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Social Entrepreneurship Competency: An Approach by Discipline and Gender.

Purpose - To analyze how university men and women in different disciplines of study in Mexico perceive social entrepreneurship competencies, using a multifactorial analysis to find possible areas of opportunity to reduce the gender gap in social-entrepreneurship-project proposals.

Design/methodology/approach – This is a quantitative study with a validated questionnaire that records the perception levels of five social entrepreneurship sub-competencies. The survey, which includes 28 indicators, was applied to 140 university students from different disciplines. Hypothesis testing was applied to identify significant differences between men and women in each sub-competency by disciplinary area.

Findings - In the global sample, significant differences by gender were observed only in the social value sub-competency. In the disciplinary analysis, significant differences were found in Architecture and Design, Business, and Engineering and Science.

Research limitations/implications - The questionnaire only gathered data about the students' perceptions. To the extent that perception is triangulated with other instruments, it is possible to increase knowledge regarding how to train in social entrepreneurship.

Practical implications - The results can be useful for university training and increasing the envisioning and formulating of government projects by young people who create new businesses.

Originality/value – This research contributes to the literature on the role of gender-specific perceptions of social entrepreneurship in Mexico.

Paper type: Research paper

Keywords: Social entrepreneurship, gender, disciplines, competencies, hypothesis testing, educational innovation, higher education.

Introduction

The university is an engine for the generation and dissemination of knowledge, but disciplinary areas in education can be broadened in scope. Universities train citizens who can create new societal ventures. In training within disciplines and careers, it is possible to use learning-based-on-design strategies to improve society. An important goal would be to promote competencies that enable students to solve challenges with sustainable solutions (Huang et al., 2020) and provide learning enabling them to propose solutions for societal problems (Agustina et al., 2020).

Multiple factors support the university development of student competencies relevant to proposals that generate social impact. These include the social value attached to improvements in development brought about by new strategies (Manyaka-Boshielo, 2017), attitudes towards entrepreneurship, and family background. These factors are important elements to study (Breton and Radrigán, 2018), and also are the disciplinary areas of study (Copelli et al., 2019) and the momentum initiated by the universities (Bazan et al., 2020). Therefore, analyzing the students' perceptions and their areas of study can help identify the training strategies that develop relevant competencies that equip students to propose solutions to societal problems.

This research aimed to analyze the perceptions that university men and women from different areas of study in Mexico held about social entrepreneurship skills. We performed a multifactorial analysis to identify possible opportunities to reduce the gender gap among young people when proposing social entrepreneurship projects. Specifically, we sought to determine if there are significant differences by gender among the disciplinary areas in each

sub-competency of social entrepreneurship. These are *Personal Characteristics, Leadership, Social Innovation, Social Value, and Management*. We considered this in terms of SWOT (strengths, weaknesses, opportunities, threats).

This paper takes a theoretical approach in discussing the training to develop the social entrepreneurship competency, its characteristics, its relationship to professional disciplines, and the influence of gender. It raises questions about how students perceive the social entrepreneurship competency by discipline and gender. The quantitative method used in the study, the validated instrument, and the hypothesis testing are described. The results are presented by professional discipline and gender. In the analysis and discussion sections, the authors discuss the data that might support young people's training to plan social entrepreneurship projects, working from the universities with their partners in government and not-for-profit enterprises.

Theoretical framework

On the formation of social entrepreneurship and its characteristics

The training in social entrepreneurship competency requires a strategy linked to commitment, change, and creation. The promotion and development of entrepreneurship is a topic of interest to educational institutions, which have developed programs to foster relevant and innovative skills in their students for *social* entrepreneurship (Basci and Alkan, 2015). However, according to Garcia-Gonzalez, Ramirez-Montoya, de Leon, and Aragon (2020), although studies on social entrepreneurship were common during the last century, the last ten years have seen more production of instrumental research on this subject. The focus has been not only on entrepreneurship itself but also on the process of forming entrepreneurial skills. For Vázquez, Lanero, Raisene, and García (2012), social entrepreneurship in students is achieved by developing competencies that must be worked on within and by the universities.

Studies such as Iglesias, Jambrino, and Heras (2019), or Tekin, Bas, Geckil, and Koyuncouglu (2020) show that educational institutions' roles in training social entrepreneurs are crucial for successful projects. Studies such as Beltrán Hernández-de-Galindo, Romero-Rodríguez, and Ramírez-Montoya (2019), allow us to appreciate that educational modalities such as the MOOC can be very significant when developing entrepreneurial skills. Similarly, Torres-Toukoumidis, Robles-Bykbaev, Cajamarca, Romero-Rodríguez, Chaljub, and Salgado (2019) agreed and raised the possibility of using a gamification platform for the development of entrepreneurial skills in students. Social entrepreneurs must acquire declarative, procedural, and attitudinal knowledge that provides differentiated value to society. For Light (2009), social entrepreneurs have unique profiles and characteristics that distinguish them from commercial entrepreneurs. Their differences are not only professional skills and competencies but also personal values and preferences that distinguish them. Lackéus (2014) separated these skills into those directly cognitive and those not; he stated that the universities' task should be to develop both types of competencies through different interventions. This understanding of the cognitive structure that sustains social entrepreneurship has given rise to multiple studies with different proposals, such as the one by Sáenz and López (2015). They considered aspects such as the task to be performed, social relations, ethical competency, and personal skills. Also, the study by Orhei, Nandram, and Vinke (2015) values a cognitive dimension, a functional one, and another that is a social competency. Specifically addressing the university context, Velasco, Estrada, Pabón, and Tójar (2019) proposed three components in measuring social entrepreneurship competency, and they focus on instrumental, interpersonal, and systematic aspects.

Studying the effects of social entrepreneurship training requires a multidimensional analysis. In this study, we considered the proposal of García-González, Ramírez-Montoya,

de León, and Aragón (n.d.). They proposed that social entrepreneurship competency is formed from five dimensions or measurable sub-competencies, namely, *personal characteristics, leadership, social innovation, social value, and entrepreneurial management.* These differentiations made us reflect on whether there are professional or personal profiles specifically relevant to entrepreneurship that would rise to studies seeking to understand the most suitable characteristics and skills for social and business entrepreneurs.

Additionally, this study considers the preliminary results of Romero-Rodríguez, Romero-Rodríguez, García-González, and Ramírez-Montoya (2019). They piloted three instruments in a methodological proposal to measure mastery of social entrepreneurship skills by undergraduate and graduate students through experiential learning, social innovation laboratories, and open educational resources. It also considers the validation process of instruments used to measure t social entrepreneurship competency carried out by García-González, Romero-Rodríguez, Romero-Rodríguez, and Ramírez-Montoya (2020).

Entrepreneurship and its relationship with professional disciplines.

There are different views on whether the development of entrepreneurial competency varies by professional area or discipline. Entrepreneurship is usually thought to be related to the business professions (Laukkanen, 2000). In some cases, it is also linked to critical thinking in industrial disciplines (Allen and Wong, 2003) or to the creative spirit of artistic or cultural endeavors (Fritsch and Sorgner, 2014). However, for authors such as Boyce and Shepherd (2000), entrepreneurship is a dimension that, more than being related to a certain discipline, has to do with factors linked to professional culture; these are social and economic (Bögenhold et al., 2014), or creative and innovative (Johnson et al., 2006).

Social entrepreneurship encompasses various disciplines that require transversal skills, and its scope is superior to that of each of the disciplines. From this perspective, social entrepreneurship, according to Lehner and Kansikas (2011), develops in a transdisciplinary way and cannot be pigeonholed into specific areas such as business training. Studies such as Nandan and London (2013) and Nandan and Scott (2013) confirm this. These studies point to the need to develop interdisciplinary profiles of young entrepreneurs. This is a challenge for educational institutions that seek to promote entrepreneurship because their curricular offerings should provide students with disciplinary knowledge and skills development in innovation and social entrepreneurship (Steiner et al., 2018).

The same social entrepreneurship training should occur in diverse learning environments (classroom, non-classroom, multimodal). According to Mitra, Kickul, Gundry, and Orr (2019), the presence of hybrid educational models is increasingly common in social entrepreneurs' training. Learning focuses more on developing the skills and competencies necessary for entrepreneurship than acquiring particular knowledge in a specific area. Another study highlights that the intrinsic motivation to solve a problem is more decisive than the student's disciplinary area (García-González and Ramírez-Montoya, 2020). For McNally, Piperopoulos, Welsh, Mengel, Tantawy, and Papageorgiadis (2019), the training of entrepreneurs has a direct impact on the development of the curricula and the pedagogy of the courses, which should focus on the needs of the new generations, not just provide them what they believe they should learn. So, there is a need to value social entrepreneurship formation beyond the professions, looking at the key indicators that make up the competency and not just the entrepreneurs' disciplinary knowledge. From this, we see the need for studies where: a) the elements that constitute the social entrepreneurship competency can be identified, b) whatever university disciplines that offer greater development of these elements

can be evaluated, and c) the degree to which professional knowledge is significant when undertaking an enterprise is assessed (Schlee et al., 2009).

Besides examining professional study, it is necessary to consider whether personal factors influence entrepreneurial skills development. According to Lewis and Henry (2019), a crucial element to reflect upon is the gender of the entrepreneurs. The reason is that there are fundamental differentiating characteristics between men and women that influence when the entrepreneurial competency is acquired and developed.

Social entrepreneurship and its relationship to gender

The gender perspective is an important consideration in the analysis of social enterprise research. Lortie, Castrogiovanni, and Cox (2017), as well as Anggahegari, Yudoko, and Rudito (2018) consider that women entrepreneurs have a greater tendency to start organizations that generate value, benefits, and social sustainability, which are thought to be hallmarks of women's entrepreneurship. According to Levie and Hart (2011), in their study conducted in the United Kingdom, gender is an important factor of entrepreneurship. According to Pines, Lerner, and Schwart (2012), women have a greater social entrepreneurship presence than they have in business.

From this perspective, are there gender differences in different types of entrepreneurship? Gupta, Wieland, and Turban (2019) find a gap between men and women in business ventures, which have a greater presence of men. However, in social entrepreneurship, this difference is blurred; men and women's participation is similar. This is corroborated by a study conducted by Dickel and Eckardt (2020) involving 601 students. The conclusion was that women tend to have a greater desire to start social rather than commercial enterprises. For Bernardino, Freitas, and Cadima (2018), this difference is

related to particular personality attributes, such as kindness, which is identifiable in entrepreneurial training and predisposes women to create social enterprises.

Social entrepreneurship requires perspectives of ethical commitment and care for the environment. Hence, women, being influenced by personal, social, and sometimes religious values when contemplating entrepreneurial goals, undertake startups with a vision much more respectful of moral and ethical norms than their male peers (Chell et al., 2016). Borquist and Bruin (2019) report that women's social business organizations contribute to positive social changes through the values they incorporate and express. They promote empowerment (Nachimuthu & Gunatharan, 2012), inclusion, and entrepreneurial development of other women and minority groups (Heilman and Chen, 2003) and environmental care (Hechavarria et al., 2012).

