



TED Talks and entrepreneurial intention in higher education: A fsQCA approach

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ABSTRACT

Higher education institutions are aware of the importance of entrepreneurship education in reflecting real-life scenarios and increasing students' professional opportunities. Universities attempt to nurture students' entrepreneurial skills and awaken their entrepreneurial intention through specific or transversal entrepreneurship courses in a wide variety of degree programs. By using active learning techniques, such as TED Talks, students can improve their entrepreneurial intention. However, the potential of TED Talks to stimulate students' entrepreneurial skills and intention has not yet been studied from a multicausal perspective. This study contributes to the entrepreneurship literature by describing an educational experience based on active learning at a Spanish university. TED Talks were introduced to stimulate entrepreneurial intention in undergraduate students ($n = 25$) and master's degree students ($n = 32$). The impact of the experience was assessed using fuzzy-set qualitative comparative analysis (fsQCA). Given this approach, no single characteristic was found to lead to high (or low) levels of entrepreneurial intention in students. Instead, combinations of factors were found to cause this outcome. The findings show different student profiles that lead to high and low entrepreneurial intention. The findings thus confirm the multicausal nature of entrepreneurship in higher education institutions.

1. Introduction

Entrepreneurship has received much attention from scholars in recent years. Entrepreneurship itself has become an engine of economic growth (Kuratko, 2005; O'Connor, 2013) through both new venture creation and intrapreneurship within existing firms (Rasmussen & Sørheim, 2006). Due to the impact of entrepreneurship on society, governments and higher education institutions have actively promoted an entrepreneurial mindset and entrepreneurial competencies among students (Ansari et al., 2020; Martin et al., 2013). As a result, there has been growth in entrepreneurship and new venture creation curricula and specialized programs (Kuratko, 2005). Furthermore, producing entrepreneurially oriented graduates has become a major goal of universities and, ultimately, entrepreneurship education (Walter & Block, 2016).

Entrepreneurship education is "the process of providing individuals with the skills (managerial and entrepreneurial) that can influence the entrepreneurial intention" (Ismail & Sawang, 2020, p. 3). In a higher education context, universities are responsible for developing managerial and entrepreneurial skills and entrepreneurial intention. From a teaching perspective, entrepreneurship

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education encourages teachers to embrace novel pedagogies to help learners (Kakouris, 2015). For instance, entrepreneurship education has become an important way to nurture the innovative spirit of university students and enhance employability (Gao et al., 2021). For these reasons, interest in entrepreneurship education as a field of research has likewise increased in recent years (Carpenter & Wilson, 2021). Such is the trend and popularity of entrepreneurship education that some institutions are now calling themselves “entrepreneurial universities” (Cerver et al., 2020).

Rasmussen and Sørheim (2006) interpreted entrepreneurship education as: (1) learning about entrepreneurship as a phenomenon or (2) acquiring useful skills to become an entrepreneur. This paper describes an educational experience that addresses the latter dimension, namely the acquisition of useful entrepreneurial skills. Verheul et al. (2002) noted that entrepreneurship education provides students with skills related to job creation. Entrepreneurial skills such as empathy, time management, leadership, critical thinking, problem solving, and verbal communication management can encourage students’ entrepreneurial intention and improve their employability (e.g., González-Serrano et al., 2017; González-Serrano et al., 2021; Hahn et al., 2020; Karlsson & Moberg, 2013).

Perceived entrepreneurial skills reflect the confidence that individuals have about their entrepreneurship-related competencies (Liñán, 2008). Such skills may influence entrepreneurial intention (Chen et al., 1998) as well as intrapreneurship (González-Serrano et al., 2019). Students with these skills may feel more capable of creating their own business (Lu, 2021). They may also feel like innovating and creating their own products or services in existing organizations (González-Serrano et al., 2021). Research on entrepreneurship education has shown that meaningful educational experiences can significantly change students’ entrepreneurial intention (Peterman & Kennedy, 2003). However, a challenge arises because the research for practical experiences that explore the holistic potential of entrepreneurship education is scarce (Ansari et al., 2020). This challenge can be addressed through the design of educational experiences that develop the entrepreneurial skills of students and awaken their entrepreneurial intention. Experiences that apply active learning methodology are especially valuable. In such cases, students construct knowledge by being the protagonists of their own educational experience (Ismail & Sawang, 2020). This knowledge construction is not influenced by a single aspect. Instead, the outcome depends on a variety of contextual factors (Cilesiz & Greckhamer, 2020). Thus, multicausality is more applicable than linear and net effects. The multicausal approach has been extensively used to study both entrepreneurship (Kadile & Biraglia, 2022) and educational scope (Sánchez-Mena et al., 2019). Fuzzy-set qualitative comparative analysis (fsQCA) fits with such an approach, which has been recently used to understand the phenomenon of entrepreneurship education (Nikou et al., 2024), and investigate entrepreneurial attitudes (Beynon et al., 2016). Accordingly, fsQCA was used in this study to provide the understanding of the multicausal relationships occurring in the phenomenon of entrepreneurship education.

One educational resource that can boost students’ entrepreneurial intention is TED Talks. TED Talks are oral presentations that address a wide range of topics (e.g., education, technology, health, politics, and business), are staged in an appealing way, making them a popular and attractive learning material for students (Romanelli et al., 2014; Tilwani et al., 2022). TED Talks were deliberately selected for this study for several reasons. First, the education literature highlights them as an audiovisual classroom resource with a positive effect on the teaching-learning process. Second, they are inspirational and engaging. For example, the use of TED Talks in class can increase student motivation, class commitment, and the development of entrepreneurial skills (e.g., Hayward, 2017; López-Carril et al., 2020; Rubenstein, 2012; Stout, 2020). Third, the presenters encourage critical thinking, which facilitates discussion among students.

Despite the educational potential of TED Talks, no studies have specifically examined educational experiences using TED Talks to foster entrepreneurial intention in undergraduate and master’s degree students. To fill this gap, this study describes an educational experience (the “TEDexperience”) where students developed their entrepreneurial intention by viewing, reflecting upon, and producing videos inspired by TED Talks. The research builds on the pragmatic foundations of constructivism and active learning, exploring how several conditions, influence students’ entrepreneurial intention.

Among other conditions, the literature argue that gender, culture and academic discipline play a role in students’ entrepreneurial intention (Roy et al., 2022). Thus, the combination of these conditions can influence students’ entrepreneurial intention. In response to the call to action by Ansari et al. (2020) and the need to analyze entrepreneurship education from a multicausal perspective, this paper contributes to the literature in two ways. First, it presents a learning experience designed to foster entrepreneurial intention in bachelor’s and master’s degree students using TED Talks. Second, it evaluates the effect of the learning experience on students’ entrepreneurial intention from a multicausal perspective.

The results of this study have both practical and theoretical applications. In practical terms, the use of TED Talks in the classroom through active learning encourages the development of entrepreneurial skills. In addition, the TEDexperience is described so that faculty can replicate the experience. The study thus addresses the issue raised by Carpenter and Wilson (2021), who called for studies of entrepreneurship education that detail interventions carried out with students. At the theoretical level, the results show the causal complexity of entrepreneurship education. The results reveal that students’ entrepreneurial intention derives from combinations of several factors. These combinations create new possibilities for future research.

The remainder of the paper is organized as follows. Section 2 provides the theoretical foundations of the TEDexperience. Section 3 describes the three phases of the TEDexperience. Section 4 outlines the method used for data collection and analysis. Section 5 presents the main findings. Section 6 offers a discussion, also highlighting the study’s limitations and future research lines. Finally, Section 7 summarizes the conclusions, as well as the theoretical and practical implications of the study.

