

University entrepreneurship

Introduction

Universities are large and ubiquitous entities in the global economy, which are increasing in size as they employ a large proportion of local communities (Ferreira *et al.*, 2018). There is some difficulty in defining what an entrepreneurial university is due to the multitude of its tasks, but a general consensus is that they are higher educational institutions acting in an innovative and proactive manner (Guerrero *et al.*, 2014). Sometimes, there can be a distorted view of entrepreneurial universities due to researchers consider all higher education institutions as being the same (Etzkowitz, 2013). However, the modernization of universities has enabled them to be more entrepreneurial and forward thinking in their outlook. Thus, it is important to understand the complex reality of universities, as they have evolved from bureaucratic and less flexible organizations to become entrepreneurial entities. This shift towards viewing universities as entrepreneurial ecosystems has come from the knowledge economy and realization of the potential benefits that education has in the community (Audretsch, 2014).

Universities are expanding their responsibilities beyond teaching and research to encourage more collaboration with other stakeholders (Abreu and Grinevich, 2013). This has led to more interest in technology start-ups and commercialization. In addition, the global marketplace has meant more universities competing against each other not only for student income but also for research interest (Ratten, 2016). Therefore, universities classified as entrepreneurial go beyond generating and transferring knowledge to become ecosystems. These ecosystems refer to universities focussing more on ways to help create and grow businesses within the regional and international environment (Kirby *et al.*, 2011). The purpose of this article is to discuss university entrepreneurship and the main findings from the articles in this special journal issue.

Ways universities act entrepreneurially

There are a variety of ways universities act entrepreneurial including nurturing synergies between teaching and research. This is being conducted with universities building organizational capacity by encouraging more entrepreneurial leadership in their activities, which enables better societal engagement and knowledge exchange. The organizational structure of universities has changed as new disciplines that are linked more to practice have emerged. This has led to universities being a supplier of knowledge that seeks to stimulate cooperation between different discipline areas (Ferreira *et al.*, 2017). Universities are a source of innovation for organizations due to their ability to create and disseminate knowledge. By being entrepreneurial, universities can build dynamic collaboration between education and businesses (Guerrero *et al.*, 2016). To transform universities into more entrepreneurial institutions, there needs to be a strategic collaboration between university leadership, policymakers, staff, students and businesses. This is being conducted with the common characteristics that entrepreneurial universities share such as having an entrepreneurial pedagogy that focusses on developing a certain skill set in students.

Universities are playing a distinctive role in encouraging entrepreneurial capacity through education (Jacob *et al.*, 2003). University entrepreneurship is a budding area of inquiry, yet most research has focussed on education and technology transfer without considering other types of entrepreneurial learning (Yokoyama, 2006). As a stream of



research, most of the objectives of the literature on university entrepreneurship have emphasized public policy and neglected other transformational outcomes such as changing societal attitudes (Ratten, 2017). Therefore, more research is needed on legitimizing the concept of university entrepreneurship to enable a more theoretical useful framework.

Universities have the ability to make a significant and sustainable contribution to society (Wood, 2011). The consequence of entrepreneurship education to society is immense and helps narrow the gap between possibilities and market abilities (Ferreira *et al.*, 2016). Traditionally, universities have been successful at pedagogical pursuits but less creative in the use of their tangible and intangible resources (Suseno and Ratten, 2007). This has resulted in there being a trend towards entrepreneurial learning as a way for individuals and organizations to be more business savvy (Palalić *et al.*, 2017). Universities' employees and students often have other part-time positions that require them to juggle the demands of education with their working life (Schmitz *et al.*, 2017). Moreover, the stakeholders of universities play both a formal and informal role in the education process. Formally by being paid to teach or research but informally through social networks and outside business contacts. Another complexity is the market and government regulations placed on universities. Regulation can take a variety of different forms from taxation, zoning requirements to environmental controls (Ratten and Ratten, 2007). These regulations impact the type of entrepreneurship conducted at universities. Thus, universities are constrained by regulations in terms of how they integrate entrepreneurship into their institutional structures.

Overview of articles in the special journal issue

The first article titled "Researcher, I have heard of your innovation. Will you marry me?" by David Rodeiro-Pazos, Nuria Calvo, Jacobo Feas, Braulio Perez and Sara Fernandez-Lopez focusses on the need for collaboration among researchers to facilitate knowledge exchange. This is important with more competitive pressures being placed on researchers in universities. The article discusses the role of university-industry cooperation in Spain, Portugal and France.

The second article titled "Factors influencing academic entrepreneurship: A case-based study" by Veland Ramadani, Ali Davari, Amir Emami and Sahar Taherkhani examines different environment factors influencing universities.

The third article titled "Entrepreneurship education program as value creation: Empirical findings of universities in Bandung, Indonesia" by Grisna Anggadwita, Leo Aldianto and Aang Umbara focusses on the emerging economies context for entrepreneurial universities.

The fourth article titled "The effects of knowledge management processes on human resource management: Mediating role of knowledge utilization" by Selma Kastrati, Halil Zaim, Yavuz Keceli and Ashraf Jaradat discusses different types of knowledge management processes.

The fifth article titled "The mediating effects of social entrepreneurial antecedents on the relationship between prior experience and social entrepreneurial intent: The case of Filipino and Indonesian University students" by Hendrai Dwi Mulyaningsih, Jean Paolo Lacap and Veland Ramadani discusses the importance of university entrepreneurship in an emerging economy.

