



Article

Student Entrepreneurship in Universities: The State-of-the-Art

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Abstract: The purpose of this paper is to understand how universities develop and support student entrepreneurship. We did a preliminary Systematic Literature Review (SRL) on scientific articles regarding student entrepreneurship published during the last twenty years. Our findings emphasize three main research areas, emerging from a cluster analysis: (i) student entrepreneurship and entrepreneurial intention; (ii) university support for entrepreneurship; (iii) entrepreneurship education and learning. Particularly, our study points out that the new paradigm of the entrepreneurial university overcame the classical university model through the introduction of many innovations to foster student entrepreneurship. This paper provides an SLR on university role in fostering student entrepreneurship and it is useful for the academic and professional community. Additionally, it is original because it highlights the future directions of entrepreneurship and the main innovations adopted by universities to help students in the development of entrepreneurial initiatives.

Keywords: student entrepreneurship; nascent entrepreneurship; active entrepreneurship; student venture creation; university



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1. Introduction

“Entrepreneurship is defined as a dynamic system of individual’s causally interrelated personality traits, motivation, cognition, needs, emotions, abilities, learning, skills and behaviour” (Oganisjana and Koke 2012) and, in the past decades, the role of the universities in fostering entrepreneurship grew considerably, leading to the development of new strategies, own individual culture, and structures (Lombardi et al. 2017). Thus, the new paradigm of the entrepreneurial university overcame the classical university model (Kuratko 2005; Mueller 2006; Fayolle and Redford 2014). A student entrepreneur does not need only postulated knowledge. Conversely, his/her academic education should be based on a whole range of different skills and on an interdisciplinary approach (Johannisson 1991; Haynie and Shepherd 2009).

Students need to *“learn to identify and solve problems, work in teams, calibrate risks, and effectively communicate with others in very different domains, such as with investors. It helps them innovate, inventing and implementing solutions to problems. It moves them beyond current approaches of particular disciplinary perspectives, helping them to create imaginative new options, adopt strategic approaches, and design organisational mechanisms to experiment and transform good ideas into reality”*¹ (Dodgson and Gann 2020). Thus, universities’ approach to entrepreneurship has been changing and universities introduced innovations, such as (I) the use of business simulations (Samašonok et al. 2020); (II) the development of new entrepreneurship courses, extra-curricular support activities, seminars, and training (Walter et al. 2013; Bergmann et al. 2016; Morris et al. 2017; Sendouwa et al. 2019); and (III) the use of accelerators, incubators, business plan competitions, and grants (Wright et al. 2017).

In the current scenario, the development of new technologies has significantly increased (Schimperna et al. 2020; Lombardi et al. 2021a), stimulating also technological

entrepreneurship in universities through start-up creation, university-industry partnerships, licensing, and patenting (Grimaldi et al. 2011). This led to the implementation of mechanisms to support start-ups by both alumni and current students (Wright and Mustar 2019). According to Chiarello et al. (2021), student entrepreneurship is not only linked to a single field of study. Young entrepreneurs attend many different courses, such as economic-statistical, politics, social sciences, and engineering.

We aim to represent a preliminary literature review of the development of student entrepreneurship in the last twenty years. Additionally, we investigate whether the innovations introduced are sufficient or whether more could be done to support students' entrepreneurship, especially in the light of the current dynamic environment. Our paper aims at answering the following research question (RQ): *"What is the state of the art of student entrepreneurship into business, management and accounting fields of study?"*. We applied a Systematic Literature Review (SLR) (Tranfield et al. 2003; Kraus et al. 2020; Secundo et al. 2020) and our search query was entered into the Scopus database, finally allowing us to collect 52 scientific articles published from 2001. We selected the business, management and accounting subject areas. Lastly, we propose interesting results in the following three research areas, emerging from a cluster analysis: (i) student entrepreneurship and entrepreneurial intention; (ii) university support for entrepreneurship; (iii) entrepreneurship education and learning. Our findings aim at defining the state-of-the-art in university role in fostering student entrepreneurship, proposing issues for academics and practitioners.

2. Methodology

We applied an SLR methodology (Tranfield et al. 2003; Kraus et al. 2020; Secundo et al. 2020) and a cluster analysis to answer our RQ:

What is the state-of-the-art of student entrepreneurship into business, management, and accounting fields of study?

We provided insights into student entrepreneurship in the fields of business, management and accounting. To point out our research, we assumed a set of keywords by the Administrative Sciences' special issue as theoretical background in composing our search query to find articles in Scopus database. We selected ("student*" OR "higher education") AND ("technology transfer" OR "entrepreneurial intent*" OR "entrepreneurial learning" OR "innovative learning" OR "entrepreneurial identity" OR "extra-curricular") OR ("student entrepreneur*" AND ("student entrepreneur*" AND ("nascent entrepreneur*" OR "active entrepreneur*" OR "business" OR "start up" OR "academic spin-offs" OR "venture" OR "entrepreneurial"))) as keywords. Our search is up to 15 November 2021 and we collected only scientific articles after 2000, obtaining 3.222 research articles from 5.853 initial documents. Then the search field was limited only to business, management, and accounting and to English-language documents, obtaining 1.293 research articles. Lastly, the authors read titles, abstracts and keywords of collected documents, having a final list of 52 articles based only on research articles mainly related to our research aim. Appendix A shows this final list, while Table 1 summarizes the selected criteria to collect research articles.