Training in social entrepreneurship is linked to critical and committed citizenship that drives change in society and generates economic value. For Nsomkimbu and ZisuhNgoasong (2016), women often integrate business and social transformation objectives, triggering entrepreneurial opportunities. Unfortunately, there are still strong stereotypes of women regarding entrepreneurship, that their proposals are of low business performance (Tesdale et al., 2011). However, although women's entrepreneurship may be questionable from a financial standpoint, it provides value and benefits in ways that are seldom measured economically, having to do with the individual, family, community, and societal value (Sheikh et al., 2018).

All of the above argue for the relevance and innovativeness of this study, which not only focuses on classifying the population by discipline but also from a gender perspective, considering that this is an important element when developing a social entrepreneurship competency. Thus, this study presents a multifactorial analysis that identifies significant

differences between university men and women in various areas of study and possible areas of opportunity to reduce the gender gap when they propose a social entrepreneurship project.

Research Questions

1. Are there significant differences between the disciplinary areas by gender in each of the social enterprise sub-competencies?
2. Are there significant differences between the disciplinary areas by gender in each of the 23 indicators of social entrepreneurship competency?

Method

Participants and procedure

A convenience sample of 140 students from a private university in Mexico was formed. Seventeen were eliminated due to the low representation of their disciplinary areas. Therefore, the answers of n =123 participants were used in the analyses. The sample included 51 women and 72 men, aged between 19 and 24, who were enrolled in degrees in the areas of Architecture and Design (n = 25), Business (n = 45), and Engineering and Science (n = 53). The study was carried out between February and March 2020 with the convenience sample of students taking the courses of Ethics, Persons and Society and Ethics, and Professions and Citizenship. A self-administered questionnaire was applied through Google Forms, which the students answered voluntarily. Table 1 shows the data of the participating students by gender.

[Insert Table 1 here]

Instrument

The validated Social Entrepreneur Profile questionnaire was used to measure the perception related to social entrepreneurship competency (García-González et al., n.d.). This instrument is made up of 28 items that are evaluated on a Likert scale as 1) Strongly disagree, 2)

Disagree, 3) Neither agree nor disagree, 4) Agree, and 5) Strongly agree. Within the questionnaire, five sub-competencies of social entrepreneurship were evaluated: *personal* (items 1, 2, 3, 4, 5, 6), *leadership* (items 7, 8, 9, 10), *social innovation* (items 11, 12, 13, 14, 15, 16, 17, 18), *social value* (items 19, 20, 21, 22, 23) and *entrepreneurial management* (items 24, 25, 26, 27, 28). The overall internal consistency in this study was favorable (a = .891). Kendall's W was calculated to know the level of agreement of the answers for each item. The results showed significant differences (W = .322, gl = 27, X^2 = 1215.8, *p-value* = .000), that is, there is significant agreement among the participants' responses. The reliability of each of the sub-competencies was as follows: personal (a = .763), leadership (a = .534), social innovation (a = .750), social value (a = .786), and entrepreneurial management (a = .797).

Data analysis

The data were analyzed with Microsoft Excel Professional Plus 2013 and IBM SPSS version 24. The statistical tests that were performed depended on the objectives and research questions. The t-test was used to test the research hypotheses (Elliott and Woodward, 2011). Hypothesis testing was first applied to identify significant differences between men and women in the sub-competencies. Next, significant differences between men and women in the sub-competencies in the disciplinary areas were analyzed. Although it has been identified that in some areas, the number of women is lower than men, the study has considered this as part of the statistical analysis, taking into account the data on average and not so much in terms of their overall number. Finally, the differences in each item's means were compared in the results analysis for each of the instrument's indicators.

Results

To answer the first research question, we calculated globally the results obtained by men and women in each of the sub-competencies (Table 2). The same table shows the results of the t-sampling, which indicates the existence or not of significant differences between the two groups being analyzed. To know the significant differences in each sub-competency in the global sample, we carried out a hypothesis test using a confidence interval (3.99 - 4.27) with a 95% confidence level (critical t = 1.977, gl = 138). In this regard, *significant differences were observed only in the sub-competency of social value* (t sample = 2.8604), where the perception of the level of women mastery (M = 4.27, SD = 0.81) is higher than the men's (M = 3.84, SD = 0.94).

[Insert Table 2 here]

Subsequently, hypothesis tests were applied to identify significant differences between men and women in each of the sub-competencies by disciplinary area (Table 3). In the case of the disciplinary area of Architecture and Design (critical t = 2.069 of 5%, gl = 23), *significant differences were identified between men and women in the sub-competencies of leadership (sample t = -2.3343), social value (sample t = -4.1251) and entrepreneurial management (sample t = -2.2349)*. In the leadership sub-competency, women (M = 4.13, SD = 0.71) perceived a higher level of mastery than men (M = 3.81, SD = 0.95). In the social value sub-competency, the perception of mastery by women is also higher (M = 4.28, SD = .69) than men (M = 3.69, SD = 1.04). The same occurred in the sub-competency of entrepreneurial management: women (M = 3.09, SD = 0.99); men (M = 2.69, SD = 1.14).

In the Business disciplinary area (critical t = 1,960 - 1,973 of 5%, gl = 270, 180, 360, 225 and 225), significant differences were only found between men and women in the sub-competency of social entrepreneurship (sample t = 1,964). In this case, men (M = 4.38, SD = .79) perceived their level of mastery to be higher than women (M = 4.14, SD = .71).

In the disciplinary area of Engineering and Sciences (critical t = 1.96 of 5%, gl = 43) significant differences were identified in the sub-competencies of leadership (sample t = -2.85), social value (sample t = -4.13), and entrepreneurial management (sample t = -2.5). The leadership sub-competency identifies that women (M = 4.30, SD = 0.85) perceived a higher level of mastery than men (M = 3.81, SD = 1.00). In the social value sub-competency, women also perceived a higher level of mastery (M = 4.40, SD = 0.67) than men (M = 3.82, SD = 0.94). The same occurred in the sub-competency of entrepreneurial management, where women (M = 3.32, SD = 1.13) perceived a higher level of mastery than men (M = 2.88, SD = 1.12).

It is worth noting that no significant differences were found between men and women concerning personal sub-competencies or in the sub-competency of social innovation. Another interesting fact is that in all the tests showing significant differences, women perceived a higher level of mastery than men, except in leadership sub-competencies in the business discipline area.

[Insert Table 3 here]

To answer the second research question, we conducted hypothesis tests to identify significant differences between men and women in each of the items by disciplinary area. First, the items were analyzed in a global way (t critical = 3.99 to 4.27 of 5% , gl = 138), where significant differences were identified in the R05 of communication (t sample = 2.9857), R16 of social involvement (t sample = 4. 3548), R19 of empathy (t sample = 2.6806), R21 of ethical sense (t sample = 2.514), R22 of orientation to sustainability (t sample = 2.2082), R23 of entrepreneurial passion (t sample = 4.2117) and R26 of bases for value generation (t sample = 2.2668). In all cases, women had a greater perception of mastery: a) communication (women: M = 4.16, SD = 0.62; men: M = 3.78, SD = 0.84); b) social involvement (women:

M = 4.02, SD = 0.92; men: M = 3.28, SD = 1.07); c) empathy (women: M = 4.23, SD = 0.83; men: M = 3.82, SD = 0.99); d) ethical sense (women: M = 4. 52, SD = 0.64; men: M = 4.21, SD = 0.77); e) orientation to sustainability (women: M = 3.92, SD = 0.64; men: M = 3.62, SD = 0.85); f) entrepreneurial passion (women: M = 4.03, SD = 0.98; men: M = 3.32, SD = 1.02), and g) bases for value generation (women: M = 3.33, SD = 0.93; men: M = 2.93, SD = 1.10).

Once the significant differences were identified in the global sample, the differences in each of the three disciplinary areas were analyzed. In the area of Architecture and Design (t critical = 2.069 of 5% , gl = 23) significant differences were identified in R16 of social involvement (t sample = -2.8729), R18 of management of limited resources (t sample = -2.2016), R21 of limited ethical sense (t sample = -2.5976), and R23 of entrepreneurial passion (t sample = -2.1394). Again, women reported a perception of a higher mastery than men: a) social involvement (women: M = 4.06, SD = 1.06; men: M = 2.78, SD = 1.09); b) resource management (women: M = 3. 31, SD = 0.87; men: M = 2.56, SD = 0.73); c) ethical sense (women: M = 4.63, SD = 0.62; men: M = 3.89, SD = 0.78), and d) entrepreneurial passion (women: M = 3.94, SD = 1.00; men: M = 2.89, SD = 1.45).

[Insert Figure 1 here]

The results of the Business discipline area (critical t = 2.017 of 5% , gl = 43) showed significant differences in the R02 items of knowledge of the other (sample t = 2.38), R07 of people management (sample t = 2.26), and financing and administration (sample t = 2.72). In this case, men perceived a greater level of mastery in the three indicators: a) knowledge of the other (women: M = 4.28, SD = 0.54; men: M = 4.65, SD = 0.49); b) people management (women: M = 3.64, SD = 0.76; men: M = 4.15, SD = 0.75), and c) financing and administration (women: M = 3.60, SD = 0.87; men: M = 4.20, SD = 0.52).

[Insert Figure 2 here]

Finally, the results were analyzed by item of the Engineering and Science disciplinary area (t critical = 2.008 of 5% , gl = 51), which reported significant differences in R07 of people management (t sample = -2-29), R16 of social involvement (t sample = -2.38), R20 of ethical sense (t sample = -2.33), and R23 of entrepreneurial passion (t sample = -3.31). In this case, it is women who perceived the highest level of mastery in the four indicators: a) people management (women: M = 4.40, SD = 0.70; men: M = 3.65, SD = 0.97); b) social involvement (women: M = 4. 00, SD = 0.67; men: M = 3.19, SD = 1.03); c) ethical sense (women: M = 4.70, SD = 0.48; men: M = 4.16, SD = 0.69); and d) entrepreneurial passion (women: M = 4.40, SD = 0.70; men: M = 3.30, SD = 0.99).

[Insert Figure 3 here]

Discussion of results

We found empirical evidence to argue that university women felt a higher level of mastery in one of the most characteristic components of social entrepreneurship, namely, social value. Like Pines, Lerner, and Schwart (2012), we found only significant differences between men and women in the sub-competency of social value (Table 2). Social value is comprised of the indicators of empathy, ethical sense and code, orientation to sustainability, and entrepreneurial passion and identity (García-González, Ramírez-Montoya, de León and Aragón, n.d.). These indicators identify more clearly the orientation to social entrepreneurship, so the result coincides with other studies that argue that gender is an important factor when undertaking enterprises (Levie and Hart, 2011). The empirical information indicates the lower level of intention or mastery that men have in the actions that generate social value.

Women students in the Architecture and Design discipline felt more capable than men in leadership, social innovation, and entrepreneurial management of social enterprises. Similarly, in the area of Architecture and Design, women had higher Means than men in leadership (men, M = 3.81; women, M = 4.13); social value (men, M = 3.69; women, M = 4.28), and entrepreneurial management (men, M = 2.69; women, M = 3.09). It is noteworthy that, although this is a creative disciplinary area, significant differences were not found in the sub-competency of social innovation. This fact could be in line with the study carried out by Johnson, Craig, & Hildebrand (2006). Similarly, our study confirms the existence of a greater tendency for women to generate value, benefits, and sustainable practices (Lortie et al., 2017; Anggahegari et al., 2018). This information can be useful when designing courses or workshops in universities and considering strategies that engage students.

