

Review

Entrepreneurship as a Career Option within Education: A Critical Review of Psychological Constructs

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Abstract: Entrepreneurship is now suggested as a competence not only for starting new businesses but for employability and well-being as well. Envisaged as a career option, entrepreneurship is now a new concern in the field of career counseling psychology. Traditionally, entrepreneurship is about starting new businesses or being self-employed, but nowadays, it is also considered a competence for employability and well-being. Systematically nurtured in educational settings for more than two decades, the entrepreneurial intention of students has become a specific construct for educators to assess the impact of entrepreneurial courses. The present article seeks to critically review the psychological constructs, models, and approaches that have been used in educational settings to explain the formation of entrepreneurial intention. The majority of relevant studies has been found to be quantitative, reproducing in a positivist manner the construct of self-efficacy and the theory of reasoned action. Some constructs and approaches that have been extensively used in the career counseling discipline seem to be under-researched in the entrepreneurship education field. In this line of research, the potential contribution of sources on self-efficacy and dysfunctional career beliefs or motives should be examined. Additionally, theoretical paradigms like constructionist-narrative-based career counseling or positive psychology and other newer theories (e.g., happenstance learning theory) might be useful in investigating several influences on career decision making for entrepreneurship. Based on the current findings from the literature, a research agenda is proposed for future research in the field in order to achieve better connections between entrepreneurship and career theories and to shed light on the complex process of students' entrepreneurial career decisions.

Keywords: entrepreneurship; entrepreneurship education; career theory; career decisions; career beliefs



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1. Introduction

One of the principal objectives of the current entrepreneurship education programs has been the instillation of the entrepreneurial spirit or mindset to youth populations. As a demand in the modern knowledge-driven economy, the entrepreneurial mindset is thought to be capable of leading alumni to consider entrepreneurship among other career options during their professional life [1]. Success in this direction is often referred to as the *impact* of entrepreneurship education, which has always been a major challenge, in contrast with other disciplines, in terms of its assessment. Concurrently with the emergence of entrepreneurship education and its widespread evolution in the early 2000s [2,3], scholars employed existent models to map its impact on students and specifically its effect on entrepreneurial intention [4], which is considered an antecedent of actual entrepreneurial behavior. Nonetheless, the formation of career decisions is known to be a complex process in the context of counseling psychology [5]. Additionally, entrepreneurship has only been recently added among the career options, with underlying concerns on how entrepreneurship is meant to

be a “traditional” career, as it includes antithetical attributes [6]. Entrepreneurship can either pertain to the traditional business start-up process and self-employment or, recently, venturing within an innovative organization (i.e., intrapreneurship). But most career models have been developed for traditional, wage-based careers, thus needing to be expanded to accommodate entrepreneurship. Self-employment, for instance, is an intermediate term between the waged career and entrepreneurship. The complexity between entrepreneurship and career creates a bidirectional challenge: career models need to embrace entrepreneurship, while entrepreneurship has to adapt to the traditional careers.

The above issue has been discussed within the entrepreneurship education literature but without a consensus regarding the scope of entrepreneurial courses and the methods and the models that explain why some, and not others, will pursue entrepreneurial initiatives and when this is going to happen [7]. As expected, educators started to grope for psychological constructs from counselling psychology, such as self-efficacy, identity, motivation, and others, to explain the entrepreneurial intention of students. Self-efficacy and the Theory of Planned Behavior [8–10] were widely adopted in relevant studies by the end of the 1990s—a stream of research that was reinforced and dominates the field to date despite its inefficiencies [11]. Recently, researchers have delved into more complicated theories, such as the Socio-Cognitive Career Theory [12,13], to gain understanding of how entrepreneurship can be approached as a career option. In this regard, the research question that drives the present review is articulated as follows: “Which are the common psychological constructs and models used in educational settings to explain entrepreneurial career choice, and especially, what is missing?” This question is timely, since entrepreneurship education is observed at a crossroads [14] seeking ways for further development and expansion. It is essential to mention that entrepreneurship has been regarded in the hitherto extant literature through its different forms, i.e., as starting new businesses, as self-employment, and as intrapreneurship.