Assuring the generalizability of results (White and McBurney 2012), we assured external and internal validity of them (Silverman 2013). We classified and coded articles through the adoption of some categories (Secundo et al. 2020; Lombardi et al. 2021b):

- A. Publication time;
- B. Geographical distribution of articles;
- C. Number of citations of articles/journals and most influential authors;
- D. Topics and common keywords.

We used descriptive, bibliometric, and cluster analyses through Nvivo software and VOSviewer software (van Eck and Waltman 2017). In the end, we drafted the emerging research paths.

Table 1. Sample selection process.

Selection Criteria	Results
<i>Stage 1:</i> Search for TITLE-ABS-KEY (("student*" OR "higher education") AND ("technology transfer" OR "entrepreneurial intent*" OR "entrepreneurial learning" OR "innovative learning" OR "entrepreneurial identity" OR "extra-curricular")) OR ("student entrepreneur*" AND ("student entrepreneur*" AND ("nascent entrepreneur*" OR "active entrepreneur*" OR "business" OR "start up" OR "academic spin-offs" OR "venture" OR "entrepreneurial"))) PUBYEAR > 2000 AND (LIMIT-TO (PUBSTAGE, "final"))	5.853 documents
<i>Stage 2:</i> Limiting the search field to research articles only	3.222 research articles
<i>Stage 3:</i> Limiting the search field to business, management and accounting only	1.327 research articles
<i>Stage 4:</i> Limiting the search field to English-language research articles only	1.293 research articles
<i>Stage 5:</i> Selection of the collected research articles mainly related to our research aim	52 research articles

Source: our elaboration.

3. Findings

This section shows findings to answer our research question: *What is the state-of-the-art of student entrepreneurship into business, management and accounting fields of study?*

3.1. Publication Time

We screened 52 scientific articles published from 2001. Among these articles, 52% are based on a quantitative method, while 38% on a qualitative method and 10% on a mixed one. The trend of publications seems irregular. For the years between 2001 and 2009, we selected a research article only for 2003 and 2005, while the number of selected published documents from 2010 to 2021 is characterized by constant increases and decreases in publications. Lastly, 2017 is the most relevant year in terms of publications (11 documents) (Figure 1).

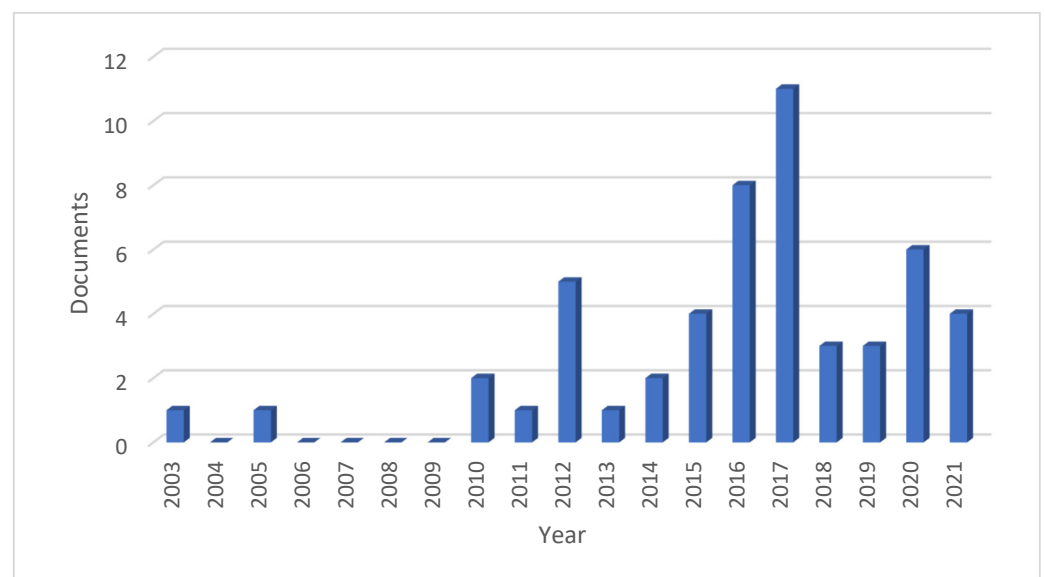


Figure 1. Trend of analyzed publications. Source: our elaboration from Scopus data.

3.2. Geographical Distribution of Articles

Focusing on the geographical distribution of the selected articles, we tried to understand which are the main countries for our research, analyzing the geographical location of the universities of the authors of selected articles. The United Kingdom is the most representative country (11 articles), followed by the USA (9 articles) and Italy (7 articles). Additionally, we provided an analysis of citations per country, highlighting how Germany (671 citations) is the country to which the most cited articles belong, followed by the USA (629 citations) and the United Kingdom (556 citations) (Table 2).

