SHAPING THE SOCIAL ORIENTATION OF ACADEMIC ENTREPRENEURSHIP: AN EXPLORATORY STUDY

Jason Jahir Roncancio-Marin

Department of Business, Vrije Universiteit Brussel, Brussel, Belgium

Grupo de investigación en Gestión Responsable para la Sostenibilidad Territorial (GREST), Universidad Nacional de Colombia, Manizales, Colombia

Corresponding autor

Nikolay A. Dentchev

Department of Business, Vrije Universiteit Brussel, Brussel, Belgium

University of National and World Economy, Sofia, Bulgaria

Maribel Guerrero

Global Center for Technology Transfer, School of Public Affairs, Arizona State University, Phoenix, Arizona, USA

Facultad de Economia y Negocios, Universidad del Desarrollo, Santiago, Chile

Abel Alan Diaz-Gonzalez

Department of Business, Vrije Universiteit Brussel, Brussel, Belgium

Suggested citation:

Roncancio-Marin, J. J., Dentchev, N. A., Guerrero, M., & Diaz-Gonzalez, A. A. (2022). Shaping the social orientation of academic entrepreneurship: an exploratory study. *International Journal of Entrepreneurial Behavior & Research*, 28(7), 1679-1701. https://doi.org/10.1108/IJEBR-07-2021-0600

Abstract

Purpose – Despite growing scholarly interest in academic entrepreneurship (AE) few studies have examined its non-commercial aspects and how it contributes to meeting grand societal challenges. One explanation for this may be the continuing focus of AE on Intellectual property commercialization. This paper aims to address this knowledge gap by uncovering how universities can contribute to promoting non-commercial forms of AE.

Design/methodology/approach – This paper uses the human capital theoretical lens to make its argument and applies it to data obtained from exploratory qualitative research (55 semi-structured interviews and nine focus groups) in the developing countries of Bolivia, Colombia, and Ecuador.

Findings – Universities can promote different forms of non-commercial AE even in the absence of sophisticated resources for innovation, through the stimulation of the specific human capital of the university community resulting from activities where they help others.

Originality/value – This paper proposes a general framework for advancing theory development in AE and its non-commercial forms, based on data obtained in uncharted territories for AE.

Keywords: Human Capital, Social Entrepreneurship, Academic Entrepreneurship, Entrepreneurial Orientation, Social Impact.

1. Introduction

Academic entrepreneurship (AE) consists mainly of commercializing intellectual property (IP) resulting from R&D processes in universities (Brennan and McGowan, 2006; Galati et al., 2020; Grimaldi et al., 2011; Siegel and Wright, 2015). AE often involves spin-off activities, technology transfer, and collaboration with industry to generate economic value. Such AE for commercial purposes occurs mainly in developed countries due to the high availability of resources for innovation and entrepreneurship (Etzkowitz, 1983; Guerrero et al., 2006; Shore and Mclauchlan, 2012).

However, in developing countries, AE does not feed on the essential elements described above (i.e., marketable or transferable IP) since resources for innovation and entrepreneurship at universities are limited and do not always allow the development of a marketable patent (Roncancio-Marin *et al.*, 2022). Instead, forms of AE emerge in such developing contexts that do not pursue commercial ends and seek to solve social problems (e.g., social enterprises, university-industry collaboration with social impact, and social start-ups).

The scientific literature on entrepreneurship and innovation has focused on studying different aspects of AE, mainly those seeking commercial purposes: From barriers and drivers of the commercialization of research results, the role of triple helix agents (e.g., university, industry, government) in the economic development of regions, to the motivations of academic engagement in AE. However, the literature falls short in explaining the phenomenon of non-commercial AE, particularly when Universities meet social challenges. The need to address such a knowledge gap is well expressed by Wright (2018, p.4): "*[A]lthough they have been treated as quite separate, the*

combined contributions of both commercial and non-commercial AE are crucial in understanding how wider economics and social challenges can be met by universities".

This paper addresses the knowledge gap expressed above by answering the research question "*How can universities contribute to non-commercial forms of AE?*" and argues that the involvement of students, professors, researchers, and university staff in activities that address societal challenges has implications on the training and educational skills of those involved, contributing in consequence to the emergence of non-commercial forms of AE. To make this argument, this paper uses the human capital theoretical lens (Becker, 1962; Becker, 2009; Estrin, Mickiewicz, & Stephan, 2016) and applies it to data obtained from exploratory qualitative research (55 semi-structured interviews, nine focus groups) obtained in the developing countries of Bolivia, Colombia, and Ecuador.

This paper is structured as follows. Firstly, it begins by selectively reviewing how research on AE suggests the need to examine its non-commercial orientation. Secondly, it shows how various elements of non-commercial AE can be examined through the theoretical lenses of human capital. The next sections describe the sample and the methodology. Further, the paper shows the qualitative findings, followed by discussions and concluding remarks.

2. THEORETICAL BACKGROUND

2.1. *Non-commercial academic entrepreneurship*

Universities have been the focus of scientific studies from several perspectives since they produce knowledge and innovations that contribute to economic growth (Guerrero *et al.*, 2016; Secundo *et al.*, 2020). Among the studies that stand out at the institutional level are those investigating the determinants of technology transfer activities (Guerrero and Urbano, 2019), the role of triple helix agents (university, industry, and government) in the economic development of regions (Etzkowitz and Zhou, 2017), determinants of spin-off creation (Jones-Evans, 1998), and university-industry collaboration (Fischer *et al.*, 2018). At the individual level, the studies that stand out predominantly are those that investigate the structural determinants of the entrepreneurial intention of students, researchers, and principal investigators involved in the creation of spin-off companies (Autio *et al.*, 2001; Miranda *et al.*, 2017; Neves and Brito, 2020), university-industry collaborations (Shichijo *et al.*, 2015; Wright *et al.*, 2012), and knowledge transfer activities(Cunningham *et al.*, 2016; Dalmarco *et al.*, 2018; Meng *et al.*, 2019).

In line with the above and the knowledge gap guiding this study, the scientific literature on entrepreneurship and innovation is vast and primarily focused on researching AE that seeks commercial purposes (Siegel and Wright, 2015; Wadhwani *et al.*, 2017). This type of commercial AE is generally based on innovations often protected by some IP and come from research groups or promoted by principal investigators (Cunningham and Menter, 2020). Often, such IP outcomes lead to the establishment of a spin-off company or are transferred directly to the industry. This dynamic is well delineated and described in the literature, particularly for developed economies

where it is common for governments and industries to invest in universities to produce further innovations (Baier-Fuentes *et al.*, 2021; Fischer *et al.*, 2019a; Galati *et al.*, 2020).

In the case of developing economies, universities do not count on the same resources or infrastructure to create innovations that can be commercialized (Calderón-Hernández *et al.*, 2020a; Fischer *et al.*, 2018; Gonzalez *et al.*, 2020). Nevertheless, universities in such contexts, -even in the absence of resources for the creation of cutting-edge technologies-, carry out other forms of AE that do not seek commercial goals. Additionally, it is common to find universities addressing social challenges in these developing contexts, partly because they are embedded in an ecosystem governed by social inequities and inequalities, corruption, and extreme poverty (Vega-Jurado *et al.*, 2008). Thus, universities use all their existing structure and available resources to contribute to solving social challenges. Consequently, universities collaborate with industry seeking social impact instead of patent exploitation. For instance, using existing internal infrastructure to create social enterprises, generating positive impact through extension activities and Community Service-learning (CSL) programs, as well as professors and students establishing non-profit enterprises or NGOs (Gonzalez *et al.*, 2020; Roncancio-Marin *et al.*, 2022).

In general, literature is still scarce when it comes to explaining the non-commercial aspects of AE conceived at universities (Abreu and Grinevich, 2013; Wright, 2018). Such non-commercial forms of AE often do not involve patents or IP. Therefore, these entrepreneurial initiatives do not imply high investment costs in R&D, and thus, universities with low budgets can carry out AE in other ways also benefiting society (Hayter *et al.*, 2017; Wright *et al.*, 2017).

The literature on AE not only highlights its pervasive inclination towards commercializing research results as it also informs that AE activities are not exclusive to principal investigators; professors, graduate students, and undergraduate students have also been reported to be an essential human resource for such a matter (Etzkowitz and Zhou, 2021; Neves and Brito, 2020; Perkmann *et al.*, 2021). Henceforth, this paper refers to all of the above as academic entrepreneurs (AEs), for which it is vital to consider their entrepreneurial orientation and how it influences AE goals.