In Engineering and Sciences, as in Architecture and Design, women reported a higher level of mastery than men in the sub-competencies of leadership, social value, and entrepreneurial management. In this regard, it is interesting to note that although women perceived greater mastery than men, the lowest scores for both men and women correspond to entrepreneurial management (Table 3). In this regard, it is important to clarify that, although the students came from different disciplinary areas, the course design focused on ethical and citizenship competencies. This could explain the apparent low level of performance in management issues. However, the implementation and development of the social entrepreneur profile were responses to contemporary challenges facing university education (Nandan and London, 2013; Nandan and Scott 2013). Concerning the levels of mastery by men and women in entrepreneurial management, the results of other studies are confirmed, which reported stronger desire and intention toward social entrepreneurship by women (Dickel and Eckardt, 2020). Thus, in general, the evidence points to a greater

predisposition of women towards social entrepreneurship and less to disciplinary entrepreneurship (entrepreneurial management).

Of the three disciplinary areas analyzed, only in business did men show higher means than women, and only in the leadership sub-competency. Men (M = 4.38) exceeded women's mean (M = 4.14) in the sample. On the one hand, this could be understood by reviewing those studies that address the traditional relationship between entrepreneurship and business areas (Laukkanen, 2000). On the other hand, studies such as that of Gupta, Wieland, and Turban (2019) address the gap between men and women in business entrepreneurship. Even though it is very important in social entrepreneurship, leadership usually takes on the same importance in social and commercial entrepreneurship (Light, 2009). From this perspective, we can understand why only in the leadership sub-competency did men report a higher level of mastery than women. *Therefore, it would be appropriate to incorporate leadership development strategies* considering these results from the empirical evidence.

It was interesting that when analyzing the indicators of each of the items in-depth, we found that women surpassed men in the disciplinary areas of Architecture and Design, as well as Engineering and Science. In both these disciplines, women reported a greater mastery of social involvement, ethical sense, and entrepreneurial passion and identity. On the other hand, men in the business area had higher means in knowledge of the other, people management, and financing and administration. Also, it could be considered that the results of this research show that the stereotypes of women entrepreneurs still prevail (Tesdale et al., 2011). It is precisely in those indicators related to moral norms, ethics, and personal values that women's performance stands out (Chell et al., 2016; Freitas and Cadima, 2018). In order to be able to represent more clearly the results of all the tests carried out, Figure 4 is presented, which graphs all the results by indicators, as well as by disciplinary area and gender.

[Insert Figure 4 here]

The measurement of entrepreneurial competencies has garnered interest in recent years, and even more so in social entrepreneurship. This measurement, which has been in several studies, is considered when higher education institutions analyze the results of implementing entrepreneurship and educational innovations in their curricula. Previous research, such as Beltrán Hernández-de-Galindo, Romero-Rodríguez and Ramírez-Montoya (2019) and Torres-Toukoumidis, Robles-Bykbaev, Cajamarca, Romero-Rodríguez, Chaljub and Salgado (2019), investigate training in online learning contexts and gamification strategies in entrepreneurial competencies. Moreover, this article looks at education in social entrepreneurship and the efforts that have been made to explore its teaching under innovative experiences, such as experiential learning (Romero-Rodríguez, Romero-Rodríguez, García-González and Ramírez-Montoya (2019). In this sense, from a gender perspective, the contributions open new teaching approaches and promote social entrepreneurship among university students.

Conclusions

The relevance of this type of study is the importance of innovation and social entrepreneurship as effective tools to solve problems, which makes university training in these issues essential. The development of the social entrepreneurship competency demonstrates the commitment that educational institutions have to leadership-with-cause or leadership-with-value, training their students to become true agents of change.

Considering the number and variety of societal problems that exist today, we should not let social entrepreneurship remain as something rooted or isolated to a single disciplinary area. The responsibility of citizenship in the world is shared. We all must have something to contribute from our particular professional vision, regardless of our gender.

It is recognized that this research could be limited by not including all the disciplinary areas because it did not have access to a significant number of students in social sciences and humanities (Tables 1 and 3). However, the findings obtained in the other three disciplines are valuable for their contribution in showing the differences in perception by gender. Also, it is recognized that this study focused solely on the perception of students. Nevertheless, the possibility of triangulating this data with other instruments raises the possibility of increasing the knowledge available in universities for training in social entrepreneurship. Additionally, the present study allows us to verify more convincingly the results of previous studies, such as those of González-García, Romero-Rodríguez, Romero-Rodríguez, and Ramírez-Montoya (2020), as well as those of Romero-Rodríguez, Romero-Rodríguez, García, and Ramírez-Montoya (2019).

Figure 5 graphically includes the findings that can be concluded from the data analysis:

[Insert Figure 5 here]

Attending to the research questions, we identified from the data in Tables 2 and 3 the empirical evidence that women felt a higher level of mastery in the sub-competency of social value. In this, the women in the sample showed higher means than their male peers (M = 4.27, SD = 0.81 / M = 3.84, SD = 0.94). When this information was analyzed by discipline, it was found that this sub-competency had the same results in both Architecture and Design, and Engineering and Science.

As for the rest of the sub-competencies, only the personal and social innovation sub-competencies failed to show significant gender differences. In answer to the first research question, it can be concluded that there is sufficient statistical data to confirm the presence of differences among the disciplinary areas by gender.

The second research question focused on the indicators that make up the sub-competencies. It was possible to identify seven indicators that showed significant differences between men and women (R05, R16, R19, R21, R22, R23, and R26). In all cases, women had a greater perception of mastery (Table 3). As in the first research question, significant variations were found in the various indicators according to the disciplinary area. Although there was no conclusive result, it was possible to verify that there is sufficient statistical data to confirm the second research question's affirmative hypothesis. Thus, the two research questions that guided this study were confirmed, thereby providing relevant information for institutional decision-making related to the development of university students' social entrepreneurship competency.

In a practical way, this study contributes to broaden the vision of social entrepreneurship, being able to support better decision making when investing in the formation of new entrepreneurs. Also, this research allows us to appreciate the importance of reducing the gender gap in business training, since the findings show that, in terms of social entrepreneurship, the contributions between men and women can be equally significant or even present some advantages in the female population.

On the economic side, the findings of this research allow better decisions to be made on government investment focused on the promotion and development of entrepreneurship. Knowing the characteristics and profile of social entrepreneurs allows them to guide the resources they have to areas where they can generate better results.

As for its implications for universities and teaching, the findings can be useful for university training and for increasing the vision and formulation of government projects by young people creating new businesses. Based on this data's findings, universities can capitalize on this knowledge, establishing programs or projects that focus on developing and

strengthening specific skills in disciplinary areas and considering gender. Thus, this study, applied in the Mexican reality, contributes to the literature on the roles of discipline and gender in students' perceptions of their social entrepreneurship competencies.

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Social Entrepreneurship Competency: An Approach by Discipline and Gender.

Purpose - To analyze how university men and women in different disciplines of study in Mexico perceive social entrepreneurship competencies, using a multifactorial analysis to find possible areas of opportunity to reduce the gender gap in social-entrepreneurship-project proposals.

Design/methodology/approach – This is a quantitative study with a validated questionnaire that records the perception levels of five social entrepreneurship sub-competencies. The survey, which includes 28 indicators, was applied to 140 university students from different disciplines. Hypothesis testing was applied to identify significant differences between men and women in each sub-competency by disciplinary area.

Findings - In the global sample, significant differences by gender were observed only in the social value sub-competency. In the disciplinary analysis, significant differences were found in Architecture and Design, Business, and Engineering and Science.

Research limitations/implications - The questionnaire only gathered data about the students' perceptions. To the extent that perception is triangulated with other instruments, it is possible to increase knowledge regarding how to train in social entrepreneurship.

Practical implications - The results can be useful for university training and increasing the envisioning and formulating of government projects by young people who create new businesses.

Originality/value – This research contributes to the literature on the role of gender-specific perceptions of social entrepreneurship in Mexico.

Paper type: Research paper

Keywords: Social entrepreneurship, gender, disciplines, competencies, hypothesis testing, educational innovation, higher education.

Introduction

The university is an engine for the generation and dissemination of knowledge, but disciplinary areas in education can be broadened in scope. Universities train citizens who can create new societal ventures. In training within disciplines and careers, it is possible to use learning-based-on-design strategies to improve society. An important goal would be to promote competencies that enable students to solve challenges with sustainable solutions (Huang et al., 2020) and provide learning enabling them to propose solutions for societal problems (Agustina et al., 2020).

Multiple factors support the university development of student competencies relevant to proposals that generate social impact. These include the social value attached to improvements in development brought about by new strategies (Manyaka-Boshielo, 2017), attitudes towards entrepreneurship, and family background. These factors are important elements to study (Breton and Radrigán, 2018), and also are the disciplinary areas of study (Copelli et al., 2019) and the momentum initiated by the universities (Bazan et al., 2020). Therefore, analyzing the students' perceptions and their areas of study can help identify the training strategies that develop relevant competencies that equip students to propose solutions to societal problems.

This research aimed to analyze the perceptions that university men and women from different areas of study in Mexico held about social entrepreneurship skills. We performed a multifactorial analysis to identify possible opportunities to reduce the gender gap among young people when proposing social entrepreneurship projects. Specifically, we sought to determine if there are significant differences by gender among the disciplinary areas in each

sub-competency of social entrepreneurship. These are *Personal Characteristics, Leadership, Social Innovation, Social Value, and Management*. We considered this in terms of SWOT (strengths, weaknesses, opportunities, threats).

This paper takes a theoretical approach in discussing the training to develop the social entrepreneurship competency, its characteristics, its relationship to professional disciplines, and the influence of gender. It raises questions about how students perceive the social entrepreneurship competency by discipline and gender. The quantitative method used in the study, the validated instrument, and the hypothesis testing are described. The results are presented by professional discipline and gender. In the analysis and discussion sections, the authors discuss the data that might support young people's training to plan social entrepreneurship projects, working from the universities with their partners in government and not-for-profit enterprises.

Theoretical framework

On the formation of social entrepreneurship and its characteristics

The training in social entrepreneurship competency requires a strategy linked to commitment, change, and creation. The promotion and development of entrepreneurship is a topic of interest to educational institutions, which have developed programs to foster relevant and innovative skills in their students for *social* entrepreneurship (Basci and Alkan, 2015). However, according to Garcia-Gonzalez, Ramirez-Montoya, de Leon, and Aragon (2020), although studies on social entrepreneurship were common during the last century, the last ten years have seen more production of instrumental research on this subject. The focus has been not only on entrepreneurship itself but also on the process of forming entrepreneurial skills. For Vázquez, Lanero, Raisene, and García (2012), social entrepreneurship in students is achieved by developing competencies that must be worked on within and by the universities.