Table 2. N° of analyzed articles and citations by countries.

Country	N° of Articles	N° of Citations
United Kingdom	11	556
United States	9	629
Italy	7	215
Russian Federation	5	282
Indonesia	5	5
Germany	3	671
Netherlands	3	296
Australia	3	51

Source: our elaboration.

3.3. Number of Citations of Articles/Journals and Most Influential Authors

Table 3 points out how four is the higher number of articles per journal. Particularly, 5 journals published at least three articles selected for this SLR. Focusing on citations per journal, *Journal Of Technology Transfer* is the most-cited journal (218 citations), followed by *Journal Of Small Business And Enterprise Development* (168 citations) and *Small Business Economics* (167 citations).

Table 3. N° of analyzed articles and citations per journal.

Journal	N° of Articles	N° of Citations
Journal Of Technology Transfer	4	218
Journal Of Small Business And Enterprise Development	3	168
Small Business Economics	3	167
Industry And Higher Education	3	86
Education And Training	3	30

Source: our elaboration.

Lüthje and Franke (2003); Maresch et al. (2016); Shirokova et al. (2016); Saeed et al. (2015); Boh et al. (2016) and Wright et al. (2017) are the most relevant authors (Table 4). Additionally, we calculated the citation per year (CPY) value and, among the top six cited articles, the highest CPY value (32.8) belongs to Maresch et al. (2016), while the lowest (16.2) to Boh et al. (2016).

Table 4. Analyzed articles per citations and citations per year.

Authors	Citations	CPY
Lüthje and Franke (2003)	552	20.1
Maresch et al. (2016)	197	32.8
Shirokova et al. (2016)	159	26.5
Saeed et al. (2015)	119	17
Boh et al. (2016)	97	16.2
Wright et al. (2017)	96	19.2

Source: our elaboration.

3.4. Topics and Common Keywords

Through the occurrence analysis, we found the most relevant keywords in the titles and abstracts of the 52 research articles. We selected 4 as the minimum number of occurrences of a keyword and from our analysis the following main keywords emerged: student entrepreneurship, entrepreneurship education, students, entrepreneurship, entrepreneurial intention, higher education, and entrepreneurial university. Table 5 summarizes our findings.

Table 5. Keywords occurrence.

Keywords	Occurrence
Student entrepreneurship	14
Entrepreneurship education	11
Students	10
Entrepreneurship	7
Entrepreneurial intention	6
Higher education	6
Entrepreneurial university	6
Education	5
Student entrepreneurs	4
Entrepreneurial learning	4
Experiential learning	4
Effectuation	4

Source: our elaboration.

Additionally, we pointed out the cluster analysis through the occurrence, selecting 4 as the minimum number of occurrences of a keyword. Then, we deleted two words already used. Figure 2 highlights the following three research areas: (i) student entrepreneurship and entrepreneurial intention; (ii) university support for entrepreneurship; (iii) entrepreneurship education and learning.