2. Theoretical framework

2.1. Entrepreneurship education at university

University is the last stage of the education system. It is a bridge to the labor market where students learn how to meet the demands of the professional world. One path to that goal is learning how to become an entrepreneur. According to [Drucker \(1985\)](#), entrepreneurship can be discovered through learning. Thus, key aspects for becoming an entrepreneur, such as personality traits and entrepreneurial skills, can be nurtured in the classroom ([Kuratko, 2014](#)). Unsurprisingly, therefore, improving the employability of university students and promoting the entrepreneurial mindset and entrepreneurial competencies is a core objective of universities ([Ansari et al., 2020](#); [Colombelli et al., 2022](#); [Schimperna et al., 2022](#)). The aim of universities in this regard is not only to help students innovate and find or create jobs but also to provide them with the knowledge and skills they will need for both their studies and their lives as a whole ([Ismail & Sawang, 2020](#)). Such knowledge is what academicians call entrepreneurship education, an academic discipline defined as “any pedagogical program or process of education for entrepreneurial attitudes and skills” ([Fayolle et al., 2006](#), p. 702).

[Rasmussen and Sørheim \(2006\)](#) reported that universities can contribute to entrepreneurship either indirectly, by training future candidates in entrepreneurial skills, or directly, by commercializing and transferring research as a catalyst for new ventures. Thus, universities can contribute to entrepreneurship by fostering entrepreneurship education and encouraging entrepreneurial intention among students ([Liu et al., 2019](#); [Ramadani et al., 2022](#)). [Bagis \(2022, p. 2\)](#) described entrepreneurial intention as “the ability of students to improve themselves through study and practice until they reach the limit of their ability to develop talents and skills.” [Krueger \(2017, p. 51\)](#) reported that entrepreneurial intention is the “temporal cognitive state and causally precedes entrepreneurial action”. Developing students’ entrepreneurial intention is important. According to [Lüthje and Franke \(2003\)](#), it is the strongest predictor of an individual’s entrepreneurial behavior. Student self-efficacy ([Liu et al., 2019](#)) and the climate and environment generated in the classroom have also been shown to influence students’ entrepreneurial intention and entrepreneurial mindset ([Bergmann et al., 2018](#); [Handayati et al., 2020](#)). In a similar context, the study conducted by [Duong and Vu \(2023\)](#) has highlighted the significance of establishing or facilitating an entrepreneurial ecosystem conducive to the business environment, whether through direct or indirect means, to inspire entrepreneurial attitudes and intentions. As [Le et al. \(2023\)](#) suggest, policymakers and entrepreneurship educators should prioritize the creation of teaching-learning environments conducive to the entrepreneurial ecosystem as a strategy to enhance students’ interest and intention towards entrepreneurship.

To help students enjoy successful careers, universities should develop and improve students’ perceived entrepreneurial skills in the classroom ([González-Serrano et al., 2017](#)). This set of attitudes, knowledge, and skills helps students become more responsible and enterprising ([Pepin, 2018](#)). Although the literature lacks a clear consensus as to which skills and capabilities most influence entrepreneurial intention, two characteristics of these skills appear to be beyond doubt. First, they are broad and diverse, covering, among others, creativity, self-confidence, time-management, problem-solving, empathy, extraversion, and leadership. Second, teachers can help students develop these skills in class ([Cascavilla et al., 2022](#); [González-Serrano et al., 2017](#)). Meta-analyses by [Bae et al. \(2014\)](#) and [Martin et al. \(2013\)](#) have shown a significant positive relationship between entrepreneurship education and entrepreneurial intention. Therefore, it is valuable for universities to promote educational experiences that aim directly to foster and equip students with the necessary skills, knowledge, and attitudes for entrepreneurship, facilitating their readiness for entrepreneurial endeavors ([Le et al., 2023](#); [Uysal et al., 2022](#)).

Developing educational programmes or initiatives linked to entrepreneurship education is as important as knowing how to evaluate the potential of such initiatives. Understanding how they impact on students’ education and their future entrepreneurial endeavours can help teachers to develop more effective proposals by adjusting to the cultural particularities surrounding each entrepreneurial education programme (see [Cassol et al., 2022](#); [Uysal et al., 2022](#)). In addition, studies like the one by [Le et al. \(2023\)](#) have demonstrated the significance of entrepreneurial education. The authors conducted a multi-group analysis study to illustrate the differences between students who receive entrepreneurial education and those who do not. According to this study, entrepreneurial education plays a significant moderating role in connecting variables such as entrepreneurial self-efficacy, entrepreneurial actions, and entrepreneurial intentions. Therefore, universities should prioritize entrepreneurship education, as it provides students with greater prospects for their professional career.

2.2. Culture, academic discipline and gender influencing entrepreneurial intention

Entrepreneurship can be viewed as a multicausal phenomenon ([Ansari et al., 2020](#); [Kadile & Biraglia, 2022](#)). For [Adeel et al. \(2023\)](#), the behavior associated with new venture creation can be predicted by the absence or presence of certain individual characteristics (e.g., prior knowledge, entrepreneurial alertness, entrepreneurial motivation, opportunity recognition, and entrepreneurial intention). [Nguyen and Nguyen \(2023\)](#) indicated that entrepreneurship education contributes to the development of students’ entrepreneurial capacity, which positively influences the development of students’ entrepreneurial intention.

Culture is another factor that influences entrepreneurship education ([Iakovleva et al., 2011](#); [Liñán & Chen, 2009](#)). The context surrounding students ([Lechuga-Sancho et al., 2022](#)), their country of origin, and the institutions where entrepreneurship education is provided ([Cassol et al., 2022](#); [Hoda et al., 2021](#)) all influence entrepreneurial intention. For example, [Duong’s \(2022\)](#) study found that students who had received entrepreneurial education, possessed family business backgrounds, and had prior self-employment experience were more likely to develop entrepreneurial intentions. Furthermore, the study confirmed the negative moderating effect of entrepreneurial fear of failure on the translation from entrepreneurial intention into startup behavior. Given that academic disciplines

closely related to business foster students' familiarity with these elements associated with entrepreneurial intentions, it is valuable for entrepreneurship education to introduce these entrepreneurship drivers in knowledge areas where these elements are unfamiliar to students (e.g., health, sport, politics, sociology). This can facilitate students in developing favorable attitudes towards entrepreneurship and entrepreneurial intentions, thus stimulating the entrepreneurial process, as indicated by Duong (2022).

Ismail and Sawang (2020) indicated that entrepreneurship education has not been widely adopted in academic curricula in many countries. Knowledge areas that are closely associated with entrepreneurship, such as economics, management, and business, arguably have a richer tradition of encouraging and developing university-level educational actions linked to the development of entrepreneurship education than, for example, sports science, health, and psychology. Ansari et al. (2020) reported that studies of the implementation of entrepreneurship education in non-business disciplines are still scarce. Furthermore, authors Pérez-Fernández et al. (2022) have highlighted that entrepreneurial information obtained from students' social networks positively influences entrepreneurial intentions. Recognizing that intentions are a cognitive process that arises from people's interactions with the social environment (Donaldson et al., 2021), we may observe differences between students accustomed to interacting with peers, friends, and family members connected to academic disciplines or professional backgrounds closely related to business and management and those who are not. This contrast can impact students' entrepreneurial intentions. Given these arguments, it is relevant that some of the students who participated in the TEDexperience were from the field of sports science, whereas others were from economics and business (see Section 4). Hence, the following proposition is advanced.