Studies such as Iglesias, Jambrino, and Heras (2019), or Tekin, Bas, Geckil, and Koyuncouglu (2020) show that educational institutions' roles in training social entrepreneurs are crucial for successful projects. Studies such as Beltrán Hernández-de-Galindo, Romero-Rodríguez, and Ramírez-Montoya (2019), allow us to appreciate that educational modalities such as the MOOC can be very significant when developing entrepreneurial skills. Similarly, Torres-Toukoumidis, Robles-Bykbaev, Cajamarca, Romero-Rodríguez, Chaljub, and Salgado (2019) agreed and raised the possibility of using a gamification platform for the development of entrepreneurial skills in students. Social entrepreneurs must acquire declarative, procedural, and attitudinal knowledge that provides differentiated value to society. For Light (2009), social entrepreneurs have unique profiles and characteristics that distinguish them from commercial entrepreneurs. Their differences are not only professional skills and competencies but also personal values and preferences that distinguish them. Lackéus (2014) separated these skills into those directly cognitive and those not; he stated that the universities' task should be to develop both types of competencies through different interventions. This understanding of the cognitive structure that sustains social entrepreneurship has given rise to multiple studies with different proposals, such as the one by Sáenz and López (2015). They considered aspects such as the task to be performed, social relations, ethical competency, and personal skills. Also, the study by Orhei, Nandram, and Vinke (2015) values a cognitive dimension, a functional one, and another that is a social competency. Specifically addressing the university context, Velasco, Estrada, Pabón, and Tójar (2019) proposed three components in measuring social entrepreneurship competency, and they focus on instrumental, interpersonal, and systematic aspects.

Studying the effects of social entrepreneurship training requires a multidimensional analysis. In this study, we considered the proposal of García-González, Ramírez-Montoya,

de León, and Aragón (n.d.). They proposed that social entrepreneurship competency is formed from five dimensions or measurable sub-competencies, namely, *personal characteristics, leadership, social innovation, social value, and entrepreneurial management.* These differentiations made us reflect on whether there are professional or personal profiles specifically relevant to entrepreneurship that would rise to studies seeking to understand the most suitable characteristics and skills for social and business entrepreneurs.

Additionally, this study considers the preliminary results of Romero-Rodríguez, Romero-Rodríguez, García-González, and Ramírez-Montoya (2019). They piloted three instruments in a methodological proposal to measure mastery of social entrepreneurship skills by undergraduate and graduate students through experiential learning, social innovation laboratories, and open educational resources. It also considers the validation process of instruments used to measure t social entrepreneurship competency carried out by García-González, Romero-Rodríguez, Romero-Rodríguez, and Ramírez-Montoya (2020).

Entrepreneurship and its relationship with professional disciplines.

There are different views on whether the development of entrepreneurial competency varies by professional area or discipline. Entrepreneurship is usually thought to be related to the business professions (Laukkanen, 2000). In some cases, it is also linked to critical thinking in industrial disciplines (Allen and Wong, 2003) or to the creative spirit of artistic or cultural endeavors (Fritsch and Sorgner, 2014). However, for authors such as Boyce and Shepherd (2000), entrepreneurship is a dimension that, more than being related to a certain discipline, has to do with factors linked to professional culture; these are social and economic (Bögenhold et al., 2014), or creative and innovative (Johnson et al., 2006).

Social entrepreneurship encompasses various disciplines that require transversal skills, and its scope is superior to that of each of the disciplines. From this perspective, social entrepreneurship, according to Lehner and Kansikas (2011), develops in a transdisciplinary way and cannot be pigeonholed into specific areas such as business training. Studies such as Nandan and London (2013) and Nandan and Scott (2013) confirm this. These studies point to the need to develop interdisciplinary profiles of young entrepreneurs. This is a challenge for educational institutions that seek to promote entrepreneurship because their curricular offerings should provide students with disciplinary knowledge and skills development in innovation and social entrepreneurship (Steiner et al., 2018).

The same social entrepreneurship training should occur in diverse learning environments (classroom, non-classroom, multimodal). According to Mitra, Kickul, Gundry, and Orr (2019), the presence of hybrid educational models is increasingly common in social entrepreneurs' training. Learning focuses more on developing the skills and competencies necessary for entrepreneurship than acquiring particular knowledge in a specific area. Another study highlights that the intrinsic motivation to solve a problem is more decisive than the student's disciplinary area (García-González and Ramírez-Montoya, 2020). For McNally, Piperopoulos, Welsh, Mengel, Tantawy, and Papageorgiadis (2019), the training of entrepreneurs has a direct impact on the development of the curricula and the pedagogy of the courses, which should focus on the needs of the new generations, not just provide them what they believe they should learn. So, there is a need to value social entrepreneurship formation beyond the professions, looking at the key indicators that make up the competency and not just the entrepreneurs' disciplinary knowledge. From this, we see the need for studies where: a) the elements that constitute the social entrepreneurship competency can be identified, b) whatever university disciplines that offer greater development of these elements

can be evaluated, and c) the degree to which professional knowledge is significant when undertaking an enterprise is assessed (Schlee et al., 2009).

Besides examining professional study, it is necessary to consider whether personal factors influence entrepreneurial skills development. According to Lewis and Henry (2019), a crucial element to reflect upon is the gender of the entrepreneurs. The reason is that there are fundamental differentiating characteristics between men and women that influence when the entrepreneurial competency is acquired and developed.

Social entrepreneurship and its relationship to gender

The gender perspective is an important consideration in the analysis of social enterprise research. Lortie, Castrogiovanni, and Cox (2017), as well as Anggahegari, Yudoko, and Rudito (2018) consider that women entrepreneurs have a greater tendency to start organizations that generate value, benefits, and social sustainability, which are thought to be hallmarks of women's entrepreneurship. According to Levie and Hart (2011), in their study conducted in the United Kingdom, gender is an important factor of entrepreneurship. According to Pines, Lerner, and Schwart (2012), women have a greater social entrepreneurship presence than they have in business.

From this perspective, are there gender differences in different types of entrepreneurship? Gupta, Wieland, and Turban (2019) find a gap between men and women in business ventures, which have a greater presence of men. However, in social entrepreneurship, this difference is blurred; men and women's participation is similar. This is corroborated by a study conducted by Dickel and Eckardt (2020) involving 601 students. The conclusion was that women tend to have a greater desire to start social rather than commercial enterprises. For Bernardino, Freitas, and Cadima (2018), this difference is

related to particular personality attributes, such as kindness, which is identifiable in entrepreneurial training and predisposes women to create social enterprises.

Social entrepreneurship requires perspectives of ethical commitment and care for the environment. Hence, women, being influenced by personal, social, and sometimes religious values when contemplating entrepreneurial goals, undertake startups with a vision much more respectful of moral and ethical norms than their male peers (Chell et al., 2016). Borquist and Bruin (2019) report that women's social business organizations contribute to positive social changes through the values they incorporate and express. They promote empowerment (Nachimuthu & Gunatharan, 2012), inclusion, and entrepreneurial development of other women and minority groups (Heilman and Chen, 2003) and environmental care (Hechavarria et al., 2012).

Training in social entrepreneurship is linked to critical and committed citizenship that drives change in society and generates economic value. For Nsomkimbu and ZisuhNgoasong (2016), women often integrate business and social transformation objectives, triggering entrepreneurial opportunities. Unfortunately, there are still strong stereotypes of women regarding entrepreneurship, that their proposals are of low business performance (Tesdale et al., 2011). However, although women's entrepreneurship may be questionable from a financial standpoint, it provides value and benefits in ways that are seldom measured economically, having to do with the individual, family, community, and societal value (Sheikh et al., 2018).

All of the above argue for the relevance and innovativeness of this study, which not only focuses on classifying the population by discipline but also from a gender perspective, considering that this is an important element when developing a social entrepreneurship competency. Thus, this study presents a multifactorial analysis that identifies significant

differences between university men and women in various areas of study and possible areas of opportunity to reduce the gender gap when they propose a social entrepreneurship project.

Research Questions

1. Are there significant differences between the disciplinary areas by gender in each of the social enterprise sub-competencies?
2. Are there significant differences between the disciplinary areas by gender in each of the 23 indicators of social entrepreneurship competency?

Method

Participants and procedure

A convenience sample of 140 students from a private university in Mexico was formed. Seventeen were eliminated due to the low representation of their disciplinary areas. Therefore, the answers of n =123 participants were used in the analyses. The sample included 51 women and 72 men, aged between 19 and 24, who were enrolled in degrees in the areas of Architecture and Design (n = 25), Business (n = 45), and Engineering and Science (n = 53). The study was carried out between February and March 2020 with the convenience sample of students taking the courses of Ethics, Persons and Society and Ethics, and Professions and Citizenship. A self-administered questionnaire was applied through Google Forms, which the students answered voluntarily. Table 1 shows the data of the participating students by gender.

[Insert Table 1 here]

Instrument

The validated Social Entrepreneur Profile questionnaire was used to measure the perception related to social entrepreneurship competency (García-González et al., n.d.). This instrument is made up of 28 items that are evaluated on a Likert scale as 1) Strongly disagree, 2)

Disagree, 3) Neither agree nor disagree, 4) Agree, and 5) Strongly agree. Within the questionnaire, five sub-competencies of social entrepreneurship were evaluated: *personal* (items 1, 2, 3, 4, 5, 6), *leadership* (items 7, 8, 9, 10), *social innovation* (items 11, 12, 13, 14, 15, 16, 17, 18), *social value* (items 19, 20, 21, 22, 23) and *entrepreneurial management* (items 24, 25, 26, 27, 28). The overall internal consistency in this study was favorable (a = .891). Kendall's W was calculated to know the level of agreement of the answers for each item. The results showed significant differences (W = .322, gl = 27, X^2 = 1215.8, *p-value* = .000), that is, there is significant agreement among the participants' responses. The reliability of each of the sub-competencies was as follows: personal (a = .763), leadership (a = .534), social innovation (a = .750), social value (a = .786), and entrepreneurial management (a = .797).

Data analysis

The data were analyzed with Microsoft Excel Professional Plus 2013 and IBM SPSS version 24. The statistical tests that were performed depended on the objectives and research questions. The t-test was used to test the research hypotheses (Elliott and Woodward, 2011). Hypothesis testing was first applied to identify significant differences between men and women in the sub-competencies. Next, significant differences between men and women in the sub-competencies in the disciplinary areas were analyzed. Although it has been identified that in some areas, the number of women is lower than men, the study has considered this as part of the statistical analysis, taking into account the data on average and not so much in terms of their overall number. Finally, the differences in each item's means were compared in the results analysis for each of the instrument's indicators.

Results

To answer the first research question, we calculated globally the results obtained by men and women in each of the sub-competencies (Table 2). The same table shows the results of the t-sampling, which indicates the existence or not of significant differences between the two groups being analyzed. To know the significant differences in each sub-competency in the global sample, we carried out a hypothesis test using a confidence interval (3.99 - 4.27) with a 95% confidence level (critical t = 1.977, gl = 138). In this regard, *significant differences were observed only in the sub-competency of social value* (t sample = 2.8604), where the perception of the level of women mastery (M = 4.27, SD = 0.81) is higher than the men's (M = 3.84, SD = 0.94).