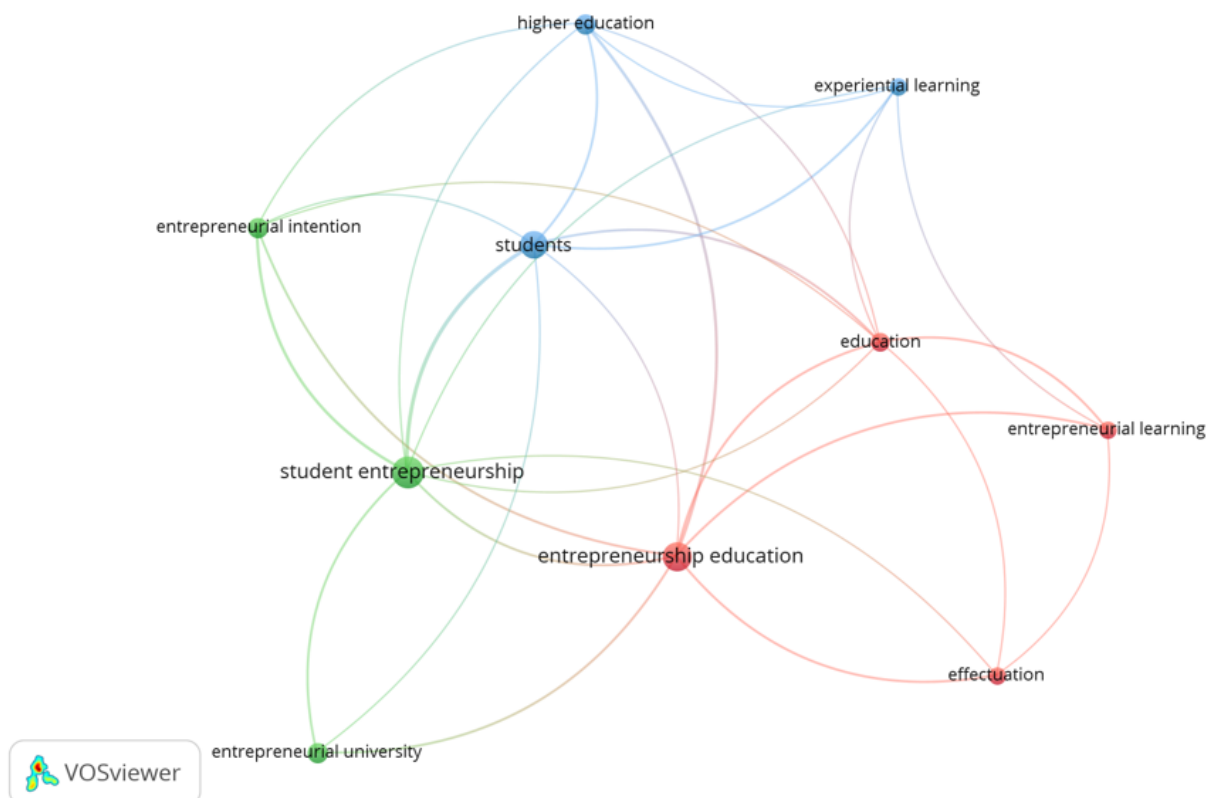


Figure 2. Clusters by keywords' occurrence.

In the following subsections we describe of the most relevant features of the above-mentioned research areas.

3.4.1. Research Area 1—Student Entrepreneurship and Entrepreneurial Intention

Entrepreneurship and the growing number of entrepreneurs are widely considered instrumental for economic growth, employment and technological progress (Blesia et al. 2019; Nguyen 2020). Entrepreneurship can be defined “as a process of doing something (being creative), being different (being innovative) and daring to take risks (being risk takers)” (Blesia et al. 2019). In this scenario, a creative entrepreneur pays attention to the current situation, especially focusing on details he/she had overlooked, and he/she can develop new ideas, combining his/her available resources (Miller 1983). An innovative entrepreneur points out creative ideas (Hamel and Prahalad 1991), while a risk-taker entrepreneur agrees to support an idea, even if there is a probability of failure (Blesia et al. 2019).

Marchand and Hermens (2015) defined student entrepreneurs “as individuals attending award classes at university and conducting innovative and revenue generating entrepreneurial activities”. More recently, Holienka et al. (2017) have broadened this concept, referring to “all students involved in actively running any enterprising activities, i.e., acting upon identified opportunities and developed ideas, and transforming them into value for others”. Additionally, the literature defines another figure influenced by the new model of entrepreneurial university: the “technology entrepreneur” (Prodan 2007), also known as “entrepreneurial engineer” or “entrepreneurial scientist” (Goldberg 2006). Elia et al. (2017) defined this figure as “a new archetype of human capital, capable to adapt quickly to changes as well as to address societal development and innovation, thus assuring economical, technological and environmental sustainability”. In the light of student entrepreneurship’s contribution to the labor force, higher education is adapting to the dynamic local, national, and international environment (Guerrero and Urbano 2012; Blesia et al. 2019).

Thus, it is possible to recognize three universities’ missions currently affecting student entrepreneurship (Zollo et al. 2017). The first mission refers to teaching and it is based on the development of a proactive and innovative entrepreneurial character in students (European Commission 2012b). The second mission refers to the research and relies on a structural transformation to share and commercialize the university’s intellectual property. Lastly, the third mission “transformed the university into a teaching, research and economic development enterprise” (Etzkowitz 2003, p. 110), paying more attention to the practical implementation and commercialization of research findings (Bauboniené et al. 2019).

Student entrepreneurship has been evolving in the light of new issues to be addressed. The rapid development of new technologies revolutionised entrepreneurship, leading to the need to develop and control these technologies. This revolution also brought new opportunities for learning entrepreneurial skills (Liu and Zhang 2011), starting planning own businesses (Chen et al. 2012), and knowledge or technology transfer (Boh et al. 2016; Barbini et al. 2021). Particularly, the Internet can be regarded as an essential medium to develop entrepreneurship and soft skills (Prameswari et al. 2020). In the current dynamic environment, the last issue student entrepreneurship has to face is related to sustainability (Russo et al. 2021), considering how climate change is dramatically impacting the environment, requiring companies to respond quickly and efficiently (Lombardi et al. 2021c).

Many studies point out drivers of student entrepreneurship, shedding light on the main features that foster student entrepreneurial intention (see Donaldson 2019 for a recent literature review on entrepreneurial intentions). Among these features, it is possible to recognize: (I) gender; (II) age; (III) having entrepreneurial parents; (IV) self-efficacy; (V) risk tolerance; (VI) environmental characteristics. Focusing on the age factor, many studies highlight how men have a stronger predisposition to establish an entrepreneurial activity than women (Scherer et al. 1990; Chen et al. 1998; Zhao et al. 2005; de Bruin et al. 2007; Gupta et al. 2009). Even if this consideration, there are only little or no gender differences in entrepreneurship (Shirokova et al. 2016).