Proposition 1. *The academic discipline where the learning experience takes place influences students' entrepreneurial intention.*

Another key factor that has received attention in the entrepreneurship education literature is gender. Business and entrepreneurship has traditionally been male dominated (Hughes et al., 2012), with women's difficulties in accessing the necessary entrepreneurial resources due to social beliefs (Dheer et al., 2019). However, over time, the presence of women in the workplace has increased in industrialized economies (Eib & Siegert, 2019). With it, the number of women entrepreneurs has also increased (Gomes et al., 2022). Consequently, academic interest in understanding the role of gender in entrepreneurship research has increased, with a special focus on female entrepreneurship (e.g., Ojong et al., 2021; Ramadanani et al., 2022; Roy et al., 2022). As noted by Krueger et al. (2000), the study of gender can increase the understanding of entrepreneurial intention by revealing differences between men and women. Wang and Wong (2004) found that, along with experience and education level, gender is a significant factor in explaining entrepreneurial intention. More recently, Passah and Panda (2022) found that one's gender identity, a significant element in shaping one's self-perception, exerts a pronounced influence on their inclination towards entrepreneurship. In one way or another, the presence of gender stereotypes and discrimination affect women's entrepreneurial attitudes (Gomes et al., 2022). Hence, as noted by Duong and Vu (2023) and by Roy et al. (2022), there is a need for programs and policies that support female entrepreneurship. These initiatives should assist women in developing the knowledge and skills necessary to manage a new business venture, all while overcoming cultural barriers. In line with these contributions, a second proposition is advanced.

Proposition 2. *Students' gender influences their entrepreneurial intention.*

2.3. Active learning methodology and TED Talks

Active learning methods are based on constructivist pedagogy, whose foundations were laid by Piaget, Vygotski, and Dewey. Essentially, learning is conceived as an active experience, with reflection at its core (Dewey, 1933). Learners internalize an experience best when they incorporate it into their mental structures. Under this approach, learners take center stage, while educators act as learning facilitators (Ismail & Sawang, 2020). Thus, the experience takes place under a learner-centered and action-oriented approach, where interaction is crucial (Rasmussen & Sørheim, 2006) and student participation is encouraged (Lu, 2021).

Regarding the application of active learning to entrepreneurship, there is no consensus in the literature as to the most suitable learning theory. Various ways of conducting entrepreneurship education have been discussed based on very different educational theories (e.g., Kakouris & Morselli, 2020). Nevertheless, Cascavilla et al. (2022) and Colombelli et al. (2022) have argued that educational experiences based on active learning methods (e.g., experiential learning and learning by doing) are highly effective in helping students master entrepreneurial skills. In the same vein, Uysal et al. (2022) indicate that experiential learning can foster students' self-confidence and stimulate positive attitudes towards realizing a start-up idea and pursuing a career linked to entrepreneurship. In contrast, Ismail and Sawang (2020) noted the literature's lack of accounts of educational experiences based on active learning models. Therefore, research in this area is needed. Responding to this call by Ismail and Sawang (2020), this study describes an educational experience to foster entrepreneurial intention and skills based on active learning.

The literature reports the positive impact of entrepreneurship education actions based on active learning. For example, Freeman et al. (2014) analyzed 225 studies comparing traditional lectures with active learning. The results reported higher entrepreneurial intentions to students who participated in courses under an active learning model. Several studies have also shown that active learning has positive effects on student satisfaction and engagement (Bell, 2015), student employability (Lu, 2021), and teaching and learning through understanding and transfer (Kapur, 2012; Westermann & Rummel, 2012). Finally, Cascavilla et al. (2022) showed that practice-oriented rather than theory-oriented entrepreneurship courses are associated with higher levels of entrepreneurial learning.

One of the ways to develop active learning is through new digital technologies (Tilwani et al., 2022). TED Talks offer an audiovisual resource that can help inspire and move the audience (Romanelli et al., 2014). A key reason for their success is that they are free to access on the official TED Talks website (www.ted.com) or the official YouTube profile (www.youtube.com/TEDxTalks). Some TED Talks have attracted millions of views (López-Carril et al., 2020).

The TEDexperience is described step by step in Section 3. It is based on an active learning methodology. Students must (1) view and reflect on existing TED Talks that address various entrepreneurial skills, (2) create and record their own TED Talk and co-evaluate the TED Talk of a classmate, and (3) participate in a gala celebration of the 10 best TED Talks of the class, performed live as part of the development of students' entrepreneurial skills and entrepreneurial intention. There is an absence of studies that specifically examine a teaching experience that links TED Talks with entrepreneurship education for the development of entrepreneurial intention. Focusing on active learning methodology, this study specifically addresses this absence.

2.3.1. Creation of videos inspired by TED Talks

Given their popularity and ability to capture students' attention, TED Talks can be used in active learning proposals where students view and discuss their content and then design and perform their own videos inspired by the format of TED Talks (e.g., Liu, 2021; López-Carril et al., 2020; Stout, 2020). During the TED Talk delivering, students create a more meaningful learning path where they are the protagonists of the teaching-learning process. Furthermore, considering the importance of role models in fostering entrepreneurial intention (San-Martín et al., 2021), TED Talks speakers can serve as motivational references for students, encouraging them to view entrepreneurship as a viable and fulfilling career path. TED Talks also foster innovative ideas and solutions. Therefore, engaging with such content can inspire students' own creativity and ideation in the production of videos. Moreover, crafting an own video help students develop their communication skills, in terms of verbal and non-verbal language. Modulating these communication skills enhances the ability of students of storytelling, particularly in the digital environment. All these arguments lead to our third proposition.

Proposition 3. *The creation of videos inspired by TED Talks influences students' entrepreneurial intention.*

2.3.2. TED Talk co-evaluation

Linked to these educational proposals, co-assessment can be introduced to allow students to analyze the TED Talks of their peers and provide feedback. Reflection during the learning process is thus reinforced, because during the video producing students collaborate among them, thus influencing, and inspiring each other. When peers evaluate other's TED Talks, they provide constructive feedback and highlight areas for improvement. This feedback can encourage students to refine their own presentation skills and reflect about their own video. Also knowing that the video will be evaluated from some peers, can motivate students to thrive to excellence in their making. Not only motivation can emerge from peer evaluation, but also validation. Students may feel their entrepreneurial ideas are validated by externals when their peers provide feedback on their creation. This fosters an iterative process among students, which serves as a basis for a supportive community in potential entrepreneurship. Based on all the previous assumptions, the following proposition is presented.

Proposition 4. *TED Talk co-evaluation influences students' entrepreneurial intention.*

2.3.3. TED Talks and entrepreneurial skills

Despite the potential of TED Talks, reports of specific experiences where TED Talks are used for entrepreneurship education are lacking in the literature. Their possible influence on entrepreneurial intention has not been studied. Given their value and adaptability to different themes, specific educational proposals can be linked to TED Talks. Certain TED Talks can be selected by teachers, while students themselves can design and produce their own TED Talks. Whatever the chosen method, students are guided toward the development of their entrepreneurial skills and entrepreneurial intention. For instance, the entire focus while working with TED Talks in the classroom can be oriented toward presenting entrepreneurial ideas or business proposals in the format of a TED Talk. To fill the gap in the literature and contribute to the existing dialogue, this paper presents an educational experience using TED Talks, referred to here as the TEDexperience. They can also target the development of entrepreneurial skills such as leadership and critical thinking (Raffo, 2016), oral communication (Liu, 2021; Stout, 2020), listening (Al-Jarf, 2021; Tilwani et al., 2022), and familiarity with professional situations (López-Carril et al., 2020). For example, TED Talks allow students to work on emotional expression when pitching to an audience. Warnick et al. (2021) described this ability as highly valuable when persuading potential funders to provide financial capital. Considering the previous literature on the development of entrepreneurial skills through TED Talks, we propose the following.