[Insert Table 2 here]

Subsequently, hypothesis tests were applied to identify significant differences between men and women in each of the sub-competencies by disciplinary area (Table 3). In the case of the disciplinary area of Architecture and Design (critical t = 2.069 of 5%, gl = 23), *significant differences were identified between men and women in the sub-competencies of leadership (sample t = -2.3343), social value (sample t = -4.1251) and entrepreneurial management (sample t = -2.2349)*. In the leadership sub-competency, women (M = 4.13, SD = 0.71) perceived a higher level of mastery than men (M = 3.81, SD = 0.95). In the social value sub-competency, the perception of mastery by women is also higher (M = 4.28, SD = .69) than men (M = 3.69, SD = 1.04). The same occurred in the sub-competency of entrepreneurial management: women (M = 3.09, SD = 0.99); men (M = 2.69, SD = 1.14).

In the Business disciplinary area (critical t = 1,960 - 1,973 of 5%, gl = 270, 180, 360, 225 and 225), significant differences were only found between men and women in the sub-competency of social entrepreneurship (sample t = 1,964). In this case, men (M = 4.38, SD = .79) perceived their level of mastery to be higher than women (M = 4.14, SD = .71).

In the disciplinary area of Engineering and Sciences (critical t = 1.96 of 5%, gl = 43) significant differences were identified in the sub-competencies of leadership (sample t = -2.85), social value (sample t = -4.13), and entrepreneurial management (sample t = -2.5). The leadership sub-competency identifies that women (M = 4.30, SD = 0.85) perceived a higher level of mastery than men (M = 3.81, SD = 1.00). In the social value sub-competency, women also perceived a higher level of mastery (M = 4.40, SD = 0.67) than men (M = 3.82, SD = 0.94). The same occurred in the sub-competency of entrepreneurial management, where women (M = 3.32, SD = 1.13) perceived a higher level of mastery than men (M = 2.88, SD = 1.12).

It is worth noting that no significant differences were found between men and women concerning personal sub-competencies or in the sub-competency of social innovation. Another interesting fact is that in all the tests showing significant differences, women perceived a higher level of mastery than men, except in leadership sub-competencies in the business discipline area.

[Insert Table 3 here]

To answer the second research question, we conducted hypothesis tests to identify significant differences between men and women in each of the items by disciplinary area. First, the items were analyzed in a global way (t critical = 3.99 to 4.27 of 5% , gl = 138), where significant differences were identified in the R05 of communication (t sample = 2.9857), R16 of social involvement (t sample = 4. 3548), R19 of empathy (t sample = 2.6806), R21 of ethical sense (t sample = 2.514), R22 of orientation to sustainability (t sample = 2.2082), R23 of entrepreneurial passion (t sample = 4.2117) and R26 of bases for value generation (t sample = 2.2668). In all cases, women had a greater perception of mastery: a) communication (women: M = 4.16, SD = 0.62; men: M = 3.78, SD = 0.84); b) social involvement (women:

M = 4.02, SD = 0.92; men: M = 3.28, SD = 1.07); c) empathy (women: M = 4.23, SD = 0.83; men: M = 3.82, SD = 0.99); d) ethical sense (women: M = 4. 52, SD = 0.64; men: M = 4.21, SD = 0.77); e) orientation to sustainability (women: M = 3.92, SD = 0.64; men: M = 3.62, SD = 0.85); f) entrepreneurial passion (women: M = 4.03, SD = 0.98; men: M = 3.32, SD = 1.02), and g) bases for value generation (women: M = 3.33, SD = 0.93; men: M = 2.93, SD = 1.10).

Once the significant differences were identified in the global sample, the differences in each of the three disciplinary areas were analyzed. In the area of Architecture and Design (t critical = 2.069 of 5% , gl = 23) significant differences were identified in R16 of social involvement (t sample = -2.8729), R18 of management of limited resources (t sample = -2.2016), R21 of limited ethical sense (t sample = -2.5976), and R23 of entrepreneurial passion (t sample = -2.1394). Again, women reported a perception of a higher mastery than men: a) social involvement (women: M = 4.06, SD = 1.06; men: M = 2.78, SD = 1.09); b) resource management (women: M = 3. 31, SD = 0.87; men: M = 2.56, SD = 0.73); c) ethical sense (women: M = 4.63, SD = 0.62; men: M = 3.89, SD = 0.78), and d) entrepreneurial passion (women: M = 3.94, SD = 1.00; men: M = 2.89, SD = 1.45).

[Insert Figure 1 here]

The results of the Business discipline area (critical t = 2.017 of 5% , gl = 43) showed significant differences in the R02 items of knowledge of the other (sample t = 2.38), R07 of people management (sample t = 2.26), and financing and administration (sample t = 2.72). In this case, men perceived a greater level of mastery in the three indicators: a) knowledge of the other (women: M = 4.28, SD = 0.54; men: M = 4.65, SD = 0.49); b) people management (women: M = 3.64, SD = 0.76; men: M = 4.15, SD = 0.75), and c) financing and administration (women: M = 3.60, SD = 0.87; men: M = 4.20, SD = 0.52).

[Insert Figure 2 here]

Finally, the results were analyzed by item of the Engineering and Science disciplinary area (t critical = 2.008 of 5% , gl = 51), which reported significant differences in R07 of people management (t sample = -2-29), R16 of social involvement (t sample = -2.38), R20 of ethical sense (t sample = -2.33), and R23 of entrepreneurial passion (t sample = -3.31). In this case, it is women who perceived the highest level of mastery in the four indicators: a) people management (women: M = 4.40, SD = 0.70; men: M = 3.65, SD = 0.97); b) social involvement (women: M = 4. 00, SD = 0.67; men: M = 3.19, SD = 1.03); c) ethical sense (women: M = 4.70, SD = 0.48; men: M = 4.16, SD = 0.69); and d) entrepreneurial passion (women: M = 4.40, SD = 0.70; men: M = 3.30, SD = 0.99).

[Insert Figure 3 here]

Discussion of results

We found empirical evidence to argue that university women felt a higher level of mastery in one of the most characteristic components of social entrepreneurship, namely, social value. Like Pines, Lerner, and Schwart (2012), we found only significant differences between men and women in the sub-competency of social value (Table 2). Social value is comprised of the indicators of empathy, ethical sense and code, orientation to sustainability, and entrepreneurial passion and identity (García-González, Ramírez-Montoya, de León and Aragón, n.d.). These indicators identify more clearly the orientation to social entrepreneurship, so the result coincides with other studies that argue that gender is an important factor when undertaking enterprises (Levie and Hart, 2011). The empirical information indicates the lower level of intention or mastery that men have in the actions that generate social value.

Women students in the Architecture and Design discipline felt more capable than men in leadership, social innovation, and entrepreneurial management of social enterprises. Similarly, in the area of Architecture and Design, women had higher Means than men in leadership (men, M = 3.81; women, M = 4.13); social value (men, M = 3.69; women, M = 4.28), and entrepreneurial management (men, M = 2.69; women, M = 3.09). It is noteworthy that, although this is a creative disciplinary area, significant differences were not found in the sub-competency of social innovation. This fact could be in line with the study carried out by Johnson, Craig, & Hildebrand (2006). Similarly, our study confirms the existence of a greater tendency for women to generate value, benefits, and sustainable practices (Lortie et al., 2017; Anggahegari et al., 2018). This information can be useful when designing courses or workshops in universities and considering strategies that engage students.

In Engineering and Sciences, as in Architecture and Design, women reported a higher level of mastery than men in the sub-competencies of leadership, social value, and entrepreneurial management. In this regard, it is interesting to note that although women perceived greater mastery than men, the lowest scores for both men and women correspond to entrepreneurial management (Table 3). In this regard, it is important to clarify that, although the students came from different disciplinary areas, the course design focused on ethical and citizenship competencies. This could explain the apparent low level of performance in management issues. However, the implementation and development of the social entrepreneur profile were responses to contemporary challenges facing university education (Nandan and London, 2013; Nandan and Scott 2013). Concerning the levels of mastery by men and women in entrepreneurial management, the results of other studies are confirmed, which reported stronger desire and intention toward social entrepreneurship by women (Dickel and Eckardt, 2020). Thus, in general, the evidence points to a greater

predisposition of women towards social entrepreneurship and less to disciplinary entrepreneurship (entrepreneurial management).

Of the three disciplinary areas analyzed, only in business did men show higher means than women, and only in the leadership sub-competency. Men (M = 4.38) exceeded women's mean (M = 4.14) in the sample. On the one hand, this could be understood by reviewing those studies that address the traditional relationship between entrepreneurship and business areas (Laukkanen, 2000). On the other hand, studies such as that of Gupta, Wieland, and Turban (2019) address the gap between men and women in business entrepreneurship. Even though it is very important in social entrepreneurship, leadership usually takes on the same importance in social and commercial entrepreneurship (Light, 2009). From this perspective, we can understand why only in the leadership sub-competency did men report a higher level of mastery than women. *Therefore, it would be appropriate to incorporate leadership development strategies* considering these results from the empirical evidence.

It was interesting that when analyzing the indicators of each of the items in-depth, we found that women surpassed men in the disciplinary areas of Architecture and Design, as well as Engineering and Science. In both these disciplines, women reported a greater mastery of social involvement, ethical sense, and entrepreneurial passion and identity. On the other hand, men in the business area had higher means in knowledge of the other, people management, and financing and administration. Also, it could be considered that the results of this research show that the stereotypes of women entrepreneurs still prevail (Tesdale et al., 2011). It is precisely in those indicators related to moral norms, ethics, and personal values that women's performance stands out (Chell et al., 2016; Freitas and Cadima, 2018). In order to be able to represent more clearly the results of all the tests carried out, Figure 4 is presented, which graphs all the results by indicators, as well as by disciplinary area and gender.

[Insert Figure 4 here]

The measurement of entrepreneurial competencies has garnered interest in recent years, and even more so in social entrepreneurship. This measurement, which has been in several studies, is considered when higher education institutions analyze the results of implementing entrepreneurship and educational innovations in their curricula. Previous research, such as Beltrán Hernández-de-Galindo, Romero-Rodríguez and Ramírez-Montoya (2019) and Torres-Toukoumidis, Robles-Bykbaev, Cajamarca, Romero-Rodríguez, Chaljub and Salgado (2019), investigate training in online learning contexts and gamification strategies in entrepreneurial competencies. Moreover, this article looks at education in social entrepreneurship and the efforts that have been made to explore its teaching under innovative experiences, such as experiential learning (Romero-Rodríguez, Romero-Rodríguez, García-González and Ramírez-Montoya (2019). In this sense, from a gender perspective, the contributions open new teaching approaches and promote social entrepreneurship among university students.

Conclusions

The relevance of this type of study is the importance of innovation and social entrepreneurship as effective tools to solve problems, which makes university training in these issues essential. The development of the social entrepreneurship competency demonstrates the commitment that educational institutions have to leadership-with-cause or leadership-with-value, training their students to become true agents of change.