Regarding AE that seeks commercial purposes, some studies report that AEs have an entrepreneurial orientation that allows them to engage in entrepreneurial activities since they are proactive, possess innovative thinking, tend to take risks, and identify opportunities (Craig Boardman and Ponomariov, 2009; Shichijo *et al.*, 2015; Urban and Willard, 2018). Additionally, such entrepreneurial orientation seems to be influenced by cultural contexts, training, incentives, previous experience, and entrepreneurial intention (Cunningham and Menter, 2020; Obschonka *et al.*, 2015; Ulvenblad *et al.*, 2013).

In the case of AE that does not seek commercial goals, little is known about the entrepreneurial orientation of AEs interested in solving a social problem. Kraus et al. (2017) comes close to shedding light on this phenomenon, suggesting that the social orientation of entrepreneurs is composed of four main elements: social innovativeness, social risk-taking, social proactiveness, and socialness (Gali *et al.*, 2020; Halberstadt *et al.*, 2021; Kraus *et al.*, 2017). However, when it comes to forging the social orientation of AEs, -since it happens in the university context-, the literature is still limited (do Adro *et al.*, 2021; Halberstadt *et al.*, 2021; Wright, 2018; Wright *et al.*, 2017; Zahra and Wright, 2016).

On the other hand, it seems that the social orientation of AEs can be forged through the resources and mechanisms that universities have available for social entrepreneurship (SE) since their outcomes are similar (e.g., NGO's, social enterprises, and non-profit initiatives.), as well as their entrepreneurial goals. According to the relevant scientific literature on SE, there is evidence that the university context influences entrepreneurial intention, particularly that of students, through the available SE education (Bae *et al.*, 2014; Bazan, Gaultois, *et al.*, 2020; Cheung *et al.*, 2019; Liñán *et al.*, 2011; Piperopoulos and Dimov, 2015; Sesen, 2013).

In the university context, there are other support mechanisms: incubators, accelerators, grants, business plan competitions, entrepreneurship fairs, experiential learning, internships in companies, innovation labs, seed fund competitions, crowdfunding scenarios, working spaces, among others (Alves and Fischer, 2019; Bazan, Datta, *et al.*, 2020; Saeed *et al.*, 2015). However, the influence of such mechanisms on the entrepreneurial intention or social entrepreneurial orientation (SEO) remains unknown (Bazan et al., 2020).

On the other hand, few models have been proposed to include different standpoints, e.g., the measurement of social entrepreneurial intention (Bacq and Alt, 2018; Barton et al., 2018; Bloom and Smith, 2010). However, Bazan (2020) suggests that the development of competencies, SE courses, and the encouragement of social entrepreneurial intention precursors determine SE's emergence in universities (Bazan, Datta, *et al.*, 2020). This means that there are skills and knowledge that can be stimulated at universities so that the social orientation of AE can be forged. Gaining knowledge, competencies, and abilities could be further explored through the theoretical lens of human capital, as this paper develops in the following section (Luc, 2018; Mosey and Wright, 2007).

2.2. Human capital and non-commercial academic entrepreneurship

The theory of human capital states that those individuals with higher levels of knowledge, skills, and other competencies will achieve better performance than those with lower levels (Becker, 1962, 2009). Consequently, the commonly known ways to measure human capital are educational level, work experience, and training. Within the theory of human capital, two types can be distinguished, general human capital (GHC) that is obtained through formal education, and specific human capital (SHC) that is acquired through experience and training (Becker, 2009; Estrin et al., 2016; Unger et al., 2011).

In general, the combined contributions of GHC and SHC improve the ability to identify and exploit entrepreneurial opportunities (Castaño et al 2015; Krueger et al., 2000; Rasmussen et al., 2015; Steffensen et al., 1999). This research uses the theoretical lens of human capital, since it might explain how AEs gain competencies and skills in the university context, allowing them to pursue social entrepreneurship goals. Its use helps to understand how the different support mechanisms at universities shape different stages or phases of non-commercial AE. This paper then elaborates on each of them in the following sections.

2.2.1. General Human Capital (GHC)

Concerning entrepreneurship, investment in GHC has positive effects and leads to a broad knowledge base that enables individuals to integrate new knowledge and thus adapt to new situations (Estrin et al., 2016; Lazear, 2005). The scientific literature on GHC has mostly focused on its consequences on companies' performance (Van der Sluis et al., 2005, 2008; Van Praag et al., 2013, Estrin, 2016). As a result, the impact of GHC on entrepreneurial outcomes in general, is

less well known and explored (Estrin, 2016). Also, the scientific study of the variables that influence the types of entrepreneurial outcomes coming from different types of backgrounds is still limited (Van Ryzin et al., 2009; Estrin, 2016).

Considering the heterogeneity of GHC is vital as it promotes different modes of commercial and non-commercial entrepreneurship, that come from individuals with personalities and characteristics also heterogeneous (Estrin et al., 2010; 2016; Klofsten et al., 2019b; Mosey et al., 2007). Therefore, based on certain human capital inputs, there may be certain general human capital entrepreneurial outputs (Arenius et al., 2005; Block et al., 2013; Minniti et al., 2005b; Parker, 2009, 2011). In line with the above, individuals with a social sciences background will find themselves more inclined to set up a social enterprise than those with an engineering or business background (Cheah and Ho, 2019; Costa *et al.*, 2016; Kretz and Sá, 2013; Maes *et al.*, 2014). Following such a reasoning, it is possible that certain academic backgrounds, when exposed to formal courses of entrepreneurship within universities produce different types of entrepreneurial outcomes.

2.2.2. Specific Human Capital (SHC)

Concerning SHC, the competencies, skills, and training required in the process of creating a company are very similar for both commercial and non-commercial ventures: business opportunity identification, risk acceptance related to the creation of a company, and resource orchestration necessary for success (Scarpellini *et al.*, 2017; Zikic and Ezzedeen, 2015). In contrast, non-commercial AE, demands entrepreneurial competencies that may require another set of skills necessary to create positive externalities and social impact (Stephan et al., 2016; Estrin, 2016). On

the other hand, at the individual level, such entrepreneurs may possess another set of precursors that influence their entrepreneurial outcomes: empathy towards marginalized people, moral obligation, and perceived availability of support (Mair et al., 2006; Hockerts, 2015, Bazan, 2020) which can be promoted by the SHC available (Ma *et al.*, 2019; Mosey and Wright, 2007). That is, the experiences to which individuals are exposed (Sakakibara and Balasubramanian, 2019).

The scientific literature on social entrepreneurship reports that individuals at universities, as a part of their experiential learning, get involved with external actors from the university in activities where they help others (Haneberg and Aaboen, 2021). Consequently, it is possible that in such involvement, the formation of certain SHC takes place, where such individuals have as preference the establishment of a social enterprise, NGO, non-profit, foundation, among others pursuing social change.

3. Methodology

The need to fill the knowledge gap and the arguments presented throughout the different sections of this paper demanded a qualitative type of research (Yin, 2018). An exploratory study was conducted among individuals who have been involved in activities that address social challenges by the means of the university´s activities. To that end, this study interviewed students, professors, researchers, graduate students, university administrative staff, social entrepreneurs, investment organizations members, NGO managers, Policymakers, and government officials. In order to reduce bias, the same profile of individuals was analyzed in each empirical context (Eisenhard, 1989). For all cases, the university was determined as the level of analysis, and the individuals involved in entrepreneurship seeking social goals at the university context as the unit of analysis (Eisenhardt, 1989).

3.1. Research setting

As discussed in previous sections, AE has been extensively studied and explored mainly in developed countries. In such contexts, universities can achieve their technology transfer and entrepreneurship commercial goals. This is partly because universities count with the economic, political, and institutional resources for innovation. The commercial approach of AE is not affected by the lack of resources or by the socio-economic problems of the university's ecosystem. Additionally, the solution to social problems with innovation is not a priority for universities, since other institutions, e.g., NGOs, nonprofit organizations, and the government, assume this responsibility (Fischer *et al.*, 2020; Roncancio-Marin *et al.*, 2022; Roncancio *et al.*, 2020).