Proposition 5. *Developing entrepreneurial skills through TED Talks influences students' entrepreneurial intention.*

2.3.4. TED Talks and students' motivation

Given that TED Talks are easily accessible online and on social media (e.g., Moodle, WhatsApp, LinkedIn, and Twitter), studies have unsurprisingly documented their educational potential (Hayward, 2017). For example, they can help create spaces for discussion and debate, motivate students (Rubenstein, 2012), and engage learners (Loya & Klemm, 2016). This means the accessibility to the TED Talks serves as a motivation for students to watch them and get inspiration from the expertised speakers. Normally, TED speakers are passionate about the idea they try to convey. When students witness this enthusiasm, they can be encouraged to find their own topic of interest and purposes. Also, TED Talks focus on an array of topics, many of them addressing solutions to societal problems. This perspective can motivate students to adopt a problem-solving mindset, and identify potential entrepreneurial opportunities. When TED Talks speakers discuss their personal success, students can also find inspiration in their careers, thereby serving as role models for their entrepreneurial journeys. These insights lead to the following proposition.

Proposition 6. *The motivation that students gain from the TEDexperience influences their entrepreneurial intention.*

3. The TEDexperience

Based on the research described in the previous section, several propositions grounded in the literature were advanced. The TEDexperience was designed to analyze these propositions. It took place between October and December 2021. It involved teaching staff and students enrolled in the *Resource Management in Sport* course in the fourth year of the undergraduate degree in *Physical Activity and Sports Science* and students enrolled in *Ethics and Corporate Social Responsibility* in the master's degree in *Corporate Finance*. Both courses were taught at the Universitat de València (Spain). The TEDexperience had three phases. These phases are detailed in the following subsections.

3.1. Phase 1: introduction and analysis of TED Talks

The TEDexperience began with a theoretical welcome and familiarization lesson. Students familiarized themselves with the objectives, contents, timing, and assignments of the educational experience. The concept and dynamics of TED Talks were introduced. The teaching staff viewed some examples of TED Talks together with the students, emphasizing the entrepreneurial skills that they sought to develop. To conclude the introductory lesson, students were given an assignment to choose three TED Talks from a shortlist of 10 talks initially selected by the teachers (see Table 1).

The process of selecting these talks by consensus, following a preview, represents a thoughtful and deliberate approach to curating educational content. The fact that teachers ensured that the core themes of the talks differed and were directly connected to current entrepreneurial skills is commendable for several reasons: diversity in perspectives, alignment with learning objectives and holistic skill development. Students received a template with a series of questions to help them analyze the content of the TED Talks from an entrepreneurship perspective (see Table 2). Students had two weeks to complete the assignment, which counted toward 30% of the TEDexperience final grade.

3.2. Phase 2: communication skills training and recording of a 3-min TED Talk

After the students submitted the first assignment, Phase 2 of the TEDexperience began with a 3-h practical workshop. In this workshop, students were given guidelines on how to make their own TED Talk. Verbal and non-verbal communication skills were developed (e.g., tone and rhythm of voice, silence, and hand gestures). Students were also given tips on preparing the structure and

Table 1

TED Talks selected for the first TEDexperience assignment.

Title	Speaker	Main theme linked to entrepreneurial skills	Number of views*
"Your body language may shape who you are"	Amy Cuddy	Body language communication	71.16 million
"10 ways to have a better conversation"	Celeste Headlee	Oratory skills	29.69 million
"A healthy economy should be designed to thrive, not grow"	Kate Raworth	Systematic thinking	5.04 million
"Inside the mind of a master procrastinator"	Tim Urban	Time management	70.88 million
"How great leaders inspire action"	Simon Sinek	Leadership	64.63 million
"How to speak so that people want to listen"	Julian Treasure	Empathy	58.55 million
"The puzzle of motivation"	Dan Pink	Motivation	30.35 million
"The battle between your present and future self"	Daniel Goldstein	Decision-making	2.83 million
"The surprising habits of original thinkers"	Adam Grant	Creativity and imagination	21.67 million
"What are the most important moral problems of our time?"	Will McAskill	Altruism and ethics	2.51 million

Note: *As of April 15, 2024 at www.ted.com.

Table 2

Questions for each of the three TED Talks chosen by the students in the first assignment of the TEDexperience.

Task statement
1. Write the title of the TED Talk you are going to analyze.
2. Write the name of the speaker of the TED Talk you are going to analyze.
3. Summarize the content of the TED Talk.
4. What main ideas does the speaker want to convey? List up to 5.
5. What professional skills do you think this TED Talk helps develop? Justify your answer.
6. Which skills/capacities covered in the TED Talk do you think can be useful for entrepreneurship? Justify your answer.
7. Do you think that this TED Talk complements the content of the course classes? To what extent and why?
8. Rate the TED Talk from 1 to 10, based on the following aspects:
- Overall assessment.
- Usefulness to develop professional skills.
- Usefulness for entrepreneurship.
- Complementarity with course content.
9. Use one sentence to highlight what you learned from the TED Talk.

Table 3

Rubric for assessment of the students' TED Talks.

Criterion	Description
Content of the TED Talk	The student demonstrates mastery of the content of the TED Talk. The student is faithful to knowledge in that area and uses specific vocabulary and examples. The TED Talk is within the maximum allowed time. The TED Talk clearly identifies the central themes/positions conveyed by the speaker about the main topic.
Structure of the TED Talk	The content of the TED Talk is well organized. There is cohesion between all parts. From the way it is structured, it has clearly been well prepared. There is a common thread that guides the audience from start to finish. The structure is clear and appropriate for the content, aiding the audience's understanding.
Verbal communication management	The register is appropriate to the topic and context of the TED Talk content. The student uses different tones of voice at the right times to highlight the most relevant parts of the talk. The pace of speech makes it easy to understand the talk (not too slow or fast). Overall, the student does not generally use crutches. Enunciation is clear, making it easy for listeners to understand the student's speech. The sound is clear and free of extraneous noises.
Non-verbal communication management	The student shows assurance and confidence when presenting. Posture is upright, weight is balanced on both feet, and the student continually address the audience with interest. The speaker makes movements with outstretched hands and arms in a relaxed position to emphasize prominent parts of the talk where appropriate. Furthermore, the speaker adopts a friendly look and a relaxed smile. Silences and pauses are used appropriately to create expectation or emphasize parts of the talk. The student's gaze is directed at the camera (spectators' eyes). Finally, the student's attire is appropriate for the context of a TED Talk and suitable for viewing via video.
Overall assessment of the TED Talk	The student gives a personal, creative, and original touch to the TED Talk that captures the audience's attention. The speaker conveys an unambiguous message, which touches and inspires the audience. The speaker does so in a friendly, authentic, and straightforward way (HAIL rule: honesty, authenticity, integrity, and love). The framing of the video is appropriate (e.g., the speaker is close to the camera and in the center of the frame). Finally, there is a clear relationship between the title of the TED Talk and its content.

Note: Each criterion was assessed according to the following scale: Poor (0); Could be improved (0.5); Acceptable (1); Good (1,5); Very good (2). The maximum score was 10 points, and the minimum was 0 points.

content of their own TED Talk (e.g., selection and hierarchy of ideas, discourse structure, and how to fit content to the length of the TED Talk). Short exercises were proposed in pairs and small groups to enable students to put into practice the proposed activities and gain self-confidence. Role-playing exercises, improvisation, and elevator pitch dynamics were used. Teachers and students provided feedback to improve the success of the teaching-learning process.