Considering the number and variety of societal problems that exist today, we should not let social entrepreneurship remain as something rooted or isolated to a single disciplinary area. The responsibility of citizenship in the world is shared. We all must have something to contribute from our particular professional vision, regardless of our gender.

It is recognized that this research could be limited by not including all the disciplinary areas because it did not have access to a significant number of students in social sciences and humanities (Tables 1 and 3). However, the findings obtained in the other three disciplines are valuable for their contribution in showing the differences in perception by gender. Also, it is recognized that this study focused solely on the perception of students. Nevertheless, the possibility of triangulating this data with other instruments raises the possibility of increasing the knowledge available in universities for training in social entrepreneurship. Additionally, the present study allows us to verify more convincingly the results of previous studies, such as those of González-García, Romero-Rodríguez, Romero-Rodríguez, and Ramírez-Montoya (2020), as well as those of Romero-Rodríguez, Romero-Rodríguez, García, and Ramírez-Montoya (2019).

Figure 5 graphically includes the findings that can be concluded from the data analysis:

[Insert Figure 5 here]

Attending to the research questions, we identified from the data in Tables 2 and 3 the empirical evidence that women felt a higher level of mastery in the sub-competency of social value. In this, the women in the sample showed higher means than their male peers (M = 4.27, SD = 0.81 / M = 3.84, SD = 0.94). When this information was analyzed by discipline, it was found that this sub-competency had the same results in both Architecture and Design, and Engineering and Science.

As for the rest of the sub-competencies, only the personal and social innovation sub-competencies failed to show significant gender differences. In answer to the first research question, it can be concluded that there is sufficient statistical data to confirm the presence of differences among the disciplinary areas by gender.

The second research question focused on the indicators that make up the sub-competencies. It was possible to identify seven indicators that showed significant differences between men and women (R05, R16, R19, R21, R22, R23, and R26). In all cases, women had a greater perception of mastery (Table 3). As in the first research question, significant variations were found in the various indicators according to the disciplinary area. Although there was no conclusive result, it was possible to verify that there is sufficient statistical data to confirm the second research question's affirmative hypothesis. Thus, the two research questions that guided this study were confirmed, thereby providing relevant information for institutional decision-making related to the development of university students' social entrepreneurship competency.

In a practical way, this study contributes to broaden the vision of social entrepreneurship, being able to support better decision making when investing in the formation of new entrepreneurs. Also, this research allows us to appreciate the importance of reducing the gender gap in business training, since the findings show that, in terms of social entrepreneurship, the contributions between men and women can be equally significant or even present some advantages in the female population.

On the economic side, the findings of this research allow better decisions to be made on government investment focused on the promotion and development of entrepreneurship. Knowing the characteristics and profile of social entrepreneurs allows them to guide the resources they have to areas where they can generate better results.

As for its implications for universities and teaching, the findings can be useful for university training and for increasing the vision and formulation of government projects by young people creating new businesses. Based on this data's findings, universities can capitalize on this knowledge, establishing programs or projects that focus on developing and

strengthening specific skills in disciplinary areas and considering gender. Thus, this study, applied in the Mexican reality, contributes to the literature on the roles of discipline and gender in students' perceptions of their social entrepreneurship competencies.

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Social Entrepreneurship Competency: An Approach by Discipline and Gender.

Tables

Table 1. Participants' data by gender

	Men		*Women*		*Total*	
	n	***%***	***n***	***%***	***n***	***%***
Age						
19-20	42	58	32	63	74	60
21-22	25	35	16	31	41	33
23-24	5	7	3	6	8	7
Disciplinary Area						
Architecture and Design	9	13	16	31	25	20
Business	20	28	25	49	45	37
Engineering and Science	43	59	10	20	53	43

Source: Own elaboration

Table 2. Statistical data on the sub-competencies by gender

Sub-competencies	*Men*		*Women*		***t sample***
	M	***SD***	***M***	***SD***	
Personal	4.09	0.84	4.24	0.69	1.1406
Leadership	3.96	0.97	4.19	0.89	1.4133
Social Innovation	3.52	1.11	3.73	1.00	1.1745
Social value	3.84	0.94	4.27	0.81	2.8604
Entrepreneurialship Management	3.17	1.20	3.39	1.09	1.1342

Source: Own elaboration

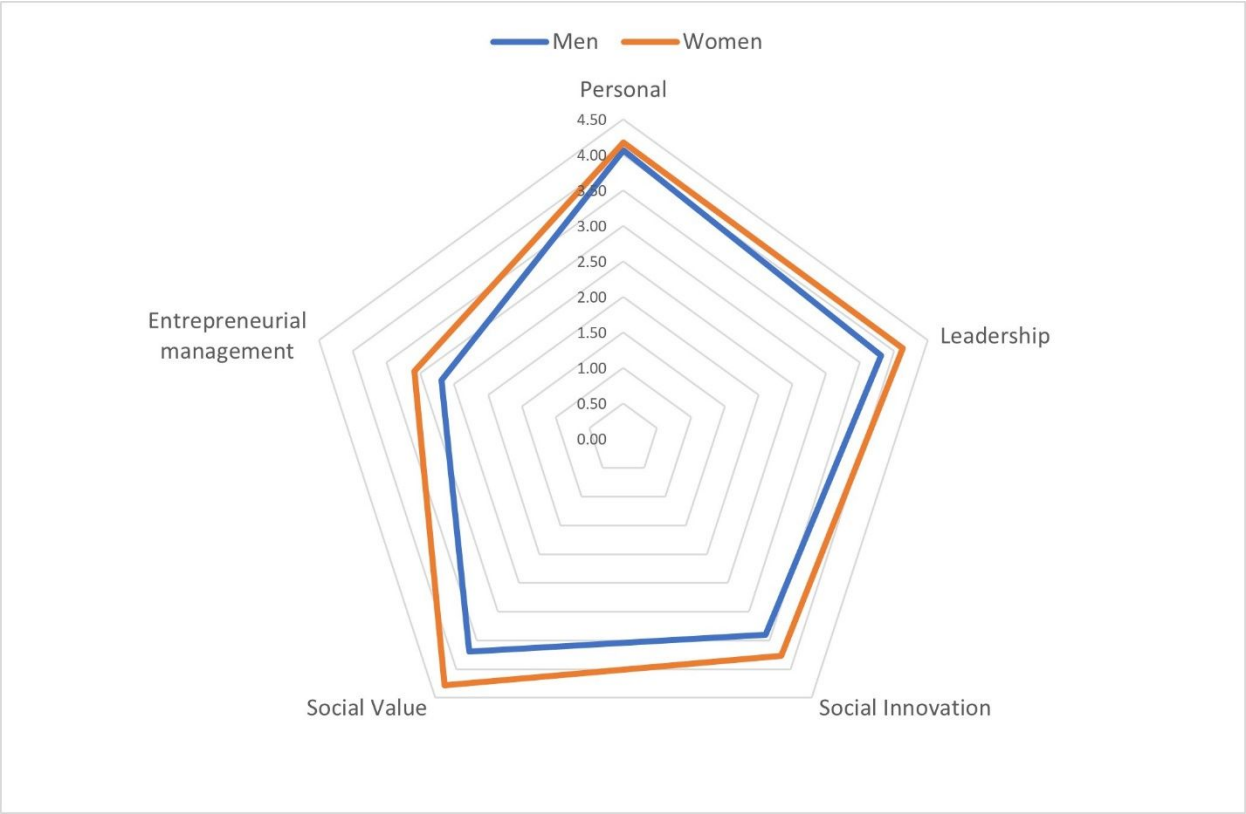
Table 3. Statistical data on the sub-competencies by gender in the disciplinary areas

	Men		*Women*		***t sample***
	M	***SD***	***M***	***SD***	

Architecture and Design					
Personal	4.06	0.76	4.17	0.75	-0.8662
Leadership	3.81	0.95	4.13	0.71	-2.3343
Social Innovation	3.40	1.18	3.77	0.99	-2.0464
Social value	3.69	1.04	4.28	0.69	-4.1251
Entrepreneurial management	2.69	1.14	3.09	0.99	-2.2349
Business					
Personal	4.28	0.72	4.21	0.67	0.9000
Leadership	4.38	0.79	4.14	0.81	1.9640
Social Innovation	3.76	1.11	3.71	0.92	0.4900
Social value	3.99	0.89	4.19	0.77	-1.8200
Entrepreneurial management	4.00	0.89	3.82	3.82	1.5300
Engineering and Science					
Personal	4.01	0.88	4.25	0.68	-1.9900
Leadership	3.81	1.00	4.30	0.85	-2.8500
Social Innovation	3.45	1.07	3.79	1.00	-1.8000
Social value	3.82	0.94	4.40	0.67	-4.1300
Entrepreneurial management	2.88	1.12	3.32	1.13	-2.5000