Bolivia, Colombia, and Ecuador provide a promising empirical scenario to shed light on the social orientation of AE since in all three contexts, resources to support innovation and entrepreneurship are limited, and universities are embedded in an ecosystem that has a long history of market failures, social inequalities, and inequities, poverty, civil wars, and corruption (Calderón-Hernández *et al.*, 2020b; Roncancio-Marin *et al.*, 2022; Vega-Jurado *et al.*, 2007). In light of these conditions, governments in all three empirical contexts are forced to have an agenda to address social problems, leaving behind the investment that universities require for R&D and entrepreneurship. Consequently, universities do not develop significant numbers of innovations that are susceptible to IP protection, so that they can be transferred to industry in the form of a patent (Roncancio-Marin *et al.*, 2022). Therefore, it is common to see universities addressing social problems through entrepreneurship, which is sometimes technology-based entrepreneurship, and not necessarily led by a senior researcher or principal investigator but by graduate or undergraduate students (De-Oliveira and Rodil-Marzábal, 2019; Lora *et al.*, 2014; Vega-Jurado *et al.*, 2008).

In general, the university community in such developing contexts remains active and in connection with their regions so they are constantly looking for ways to address major social challenges (Cinar, 2019). Consequently, it is not uncommon to find technology-based companies pursuing social goals in any of the three selected empirical contexts (Fischer *et al.*, 2019b).

3.2. Case Selection

The sample selection was prepared with the support of colleagues from local universities in the three empirical contexts in order to ensure internal validity (Yin, 2018). The sample consisted of social entrepreneurs, principal investigators, commercial entrepreneurs, policymakers, directors of entrepreneurship offices in universities, incubators, funding organizations, professors, graduate, and undergraduate students, technology transfer officers and others, see Table 1. As it summarizes the profiles of the participants included in this study.

--insert Table 1 here--

The diversity of this sample is helpful for this study since it allows to obtain information from those actors directly involved in the phenomenon of noncommercial AE and captures data from other indirect actors in order to facilitate its understanding, therefore contributing to the development of more robust theories (Corbin and Strauss, 1998; Lincoln and Guba, 1986; Yin, 2018).

3.3. Data Collection and Analysis

This research followed Lincoln and Guba (1986) for purposive sampling to elucidate experiences and opinions from a diverse group of participants (Lincoln and Guba, 1986). Therefore, at an initial stage, the focus took place on participants directly involved with the topic of this research, i.e., subjects involved in social entrepreneurship based on research outcomes or not, in the university context, and in a second stage with the peripherical participants i.e., those out of the university´s ecosystem (Athens and Lincoln, 2015; Kraus et al., 2019; Lincoln and Guba, 1986; Siegel and Wright, 2015).

Then, the semi-structured interview technique was used to facilitate the exploration and understanding of the phenomenon of interest of this research (Alvesson and Kärreman, 2011; Fini and Grimaldi, 2015; Roncancio-Marin et al., 2022). The data collection process was based on 55 semi-structured interviews, and eight focus groups collected on-site in Bolivia, Colombia, and Ecuador during non-consecutive times between December 2017 and December 2019. The interviews focused on exploring how can universities contribute to noncommercial forms of AE, and covered topics related to AE, entrepreneurial orientation, CSL, and the supportive function of entrepreneurial ecosystems.

Participants were assured anonymity of their responses and were allowed to ask questions during the interviews (Brink, 1993). The average length of the interviews was 51 minutes, and the average length of the focus groups was 106 minutes. Both the interviews and focus groups were recorded and subsequently transcribed to ensure the reliability of this study (Blink, 1993). Table 2 summarizes the observations and focus groups conducted in each empirical setting.

--insert Table 2 here--

The analysis of the data obtained was qualitative, followed the approach of Strauss and Corbin (1998), and the transcribed interviews were classified using open and selective coding (Corbin and Strauss, 1998; Creswell and Creswell, 2018). Using Atlas TI 9.0 as a tool, open coding was performed to establish first-order codes. Then, second-order coding was carried out to probe for interconnections in subcategories of codes. Table 3 presents a sample of the core themes, the emergent constructs, and upper-level concepts to finally gather the elements that allow proposing a model or theory development (Charmaz, 2006; Corbin and Strauss, 1998; Villani et al., 2017; Willig et al., 2017).

--insert Table 3 here--

4. Findings

4.1. Non-commercial forms of Academic Entrepreneurship

Actors and outcomes

According to the observations made as a part of this qualitative research, it was found that institutional and national support policies that contribute with resources and infrastructure to the development of innovation and entrepreneurship are still in development or in early stages for

Bolivia, Colombia, and Ecuador (Calderón-Hernández *et al.*, 2020b; Roncancio-Marin *et al.*, 2022). It was also found that the outcomes of AE dynamics are carried out with fewer research results, but this does not necessarily prevent the establishment of companies in the university context, as has already been demonstrated by other studies (Cheung *et al.*, 2019; Fischer *et al.*, 2020).

However, despite the lack of resources and infrastructure to promote AE, it occurs in all three empirical contexts. This means that AE emerges in such scenarios motivated by elements other than those reported in the literature, e.g., incentives, infrastructure (Perkmann *et al.*, 2021; Qian *et al.*, 2018). One graduate student insinuates that the knowledge he gained at the university during his master's studies was enough for him to realize that he could save species and subsequently establish a social enterprise, as the following quote shows:

> *P51, Ecuador: ... at the university I had an experience and it was about my thesis topic in biology "the reproduction of sea cucumbers", an endangered species and I began to see aquaculture as a means to also be able to save species...*

In the particular case of the three empirical contexts, the presence of sophisticated technological development does not necessarily pursue commercial ends through AE as suggested by the literature (Etzkowitz *et al.*, 2021; Neves and Brito, 2020). The following social entrepreneur evidences having been supported by one of his university's faculties, and hopes to use his technology to benefit other social entrepreneurs:

P27, Bolivia: with our App one could place an order… and the challenge was that all the logistics were in the hands of the [name of the faculty] and the other was to develop a tool that allows users to access new opportunities for social entrepreneurs ...

The results presented above show that the actors AE actors are not limited only to the principal investigators but that undergraduate and graduate students can also generate value with knowledge, for themselves, the university and its environment. Similarly, the results show for the three empirical scenarios that one of the most common outcomes, when AE is socially oriented, occurs in the form of social enterprises.

4.2. General Human Capital

Socially oriented AEs and university' support

Regarding AE initiatives that seek social goals and their relationship with GHC, it is expected that these are mostly driven by individuals with a background in social sciences and related areas (Rinaldi *et al.*, 2018). However, the empirical evidence of this research informs that such socially oriented AE can also have origins in individuals with other profiles and backgrounds, as evidenced by the following participant:

P50, Ecuador: I have a background in engineering, and always in college, I was participating in a variety of workshops and other courses in addition to those required in my curriculum. Today I have a social enterprise that impacts people's lives through good food engineering for everyone.

However, following what has already been established in the conventional literature (Rubens *et al.*, 2017), it was expected to find socially oriented AE initiatives coming from individuals with profiles related to the social sciences:

> *P11, Bolivia: I was educated in the area of disability in this institution, and the main motivation I had to become an entrepreneur was that I was the director of workshops in the afternoon and the psychologist in the morning... Now, I have a company that has improved model of intervention among people with disabilities.*

Some universities offer entrepreneurship courses included in all undergraduate programs to build general human capital relevant for entrepreneurship. In this way, universities contribute to forging the entrepreneurial orientation of the university community (Hoskisson *et al.*, 2011; Latif *et al.*, 2016; Shichijo *et al.*, 2015). This research findings report that this is also the case in Bolivia, Colombia, and Ecuador as reported by one of the university managers interviewed:

> *P2, Colombia: So, in all our programs we are already thinking in the future that if students have already gone from building their citizen and human capacities, they must already start to set up their company.*

Universities influence the vocational orientation of individuals through official courses within their educational programs, particularly in business schools (Bazan et al., 2020; Meoli et al., 2020; Sieger and Monsen, 2015). Empirical findings of this paper reveal that universities in Bolivia, Colombia, and Ecuador want to influence the career choice decision of the university community by adopting an institutional transformation. This transformation offers social entrepreneurship as

a career choice aiming to contribute to local development, as can be seen in the quote from one of the participants:

> *P21, Colombia: The configuration of the social network of a social enterprise is a social enterprise, because it is a nascent figure within the university. By doing that, the university is embarking on a new path. Because it is the first initiative it establishes, and as such, it consolidates all the efforts that come from the rector´s office to bet on local development.*

In general, the empirical information collected reports that universities build general human capital in the university community relevant for commercial entrepreneurship (Minola *et al.*, 2016; Wright *et al.*, 2007), and for that which seeks to achieve social goals. Similarly, as shown above, observations and interview data report that social entrepreneurship and sustainability courses shape the social orientation of AE.