After the practical workshop, the second assignment of the TEDexperience was set. Each student had to use their mobile device to prepare and record a TED Talk of up to 3 min on an entrepreneurship-related topic and the content of the course. Students were given three weeks to upload their TED Talk in video format to the online course management system (Moodle). To assess the TED Talk, a rubric was designed based on five assessment criteria (see Table 3).

The first assignment was assessed solely by the teacher. The second assignment was assessed by co-evaluation. The process was conducted as follows: (1) the teacher assessed each student's TED Talk using the rubric; (2) a co-evaluation among the students was performed. The teachers randomly assigned a TED Talk to be assessed by each student within each group. Students then used the rubric to evaluate their classmates. The grading for this assignment was the average of the teacher and student grades, representing 70% of the final grade for the TEDexperience.

3.3. Phase 3: sharing TED Talks and holding the TEDexperience final gala

All TED Talks (both master's and bachelor's groups) were shared with students on a PDF file uploaded to the online course management system. This file contained the following information for each TED Talk: speaker's name, title of TED Talk, and link to video. Then, students were encouraged to view the work done by classmates from the other course.

Finally, as a pilot test, the *Resource Management in Sport* students held a live TEDexperience final gala. The faculty and students chose their five favorite TED Talks, resulting in 10 finalists. To increase interest among students, the faculty awarded two additional wildcards at the end of the process, giving a total of 12 competitors. Each student had to present a live TED Talk on the same topic chosen for the second assignment. The entire class attended the final gala. A three-person external panel composed of members of the university sports management faculty also attended. The final gala was hosted by one of the course teachers, introducing each participant before their talk. At the end of each TED Talk, each member of the panel provided live feedback to the speaker by imitating TV talent shows such as *American Idol*® or *Got Talent*®. To encourage the participation and involvement of all attendees, the voting system for choosing the winners was a 50% weighting of the panel's votes and a 50% weighting of students' votes. Both the panel and the students used the same rubric (see Table 3) to assess the speakers' performance so that the same criteria were used throughout the whole experience. After the last TED Talk, the panel and the students uploaded their scores using Google Forms for automatic counting of votes. The TEDexperience final gala concluded with an award ceremony, where the 12 finalists received a certificate for their participation and an extra 0.5 points toward their final grade. The winner and two runners-up received 1 extra point toward their final grade.

4. Method: fuzzy-set qualitative comparative analysis

The sample comprised 57 students from two disciplines: sports science undergraduate students ($n = 25$) and corporate finance master's students ($n = 32$). Of these individuals, 16 self-identified as women and 41 as men. For the master's students, the course was compulsory. For the undergraduates, the course was optional. Hence, the sports science students actively chose this module. At the beginning of the course, these students stated their motivation for choosing the course. For some, their interest lay in starting a business. For others, it was the most convenient option (timetable, academic curiosity, etc.). Master's students explicitly stated their interest in working in consulting or advisory firms after completing their studies. Therefore, students' interests were heterogeneous. There did not seem to be a major interest in entrepreneurship and business creation. This information was relevant when interpreting the results and forming a comprehensive idea of how entrepreneurial intention is enhanced by TED Talks.

Data were collected from October 2021 to December 2021 in two rounds using the same questionnaire for both groups. First, a pre-test was conducted in the TEDExperience introductory session. The aim of this pre-test was to ascertain students' familiarity with TED Talks and their entrepreneurial intention. Second, a post-test was conducted in the last session to evaluate possible differences in students' perceived entrepreneurial intention before and after the TEDExperience. This study was based on analysis of the post-test data because the aim was to evaluate which combinations of conditions related to the use of TED Talks raised students' entrepreneurial intention. In total, 57 valid responses were obtained for this post-test. FsQCA provided a tool to measure how the combination of different characteristics led to the outcome of interest (Ragin, 2000, 2008).

FsQCA is a suitable method to study complex, multicausal phenomena (Misangyi et al., 2017). Therefore, it is often suited to research in the social sciences (Ragin, 2008), including in the field of education (Cilesiz & Greckhamer, 2020). The origins of this method lie in sociology (Ragin, 2008). However, scholars in other disciplines have embraced its explanatory potential, applying this method to advance research in innovation (Huang & Roig-Tierno, 2016), management, and entrepreneurship (De Crescenzo et al., 2021; Lv et al., 2021; Douglas et al., 2020). In recent years, the literature has confirmed its high explanatory potential in the educational sciences (Cilesiz & Greckhamer, 2020; Elçi & Abubakar, 2021). Its methodological axioms mean that fsQCA is identified as a qualitative technique. However, values associated with conditions and the outcome must also be quantified (Snelson-Powell et al., 2016; Greckhamer et al., 2018).

FsQCA not only provides a useful tool to infer causal relationships but also reveals combinations of causal conditions (Kier & McMullen, 2020). That is, the results shed light on possible configurations of conditions leading to an outcome of interest. A configuration is a combination of causal conditions that is sufficient or necessary for the outcome to occur (Ragin, 2000). In this study, the outcome was a high degree of entrepreneurial intention in students. FsQCA therefore provided information about the causal complexity of students' entrepreneurial intention (Misangyi et al., 2017), based on the assumptions of conjunction, equifinality, and asymmetry (Kier & McMullen, 2020; Ragin, 2008). These underlying assumptions are central to the interpretation of the results.

Conjunction is the combination of characteristics that lead to the outcome. The term equifinality refers to the possible existence of different pathways to the same outcome (Rihoux & Ragin, 2009). That is, different combinations of conditions influence students' entrepreneurial intention. Asymmetry means that the presence of a condition and its absence do not necessarily have to result in opposite outcomes (Greckhamer et al., 2018; Woodside, 2013). This premise highlights the idea that, in fsQCA, the results for both the presence and absence of the outcome provide valuable insight to understand the phenomenon. They can provide a holistic understanding of the topic.

4.1. Measures

Table 4 describes and classifies each condition that is posited to lead to the presence (or absence) of students' entrepreneurial intention.

Students' entrepreneurial intention (outcome) was measured using the Entrepreneurial Intention Questionnaire (EIQ) designed by Linán and Chen (2009). This scale has been used to measure entrepreneurial intention with a sample of sports science undergraduate students (e.g., González-Serrano et al., 2017; González-Serrano et al., 2021). The other conditions were measured with dichotomous values (crisp conditions) and fuzzy conditions on a 10-point scale (Table 4). For the academic discipline condition, 0 indicated sport management and 1 indicated finance. For gender, 0 indicated men and 1 indicated women.

The analysis was carried out using the free software fs/QCA 3.0 (Ragin & Davey, 2016). To process the data using this software, all values must be expressed in the interval 0 to 1. Therefore, prior to processing the data in the software, the data were manually transformed, or calibrated, in MS Excel. Dichotomous values (i.e., crisp conditions) that only took the value 0 or 1 did not need to be

Table 4
Description and classification of outcome and conditions.

Type	Label	Description	Classification
Outcome	INT	Student's entrepreneurial intention	Fuzzy value
Condition	DIS	Academic discipline	Crisp value
Condition	GEN	Student's gender	Crisp value
Condition	REAL	Student's own TED Talk	Fuzzy value
Condition	PEER	Co-evaluation of a peer's TED Talk	Fuzzy value
Condition	SKI	Entrepreneurial skills development through TED Talks	Fuzzy value
Condition	MOT	Student's entrepreneurial motivation through TED Talks	Fuzzy value

calibrated manually. In this case, gender and academic discipline were crisp conditions. The other conditions and the outcome took fuzzy-set values and were calibrated using the direct method.