To address the previous question, a critical literature review is conducted. The aim is to assemble the frequently used psychological constructs from the extant literature and to compare them with counseling psychology developments. It is not expected that counseling psychology is ready to accommodate entrepreneurship, and reversely, that entrepreneurship is fully compatible with the traditional concept of a career. However, a comparison between them will offer insights into what is known but missing from the systematic examination of entrepreneurship as a career option in educational settings. Based on the findings from the literature review, the discussion will revolve around this issue, aiming at providing an agenda for future research in the field.

2. Context

The two basic pillars of the present research are “career” options and “entrepreneurship education”. Both of these have been areas of extensive research, the former within counseling psychology and the latter as a distinct field within entrepreneurship research.

Internationally, there is controversy around the concept of career. A career is thought to include all the occupations one performs over a lifetime [15], the sum total of a person’s work and leisure time [16], as well as the sequence of occupational and other life roles (family, community, leisure, etc.) within the context of one’s overall model of self-development [17]. Career development might be considered a subjective notion for each individual, representing a lifelong process with a focus on the dynamic sequence of educational, personal, and life roles and options [18]. Career development no longer occurs in a stable and linear world of work; rather, the notion of a career may be defined by the metaphor of an “unpredictable journey”, including several highways and byways [19].

Early theories, such as Parsons’ trait-and-factor approach and Holland’s typology, aimed primarily at the best possible matching between the individual and the work environment [20]. These approaches were tightly stuck with analyzing static personality traits and matching them with specific working environments, thus not being appropriate in assessing the subjective dimensions of individuals, including lived experiences which affect

career development [21]. Newer career counseling approaches can be potentially translated into effective interventions for various ages and populations. The richness of their epistemological underpinnings along with the variety of tools that they utilize enhance reflection, emphasize the role of context, beliefs, and role models, and help clients set meaningful goals for their future. The Socio-Cognitive Career Theory (hereafter, SCCT) [12,13], as one of the most popular and evidence-based approaches in career counseling, explains the interplay between personal and social influences in career development. More recently, emerging approaches have appeared that focus on meaning-making processes and face holistically the dynamic complexity of individuals' life and career paths [22]. Some examples are the Storied Approach in Career Counseling [23], Life Design [24], Systems Theory Framework of Career Development [25], and Chaos Theory of Careers [26].

Entrepreneurship education can be defined as a “set of behaviors, attributes and skills that allow individuals and groups to create change and innovation, and cope with, and even enjoy, higher levels of uncertainty and complexity” [27] (p. 46). This early definition led to numerous entrepreneurial courses around the world and a large number of research articles. Indicatively, 81 articles appear in the present year (January to October 2023) only in SCOPUS bibliographic database and 667 in the last decade. In UK education [28], enterprise education is discerned from entrepreneurship education, with the former adopting a wide definition of entrepreneurship (i.e., a skillset for the professional life of the individual) and the latter a narrow one that strictly refers to the creation of new businesses. More generally, three forms of entrepreneurship education are accepted as distinct: the “about” form that informs students about the phenomenon of entrepreneurship, the “for” approach which seeks to train enterprising individuals, and the “through” form which aims at affecting the attitude of students toward entrepreneurship [29,30]. Thus, the goal of entrepreneurial courses has been multipurpose, depending on the context and setting where entrepreneurship is taught. Another tendency of entrepreneurship education is to leak from the formal education to the non-formal and informal learning domains, supporting extracurricular entrepreneurship education, which is often materialized, by also embracing other stakeholders in entrepreneurial ecosystems (incubators, accelerators, and others) in the surroundings of the educational institutes [31]. As a result, entrepreneurial courses may pursue different pedagogies [32] amidst other perspectives such as andrago-heutagogical approaches [33,34] or signature pedagogies [35,36]. Therefore, entrepreneurship education is a research field under development in tandem with entrepreneurship itself. Independently of the current status of entrepreneurship education, educational policies have always proposed entrepreneurship to youth populations as a modern competence in their professional life. A characteristic example is the European EntreComp framework [37], which has been widely adopted in European education and beyond.