4.3. The specific human capital

Helping others

Universities offer practical scenarios that contribute to building SHC in entrepreneurship and often take the form of hackathons, boot camps, or competitions in the university context, and these are usually supported by internal units such as incubators or innovation labs (Bazan, Gaultois, *et al.*, 2020; Madsen *et al.*, 2008; Perkmann and Walsh, 2007). In the case of the empirical contexts of this study, it was found that universities also contribute to the creation of entrepreneurship-SHC, as can be seen in the following quotes:

> *P13, Colombia: the university established an entrepreneurship unit, where an incubation model was applied in order to accompany people of the university with their ideas and ventures.*

P48. Bolivia: During the whole process, we welcome 50 students and, in the end, we graduate 10. They present their business ideas, and during the whole process there are certain trainings, in legal, administrative, and financial education topics

However, due to the social problems that are generally common in developing countries, the importance of addressing such problems from universities through the means offered by entrepreneurship is being taken into consideration (Haugh and Talwar, 2016; Petersen and Kruss, 2021). In the empirical context of Bolivia, during one of the focus groups, an idea in line with the above was expressed by one of the respondents:

FG1. Bolivia: Universities should also teach in their entrepreneurship courses about resilience, responsibility and social commitment. This will further lead students to think more responsibly while creating their business and becoming social entrepreneurs

In developing countries, universities are embedded in a complex socio-economic ecosystem, often characterized by high unemployment, corruption, social inequalities and inequities, and people living in vulnerable conditions (Hamschmidt and Pirson, 2011; Roncancio-Marin *et al.*, 2022; Shahverdi *et al.*, 2018). The scientific literature on social entrepreneurship reports that universities located in such contexts contact vulnerable communities to inquire about possible solutions to the social problems in question (Gonzalez *et al.*, 2020; Secundo *et al.*, 2017). The findings of this research are in line with these arguments, as can be evidenced from the following quote, where one of the interviewees mentions the need to know how to address social issues from entrepreneurship in the university, while another mentions his opinion regarding the role of the university:

P7. Bolivia: Our students need to see other realities beyond poverty and unemployment. They need to learn how to tackle these problems. We need to incorporate more this subject of social entrepreneurship not only in the curriculum but also on the level of research to have more impact on local policies

P.15. Ecuador: we should look for organizations that can be interested in social enterprises and that support them, since we can already say that there is a component of the universities that would support them in terms of knowledge, but they need capital, so that these organizations or these private enterprises with which we as a university perhaps have more proximity, can make all this critical entrepreneurial mass grow.

In line with the above, universities in developing countries, even in the presence of low resources for R&D and entrepreneurship, address social problems through other mechanisms that allow them to apply their knowledge for the benefit of society (Alpizar and Dentchev, 2017; Gonzalez *et al.*, 2020; Roncancio-Marin *et al.*, 2022), from one of the participants:

P4, Colombia: we have a strong social vocation, where we understand that knowledge and technological development should always tend to innovation for the benefit of all stakeholders in society.

Regarding the mechanisms for social impact from universities, the findings of this research are in line with the literature, as they report that community service learning, co-creation, volunteering, and experiential learning are widely used in Bolivia, Colombia and Ecuador, see Table 3. For example, Community Service Learning (CSL) is a pedagogical tool that offers students the opportunity to work with local communities to solve their social problems (Jones, Warner, and Kiser, 2010). From the empirical findings of this research, it is evident from the following quote

that university personnel are exposed through CSL to scenarios in which they help other individuals, thus allowing them to gain experience while applying their knowledge:

> *P2, Colombia: I see how more programs in the university are taking students to the most vulnerable communities in the city to match professionals` knowledge that are being trained, with the real needs of the community in many ways*

Another supporting scenario that has been widely used in universities is *Learning by doing or experiential learning,* mainly stimulated through internships and volunteering in social causes (Ahuja *et al.*, 2019). This approach strengthens individuals' social entrepreneurial capabilities and generally increases their social entrepreneurial intentions (Gibb, 2002; Stirzaker *et al.*, 2021). Our findings are in line with such literature, and show that there is a link between volunteering, entrepreneurship and social welfare:

> *P3, Colombia: Our idea is to generate impact in the community, ...in generating quality and social welfare ... understanding the volunteer as the professor, the student, the graduate, the administrative officer, our bet as a university is that the entrepreneurship is driven by volunteers.*

In general, the social orientation of AE in universities in Bolivia, Colombia, and Ecuador seems to benefit from the combination of GHC in entrepreneurship with SHC when individuals have had experiences where they help others, as the following social entrepreneur states:

> *P10, Colombia: From all these trainings that have been given on the subject of entrepreneurship... this human capital has been awakening... because entrepreneurship, a process of incubation of a certain initiative, requires time. I established my social enterprise because of how sensitive I felt after volunteering in a vulnerable community.*

5. Discussion and concluding remarks

This paper outlined how universities can contribute to creating non-commercial forms of AE, answering other calls from the scientific literature (Neves and Brito, 2020; Siegel and Wright, 2015). This study offers novel theoretical insights and practical implications regarding the role of human capital in shaping the social orientation of AE. This research puts forward two relevant conclusions based on the data collected in Bolivia, Colombia, and Ecuador.

The first conclusion is related to the research setting in developing countries (Bolivia, Colombia, and Ecuador). Previous studies report that diversity of resources for innovation and entrepreneurship in the form of incentives, R&D infrastructure, and prior experience, are necessary to achieve the goals of AE (D'Este and Perkmann, 2011; Etzkowitz *et al.*, 2021; Etzkowitz and Zhou, 2021; Perkmann *et al.*, 2021). The findings of this study show different results. As in the developing empirical contexts explored, it was found that AE can occur in the absence of sophisticated resources for innovation and entrepreneurship and can come from individuals with different backgrounds, and does not necessarily have to pursue commercial goals. Similarly, the scientific literature mentions that AE is mostly performed by principal investigators and pursues commercial objectives (Ambos *et al.*, 2008; Carl, 2020; Del Giudice *et al.*, 2016). The results of this study differ, as it found that individuals involved in non-commercial AE activities in the empirical contexts of this research are not limited to principal investigators (Carl, 2020). However, students, faculty, and administrative staff play a fundamental role. The findings of this research are in line with Siegel et al. (2015) as they argue that the pervasive focus of AE on pursuing commercial ends has limited its scope and understanding (Siegel and Wright, 2015). Furthermore,

this paper´s findings suggest that universities alone might be agents of social change since their societal impact is not limited to their interaction with the other actors of the triple helix of innovation (Etzkowitz, 2002). Therefore, this study provides empirical evidence and contributes to the literature by stating that AE is not exclusive to developed economies. Additionally, it maps uncharted territories for AE as a heterogeneous phenomenon given its social dimension.

The second conclusion of this study is related to the relevant human capital conducive to AE's social orientation and the way universities contribute to its emergence. Universities help society (De Silva and Wright, 2019; Ghazali et al., 2021) through activities where university personnel contribute to help others (e.g., CSL, learning by doing, volunteering, co-creation) (Chang et al., 2014; Longva, 2021). This study shows that GHC in entrepreneurship, together with SHC gained from the experience of helping other individuals, contributes to shaping the social orientation of AE in the empirical contexts explored. Previous studies report that different types of human capital inputs generate different types of outputs (Arenius et al., 2005; Block et al., 2013; Minniti et al., 2005b; Parker, 2009, 2011); this study complements such literature, as it argues that the combination of the two previously mentioned types of human capital contributes to shaping the social orientation of AE. This research and its findings also complement the study by Kraus et al. (2017) on SEO, as it sheds light on the university context and proposes that not only are there four constructs that forge such orientation (e.g., social innovativeness, social risk-taking, social proactiveness, and socialness), but it is also necessary to consider an individual's capacity to gain empathy, prosocial behavior, and altruism from their experiences (Ghazali et al., 2021).

This study also has several limitations that provide opportunities for future research. First, regarding the sample, more interviews in other developing countries would strengthen the arguments of this research, given that most developing empirical settings share similarities

(Etzkowitz and Brisolla, 1999). Second, from a research perspective, this paper´s findings can benefit from quantitative research to test a large sample to obtain large-scale conclusive results. Third, in terms of methodological approaches, the same phenomenon can be studied using other theoretical lenses, offering conclusive results regarding the elements that determine the emergence of social enterprises in universities (Kretz and Sá, 2013).