Future research avenues

To achieve an enhanced view of university entrepreneurship, there needs to be new research that bridges the gap between practice and theory. This includes fuller investigations into the

strength of entrepreneurship education and what decisions impact the learning process. Questions that need to be considered are: Is the entrepreneurial process formal or informal? Why and what type of outcomes are derived from university entrepreneurship? To understand the nature of university entrepreneurship is not easy and will require more longitudinal work, especially, in terms of processes and changes in higher education. In addition, in-depth interviews of university stakeholders would help to understand how they influence entrepreneurship. Participant observation could be used as a way to trace the entrepreneurship that takes place at a university. By monitoring the conversations people have about entrepreneurship at a university, it will help others to improve their educational experience. By trying to delve into the patterns of university entrepreneurship, it will enable universities to describe their entrepreneurial journey. This article and special issue articles are a starting point for stimulating more research on university entrepreneurship. **Table I** depicts future research questions in terms of the firm-, regional- and international-level analyses. These three different levels of analysis provide avenues to explore future research and will now be discussed.

University entrepreneurship: the firm as the level of analysis. University entrepreneurship has an influence on firm growth and development. Firms need to take into account entrepreneurship available at universities to help them compete in the marketplace. To help increase competitiveness, firms could focus on the entrepreneurial ecosystem that exists at universities, as this environment could help shape firms' activities. It is possible to move the research on entrepreneurship forward by linking firms to university ecosystems. This is due to firms focusing on their own industry rather than realizing the potential of university ecosystem environments. Multi-method work including ethnography could offer an opportunity for researchers to be immersed in the process of university entrepreneurship. This will help generate a rich body of knowledge about the roots of university entrepreneurship. By focussing on the real impact entrepreneurship might have on universities, it will help identify areas for future research. This will provide a more robust understanding of the limitations of current university entrepreneurship research in terms of firms' behaviour. We live in exciting times for university entrepreneurship that is in the

Level of analysis	Research themes	Research questions
Firm level	The effect of the environment on university entrepreneurship	How does the geographic space influence university entrepreneurship? What is the role of regional clusters in the development of entrepreneurship education? Does the environment shape education policies at the universities?
Regional level	The effect of regions on university entrepreneurship	How does regional contexts influence entrepreneurship education embeddedness? How do relationships regarding university entrepreneurship develop in regions? How can the effect of regional policies on university entrepreneurship be measured?
International level	The effect of international trends on university entrepreneurship	What are the consequences of internationalization on university entrepreneurship? To what extent do cultural and social factors influence university entrepreneurship? What is the role of university entrepreneurship in internationalization?

Table I.
Themes for future research questions

cus of new advances. More research is needed to extend our knowledge of university entrepreneurship to build a theory and provide better advice to policymakers. The results of the articles in this special journal issue are consistent with the knowledge spillover theory of entrepreneurship that suggests knowledge generated in one context can spillover to other firms. For global competitiveness reasons, the sharing of knowledge among firms is an important source of ideas and encourages links between firms, industry and universities. Universities act as a catalyst for promoting knowledge dissemination between public and private organizations that needs to be embedded in firm strategies.

University entrepreneurship and regions: the region as the level of analysis. Future research needs to focus more on the region in terms of its effect on university entrepreneurship. Regions have different policies regarding education that are reflected in the types of firms and industries in those regions. We suggest a more micro perspective while examining the entrepreneurial dynamics in terms of integrating into the current debate about university entrepreneurship. Moreover, there is a need for more tailored regional policies that could open a new window for future research. We hope that more emphasis is placed on how to stimulate stagnant regions to harness the potential of entrepreneurship education.

The region where a university is located has an effect on entrepreneurship. Increasingly, entrepreneurship education is becoming a priority for regional development and the internationalization of universities. Entrepreneurship education focusses on the development of innovative and proactive attitudes. Having a more entrepreneurial behaviour helps to facilitate better problem solving and creativity in a region. Thus, having an entrepreneurial mindset helps to encourage better managerial and technical competences that are useful in the changing business environments and the way entrepreneurship is perceived in regions.

International studies and university entrepreneurship: the international arena as a level of analysis. Future research needs to integrate the internationalization effect on university entrepreneurship. A possible research area is to compare different international education policies on the development of entrepreneurial ecosystems. Thus, the research challenge is to understand the effect of migration on university entrepreneurship. This could be explored by analyzing the country of origin of firm founders that are started as a result of university entrepreneurship. This line of research could help to understand the effects of study abroad and research stays on the development of new business ventures. Theories of internationalization could be a way to include both entrepreneurship and educational effects on university entrepreneurship. Entrepreneurship scholars could reach a better understanding on the role of internationalization on education by emphasizing entrepreneurship. This would help to bridge insights on international education and entrepreneurship. This will aid in bringing a more international dimension in the research on university entrepreneurship. Future research about internationalization and university entrepreneurship should address these issues:

- How to increase the efficient management of technology transfer and projects in universities among global stakeholders?
- What infrastructure facilitates the international promotion of scientific knowledge at universities?
- What is the role of universities in being gatekeepers in facilitating connection between education providers, industry and government?
- How can universities foster technological support and experiential development in terms of international knowledge spillovers?

The way forward

There is no consensus in the literature about how university entrepreneurship should be studied. The intention of this article was to discuss the remaining gaps in the literature that future research can help to fill in terms of university entrepreneurship. There is a need for different research strategies that allow university entrepreneurship to be studied in more depth. This will offer ways of understanding the different aspects and features of university entrepreneurship. It is necessary to broaden our understanding of university entrepreneurship at a deeper level.

In concluding, we suggest a need for more research on university entrepreneurship in terms of the way entrepreneurial learning influences regional development. The focus of this article has been to discuss the contributions of the special issue about university entrepreneurship. It is important to recognize there are many different forms of university entrepreneurship that affect economic growth and the internationalization of higher education. There are a number of research questions that still need to be considered in terms of the role of higher educational institutions in an entrepreneurial ecosystem. This includes more research with a need to focus on the whole spectrum of university entrepreneurship to see the wider benefits for science and technology.

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