In the section between educational policy perspectives on entrepreneurship and educational practice within institutes, entrepreneurship as a career option [1] is considered the missing link between educational outcomes and the professional life of alumni. Nevertheless, the career decisions of students and alumni go beyond the role of educators, needing the involvement of career counselors and the counseling psychology knowledge base. In the present research, the boundaries between the two are considered through an examination of the psychological constructs that have hitherto been used in educational settings. Accordingly, the present research focuses on student populations and their intentions to consider business venturing among their career choices, independently of which specific type of venturing they might prefer, i.e., start-ups, self-employment, or intrapreneurship.

3. Materials and Methods

To address the research question posed in the introduction, a systematic literature review was conducted, followed by a critical analysis approach in studying the papers under review. For systematic literature reviews, it is suggested that authors engage in critical analysis of the literature in order to advance theory and practice [38]. The SCOPUS database was used, which is one of the major scientific repositories with more than

27 million articles [39], along with the PRISMA method [40]. Figure 1 shows the flow chart for the selection of the relevant literature in accordance with the PRISMA process.

The initially chosen search keywords, for the Boolean search, were “entrepreneurship” AND “career” AND (“entrepreneurship education” OR “entrepreneurial education” OR “enterprise education”), applying no time margins. The bibliographic search focused only on papers in English and took place in July 2023. The search yielded 464 documents.

To further refine the corpus under examination, subsequent inclusion criteria were adopted. Articles had to be:

- (i) Journal articles and chapters, i.e., peer-reviewed papers;
- (ii) Published after 2000;
- (iii) Cited more than 10 times.

Although this may imply a limitation, since some scientific contributions may have been excluded, this is an effective way to guarantee the quality of the research due to the rigorous, multistage review processes pursued in journals [41]. One hundred and thirty-eight (138) documents were derived as a result of the previous criteria application and can be found in a Supplementary File of this article.

Furthermore, for each retrieved article, the full-text version was downloaded, and the research team conducted an in-depth assessment to determine whether it was appropriate for inclusion in the study. In this stage, systematic reviews and meta-analyses were excluded ($n = 2$).

The remaining pool of documents ($n = 136$) was then critically assessed for suitability and relevance to the research question, looking for the influence of entrepreneurship education on career decision making. Special interest was given to empirical studies where robust theories or models have been employed to explore several individual, behavioral, and social influences on student’s entrepreneurial career decisions. Therefore, emphasis was placed both on customary theories pursued in entrepreneurship, such as Ajzen’s Theory of Planned Behavior [9,10], the Entrepreneurial Event Theory [42], and other dominant theories drawn from the career development and psychology field, such as Bandura’s Social Learning Theory [8] and the Social Cognitive Career Theory [12,13]. These criteria ensure that the selected studies do not only comply with the general inclusion criteria but also play an important role in answering the research question.

In this stage, a critical evaluation of the articles was carried out by the researchers’ team. Several studies that were found to be quite irrelevant to the core of our subject were excluded, that is, studies that were generally addressing entrepreneurship education, its aspects, and its outcomes, but without delving deeply into systematic psychological constructs and theories that are able to explain the career intentions of students. More specifically, they were generally evaluating the impact of entrepreneurship education programs or courses on enhancing entrepreneurial intentions or behaviors, case studies, and interventions solely relating to entrepreneurship training activities with a lack of focus on career, nascent entrepreneurs’ success stories, and so on. Thus, 73 articles were excluded.