--insert Fig. 1 here--

Fourth, regarding the proposed framework in Figure 1, an opportunity for future research might be to measure the entrepreneurial intentions of the individuals that receive training in sustainability or on issues like social vulnerability along with entrepreneurship courses. The above, to establish how their entrepreneurial intentions are moderated by their prosocial values and altruism (Grant and Gino, 2010).

Among the implications for scholars, the need to study the heterogeneous aspects of AE was established, since it can also be used as a mechanism to foster social value creation. Therefore, the non-commercial aspects of AE are a fertile avenue for developing new theories and advancing research. From the practitioner's aspect, policymakers, particularly at universities interested in creating social value, may realize they do not need high R&D budgets to stimulate non-commercial AE; instead, they can encourage the SHC of their university community to do so.

References

Abreu, M. and Grinevich, V. (2013), "The nature of academic entrepreneurship in the UK: Widening the focus on entrepreneurial activities", *Research Policy*, Elsevier B.V., Vol. 42 No. 2, pp. 408–422.

do Adro, F., Fernandes, C.I., Veiga, P.M. and Kraus, S. (2021), "Social entrepreneurship orientation and performance in non-profit organizations", *International Entrepreneurship and Management Journal*, Springer US, Vol. 17 No. 4, pp. 1591–1618.

Ahuja, V., Akhtar, A. and Wali, O.P. (2019), "Development of a comprehensive model of social entrepreneurial intention formation using a quality tool", *Journal of Global Entrepreneurship Research*, Journal of Global Entrepreneurship Research, Vol. 9 No. 1, available at:https://doi.org/10.1186/s40497-019-0164-4.

Alpizar, A. and Dentchev, N.A. (2017), "Las barreras a la comercialización de los resultados de la investigación en la relación universidad-empresa. Estudio de caso", *Santiago*, Vol. 145, pp. 204–221.

Alves, A.C. and Fischer, B. (2019), "Determinants of student entrepreneurship An assessment on higher education institutions in Brazil", Vol. 16 No. 2, pp. 96–117.

Ambos, T.C., Mäkelä, K., Birkinshaw, J. and D'Este, P. (2008), "When Does University Research Get Commercialized? Creating Ambidexterity in Research Institutions", *Journal of Management Studies*, Vol. 45 No. 8, pp. 1424–1447.

Autio, E., H. Keeley, R., Klofsten, M., G. C. Parker, G. and Hay, M. (2001), "Entrepreneurial Intent among Students in Scandinavia and in the USA", *Enterprise and Innovation Management Studies*, Vol. 2 No. 2, pp. 145–160.

Bae, T.J., Qian, S., Miao, C. and Fiet, J.O. (2014), "The Relationship Between Entrepreneurship Education and Entrepreneurial Intentions: A Meta-Analytic Review", *Entrepreneurship: Theory and Practice*, Vol. 38 No. 2, pp. 217–254.

Baier-Fuentes, H., Guerrero, M. and Amorós, J.E. (2021), "Does triple helix collaboration matter for the early internationalisation of technology-based firms in emerging Economies?", *Technological Forecasting and Social Change*, Vol. 163 No. September, p. 120439.

Bazan, C., Datta, A., Gaultois, H., Shaikh, A., Gillespie, K. and Jones, J. (2020), "Effect of the University in the Entrepreneurial Intention of Female Students", *International Journal of Entrepreneurial Knowledge*, Vol. 7 No. 2, pp. 73–97.

Bazan, C., Gaultois, H., Shaikh, A., Gillespie, K., Frederick, S., Amjad, A., Yap, S., *et al.* (2020), "A systematic literature review of the influence of the university's environment and support system on the precursors of social entrepreneurial intention of students", *Journal of Innovation and Entrepreneurship*, Journal of Innovation and Entrepreneurship, Vol. 9 No. 1, available at:https://doi.org/10.1186/s13731-020-0116-9.

Becker, G.S. (1962), "Investment in Human Capital: A Theoretical Analysis", *Journal of Political Economy*, Vol. 70 No. 5, Part 2, pp. 9–49.

Becker, G.S. (2009), *Human Capital: A Theoretical and Empirical Analysis with Special Reference to Education, Third Edition*, edited by National Bureau of Economic Research, 3rd ed., Vol. s1-IV, The University of Chicago Press, Chicago, available at: https://www.nber.org/books-and-chapters/human-capital-theoretical-and-empirical-analysis-special-reference-education-third-edition.

Calderón-Hernández, G., Jiménez-Zapata, Y.A. and Serna-Gomez, H.M. (2020a), "Barriers to University Spin-Off Creation in an Emerging Context: An Institutional Theory of Organizations Approach", *Minerva*, Springer Netherlands, Vol. 58 No. 4, pp. 625–650.

Calderón-Hernández, G., Jiménez-Zapata, Y.A. and Serna-Gomez, H.M. (2020b), "Barriers to University Spin-Off Creation in an Emerging Context: An Institutional Theory of Organizations Approach", *Minerva*, Springer Netherlands, Vol. 58 No. 4, pp. 625–650.

Carl, J. (2020), "From technological to social innovation – the changing role of principal investigators within entrepreneurial ecosystems", *Journal of Management Development*, Vol. 39 No. 5, pp. 739–752.

Cheah, S. and Ho, Y.P. (2019), "Building the Ecosystem for Social Entrepreneurship: University Social Enterprise Cases in Singapore", *Science, Technology and Society*, Vol. 24 No. 3, pp. 507–526.

Cheung, C.W.M., Kwong, C., Manzoor, H., Rashid, M.U., Bhattarai, C. and Kim, Y.A. (2019), "The co-creation of social ventures through bricolage, for the displaced, by the displaced", *International Journal of Entrepreneurial Behavior & Research*, Vol. 25 No. 5, pp. 1093–1127.

Cinar, R. (2019), "Delving into social entrepreneurship in universities: is it legitimate yet?", *Regional Studies, Regional Science*, Taylor & Francis, Vol. 6 No. 1, pp. 217–232.

Corbin, J. and Strauss, A. (1998), *Basics of Qualitative Research: Techniques and Procedures for Developing Grounded Theory*, Third., SAGE Publications Ltd, London.

Costa, T., Superior, E. and Empresariais, D.C. (2016), "Student's entrepreneurial intention: ESCE and FEA comparison", *XXVI Jornadas Luso-Espanholas de Gestão Cientifica*.

Craig Boardman, P. and Ponomariov, B.L. (2009), "University researchers working with private companies", *Technovation*, Vol. 29 No. 2, pp. 142–153.

Cunningham, J.A. and Menter, M. (2020), "Micro-level academic entrepreneurship: a research agenda", *Journal of Management Development*, Vol. 39 No. 5, pp. 581–598.

Cunningham, J.A., Menter, M. and Young, C. (2016), "A review of qualitative case methods trends and themes used in technology transfer research", *Journal of Technology Transfer*, Springer US, Vol. 42 No. 4, pp. 1–34.

D'Este, P. and Perkmann, M. (2011), "Why do academics engage with industry? The entrepreneurial university and individual motivations", *Journal of Technology Transfer*, Vol. 36 No. 3, pp. 316–339.

Dalmarco, G., Hulsink, W. and Blois, G. (2018), "Creating entrepreneurial universities in an emerging economy: Evidence from Brazil", *Technological Forecasting and Social Change*,

Elsevier, Vol. 135 No. April, pp. 99–111.

De-Oliveira, F. and Rodil-Marzábal, Ó. (2019), "Structural characteristics and organizational determinants as obstacles to innovation in small developing countries", *Technological Forecasting and Social Change*, Elsevier, Vol. 140 No. May 2018, pp. 306–314.

Eisenhardt, K.M. (1989), "Building Theories from Case Study Research", *The Academy of Management Review*, Vol. 14 No. 4, p. 532.

Etzkowitz, H. (2002), "The Triple Helix of University - Industry - Government Implications for Policy and Evaluation", *Science Policy Institute*, Vol. 11, pp. 1–17.

Etzkowitz, H., Dzisah, J. and Clouser, M. (2021), "Shaping the entrepreneurial university: Two experiments and a proposal for innovation in higher education", *Industry and Higher Education*, available at:https://doi.org/10.1177/0950422221993421.