The second feature affecting student entrepreneurship is age. Younger people, such as students, have personal characteristics (they are more energetic, dynamic, enthusiastic, and eager to realize their ambitions), leading them to be more likely to be ready to start an entrepreneurial project (Álvarez-Herranz et al. 2011). However, older people could be: (I) more resolved to convert an entrepreneurial intention into a start-up; (II) more determined to complete the started entrepreneurial initiative; (III) more experienced, a feature that makes it easier to proceed with a start-up activity (Álvarez-Herranz et al. 2011; Shirokova et al. 2016). Focusing on the third feature of student entrepreneurship, it emerged that having entrepreneurial parents represent a significant driver to stimulate the intention to start an entrepreneurial activity (Gubik and Farkas 2016; Holienka et al. 2017). According to the fourth feature (self-efficacy), “people who have strong belief that they are able to start and run entrepreneurship tend to have strong intention to start and run the business (Giles and Rea 1999)” (Rakib et al. 2020). The fifth feature is the risk-tolerance. Risk-taking propensity allows students to go ahead with their entrepreneurial projects despite situations of uncertainty (Zollo et al. 2017; Ibidunni et al. 2020; Zhang et al. 2020). Lastly, also the environmental characteristics foster student entrepreneurship. Particularly, student entrepreneurship is fostered by perceived financial and non-financial support, social support, the presence of an entrepreneurial environment (Nguyen 2020), and national culture (Laskovaia et al. 2017). Additionally, also education affects entrepreneurial intention (Maresch et al. 2016; Trivedi 2016; Gelaidan and Abdullateef 2017), allowing students to learn organizational skills, such as leadership development, time management, and interpersonal skills (Stamboulis and Barlas 2014), or two or more foreign languages to be connected with as many people as possible (Sansone et al. 2021).

3.4.2. Research Area 2—University Support for Entrepreneurship

In the current ultra-competitive scenario, universities have to face new issues. Particularly, recent evolutions and innovations in the corporate world are pushing universities to become more entrepreneurial and international in order to stay competitive (Jansen et al. 2015; Minola et al. 2016), leading to a significant increase in entrepreneurial courses in Europe and in the USA (Kuratko 2005; European Commission 2012a; Hoppe 2016), even if there is still a gap to be filled between knowledge gained during studies and the current situation in the economic and business field (Prameswari et al. 2020). Universities are trying to: (I) contribute to the spirit of entrepreneurship; (II) promote creativity and student aspirations to start up a business; (III) provide adequate knowledge for the establishment and the development of a business; and (IV) introduce new and innovative entrepreneurship curricula and programs (Baubonienė et al. 2019).

Thus, university support for entrepreneurship can be split in many different ways (Bazan et al. 2019). According to Saeed et al. (2015), entrepreneurial self-efficacy is mainly affected by perceived educational support, followed by concept development support, business development support, and overall institutional support. Additionally, the day-to-day exposure to the university environment and its structures can shape students' entrepreneurial career and their entrepreneurial behaviour (Shirokova et al. 2016), encouraging the establishment of new ventures (Tan et al. 2000; Shirokova et al. 2017).

3.4.3. Research Area 3—Entrepreneurship Education and Learning

Education is essential to shape an entrepreneurial character (Ariyani et al. 2020), bringing students entrepreneurial skills, knowledge, attitudes, and other human capital assets, essential features to allow their personal growth (Rae et al. 2012; Martin et al. 2013; Gedeon 2014). Students' learning has been enhanced through the following two types of pedagogical approaches: (i) theory-based pedagogical approach; (ii) practice-based approach. The first approach improves students' understanding of entrepreneurship, while the second one allows the development of entrepreneurial skills (Neck et al. 2014).

Particular attention should be paid to the last approach. The practice-based approach has increasingly become related to the entrepreneurial method (Fayolle and Gailly

2008; Sarasvathy 2008; Yamakawa et al. 2016), based on the following two modes of logic: (i) effectuation; (ii) causation. These two modes are useful to face challenges related to entrepreneurial behavior (Yamakawa et al. 2016). Effectuation allows a better understanding of how ideas can be examined, modified, and delivered to the market (Mäkimurto-Koivumaa and Puhakka 2013), starting an iterative process of value creation for stakeholders (Lackéus et al. 2016). Conversely, according to causation, students “*identify and assess long-run opportunities in developing their ventures, and they engage in creating project plans for developing their products and/or services and for conducting market and competitive analyses* (Chandler et al. 2011; Fisher 2012; Sarasvathy 2001)” (Ilonen et al. 2018).

In the current scenario, the need for increased levels of graduate entrepreneurship cannot be supported by traditional pedagogical approaches applied to entrepreneurship education. Conversely, it should be supported by the development of more innovative and entrepreneurial approaches, such as the collaborative co-learning approach, based on the engagement of entrepreneurs, university students, and educators in the learning process (Hannon et al. 2005). Other significant steps forward have been made through the introduction of business simulations, considered a useful tool for the development and the improvement of entrepreneurial abilities (Samašonok et al. 2020) and through new entrepreneurship courses, extra-curricular support activities, seminars, and training, in order to shape a supportive environment for entrepreneurship (Walter et al. 2013; Bergmann et al. 2016; Morris et al. 2017; Sendouwa et al. 2019). Accelerators, incubators, business plan competitions, and grants are also recognised as new ways to stimulate entrepreneurial skills (Wright et al. 2017). Particular attention should be paid to extra-curricular activities, among which summer schools, exchanges, mentoring, internships, workshop programs, games, competitions, financial support, pre-incubators, business support programs, student-led enterprise groups, and entrepreneurship societies and clubs (ESs) (Pittaway et al. 2011; Pittaway et al. 2015; Siivonen et al. 2019). These kinds of activities are essential to enhance students’ knowledge, experience (Preedy and Jones 2015), interpersonal and employability skills (Preedy and Jones 2017).