Moreover, research papers that focused only on the relationships of a single construct or small sets of variables with entrepreneurial intention or choice but failed—in our view—to adequately represent principles of a rigorous career decision model to explain entrepreneurial choices were also exempted. In this way, 39 additional articles were excluded.

Methodologically, the present research provides a critical review in tandem with systematic review [38]. The final corpus equals 24 articles and chapters that are fully relevant to the scope of the present review. The inclusion and exclusion criteria that were employed in this study are presented in Table 1. Each publication was reviewed by two experts in career counseling and one researcher with expertise in entrepreneurship education. Any discrepancies in the evaluation were addressed via deliberation in order to ensure the reliability of the results. The process of evaluating the studies for potential inclusion in this research obeyed the guidelines for the Preferred Reporting of Items for Systematic Reviews and Meta-Analyses (PRISMA) statement [40,43], which were implemented to ensure the appropriateness and the methodological rigor of the selected studies (Figure 1).

Table 1. Inclusion and exclusion criteria.

Criterion	Inclusion	Exclusion
Period	2000–2023.	Studies outside these dates.
Type of article	Original research (journal articles and chapters), peer-reviewed papers.	Articles and chapters that are not peer-reviewed or cited less than 10 times.
Citations	Cited more than 10 times.	
Population, sample, and method	Every sample (e.g., university students, workers, nascent entrepreneurs, etc.) in an educational context. Qualitative, quantitative, and mixed methods studies describing methodology being employed in detail, enabling replication of the research.	Studies on any research strategy lacking clear methodology section, coherency, and discussion of results.
Research focus	Selected publications should have academic value and represent rigorous entrepreneurship education and/or career counseling models as a basis for analyzing relations between various psychological constructs and other individual or social factors with entrepreneurial career choice formation. Results should have implications for entrepreneurship educators, career counselors, and policy makers.	Articles with a mere focus on the impact of entrepreneurship education programs on entrepreneurial intentions were omitted, since the focus of the review is to explain one’s possible psychological influences in deliberating entrepreneurship as a career option.