Etzkowitz, H. and Zhou, C. (2017), *The Triple Helix: University–Industry–Government Innovation and Entrepreneurship*, Second., Taylor & Francis, New York, available at: https://www.routledge.com/The-Triple-Helix-UniversityIndustryGovernment-Innovation-and-Entrepreneurship/Etzkowitz-Zhou/p/book/9781138659490.

Etzkowitz, H. and Zhou, C. (2021), "Licensing life: The evolution of Stanford university's technology transfer practice", *Technological Forecasting and Social Change*, Elsevier Inc., Vol. 168 No. March, p. 120764.

Fischer, B., Guerrero, M., Guimón, J. and Schaeffer, P.R. (2020), "Knowledge transfer for frugal innovation: where do entrepreneurial universities stand?", *Journal of Knowledge Management*, Vol. 25 No. 2, pp. 360–379.

Fischer, B.B., Moraes, G.H.S.M. de and Schaeffer, P.R. (2019a), "Universities' institutional settings and academic entrepreneurship: Notes from a developing country", *Technological Forecasting and Social Change*, Vol. 147 No. July, pp. 243–252.

Fischer, B.B., Moraes, G.H.S.M. de and Schaeffer, P.R. (2019b), "Universities' institutional settings and academic entrepreneurship: Notes from a developing country", *Technological Forecasting and Social Change*, Vol. 147 No. August, pp. 243–252.

Fischer, B.B., Schaeffer, P.R., Vonortas, N.S. and Queiroz, S. (2018), "Quality comes first: university-industry collaboration as a source of academic entrepreneurship in a developing country", *The Journal of Technology Transfer*, Vol. 43 No. 2, pp. 263–284.

Galati, F., Bigliardi, B., Passaro, R. and Quinto, I. (2020), "Why do academics become entrepreneurs? How do their motivations evolve? Results from an empirical study", *International Journal of Entrepreneurial Behavior & Research*, Vol. 26 No. 7, pp. 1477–1503.

Gali, N., Niemand, T., Shaw, E., Hughes, M., Kraus, S. and Brem, A. (2020), "Social entrepreneurship orientation and company success : The mediating role of social performance", *Technological Forecasting & Social Change*, Elsevier, Vol. 160 No. August, p. 120230.

Gibb, A. (2002), "In pursuit of a new 'enterprise' and 'entrepreneurship' paradigm for learning:

Creative destruction, new values, new ways of doing things and new combinations of knowledge", *International Journal of Management Reviews*, Vol. 4 No. 3, pp. 233–269.

Del Giudice, M., Nicotra, M., Romano, M. and Schillaci, C.E. (2016), "Entrepreneurial performance of principal investigators and country culture: relations and influences", *Journal of Technology Transfer*, Springer US, Vol. 42 No. 2, pp. 1–18.

Gonzalez, A.D., Dentchev, N.A. and Roig, M. del C.R. (2020), "Beyond intellectual property and rich infrastructure: A community service learning perspective on universities supportive role towards social entrepreneurs", *Entrepreneurial Ecosystems Meet Innovation Systems*, Edward Elgar Publishing, pp. 85–104.

Guerrero, M. and Urbano, D. (2019), "Effectiveness of technology transfer policies and legislation in fostering entrepreneurial innovations across continents: an overview", *Journal of Technology Transfer*, Springer US, Vol. 44 No. 5, pp. 1347–1366.

Guerrero, M., Urbano, D. and Fayolle, A. (2016), "Entrepreneurial activity and regional competitiveness : evidence from European entrepreneurial universities", *The Journal of Technology Transfer*, Springer US, pp. 105–131.

Halberstadt, J., Niemand, T., Kraus, S., Rexhepi, G., Jones, P. and Kailer, N. (2021), "Social entrepreneurship orientation: Drivers of success for start-ups and established industrial firms", *Industrial Marketing Management*, Elsevier Inc., Vol. 94 No. November 2019, pp. 137–149.

Hamschmidt, J. and Pirson, M. (2011), *Case Studies in Social Entrepreneurship and Sustainability: The Oikos Collection.*, Vol. 2.

Haneberg, D.H. and Aaboen, L. (2021), "Entrepreneurial learning behaviour of community insiders", *International Journal of Entrepreneurial Behavior & Research*, available at:https://doi.org/10.1108/IJEBR-04-2020-0255.

Haugh, H.M. and Talwar, A. (2016), "Linking Social Entrepreneurship and Social Change: The Mediating Role of Empowerment", *Journal of Business Ethics*, Springer Netherlands, Vol. 133 No. 4, pp. 643–658.

Hayter, C.S., Lubynsky, R. and Maroulis, S. (2017), "students in the development of university spinoffs", *The Journal of Technology Transfer*, Springer US, Vol. 42 No. 6, pp. 1237–1254.

Hoskisson, R.E., Covin, J., Volberda, H.W. and Johnson, R.A. (2011), "Revitalizing Entrepreneurship: The Search for New Research Opportunities", *Journal of Management Studies*, Vol. 48 No. 6, pp. 1141–1168.

Jones-Evans, D. (1998), *Universities, Technology Transfer and Spin-off Activities – Academic Entrepreneurship in Different European Regions*, *Targeted Socio-Economic Research Project No 1042*, University of Glamorgan, available at: http://cordis.europa.eu/docs/publications/7864/78645511-6_en.pdf.

Kraus, S., Niemand, T., Halberstadt, J., Shaw, E. and Syrjä, P. (2017), "Social entrepreneurship orientation: development of a measurement scale", *International Journal of Entrepreneurial Behaviour and Research*, Vol. 23 No. 6, pp. 977–997.

Kretz, A. and Sá, C. (2013), "Third stream, fourth mission: Perspectives on university engagement with economic relevance", *Higher Education Policy*, Vol. 26 No. 4, pp. 497–506.

Latif, N.S.A., Abdullah, A. and Jan, N.M. (2016), "A Pilot Study of Entrepreneurial Orientation towards Commercialization of University Research Products", *Procedia Economics and Finance*, Elsevier B.V., Vol. 37 No. 16, pp. 93–99.

Liñán, F., Urbano, D. and Guerrero, M. (2011), "Regional variations in entrepreneurial cognitions: Start-up intentions of university students in Spain", *Entrepreneurship & Regional Development*, Vol. 23 No. 3–4, pp. 187–215.

Lincoln, Y.S. and Guba, E.G. (1986), "Trustworthiness and Naturalistic Evaluation", *Program*, No. 30, available at:https://doi.org/10.1002/ev.1427.

Lora, E., Castellani, F., Solimano, A., Kantis, H.D., Federico, J.S., Trajtenberg, L.A., Vélez-Grajales, V., *et al.* (2014), *Entrepreneurship in Latin America. A STEP UP THE SOCIAL LADDER?*

Luc, P.T. (2018), "The relationship between perceived access to finance and social entrepreneurship intentions among university students in Vietnam", *Journal of Asian Finance, Economics and Business*, Vol. 5 No. 1, pp. 63–72.

Ma, Z., Zhu, J., Meng, Y. and Teng, Y. (2019), "The impact of overseas human capital and social ties on Chinese returnee entrepreneurs' venture performance", *International Journal of Entrepreneurial Behavior & Research*, Vol. 25 No. 1, pp. 67–83.

Madsen, H., Neergaard, H. and Ulhøi, J.P. (2008), "Factors influencing the establishment of knowledge-intensive ventures", *International Journal of Entrepreneurial Behavior & Research*, Vol. 14 No. 2, pp. 70–84.

Maes, J., Leroy, H. and Sels, L. (2014), "Gender differences in entrepreneurial intentions: A TPB multi-group analysis at factor and indicator level", *European Management Journal*, Vol. 32 No. 5, pp. 784–794.

Meng, D., Li, X. and Rong, K. (2019), "Industry-to-university knowledge transfer in ecosystem-based academic entrepreneurship: Case study of automotive dynamics & control group in Tsinghua University", *Technological Forecasting and Social Change*, Elsevier, Vol. 141 No. September 2018, pp. 249–262.

Minola, T., Donina, D. and Meoli, M. (2016), "Students climbing the entrepreneurial ladder: Does university internationalization pay off?", *Small Business Economics*, Springer US, Vol. 47 No. 3, pp. 565–587.