Following manual calibration, the objective was to cross-check and corroborate the measures used to assess the conditions and outcome. Most sessions were conducted face-to-face, so qualitative data were gathered from the students to complement the quantitative data. The calibrations could thus be compared. For example, the nuances of the semantic connotation of “entrepreneurial intention” in students could only be grasped in the qualitative phase. This iterative process between the respondents and the data was essential for subsequent interpretation, discussion, and conclusions. This technique advanced the triangulation of information from different sources, thus enriching and adding meaning to the analysis (Kier & McMullen, 2020).

5. Findings

Assuming asymmetry, two fsQCA models were proposed: one for the presence of the outcome, and one for its absence.

MODEL A:

Entrepreneurial intention = f(DIS, GEN, REAL, PEER, SKI, MOT).

MODEL B:

~Entrepreneurial intention = f(DIS, GEN, REAL, PEER, SKI, MOT).

The symbol (~) represents the absence of the outcome. The assumption of asymmetry implies that the presence and absence of the outcome are not attained by the inverse conditions. Instead, the results are associated with different ranks on the outcome continuum (Woodside, 2013). The presence of the outcome is associated with high entrepreneurial intention, and the absence of the outcome with low entrepreneurial intention. The following subsection presents analysis of the conditions that are necessary for both high and low entrepreneurial intention in students.

5.1. Analysis of necessary conditions

In both models, fsQCA can identify conditions that are necessary for the outcome to occur. A condition is necessary when it is present in every configuration that leads to the outcome. That is, the outcome will not occur unless this condition is present. The literature sets the consistency threshold for necessary conditions at 0.9 (Schneider & Wagemann, 2012). Table 5 presents the results of the necessity analysis. The results reveal no necessary condition for students to have either high entrepreneurial intention or low entrepreneurial intention. Following the analysis of necessary conditions, the next step is to identify the sufficient conditions that lead to high and low levels of entrepreneurial intention. This analysis is presented in the next subsection.

5.2. Analysis of sufficient conditions

The analysis of sufficient conditions in fs/QCA 3.0 software sheds light on the combinations of conditions that lead to the presence or absence of the outcome (Ragin & Davey, 2016). In other words, it provides the configurations, their consistency, and their coverage. This output is obtained from the application of Boolean algorithms to the truth table (Fiss, 2007; Greckhamer et al., 2018). The sample in this study was relatively small, so all rows in the truth table represented by real cases were kept for the results (Ragin, 2008). Once the truth table has been produced, the next step is to establish the consistency cut-off. The consistency of the model and each solution indicates the extent to which the solution perfectly reflects the relationship between sets (Ragin, 2008). High consistency indicates that

Table 5
Analysis of necessary conditions.

	Presence of the outcome (high entrepreneurial intention)		Absence of the outcome (low entrepreneurial intention)	
	Consistency	Coverage	Consistency	Coverage
DIS	0.614	0.587	0.500	0.412
GEN	0.373	0.713	0.173	0.286
REAL	0.647	0.673	0.601	0.534
PEER	0.681	0.658	0.630	0.525
SKI	0.633	0.660	0.593	0.533
MOT	0.689	0.713	0.506	0.470
~DIS	0.386	0.473	0.499	0.527
~GEN	0.627	0.468	0.827	0.532
~REAL	0.558	0.619	0.636	0.608
~PEER	0.508	0.615	0.589	0.615
~SKI	0.552	0.611	0.622	0.594
~MOT	0.508	0.548	0.684	0.631

Note: DIS (discipline); GEN (students' gender); REAL (student's own TED Talk); PEER (co-evaluation of a peer's TED Talk); SKI (development of entrepreneurial skills); MOT (student's entrepreneurial motivation).

Table 6
Analysis of sufficient conditions.

Configuration number	High student entrepreneurial intention			Low student entrepreneurial intention			
	1	2	3	4	5	6	7
DIS		●	●	○	●	●	●
GEN	●	○	●	○	○	○	●
REAL	○	○	●	○	○	●	○
PEER	○	●	●	○	○	○	●
SKI	○	●	●	○	○	●	○
MOT	○	●	●	●	○	○	○
Raw coverage	0.106	0.083	0.217	0.102	0.152	0.055	0.123
Unique coverage	0.082	0.083	0.194	0.477	0.152	0.055	0.068
Consistency	0.878	0.825	0.937	0.856	0.755	0.798	0.800
Solution coverage	0.382			0.379			
Solution consistency	0.891			0.796			

Note: Black circles indicate the presence of the condition. White circles indicate the absence of the condition. Large circles denote core conditions (present in intermediate and parsimonious solutions). Small circles denote peripheral conditions (present only in the intermediate solution). DIS (discipline); GEN (students' gender); REAL (student's own TED Talk); PEER (co-evaluation of a peer's TED Talk); SKI (development of entrepreneurial skills); MOT (student's entrepreneurial motivation).

the model explains the focal phenomenon more precisely and faithfully. According to best practices in previous research, the consistency cut-off should be at least 0.75 (Ragin, 2008). In this study, it was set at 0.82 for presence and 0.755 for absence.

The truth table was then reduced. The numbers 0 and 1 were used to indicate rows to be included in the analysis (Greckhamer et al., 2018). The software gave three solutions: complex, parsimonious, and intermediate (Ragin & Sonnett, 2005). Recent studies suggest that the intermediate and parsimonious solutions should be combined to interpret the results using core and peripheral conditions. Core conditions appear in Table 6 as large circles. These conditions are present in both the intermediate and parsimonious solutions. Peripheral conditions appear as small circles. These conditions are present only in the intermediate solution. In graphical terms, the presence of a condition is represented by a black circle. The absence of a condition is represented by an empty circle (Fiss, 2011).

In the present study, three configurations led to high entrepreneurial intention (presence of the outcome). Four configurations led to low entrepreneurial intention (absence of the outcome). In the first analysis, the model consistency was 0.891. In the second, the model consistency was 0.796. The proportional reduction in inconsistency (PRI) consistency was 0.62 for the first model and 0.45 for the second model. High PRI consistency avoids shared configurations in the solutions for presence and absence (Greckhamer et al., 2018). Table 6 also shows coverage levels. The coverage was 38.2% for high entrepreneurial intention and 37.9% for low entrepreneurial intention. The coverage represents the degree to which the conditions or combinations of conditions (configurations) explain the relationship with the outcome. Low coverage means that the configuration explains few cases, whereas high coverage means that the configuration explains many cases (Fiss, 2007). The sample consisted of 57 valid responses, so coverage was a relevant measure. The results confirm the asymmetry between high and low entrepreneurial intention. The conditions that were present and absent for each analysis were not the inverse of each other (Woodside, 2013). The following paragraphs discuss the results.

Configurations 1, 2, and 3 lead to high student entrepreneurial intention. In Configuration 1, gender is the only present condition. Creation of a TED Talk, co-assessment, entrepreneurial skills, and entrepreneurial motivation are absent. According to this configuration, female students with low scores in the creation of TED Talks, co-assessment of peers' TED Talks, entrepreneurial skills, and entrepreneurial motivation have high entrepreneurial intention. The consistency of this configuration is 0.878, and it explains 10.6% of cases.

In Configuration 2, academic discipline, co-assessment, entrepreneurial skills, and entrepreneurial motivation are present, whereas gender and the creation of TED Talks are absent. Accordingly, students' entrepreneurial intention is high in male finance students who positively perceive co-assessment, have gained entrepreneurial skills through TED Talks, and are motivated. This configuration has a consistency of 0.825 and explains 8.3% of cases.