Thus, “*the concept of entrepreneurship encompasses more dimensions than a mechanical combination of entrepreneurial knowledge, skills and attitudes as it has been defined as one of the lifelong learning key competencies*” (Oganisjana and Koke 2012). Universities are different from each other in terms of competencies and resources, leading to information asymmetries and variances in entrepreneurial competencies among students and graduates that affect venture creation (Beyhan and Findik 2018). In the current scenario, even if universities are trying to innovate the way of teaching and invest in developing entrepreneurship curricula, in order to extend the current status of knowledge, there is still little investment in practical programs and only few entrepreneurship graduates decide to start businesses immediately after graduation (Nenzhelele et al. 2016). Thus, in the next years, universities and policy-makers have to work together in order to overcome contextual barriers and foster student entrepreneurship (Lüthje and Franke 2003).

4. Conclusions

We collected articles on university role in fostering student entrepreneurship, answering the call by Administrative Sciences “*Fostering Student Entrepreneurship: Nascent and Active Entrepreneurs in Universities*”. Adopting an SLR (Tranfield et al. 2003; Kraus et al. 2020; Secundo et al. 2020), we analysed 52 articles. Focusing on our bibliometric analysis, literature provided several studies in the selected field, but it can be further explored. Additionally, the occurrence analysis and the cluster analysis helped us to find the following three main research areas: (i) student entrepreneurship and entrepreneurial intention; (ii) university support for entrepreneurship; (iii) entrepreneurship education and learning.

Moving to the literature review, we analysed the abovementioned three research areas. The first research area pointed out how student entrepreneurship has changed significantly in recent years, adapting to changes in the environment, especially those related to new

technologies and sustainability issues. Additionally, this research area highlighted that many features foster student entrepreneurship intention. Among these features, gender, age, having entrepreneurial parents, self-efficacy, risk tolerance, and environmental characteristics can be regarded as the main drivers for students' entrepreneurship. Focusing on the last feature, it is possible to highlight the role of the university in fostering students' skills and intention to undertake entrepreneurship. This last consideration allows us to focus on the second and third research areas. Indeed, universities' approach to entrepreneurship has been changing to understand the new requirements of the economic system. In this scenario, universities broadened their support for entrepreneurship and innovated entrepreneurship education, introducing the following innovations: (I) the use of business simulations (Samašonok et al. 2020); (II) the development of new entrepreneurship courses, extra-curricular support activities, seminars, and training (Walter et al. 2013; Bergmann et al. 2016; Morris et al. 2017; Sendouwa et al. 2019); and (III) the use of accelerators, incubators, business plan competitions, and grants (Wright et al. 2017).

Even if these considerations, universities have not implemented the same innovations (Beyhan and Findik 2018) and many steps still need to be taken to improve students' entrepreneurship. Indeed, in the current scenario, only few entrepreneurship graduates decide to start businesses during or immediately after graduation (Nenzhelele et al. 2016). Additionally, there is the need to further improve the development and use of new technologies and address sustainability issues. These findings from our SLR allow us to state that there is a need for collaboration between policy-makers and universities in order to foster student entrepreneurship.

To advance studies in the field of student entrepreneurship (Kuratko 2005; Mueller 2006; Fayolle and Redford 2014; Lombardi et al. 2017), we suggest that future research will be based on the next innovations that universities are developing to help students in entrepreneurship. For instance, future studies may analyse if and how digital and coding knowledge and skills may foster entrepreneurial intentions and student entrepreneurship. Our SLR is only a preliminary literature review of an emerging topic and it has several limitations, among which the use of only one research database (Scopus), the selection of a restricted number of keywords to collect papers, and the absence of any reference theory. Thus, our future research aims to adopt other databases of search, such as Google Scholar, and to widen the number of selected keywords to extend the basis of research. Additionally, future research may focus not only on students and alumni who created start-ups but also on students and alumni that, as a result of entrepreneurship education, learning, and experiences, became more proactive in SMEs and corporations. For instance, future research may also analyse student entrepreneurs' role in the development of open innovation activities and intrapreneurship. In addition to this, future studies may analyse how the university supports organizations (e.g., university incubator/accelerator or university technology transfer office) and develops student entrepreneurship. Finally, future research may develop and propose a new theory for student entrepreneurship and compare student entrepreneurship in different countries.

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Data Availability Statement: Not applicable.

Conflicts of Interest: The authors declare no conflict of interest.

Appendix A

Table A1. Documents full list ordered by year of publication.