Miranda, F.J., Chamorro-Mera, A. and Rubio, S. (2017), "Academic entrepreneurship in Spanish universities: An analysis of the determinants of entrepreneurial intention", *European Research on Management and Business Economics*, AEDEM, Vol. 23 No. 2, pp. 113–122.

Mosey, S. and Wright, M. (2007), "From Human Capital to Social Capital : A", *Entrepreneurship Theory and Practice*, Vol. 31 No. 6, pp. 909–935.

Neves, S. and Brito, C. (2020), "Academic entrepreneurship intentions: a systematic literature

review", *Journal of Management Development*, Vol. 39 No. 5, pp. 645–704.

Obschonka, M., Silbereisen, R.K., Cantner, U. and Goethner, M. (2015), "Entrepreneurial Self-Identity: Predictors and Effects Within the Theory of Planned Behavior Framework", *Journal of Business and Psychology*, Vol. 30 No. 4, pp. 773–794.

Perkmann, M., Salandra, R., Tartari, V., McKelvey, M. and Hughes, A. (2021), "Academic engagement: A review of the literature 2011-2019", *Research Policy*, Vol. 50 No. 1, p. 104114.

Perkmann, M. and Walsh, K. (2007), "University–industry relationships and open innovation: Towards a research agenda", *International Journal of Management Reviews*, Elsevier B.V., Vol. 9 No. 4, pp. 259–280.

Petersen, I. haam and Kruss, G. (2021), "Universities as change agents in resource-poor local settings: An empirically grounded typology of engagement models", *Technological Forecasting and Social Change*, Elsevier Inc., Vol. 167, p. 120693.

Piperopoulos, P. and Dimov, D. (2015), "Burst Bubbles or Build Steam? Entrepreneurship Education, Entrepreneurial Self-Efficacy, and Entrepreneurial Intentions", *Journal of Small Business Management*, Vol. 53 No. 4, pp. 970–985.

Qian, X.D., Xia, J., Liu, W. and Tsai, S.B. (2018), "An empirical study on sustainable innovation academic entrepreneurship process model", *Sustainability (Switzerland)*, Vol. 10 No. 6, pp. 1–15.

Rinaldi, C., Cavicchi, A., Spigarelli, F., Lacchè, L. and Rubens, A. (2018), "Universities and smart specialisation strategy", *International Journal of Sustainability in Higher Education*, Vol. 19 No. 1, pp. 67–84.

Roncancio-Marin, J., Dentchev, N., Guerrero, M., Díaz-González, A. and Crispeels, T. (2022), "University-Industry joint undertakings with high societal impact: A micro-processes approach", *Technological Forecasting and Social Change*, Vol. 174 No. April 2021, p. 121223.

Roncancio, J.J., Dentchev, N.A., Diaz Gonzalez, A. and Crispeels, T. (2020), "The Role of the Subjective Norm in Explaining the Performance of Entrepreneurial Universities", *Academy of Management Proceedings*, Vol. 2020 No. 1, p. 17693.

Rubens, A., Spigarelli, F., Cavicchi, A. and Rinaldi, C. (2017), "Universities' third mission and the entrepreneurial university and the challenges they bring to higher education institutions", *Journal of Enterprising Communities: People and Places in the Global Economy*, Vol. 11 No. 03, pp. 354–372.

Saeed, S., Yousafzai, S.Y., Yani-De-Soriano, M. and Muffatto, M. (2015), "The Role of Perceived University Support in the Formation of Students' Entrepreneurial Intention", *Journal of Small Business Management*, Vol. 53 No. 4, pp. 1127–1145.

Sakakibara, M. and Balasubramanian, N. (2019), "Human Capital, Parent Size and the Destination Industry of Spinouts", *Strategic Management Journal*, Vol. n/a No. n/a, pp. 1–26.

Scarpellini, S., Ortega-Lapiedra, R., Marco-Fondevila, M. and Aranda-Usón, A. (2017), "Human capital in the eco-innovative firms: a case study of eco-innovation projects", *IInternational Journal of Entrepreneurial Behavior & Research*, Vol. 23 No. 6, pp. 919–933.

Secundo, G., Mele, G., Sansone, G. and Paolucci, E. (2020), "Entrepreneurship Education Centres in universities: evidence and insights from Italian 'Contamination Lab' cases", *International Journal of Entrepreneurial Behavior & Research*, Vol. 26 No. 6, pp. 1311–1333.

Secundo, G., Del Vecchio, P., Schiuma, G. and Passiante, G. (2017), "Activating entrepreneurial learning processes for transforming university students' idea into entrepreneurial practices", *International Journal of Entrepreneurial Behavior & Research*, Vol. 23 No. 3, pp. 465–485.

Sesen, H. (2013), "Personality or environment? A comprehensive study on the entrepreneurial intentions of university students", *Education + Training*, Vol. 55 No. 7, pp. 624–640.

Shahverdi, M., Ismail, K. and Qureshi, M.I. (2018), "The effect of perceived barriers on social entrepreneurship intention in Malaysian universities: The moderating role of education", *Management Science Letters*, Vol. 8 No. 5, pp. 341–352.

Shichijo, N., Sedita, S.R. and Baba, Y. (2015), "How does the entrepreneurial orientation of scientists affect their scientific performance? Evidence from the quadrant model.", *Technology Analysis & Strategic Management*, Vol. 27 No. 9, pp. 999–1013.

Siegel, D.S. and Wright, M. (2015), "Academic Entrepreneurship: Time for a Rethink?", *British Journal of Management*, Vol. 26 No. 4, pp. 582–595.

Stirzaker, R., Galloway, L., Muhonen, J. and Christopoulos, D. (2021), "The drivers of social entrepreneurship: agency, context, compassion and opportunism", *International Journal of Entrepreneurial Behavior & Research*, available at:https://doi.org/10.1108/IJEBR-07-2020-0461.

Ulvenblad, P., Berggren, E. and Winborg, J. (2013), "The role of entrepreneurship education and start-up experience for handling communication and liability of newness", *International Journal of Entrepreneurial Behavior & Research*, Vol. 19 No. 2, pp. 187–209.

Urban, B. and Willard, C. (2018), "an emerging economy The antecedents of opportunity recognition in internationalized firms : An empirical study in South Africa", No. August 2013, available at:https://doi.org/10.5367/ijei.2013.0122.

Vega-Jurado, J., Fernández-De-Lucio, I. and Huanca-López, R. (2007), "Apropiación Incorrecta De Modelos Foráneos?", *J. Technol. Manag. Innov*, Vol. 2 No. 2, available at: http://www.jotmi.org.

Vega-Jurado, J., Fernández-de-Lucio, I. and Huanca, R. (2008), "University–industry relations in Bolivia: implications for university transformations in Latin America", *Higher Education*, Vol. 56 No. 2, pp. 205–220.

Wadhwani, R.D., Galvez-Behar, G., Mercelis, J. and Guagnini, A. (2017), "Academic entrepreneurship and institutional change in historical perspective", *Management and Organizational History*, Routledge, Vol. 12 No. 3, pp. 175–198.

Wright, M. (2018), "Academic entrepreneurship: the permanent evolution?", *Management & Organizational History*, Routledge, Vol. 13 No. 2, pp. 88–93.

Wright, M., Hmieleski, K.M., Siegel, D.S. and Ensley, M.D. (2007), "The role of human capital in technological entrepreneurship", *Entrepreneurship: Theory and Practice*, Vol. 31 No. 6, pp. 791–806.

Wright, M., Mosey, S. and Noke, H. (2012), "Academic entrepreneurship and economic competitiveness: rethinking the role of the entrepreneur", *Economics of Innovation and New Technology*, Vol. 21 No. March 2015, pp. 429–444.

Wright, M., Siegel, D.S. and Mustar, P. (2017), "An emerging ecosystem for student start-ups", *Journal of Technology Transfer*, Springer US, Vol. 42 No. 4, pp. 1–14.

Yin, R.K. (2018), *Case Study Research and Applications: Design and Methods*, edited by Corporation, C., Sixth., Sage Publications, California.

Zahra, S.A. and Wright, M. (2016), "Understanding the Social Role of Entrepreneurship", *Journal of Management Studies*, Vol. 53 No. 4, pp. 610–629.

Zikic, J. and Ezzedeen, S. (2015), "Towards a more integrated view of entrepreneurial careers qualitative investigation of the three forms of career: capital and their relationships among high tech entrepreneurs", *International Journal of Entrepreneurial Behavior & Research*, Vol. 21 No. 6, pp. 756–777.