In Configuration 3, all conditions are present. Academic discipline, gender, and entrepreneurial skills are core conditions, whereas the creation of TED Talks, co-evaluation, and motivation are peripheral conditions. Female finance students with a positive perception of creating their own TED Talks, co-evaluation, entrepreneurial skills, and entrepreneurial motivation have high entrepreneurial intention. This configuration has the highest consistency (0.937) and coverage (21.7%). It indicates that the conditions in this study robustly explain a high level of student entrepreneurial intention.

Configuration 4 indicates that students have low entrepreneurial intention when all conditions are absent except entrepreneurial motivation (present). Men who study sport management and have entrepreneurial motivation as well as low scores in the conditions of

TED Talk creation, co-evaluation, and acquisition of entrepreneurial skills have low entrepreneurial intention. The consistency of this configuration is 0.856, and it explains 10.2% of cases.

Configuration 5 indicates that when the condition of academic discipline is present and the rest of the conditions are absent, entrepreneurial intention is low. That is, men who study finance and have a low perception of the competencies acquired from creating TED Talks, co-evaluation, development of entrepreneurial skills, and entrepreneurial motivation have low entrepreneurial intention. The consistency for this configuration is 0.755, and it explains 15.2% of cases.

The complementarity of the results for presence and absence highlights the role of conjunction, asymmetry, and equifinality in fsQCA. Overall, the results lead to conclusions that contribute to the literature on entrepreneurship education. First, the TEDexperience of viewing and creating TED Talks is causally related to students' entrepreneurial intention. These results serve as a basis for reflection and dialogue with the current literature. The next section offers an extended discussion. Conclusions are then provided, highlighting the practical applications of this study for teachers, academic institutions, and policymakers.

6. Discussion

This study is based on an application of TED Talks in classroom teaching (the TEDexperience). The TEDexperience was designed using active learning methodology. Its aim was to awaken the entrepreneurial intention of higher education students. The contribution of this study is twofold. First, it presents a learning experience that used TED Talks to foster entrepreneurial intention. Second, it examines the specific outcomes of this learning experience. A sample of sports science undergraduates and corporate finance master's students at a Spanish public university was analyzed. The literature suggests that entrepreneurship is a multicausal phenomenon (Ansari et al., 2020; Kadile & Biraglia, 2022). Therefore, the analysis in this study was based on fsQCA, which offers the theoretical and methodological foundations to evaluate complex multicausal phenomena (Misangyi et al., 2017).

Concerning the first contribution, this study addressed the call of Carpenter and Wilson (2021) for studies detailing educational interventions. The study also responds to the call of Ismail and Sawang (2020) for new entrepreneurship education experiences based on active learning. Section 3 of this paper describes the TEDexperience step by step to offer a guide for future experiences that use TED Talks for entrepreneurship education. Section 3 is therefore one of the main contributions of this paper to the entrepreneurship education literature. Its implications can help harness the potential of TED Talks. This aspect is significant since, as noted by López-Carril et al. (2020), TED Talks, despite their societal popularity, have not been thoroughly examined in higher education.

Regarding the second contribution, the findings suggest that entrepreneurship can be developed through education, as argued by Drucker (1985). The classroom seems to offer an effective setting to develop entrepreneurial skills (Kuratko, 2014). The results of the TEDexperience support these ideas. The analysis performed in this study reveals seven configurations of conditions leading to high and low entrepreneurial intention.

6.1. The role of gender and academic discipline in students' entrepreneurial intentions

Two profiles of students with high entrepreneurial intention were observed. The first is female students with the absence of the other conditions considered in this study. This finding is in line with those of Passah and Panda (2022) and Wang and Wong (2004), who confirmed that gender identity plays a role in entrepreneurial intention. Our study results may represent a reversal of the pattern in a traditionally male-dominated business environment (Hughes et al., 2012). In contrast to studies indicating that women have traditionally encountered greater challenges in pursuing entrepreneurship compared to men (Dheer et al., 2019), potentially diminishing their entrepreneurial intentions, our results underscore women's increased interest in entrepreneurship. This shift could be attributed to the commitment and dedication made in recent years in Spain (especially in Spanish universities) to foster policies and training initiatives aimed at promoting female entrepreneurship, such as awards or specialized entrepreneurship programs tailored to women. This aligns with the perspective of Duong and Vu (2023), who emphasize the significance of advancing such initiatives to encourage female entrepreneurship. Thus, the findings of this study broadens future avenues for gender-based research on students' entrepreneurial intention with a greater focus on female entrepreneurship.

The second group of students with high entrepreneurial intention are finance students with entrepreneurial motivation and a positive perception of the TEDexperience (workshop, creation, and co-assessment). This result is partly explained by the research of Ansari et al. (2020), who noted that entrepreneurship knowledge is more salient to business students. Therefore, finance students are more familiar with entrepreneurial skills. Unsurprisingly, therefore, sports science students had lower entrepreneurial intention than corporate finance students. Furthermore, this finding implies that contextual aspects (Cassol et al., 2022; Lechuga-Sancho et al., 2022), such as the academic discipline, influence entrepreneurial intention. The above findings underscore the critical importance of integrating entrepreneurship education across various fields of study, particularly those unrelated to economics and business. This can serve to offset the influence that academic disciplines might exert, whether in favor of entrepreneurship (as observed in business-related fields) or otherwise (in other knowledge domains), on students' entrepreneurial intentions. Thus, a interdisciplinarity approach to entrepreneurship education can empower students to foster entrepreneurial intentions, irrespective of their academic discipline, thereby stimulating the entrepreneurial process, as advocated by Duong (2022). The results also shed light on the conditions leading to the absence of the outcome. These results complement those for the presence of the outcome.

The results for the absence of the outcome define two student profiles with low student entrepreneurial intention. The first profile is male sports science students that do not perceive the TEDexperience as positive, even though they have entrepreneurial motivation. Because of the presence of this initiative, the recommendation is to encourage the exploration of other active learning methods that could enhance their capabilities and entrepreneurial intention in the future. The second profile comprises finance students without

entrepreneurial motivation or a positive perception of the TEDexperience. In this scenario, it remains important to persist in the quest for entrepreneurial educational experiences (Ismail & Sawang, 2020) that can cater to diverse student profiles. This ensures that no student is left behind due to a misalignment between what we, as educators, offer in the classroom and the expectations and interests of our students.

6.2. The value of introducing TED Talks through active methodologies to foster entrepreneurial intention

These findings discussed above are based on the educational potential of active learning described in the three phases of the TEDexperience in Section 3 (Cascavilla et al., 2022; Colombelli et al., 2022). This potential of active learning as opposed to traditional teaching methods has been highlighted by Freeman et al. (2014), among others. The results are consistent with the studies of Rasmussen and Sørheim (2006) and Lu (2021), who reported that student interaction and participation is encouraged through specific actions such as the entrepreneurial skills workshop, co-evaluation (Phase 2 of the TEDexperience), and the final TEDexperience gala (Phase 3 of the TEDexperience).

The results of the present study coincide with those of Tilwani et al. (2022), who showed that new technologies and digital resources are useful resources in the classroom. TED Talks are an example of such resources, although their applicability can vary. Their potential arguably goes beyond watching videos to reinforce specific course content. In those cases, the pedagogical experience remains superficial. The true potential of TED Talks can be fully exploited if they are given pedagogical meaning. In the present case, this meaning was associated with entrepreneurship education. TED Talks can thus create more profound educational experiences.

The TEDexperience supports the evidence that creating a narrative thread within the framework of the course generates a motivational atmosphere for students. This argument is aligned with the claims of Morris et al. (2013), who highlight the narrative as an entrepreneurial competence. The work of González-Serrano et al. (2021) reported that the creation of a positive entrepreneurial climate is crucial to foster entrepreneurial intention. The final TEDexperience gala (Phase 3 of the TEDexperience) was perhaps the clearest example of a storytelling-based atmosphere.