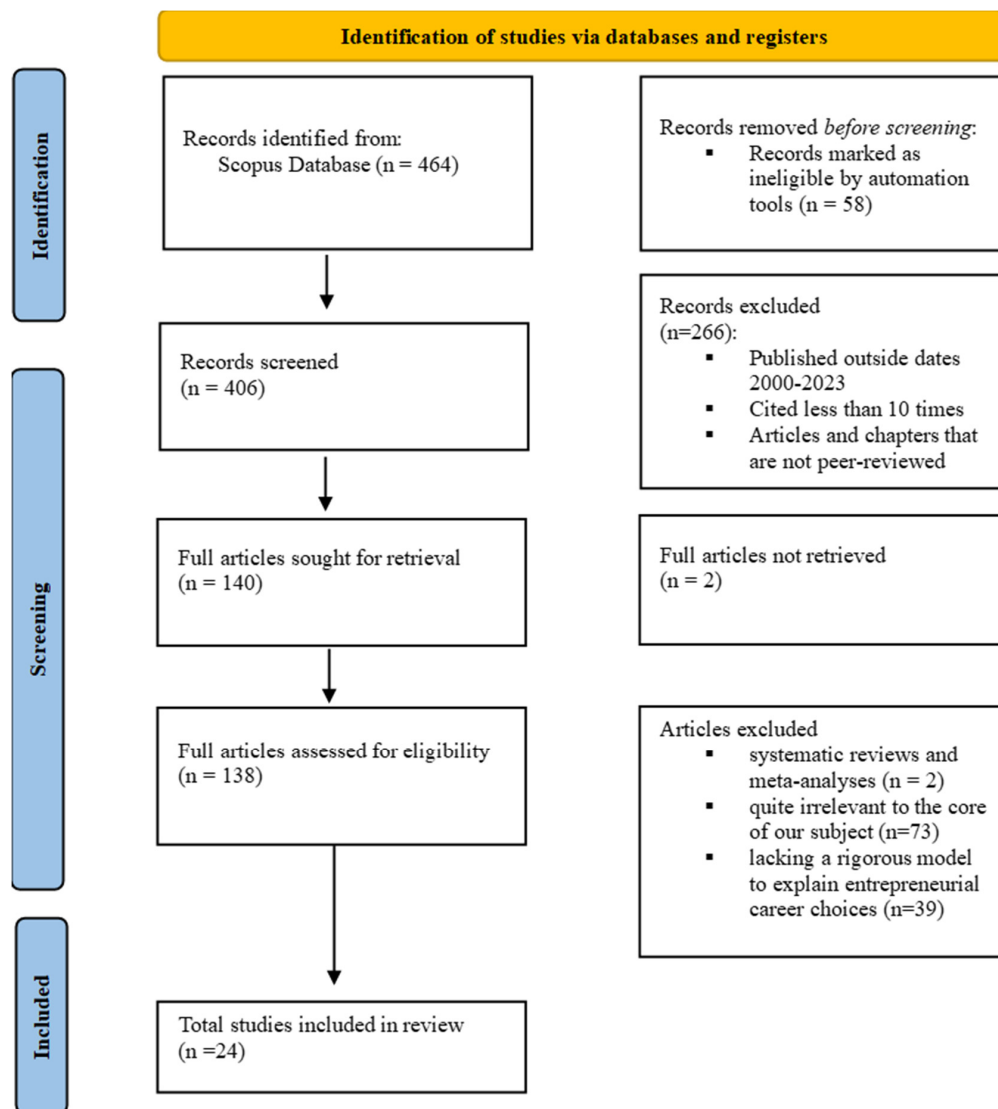


Figure 1. PRISMA flow diagram [44].

From an ethical standpoint, three main principles were adopted: reflexivity, selective inclusivity, and adequate audience-appropriate transparency. We safeguarded the above principles by using and selecting publicly accessible documents (in SCOPUS database) as well as following the PRISMA protocol guidelines [43,44]. Furthermore, the review adopted the Foucauldian critical perspective, scrutinizing the prevailing metanarratives in the literature that highlight the interplay between several psychological constructs and entrepreneurial career decision making. In this line of questioning, our critical viewpoint for the review supported the construction of connected understandings driven by the examined studies' findings. Nonetheless, the critical perspective also demands consideration of how the researchers' own contextual positioning is influencing the connected understandings that emerge from the distilled evidence. Reflection on the research works that had to be analyzed took place by adopting a collaborative strategy, setting discrete roles for each researcher, and deliberating on the contribution of each paper to the review. Attention was paid to the claims, generalizations, and implications included in the discussion regarding the main patterns found in the examined studies so that they would be in resonance with them. Finally, there were no personal, professional, or financial interests that influenced the review findings in a specific direction.

4. Results

As seen in Figure 2, an increase in the number of articles related to the subject of entrepreneurial career decision making occurred between 2017 and 2020, with three or four articles being published each year. In contrast, there is a gap in article production from 2001 to 2008. This can be understood as entrepreneurship education being widely suggested in the European higher education system in 2006 through the Oslo Agenda [45], which induced a dramatic increase in interdisciplinary entrepreneurial courses in universities.