Nr.	Authors	Title	Year	Journal/Source
1	Blesia, J.U., Iek, M., Ratang, W., Hutajulu, H.	Developing an Entrepreneurship Model to Increase Students' Entrepreneurial Skills: an Action Research Project in a Higher Education Institution in Indonesia	2021	Systemic Practice and Action Research
2	Ibidunni, A.S., Mozie, D., Ayeni, A.W.A.A.	Entrepreneurial characteristics amongst university students: insights for understanding entrepreneurial intentions amongst youths in a developing economy	2021	Education and Training
3	Sansone, G., Ughetto, E., Landoni, P.	Entrepreneurial intention: An analysis of the role of Student-Led Entrepreneurial Organizations	2021	Journal of International Entrepreneurship
4	Barbini, F.M., Corsino, M., Giuri, P.	How do universities shape founding teams? Social proximity and informal mechanisms of knowledge transfer in student entrepreneurship	2021	Journal of Technology Transfer
5	Rakib, M., Tawe, A., Azis, M., Syam, A., Sanusi, D.A.	Determinants of Entrepreneurial Intention: Empirical Study of Student Entrepreneurs	2020	Academy of Entrepreneurship Journal
6	Samašonok, K., Išoraitė, M., Žirnelė, L.	Education of entrepreneurship by participation in a business simulation enterprise activities: Conditions of effectiveness and opportunities for improvement	2020	Entrepreneurship and Sustainability Issues
7	Prameswari, N.S., Cruz, M.D., Amboro, J.L., Wahyuningsih, N., Suharto, M.	Analysis of development e-commerce for accommodate students in developing entrepreneurship mental	2020	International Journal of Scientific and Technology Research
8	Ariyani, D., Suyatno, Zuhaery, M.	Principal's entrepreneurial leadership in developing entrepreneurship at 4 magelang high school	2020	International Journal of Scientific and Technology Research
9	Nguyen, T.T.	Impact of entrepreneurship environmental support factors to university students' entrepreneurship self-efficacy	2020	Management Science Letters
10	Siivonen, P.T., Peura, K., Hytti, U., Kasanen, K., Komulainen, K.	The construction and regulation of collective entrepreneurial identity in student entrepreneurship societies	2020	International Journal of Entrepreneurial Behaviour and Research
11	Sendouwa, R.H.E., Lonto, A.L., Saroinsong, S.J.R.	Entrepreneurship development program in the higher education in Indonesia	2019	International Journal of Recent Technology and Engineering
12	Muscio, A., Ramaciotti, L.	How does academia influence Ph.D. entrepreneurship? New insights on the entrepreneurial university	2019	Technovation
13	Bazan, C., Shaikh, A., Frederick, S., (...), Finn, C., Rayner, J.	Effect of memorial university's environment & support system in shaping entrepreneurial intention of students	2019	Journal of Entrepreneurship Education
14	Baubonienė, Ž., Hahn, K.H., Puksas, A., Malinauskienė, E.	Factors influencing student entrepreneurship intentions: The case of lithuanian and South Korean universities	2018	Entrepreneurship and Sustainability Issues

Table A1. Cont.

Nr.	Authors	Title	Year	Journal/Source
15	Beyhan, B., Findik, D.	Student and graduate entrepreneurship: ambidextrous universities create more nascent entrepreneurs	2018	Journal of Technology Transfer
16	Ilonen, S., Heinonen, J., Stenholm, P.	Identifying and understanding entrepreneurial decision-making logics in entrepreneurship education	2018	International Journal of Entrepreneurial Behaviour and Research
17	Shirokova, G., Osiyevskyy, O., Morris, M.H., Bogatyreva, K.	Expertise, university infrastructure and approaches to new venture creation: assessing students who start businesses	2017	Entrepreneurship and Regional Development
18	Choi, K., Park, J., Cho, D., Chu, H.-Y.	The Impact of University Support on the Creation of Student Entrepreneurs: Evidence from South Korea	2017	Entrepreneurship Research Journal
19	Wright, M., Siegel, D.S., Mustar, P.	An emerging ecosystem for student start-ups	2017	Journal of Technology Transfer
20	Holienka, M., Gál, P., Kovačičová, Z.	Drivers of student entrepreneurship in visegrad four countries: Guesss evidence	2017	Central European Business Review
21	Bogatyreva, K., Shirokova, G.	From entrepreneurial aspirations to founding a business: The case of Russian students	2017	Foresight and STI Governance
22	Zollo, L., Laudano, M.C., Ciappei, C., Zampi, V.	Factors affecting universities' ability to foster students' entrepreneurial behaviour: An empirical investigation	2017	Journal of Management Development
23	Gelaidan, H.M., Abdullateef, A.O.	Entrepreneurial intentions of business students in Malaysia: The role of self-confidence, educational and relation support	2017	Journal of Small Business and Enterprise Development
24	Morris, M.H., Shirokova, G., Tsukanova, T.	Student entrepreneurship and the university ecosystem: A multi-country empirical exploration	2017	European Journal of International Management
25	Preedy, S., Jones, P.	Student-led enterprise groups and entrepreneurial learning: A UK perspective	2017	Industry and Higher Education
26	Laskovaia, A., Shirokova, G., Morris, M.H.	National culture, effectuation, and new venture performance: global evidence from student entrepreneurs	2017	Small Business Economics
27	Elia, G., Secundo, G., Passiante, G.	Pathways towards the entrepreneurial university for creating entrepreneurial engineers: An Italian case	2017	International Journal of Entrepreneurship and Innovation Management
28	Trivedi, R.	Does university play significant role in shaping entrepreneurial intention? A cross-country comparative analysis	2016	Journal of Small Business and Enterprise Development
29	Shirokova, G., Osiyevskyy, O., Bogatyreva, K.	Exploring the intention-behavior link in student entrepreneurship: Moderating effects of individual and environmental characteristics	2016	European Management Journal
30	Bergmann, H., Hundt, C., Sternberg, R.	What makes student entrepreneurs? On the relevance (and irrelevance) of the university and the regional context for student start-ups	2016	Small Business Economics