The implementation of the TEDexperience and the corresponding results of the study are consistent with the findings of several authors (e.g., Hayward, 2017; López-Carril et al., 2020; Rubenstein, 2012; Stout, 2020). Specifically, the study suggests that TED Talks have great potential to inspire and motivate students to increase class engagement. Furthermore, if used meaningfully in entrepreneurship education, TED Talks are shown in this study to help with the acquisition of practical learning that can later be applied to the labor market. Accordingly, throughout the TEDexperience, students developed entrepreneurial skills such as oral communication, time management, and synthesis capacity. Mastering these skills is positive for students' professional future (Allison et al., 2022; Warnick et al., 2021). TED Talks can contribute to the employability of students, which, according to several authors (e.g., González-Serrano et al., 2017; González-Serrano et al., 2021; Hahn et al., 2020), is one of the main aims of universities.

A further contribution to the literature relates to the method. The findings reflect the multicausal nature of entrepreneurial intention, confirming what has been reported in previous studies (e.g., Ansari et al., 2020; Kadile & Biraglia, 2022). In agreement with Misangyi et al. (2017), fsQCA offers an effective method to explain why students have high or low entrepreneurial intention. In the current study, entrepreneurial intention was assessed within the university context. Accordingly, innovation, risk-taking, and proactivity were linked to a set of academic and entrepreneurial skills that endow individuals with creativity in finding solutions, flexibility, and a positive attitude toward entrepreneurship. For example, many finance students acknowledged their interest in working in consulting services. Entrepreneurial intention in a consulting position would help them innovate at work, thereby strengthening their organizational intrapreneurship. However, the empirical evidence shows that high entrepreneurial intention does not necessarily mean that students will create a new company. Instead, this intention refers to the soft skills that are applicable to any job. Indeed, for business creation to occur, the context and environmental characteristics are important. In fact, young Spaniards perceive many environmental barriers in the form of administrative and legislative constraints when starting a business (e.g., González-Serrano et al., 2017). In other words, even if students' intrinsic motivation and capabilities are based on entrepreneurial motives, through a constructivist lens, context shapes the actual business creation opportunities. In this case, the context might be limiting the potential of students' entrepreneurial intention. Therefore, real-world practical experiences such as those provided by making videos, along with the positive classroom atmosphere they bring, are important to boost the entrepreneurial intention of students, despite possible barriers.

6.3. Limitations and future research implications

This study has certain theoretical and methodological limitations. These limitations must be acknowledged to contextualize the research contribution and advance future lines of research. First, the entrepreneurial intention of students participating in the TEDexperience was analyzed broadly. A group of undergraduate students from a sports science degree program was compared with a group of students from a master's degree program in corporate finance. To complement the current research, results should be compared between bachelor's and master's groups of the same program to isolate educational stage and discover whether it exerts an influence on students' entrepreneurial intention. That is, studies should address not only inter-group analyses but also intra-group analyses. Second, it would be of interest to explore which entrepreneurial competencies should be mostly reinforced at each academic discipline and educational level. Third, the sample covered only students from one Spanish university. Also, the analysis was qualitative. Therefore, the results are not generalizable to the whole country. Despite this study's focus on in-depth cases and theory rather than sample broadness, there is an opportunity for studies to extrapolate their results with the help of quantitative techniques. Therefore, one contribution to the literature would be to replicate the experience in other Spanish universities, as well as other cultural

contexts, to assess the role of the environment on entrepreneurial intention. Given the holistic nature of TED Talks, this study is also applicable to other areas of knowledge. Finally, a replication of the TEDexperience with a larger sample than the one used in this study would be advisable to enable comparisons of outcomes.

7. Conclusions

This paper explores the educational potential of TED Talks in the university classroom to develop students' entrepreneurial skills and entrepreneurial intention. A classroom experience based on TED Talks (the TEDexperience) was designed for this purpose. The TEDexperience can be imitated by other teachers and institutions. In methodological terms, fsQCA was used to study the educational impact of TED Talks in higher education, given the suggestions in the literature that entrepreneurship is multicausal. The findings of this study confirm that the combination of several factors, such as gender, academic discipline, and the acquisition of entrepreneurial skills in the classroom, are possible causes of students' high entrepreneurial intention. In conclusion, therefore, it is important to develop enriched educational experiences that place students at the center of the teaching-learning process. TED Talks offer an accessible audiovisual resource that has proven to be a useful tool for the development of students' entrepreneurial skills and entrepreneurial intention. Therefore, the inclusion of TED Talks in future experiences in entrepreneurship education is recommended. The theoretical and practical implications of the study are now outlined.

7.1. Theoretical implications

This study makes two theoretical contributions to the literature. First, it confirms the educational potential of experiences that are based on active learning and that make students the protagonists of their learning. Under a constructivist pedagogical approach, the learning experience depends on an accumulation of stimuli that students are exposed to in the classroom. These stimuli vary greatly and depend on the activities set by the teacher, who acts as a coordinator. In the current study, the TEDexperience was designed to create a stimulating work atmosphere by harnessing the educational potential of TED Talks. It can be argued that TED Talks have heightened educational potential when they are introduced with a theoretical basis. In other words, any teaching experience benefits from an underlying learning theory. Thus, the experience must have specific intentionality resulting from reflection. Introducing TED Talks merely because they are a free, potentially attractive, and fun resource reflects a limited view. Second, this study provides further theoretical support for the view that entrepreneurship is a multicausal phenomenon. However, it is novel in that it provides this support through the use of TED Talks as a pedagogical resource. Therefore, the findings of this study open new avenues for research into the application of TED Talks in entrepreneurship education. Such research could explore the importance of different factors (e.g., gender, academic discipline, and skills) in enhancing entrepreneurial intention.

7.2. Practical implications

In terms of educational policy development, the results suggest that universities and faculties should further develop entrepreneurship education programs through active learning approaches. TED Talks offer a free and easy-to-use classroom resource that can become a pedagogical vehicle for teachers across disciplines to stimulate entrepreneurial intention in students. For example, the experience of involving students from two disciplines (sports science and corporate finance) at two academic levels (undergraduate and master's degrees) has proved successful. This type of educational experience involves a high level of involvement and coordination from teaching staff. Specifically, a commitment is required to harmonize assessment criteria, coordinate sessions, and organize the material. Despite the need for a substantial investment of resources, this approach provides positive results. First, this experience allows students to learn from each other's background, enriching the teaching-learning process. Second, students acquire entrepreneurial skills in the university setting that help them access the labor market. Ultimately, the TEDexperience offers an excellent learning opportunity for students, as reported by both groups at the end of the courses. Finally, co-evaluation also has great educational potential when students are given the responsibility of interpreting a rubric to assess the work of their classmates. During this process, they not only become aware of some of the habitual responsibilities of teachers but also learn, while improving their own work in light of the evaluations of peers.

Authors statement

All authors confirm our participation in equal proportion in the different phases of the ideation and development process of this manuscript:

Conception and design of the work. Data collection. Data analysis and interpretation. Drafting the article. Critical revision of the article. Final approval of the version to be submitted.

Student confirmation

The students provided their approval for the use of their data in this research.

Gender and diversity treatment

The authors underscore that this research has been meticulously developed with an emphasis on gender inclusivity. To accomplish this objective, gender-specific terminology has been replaced with gender-neutral language to embrace individuals of all genders.

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Declaration of competing interest

No potential conflict of interest was reported by the authors.

Data availability

Data will be made available on request.

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