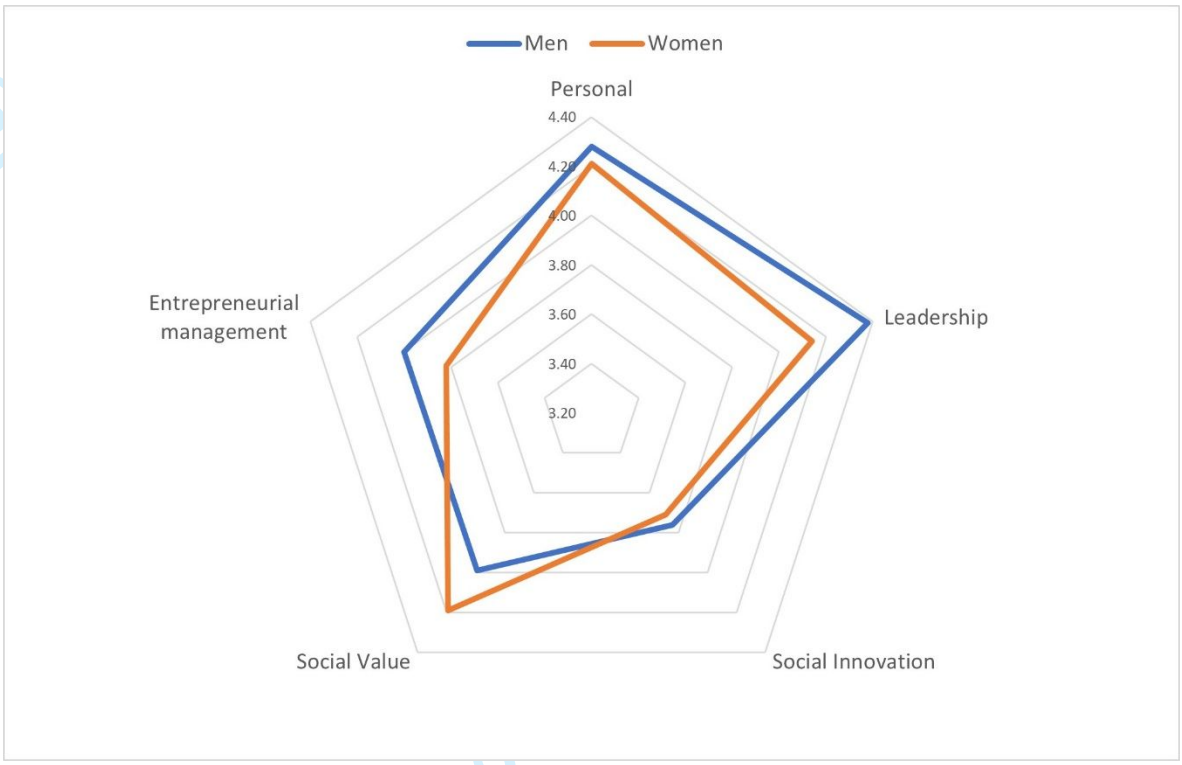
Source: Own creation

Figure 1



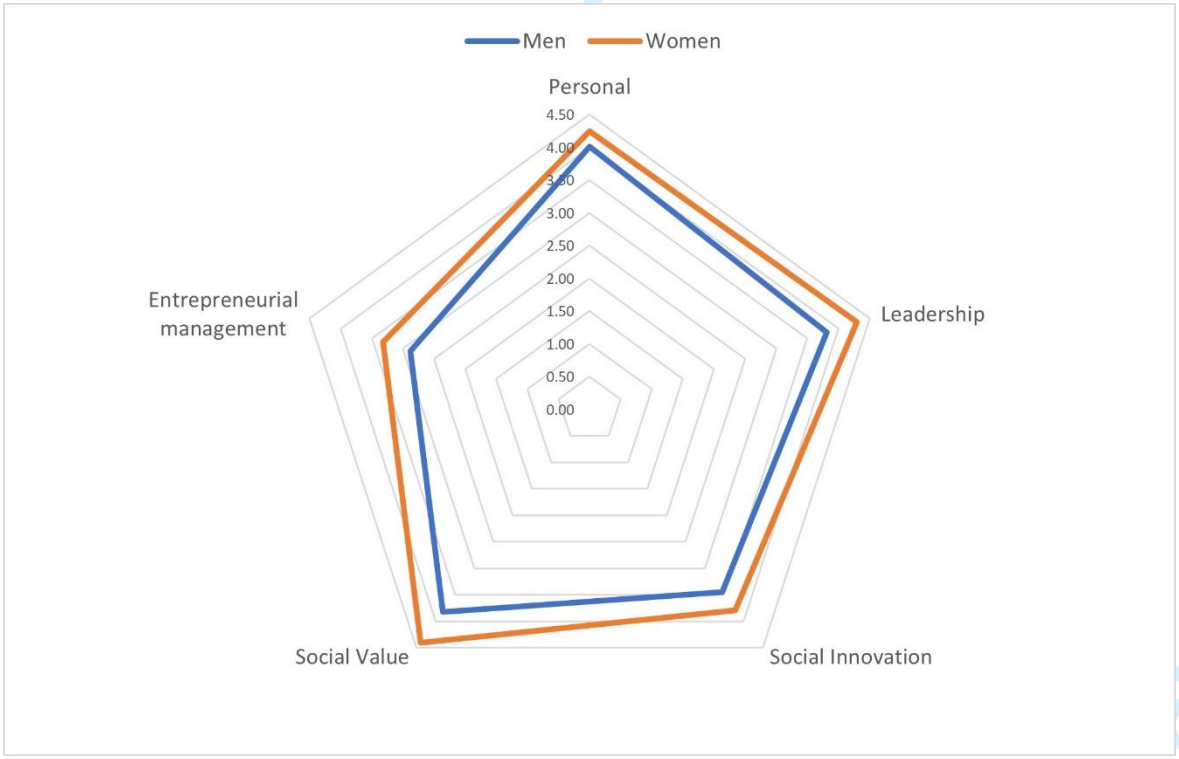
Source: Own creation

Figure 2



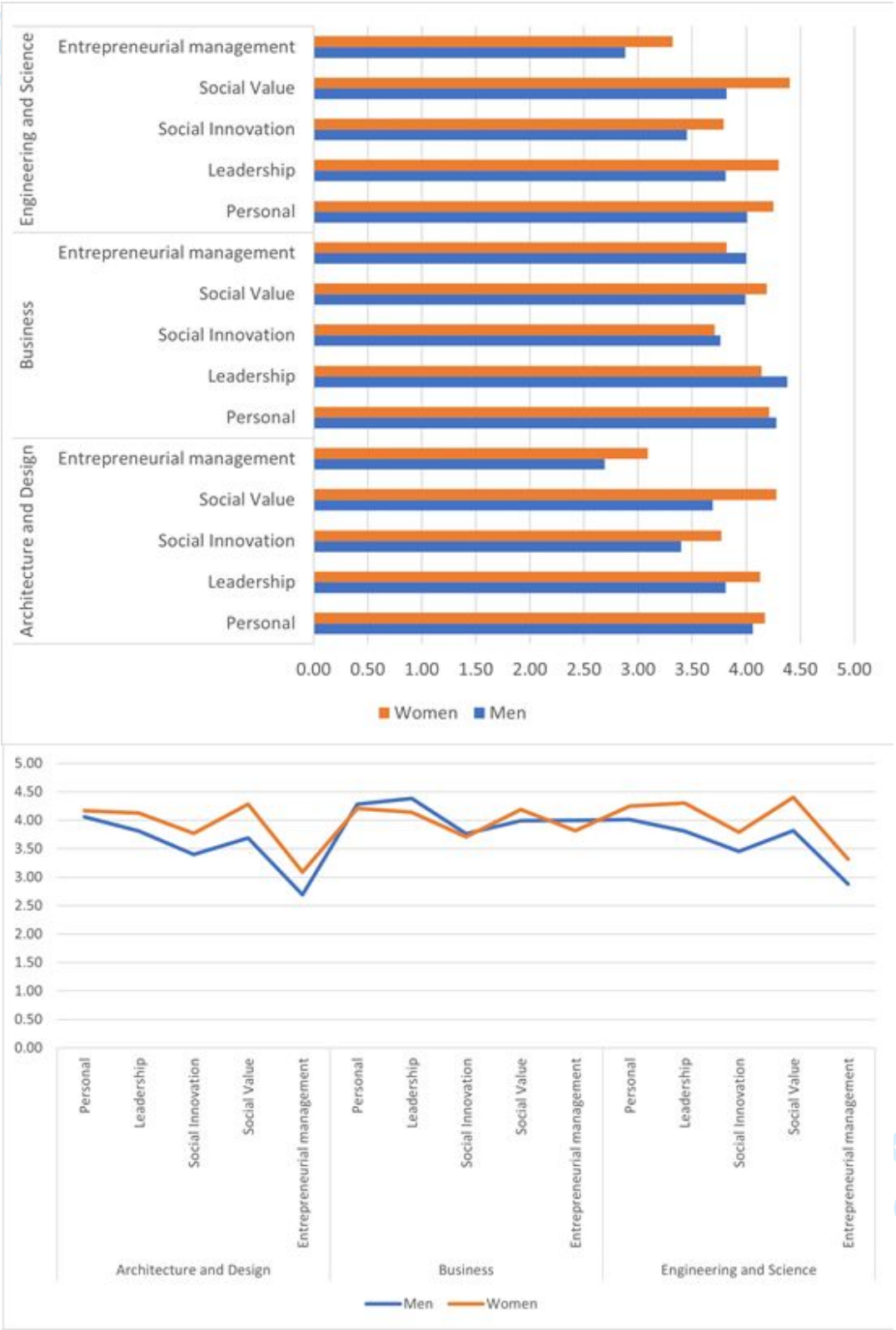
Source: Own creation

Figure 3



Source: Own creation

Figure 4



Source: Own creation

Figure 5

Source: Own creation

Attention to Evaluator's Review

*Dear evaluators, thank you very much for reviewing the article and the notes that helped us to clarify the data. We hereby state the attention that we have given to your comments, marked in **bold**. We have also used Track change in the article's document to integrate all the changes indicated by the evaluators. We remain attentive to your assessments and very grateful for your valuable help.*

Referee(s)' Comments to Author:

Referee: 1

Recommendation: Minor Revision

Comments:
The article is written in simple but academic language. It fully complies with the IMRDC structure. It should only improve the literature review, broaden the discussion, explain the practical implications and future lines of research, and design a computer graphic that compiles the findings presented.

Changes

Each suggestion is answered in the following sections:

a. **Literature review has been improved by including the 3 suggested texts**
b. **The discussion of the results was broadened by expanding a couple of paragraphs in the analysis section and adding a figure (Figure 5) to clarify the results.**
c. **Three complementary paragraphs are included in the conclusions where the practical contribution of the study, its impact on the gender gap in business areas, its relevance to the economy and its contributions to universities and teaching**
d. **Two new graphs have been added, one in the results and another in the conclusions, which seek to compile the findings**

Additional Questions:
1. Originality: Does the paper contain new and significant information adequate to justify publication?: Undoubtedly, research on social entrepreneurship is few, but emerging. Even more so when it comes to structured competencies (28 indicators) applied to university students in different careers.

However, it is necessary to explain that there are already differences in the sample axis, since in careers such as engineering there are fewer women than men.

Changes

A small paragraph has been included explaining that the statistical review carried out already includes the difference in numbers between men and women. This is something that had already been foreseen in the handling of the data.

> ***Next, significant differences between men and women in the sub-competencies in the disciplinary areas were analyzed. Although it has been identified that in some areas, the number of women is lower than men, the study has considered this as part of the statistical analysis, taking into account the data on average and not so much in terms of their overall number.***

2. Relationship to Literature: Does the paper demonstrate an adequate understanding of the relevant literature in the field and cite an appropriate range of literature sources? Is any significant work ignored?: The literature review is current and suitable. Most of the articles cited are from 2018, 2019, and 2020. However, there are several novel studies that the authors may overlook:

Entrepreneurship competencies in energy sustainability MOOCs (https://doi.org/10.1108/JEEE-03-2019-0034)

Validation of instruments to measure social entrepreneurship competence. The OpenSocialLab project (10.1109/EDUCON45650.2020.9125382)

Gamified Platform Framing for Entrepreneur Competencies (https://www.abacademies.org/articles/gamified-platform-framing-for-entrepreneur-competencies-8360.html)

Authors should review these articles in light of expanding and updating their literature review, as well as improving their discussions.

Changes

The texts suggested by the referee have been included, which can be seen in the following paragraphs:

> ***For Vázquez, Lanero, Raisene, and García (2012), social entrepreneurship in students is achieved by developing competencies***

that must be worked on within and by the universities. Studies such as Iglesias, Jambrino, and Heras (2019), or Tekin, Bas, Geckil, and Koyuncouglu (2020) show that educational institutions' roles in training social entrepreneurs are crucial for successful projects. Studies such as Beltrán Hernández-de-Galindo, Romero-Rodríguez, and Ramírez-Montoya (2019), allow us to appreciate that educational modalities such as the MOOC can be very significant when developing entrepreneurial skills. Similarly, Torres-Toukoumidis, Robles-Bykbaev, Cajamarca, Romero-Rodríguez, Chaljub, and Salgado (2019) agreed and raised the possibility of using a gamification platform for the development of entrepreneurial skills in students. Social entrepreneurs must acquire declarative, procedural, and attitudinal knowledge that provides differentiated value to society.

