (Jones et al., 2018). This means emphasising in a realistic way the business environment so that individuals take into account issues such as funding and sourcing of materials. Thus, the learning environment of entrepreneurship classrooms is likely to incorporate current business trends but also future growth trajectories. Entrepreneurship education should be transformational so that individuals undergo a change from being a student to also considering themselves as being an entrepreneur (Nielsen & Gartner, 2017). This is important as more students are needing to work to support their studies and entrepreneurship provides a good employment opportunity.

Additional research is required on measuring the success of new ventures launched after finishing an entrepreneurship education course. The time lag between education and start of the new venture is an area meriting more inquiry. In addition, for students who already are entrepreneurs the effect of education on profitability is needed. A deeper analysis of how volunteering or international exchange affects entrepreneurship is required.

10.3. Macro-effects of entrepreneurship education

Most entrepreneurship education research tends to generally paint a positive view. However, there can be unwanted effects of entrepreneurship education. A new line of research is needed on exploring the unintended consequences on communities, business and society. This will help to argue how certain types of entrepreneurship education should be favoured over others. Individuals should invest in entrepreneurship education but need to be cognisant of how short term losses may lead to long term gain. Policy makers and practitioners need to focus more on how external knowledge sources can help some forms of entrepreneurship education. Research pertaining to the consequences of entrepreneurship education will move the field forward. In addition, more inter-disciplinary research on entrepreneurship education is needed to understand current trends. An area ripe for research is how entrepreneurship education motivates students in disciplines other than business. For example, does teaching entrepreneurship to sport students motivate them to go into business or is this mindset already existing in other education subjects? Moreover, it is unclear how other discipline's theories can be utilised in entrepreneurship education as normally entrepreneurship educators have borrowed from other fields. Thus, reverse engineering the field of entrepreneurship education is a new way of opening up new research possibilities. The way to best manage the challenges faced by entrepreneurship educators is to go back to the historic data about how general education studies have changed then extrapolate the findings to an entrepreneurship context. It is conceivable that changing entrepreneurship educator's modus operandi will lead to new research paths.

10.4. Gender roles

Whilst the research on gender entrepreneurship particularly the role of women in entrepreneurship has flourished over the past decade, there is still little research about the role female teacher's play in entrepreneurship education. There have been studies on the different learning methods used by male and females, but little emphasis on the role of gender in entrepreneurship educators. Future studies could address the question of whether female teachers place different emphasis on certain subjects about entrepreneurship like team work. In addition, the role of female teachers in leading by example for female students is an area of interest. Future studies should clarify if female students are more likely to be entrepreneurs if taught be a woman or whether it makes no difference.

Future research needs to address the expectation that entrepreneurship education is a progressive and cutting edge topic. As this article has demonstrated, education provides a need to think about how changing environmental dynamics are influencing entrepreneurship education. Existing educational structures that are bureaucratic often hinder entrepreneurial behaviour. This means new ways of thinking that encourage adaptation of existing teaching practices and collaboration offer a promising new way to build entrepreneurship education scholarship. Although previous research has pointed out the richness of literature on entrepreneurship education, this article has focused on the holes in the literature. New areas of inquiry have promising directions for future scholarship about entrepreneurship education. There are different stakeholders involved in entrepreneurship education that have various objectives. These stakeholders range in level of engagement from being direct learners and students to being part of the entrepreneurial ecosystem.

11. Conclusion

The key takeaway from this article about entrepreneurship education is that many research opportunities are still yet to be discovered. Entrepreneurship education researchers need to continue to find innovative teaching methods and develop critical thinking skills. We acknowledge that interest in future research areas are subjective and determined largely by the attitudes of the researcher toward the topic. To enhance our understanding of the processes that lead to successful outcomes of entrepreneurship education courses, a shared agreement on specific outcomes is needed. This involves communicating to students about the benefits of entrepreneurship education and that there may be a time lag in seeing the results of taking a course. Key learning objectives need to be embedded in entrepreneurship education curriculum in order to enhance student engagement. There are few studies that predict future learning scenarios for entrepreneurship education and how to improve learning effectiveness. We are particularly excited about the potential new teaching methods in entrepreneurship education in order to assess how critical thinking improves learning outcomes.

CRediT authorship contribution statement

Vanessa Ratten: Writing - review & editing. **Petrus Usmanij:** Writing - review & editing.

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