Table A1. Cont.

Nr.	Authors	Title	Year	Journal/Source
31	Maresch, D., Harms, R., Kailer, N., Wimmer-Wurm, B.	The impact of entrepreneurship education on the entrepreneurial intention of students in science and engineering versus business studies university programs	2016	Technological Forecasting and Social Change
32	Gubik, A.S., Farkas, S.	Student entrepreneurship in Hungary: Selected results based on GUESSS survey	2016	Entrepreneurial Business and Economics Review
33	Nenzhelele, T.E., Moraka, N.V., More, K.K.	The impact of practical entrepreneurship project on future entrepreneurial intentions	2016	Problems and Perspectives in Management
34	Minola, T., Donina, D., Meoli, M.	Students climbing the entrepreneurial ladder: Does university internationalization pay off?	2016	Small Business Economics
35	Boh, W.F., De-Haan, U., Strom, R.	University technology transfer through entrepreneurship: faculty and students in spinoffs	2016	Journal of Technology Transfer
36	Jansen, S., van de Zande, T., Brinkkemper, S., Stam, E., Varma, V.	How education, stimulation, and incubation encourage student entrepreneurship: Observations from MIT, IIT, and Utrecht University	2015	International Journal of Management Education
37	Saeed, S., Yousafzai, S.Y., Yani-De-Soriano, M., Muffatto, M.	The Role of Perceived University Support in the Formation of Students' Entrepreneurial Intention	2015	Journal of Small Business Management
38	Pittaway, L.A., Gazzard, J., Shore, A., Williamson, T.	Student clubs: experiences in entrepreneurial learning	2015	Entrepreneurship and Regional Development
39	Preedy, S., Jones, P.	An investigation into university extra-curricular enterprise support provision	2015	Education and Training
40	Stamboulis, Y., Barlas, A.	Entrepreneurship education impact on student attitudes	2014	International Journal of Management Education
41	Marchand, J., Sood, S.	The alchemy of student entrepreneurs: Towards a model of entrepreneurial maturity	2014	International Journal of Entrepreneurship and Innovation Management
42	Jang, Y.	Modeling student entrepreneurship: A longitudinal study	2013	Journal of Entrepreneurship Education
43	Politis, D., Winborg, J., Dahlstrand, Å.L.	Exploring the resource logic of student entrepreneurs	2012	International Small Business Journal
44	Penaluna, K., Penaluna, A., Jones, C.	The Context of Enterprise Education: Insights into Current Practices	2012	Industry and Higher Education
45	Oganisjana, K., Koke, T.	Does competence-oriented higher education lead to students' competitiveness?	2012	Engineering Economics
46	Kwong, C.C.Y., Thompson, P., Cheung, C.W.M., Manzoor, H.	The role of environment in fostering conducive entrepreneurial learning: Teaching the 'art' of entrepreneurship in boot camps	2012	Journal of General Management
47	Matlay, H., Rae, D., Rae, D., (...), Antcliff, V., Hannon, P.	Enterprise and entrepreneurship in English higher education: 2010 and beyond	2012	Journal of Small Business and Enterprise Development

Table A1. Cont.

Nr.	Authors	Title	Year	Journal/Source
48	Pittaway, L., Rodriguez-Falcon, E., Aiyegbayo, O., King, A.	The role of entrepreneurship clubs and societies in entrepreneurial learning	2011	International Small Business Journal
49	Woodier-Harris, N.R.	Evaluating the impact of SPEED on students' career choices: A pilot study	2010	Education and Training
50	Kraaijenbrink, J., Bos, G., Groen, A.	What do students think of the entrepreneurial support given by their universities?	2010	International Journal of Entrepreneurship and Small Business
51	Hannon, P.D., Collins, L.A., Smith, A.J.	Exploring Graduate Entrepreneurship: A Collaborative, Co-Learning Based Approach for Students, Entrepreneurs and Educators	2005	Industry and Higher Education
52	Lüthje, C., Franke, N.	The 'making' of an entrepreneur: Testing a model of entrepreneurial intent among engineering students at MIT	2003	R and D Management

Notes

¹ <https://www.weforum.org/agenda/2020/10/universities-should-support-more-student-entrepreneurs/> (accessed on 25 December 2021).

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