Tables and Figures

TABLE 1.

Overview of interviews and respondent's profile

BOLIVIA			***COLOMBIA***		
Data collection	**Domain**	**Participants**	**Data collection**	**Domain**	**Participants**
Interviews (17)	**University**	Junior Professor (Management) (P1) Junior Professor (Management) (P2) Junior Professor (Management) (P3) Senior Professor (Business School) (P4)	**Interviews (16)**	**University**	Coordination of university incubator (P18) Director Entrepreneurship Center (P19) Director of Social Engagement (P20) International Projects Coordinator (P21) International Students Coordinator (P22) Internationalization advisor (P23) Senior Professor (Architecture) (P24) Senior Professor (Architecture) (P25) Students Entrepreneur (P26) Coordinator of mentorship program (P27)
	Technical institutions	Academic Director (P5) Vocational Trainer (P6)			
	Start up	Entrepreneur (P7 Entrepreneur (P8) Entrepreneur (P9) Entrepreneur (P10) Entrepreneur (P11)			
	Retail	Entrepreneur (P12)		**Social Enterprise**	Director (P28) Director (P29)

	Non-Profit Organizations	Director (P13) Manager (P14)		**Non-Profit Organizations**	Coordinator of community projects (P30) Manager (P31)
	Incubator	Director (P15) Director (P16)		**Government (Major Office)**	Coordinator of Entrepreneurship (P32)
	Bank	Director (P17)		**Chamber of Commerce**	Director of innovation (P33)
Focus Groups (4)	**Entrepreneurs** Students and graduates	4 Participants (FG1)	**Focus Groups (4)**	**University** Outreach and entrepreneurship	3 Participants (FG5)
	Government officials	4 Participants (FG2)		**University** Student's entrepreneurs and junior professors	7 Participants (FG6)
	Incubator Coordinators and trainers	10 Participants (FG3)		**University** Voluntary program team	3 Participants (FG7)
	NGO Management team	3 Participants (FG4)		**University** Student's entrepreneurs in topics related to peace keeping	12 Participants (FG8)

Ecuador

	Domain	**Participants**
Interviews (22)	**University**	Professor - School of Design (P34) Research Professor - School of Mechanical Engineering (P35) Technical teacher - Faculty of Electronic and Computer Engineering (P36) Director applied development center (P37) Lecturer - Faculty of Engineering and Electricity (P38) Director Technology Transfer Office (P39) Outreach Coordinator (P40) Outreach Unit Coordinator (P41) Professor - Faculty of social sciences and humanities (P42) Outreach Unit Director (P43) Institutional Relations director P44)
	Social Enterprises	(P45) (P46) (P47) (P48) (P49) (P50) (P51) (P52) (P53) (P54) (P55)

TABLE 2.

Participant observations

BOLIVIA - Observations (6)		COLOMBIA - Observations (4)	
Domain	**Participants**	**Domain**	**Participants**
Entrepreneurship Fair	Social Entrepreneurs UCB team Local incubator team *October 23, 2018*	**Lecture and meetings with university officials**	Meetings with university officials (12) Presentation to students (+200 students) *March 2018*
Student Mobility Tarija	VUB Master students (9) VUB PhD Students (2) UCB Professors (4) Team Incubator Tarija (7) Team CAP program (4) Local Entrepreneurs Tarija (36) Local students Tarija (60) *Dec. 2018*	**Entrepreneurship and Voluntarism University Fair**	70 + Entrepreneurs and student organization participating in the Fair *Nov. 2018*
Round table discussion University - Industry cooperation in support of Entrepreneurship *A Round table.*	Academics (4) Team incubator Tarija (6) Entrepreneurs (4) Team CAP (2) *April, 2019*	**Meetings with university official and coaching to local entrepreneurs** *Workshop with students and academics*	Meeting with university officials (2) student entrepreneurs and other project leaders (20+) *Sept. 2019*
Institutional visit to Bolivia - Development cooperation project with (Inter University association)	17 local academics (Cluster 3) VUB professors VUB Delegation of Authorities *April, 2019*	**Social Entrepreneurship Summit**	Panel of Rectors: (Universidad del Norte) (Universidad Catolica Boliviana - Sede Tarija) (Universidad del Magdalena) Fair: 20 + Entrepreneurs *Sept. 2019*

TABLE 3.

Coding structure, and illustrative data

Group	Second-order code	Third-order code	Illustrative data
1. General Human Capital			
Regular University, Classes and Research	Formal Entrepreneurship courses	**GHC-EC**	*P19, Colombia: Precisely because the idea of social entrepreneurship is the basis for their emergence (student entrepreneurs) and then they can go ahead on their own. Another way was with the program that existed at that time, I don't know what it's called now, employment for prosperity, where young people who were studying will soon help with courses and training with the support of the Higher education institutions and other educational or technical and technological institutions.*
	Institutional transformation	**GHC-IT**	*P21, Colombia: The configuration of the social network of a social enterprise is a social enterprise as well, because it is a nascent figure within the university. By doing that, the university is embarking on a new path. Because it is the first initiative it establishes, and as such, it consolidates all the efforts that come from the rector´s office in order to bet on local development.*
	Social Sciences	**GHC-SC**	*P11, Bolivia: I was educated in the area of disability in this institution, and the main motivation I had to become an entrepreneur was that I was the director of workshops in the afternoon and the psychologist in the morning... Now, I have a company that has improved model of intervention among people with disabilities … based on empowerment.*
2. Specific Human Capital			
Helping others	Community service learning	**SHC-CSL**	*FG1. Bolivia: Universities should also teach in their entrepreneurship courses about resilience, responsibility and social commitment. This will further lead students to think more responsibly while creating their business and becoming social entrepreneurs*
	Co-creation scenarios	**SHC-Coc**	*P4. Colombia: We have two of our centers, one is the [name] Lab where we develop businesses and the other is the center for social innovation where we literally dedicate ourselves to general social innovation processes. Through this scheme, what we do at the university is to address social entrepreneurship issues with the same scientific, methodological and business vision as if it were a for-profit company*
	Learning by doing	**SHC-LD**	*P15. Colombia: Well, I think that universities do have many ways of supporting social entrepreneurship, especially in terms of capacity and knowledge. I think that's why we are organizing ourselves, now we are another university… committed to solve*

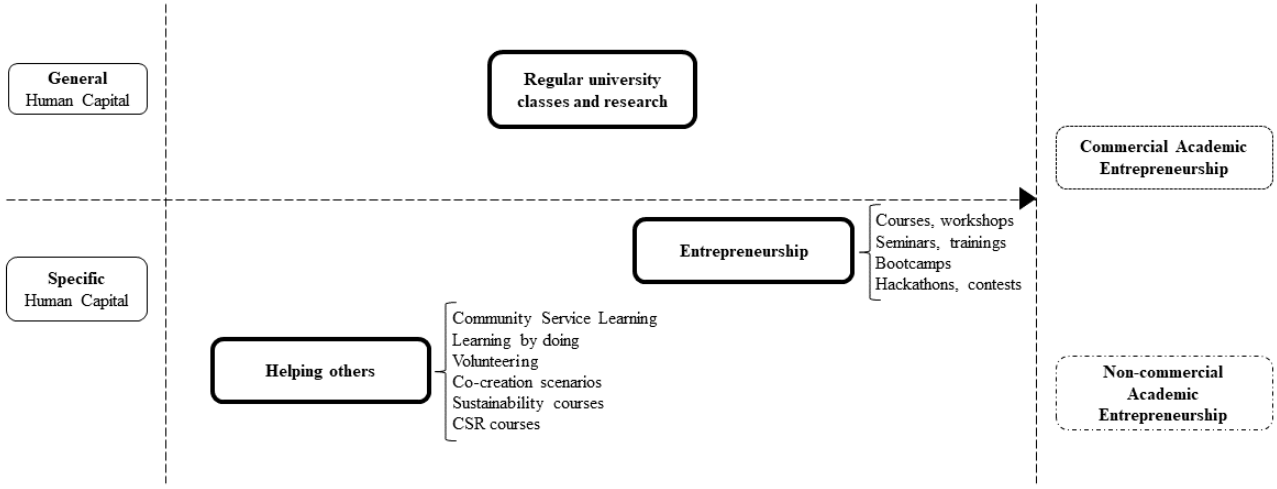

Figure 1. Proposed general framework "*Influence of specific human capital on the social orientation of academic entrepreneurship*" own set-up 2021.