Additionally, this study considers the preliminary results of Romero-Rodríguez, Romero-Rodríguez, García-González, and Ramírez-Montoya (2019). They piloted three instruments in a methodological proposal to measure mastery of social entrepreneurship skills by undergraduate and graduate students through experiential learning, social innovation laboratories, and open educational resources. It also considers the validation process of instruments used to measure t social entrepreneurship competency carried out by García-González, Romero-Rodríguez, Romero-Rodríguez, and Ramírez-Montoya (2020).

These texts have been added in the references section

Beltrán Hernández-de-Galindo, M.J., Romero-Rodríguez, L.M., Ramírez-Montoya, M.S. (2019).” Entrepreneurship competencies in energy sustainability MOOCs”. Journal of Entrepreneurship in Emerging Economies, Vol. 11, No. 4, pp. 598-616.

García-González, A., Romero-Rodríguez, L.M., Romero-Rodríguez, J.M., and Ramírez-Montoya, M.S. (2020). “Validación de instrumentos para medir la competencia del emprendimiento social. El proyecto OpenSocialLab”. 2020 IEEE Global Engineering Education Conference (EDUCON), 1338-1342.

Torres-Toukoumidis, A., Robles-Bykbaev, V., Cajamarca, M., Romero-Rodríguez, L., Chaljub, J., and Salgado, J. (2019). "Gamified Platform Framing for Entrepreneur Competencies". Journal of Entrepreneurship Education, Vol. 22, No. 4

3. Methodology: Is the paper's argument built on an appropriate base of theory, concepts, or other ideas? Has the research or equivalent intellectual work on which the paper is based been well designed? Are the methods employed appropriate?: It is the application of an instrument validated and tested for internal consistency. The research questions are in line with the objectives of the work.
The methodology is suitable for a study of this nature.

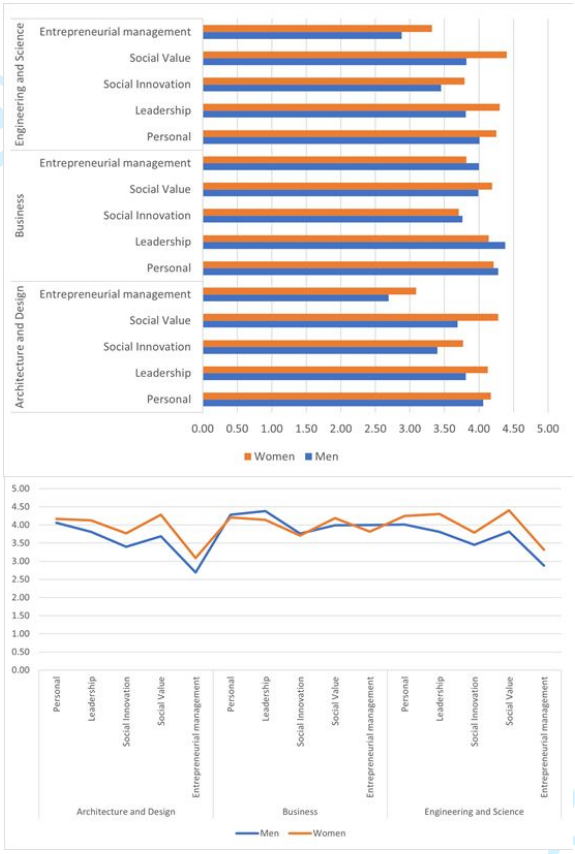
Thank you!

4. Results: Are results presented clearly and analysed appropriately? Do the conclusions adequately tie together the other elements of the paper?: The results are presented clearly and with appropriate analysis and description. It is important that in the conclusions the authors design an infographic in which all the data emerging from the dimensions studied are collected, so that the findings are much more visible and understandable.

Changes

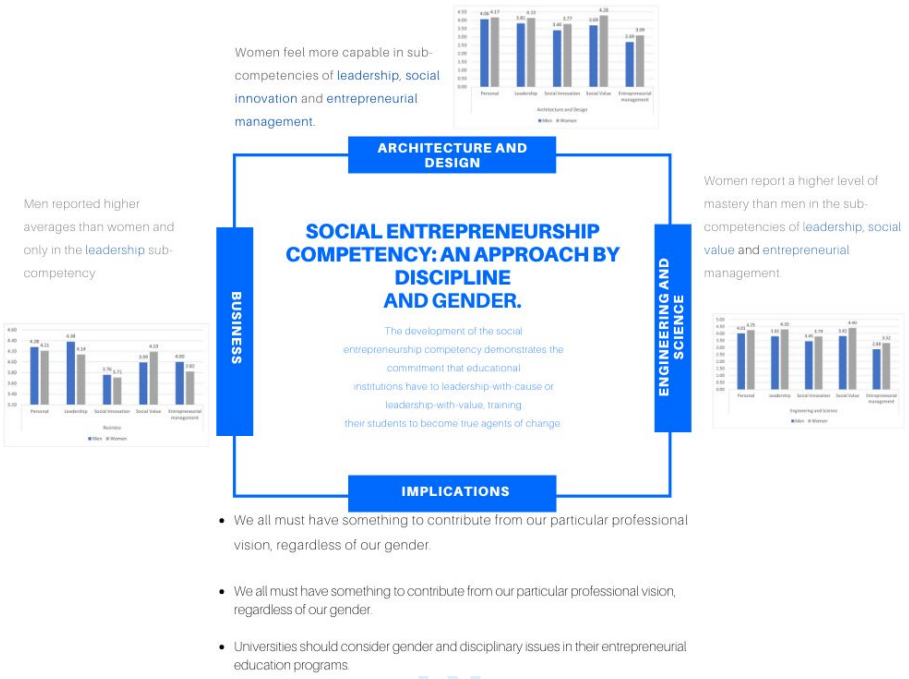
According to the suggestion, two new graphics have been added. The results section includes Figure 4, which compiles all results by area, indicator and gender.

Figure 4



Source: Own creation

Also, in the conclusions we have included Figure 5, which is an infograph that frames all the discoveries in a more general way.



5. Implications for research, practice and/or society: Does the paper identify clearly any implications for research, practice and/or society? Does the paper bridge the gap between theory and practice? How can the research be used in practice (economic and commercial impact), in teaching, to influence public policy, in research (contributing to the body of knowledge)? What is the impact upon society (influencing public attitudes, affecting quality of life)? Are these implications consistent with the findings and conclusions of the paper?: Perhaps this is the section in the manuscript that is lacking. The practical implications of the study are not clearly identified, nor are the future lines of research.

It is necessary for the authors to explain in a couple of paragraphs what the practical implications of understanding this gender gap are, what the economic implications are, and above all the implications for teaching.

Changes

Following the referee's suggestions, three complementary paragraphs are included in the conclusions where the practical contribution of the study, its impact on the gender gap in business areas, its relevance to the economy and its contributions to universities and teaching:

> ***In a practical way, this study contributes to broaden the vision of social entrepreneurship, being able to support better decision making when investing in the formation of new entrepreneurs. Also, this research***

allows us to appreciate the importance of reducing the gender gap in business training, since the findings show that, in terms of social entrepreneurship, the contributions between men and women can be equally significant or even present some advantages in the female population.

On the economic side, the findings of this research allow better decisions to be made on government investment focused on the promotion and development of entrepreneurship. Knowing the characteristics and profile of social entrepreneurs allows them to guide the resources they have to areas where they can generate better results.

As for its implications for universities and teaching, the findings can be useful for university training and for increasing the vision and formulation of government projects by young people creating new businesses. Based on this data's findings, universities can capitalize on this knowledge, establishing programs or projects that focus on developing and strengthening specific skills in disciplinary areas and considering gender. Thus, this study, applied in the Mexican reality, contributes to the literature on the roles of discipline and gender in students' perceptions of their social entrepreneurship competencies.

6. Quality of Communication: Does the paper clearly express its case, measured against the technical language of the field and the expected knowledge of the journal's readership? Has attention been paid to the clarity of expression and readability, such as sentence structure, jargon use, acronyms, etc.: The article is written in simple but academic language. It fully complies with the IMRDC structure. It should only improve the literature review, broaden the discussion, explain the practical implications and future lines of research, and design a computer graphic that compiles the findings presented.

Changes

Each suggestion is answered in the following sections:

a. **Literature review has been improved by including the 3 suggested texts**
b. **The discussion of the results was broadened by expanding a couple of paragraphs in the analysis section and adding a figure (Figure 5) to clarify the results.**
c. **Three complementary paragraphs are included in the conclusions where the practical contribution of the study, its impact on the gender gap in business areas, its relevance to the economy and its contributions to universities and teaching**

d. The suggested graph is integrated, thus compiling the findings.

Referee: 2

Recommendation: Minor Revision

Comments:
I recommend the authors to change the research questions to another section, they would go right behind the objective of the study.

Changes

The research questions have been relocated before the methodology and after mentioning the objective of the paper.

Additional Questions:

1. Originality: Does the paper contain new and significant information adequate to justify publication?: An interesting article is presented on social entrepreneurship competencies. The topic is new and in line with current guidelines on entrepreneurship.

Thank you!

2. Relationship to Literature: Does the paper demonstrate an adequate understanding of the relevant literature in the field and cite an appropriate range of literature sources? Is any significant work ignored?: The bibliography is relevant and includes a wide variety of references. Good review work has been done. Moreover, due to the novelty and originality of the subject, most of the literature cited belongs to the years 2019 and 2020. Therefore, the subject matter is completely updated.

Thank you!

3. Methodology: Is the paper's argument built on an appropriate base of theory, concepts, or other ideas? Has the research or equivalent intellectual work on which the paper is based been well designed? Are the methods employed appropriate?: The methodology is correct and follows a systematic process of data collection and analysis. The main method is quantitative and correctly specifies the instrument used and the reliability measures obtained for each dimension.

I recommend the authors to change the research questions to another section, they would go right behind the objective of the study.

Changes

The research questions have been relocated before the methodology and after mentioning the objective of the paper.

4. Results: Are results presented clearly and analysed appropriately? Do the conclusions adequately tie together the other elements of the paper?: The results are presented clearly and precisely, and include the averages and standard deviations and the differences between groups. The conclusions are exhaustive and linked to the theoretical section.

Thank you!

5. Implications for research, practice and/or society: Does the paper identify clearly any implications for research, practice and/or society? Does the paper bridge the gap between theory and practice? How can the research be used in practice (economic and commercial impact), in teaching, to influence public policy, in research (contributing to the body of knowledge)? What is the impact upon society (influencing public attitudes, affecting quality of life)? Are these implications consistent with the findings and conclusions of the paper?: The manuscript clearly and precisely sets out the implications for practice. It shows an interesting study with impact results, covering how social entrepreneurship competencies can be analysed and what the differences are between gender, age and discipline.

Thank you!

6. Quality of Communication: Does the paper clearly express its case, measured against the technical language of the field and the expected knowledge of the journal's readership? Has attention been paid to the clarity of expression and readability, such as sentence structure, jargon use, acronyms, etc.: Correct.

Thank you!