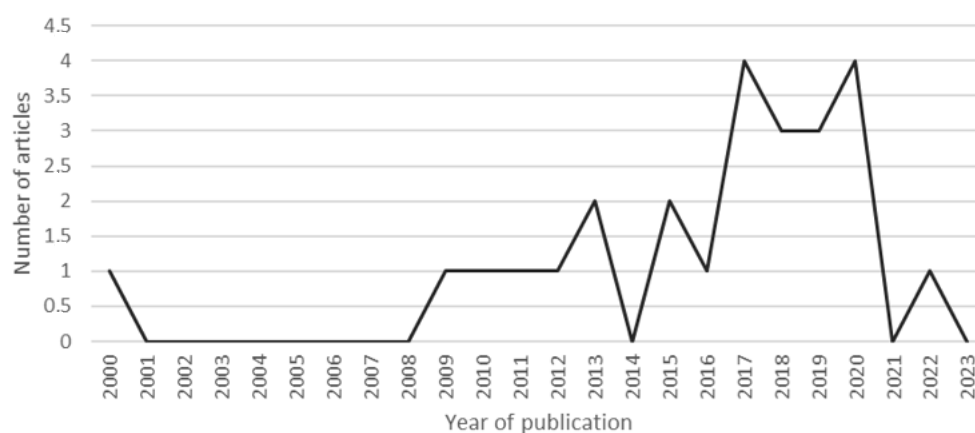


Figure 2. Number of relevant articles per year (for the period of 2000–2023) included in the review and discussed in Table 2.

Table 2 presents studies that meet our criteria for a rigorous explanation of career decision making in entrepreneurship education settings by examining psychological constructs involved in this process, i.e., research articles that rely upon comprehensive and validated approaches or models borrowed from the career counseling and development field. Twenty-four (24) articles testing hypotheses based on explanatory models of career decision making with the aim to seek for determinants of entrepreneurial intention, choice, or behavior were included. The articles were sorted by their impact and listed in descending order based on citations.

Table 2. Studies that meet the criteria for a rigorous explanation of career decision making in entrepreneurship, examining psychological constructs involved in this process.

Article	Location/ Sample	Perspective	Theoretical Rigor	Models and Constructs	Findings	Impact (Citations)
Kassean et al. (2015) [46]	USA Sample: 700 undergraduate students	Intended to explore the impact of common undergraduate entrepreneurship classroom activities on students' motivational processes related to entrepreneurial careers.	The Social Cognitive Career Theory [13] served as a robust theoretical framework for understanding the effectiveness of an entrepreneurship education program.	The study explored the correlations between educational experiences and students' entrepreneurial behavior, focusing on the relationship between experiential learning practices, entrepreneurial outcomes, self-efficacy, and intentions and the mediating effect between experiential learning and intention.	The findings showed that students' entrepreneurial self-efficacy (ESE) is a driving force in classroom activities enhancing students' intentions. The type of classroom activities that are common in entrepreneurship education negatively impacted students' ESE.	213
Henderson & Robertson (2000) [47]	United Kingdom Sample: 138 university students	Reported a survey of young adults aiming to evaluate their attitudes towards entrepreneurship as a career choice.	The article used trait theory and social development approaches to analyze entrepreneurs' common traits like risk-taking, need for achievement, independence, as well as the limitations of decision making due to limited information and external influences.	The survey examined two broad themes: (a) gauge to understand what the respondents knew about entrepreneurs, (b) the influences on young people as they pursue their career choices.	Positive entrepreneurship images are hindered by lack of role models, poor media representation, and lack of encouragement from influential actors on career decisions (e.g., teachers, career counselors).	166
Solesvik (2013) [48]	Ukraine Sample: 321 university students	Investigated the disparities in entrepreneurial intentions, motivation, and cognitive profiles among individuals enrolled in entrepreneurship education compared to those who have not participated in such courses.	The research extended insights from the Theory of Planned Behavior [9,10]. It contributed to the entrepreneurship field by examining the perceived entrepreneurial motivation profiles of students.	The study examined the relationship between entrepreneurial intentions, motivation, and cognitive profiles, including attitudes towards entrepreneurship, behavior control, and subjective norms, among individuals who have or have not participated in university enterprise education programs. It also examines mediating effects of these factors on the relationship between motivation and intentions.	Participation in enterprise programs increases entrepreneurial motivation and intentions, with attitudes, subjective norms, and perceived behavior control mediating the relationship between these factors.	163
Vanevenhoven & Liguori (2013) [49]	Over 70 countries across 400 universities Sample: over 18,000 university students	A global, longitudinal research initiative that offers data-driven insights into the impact of entrepreneurial education on (1) both the motivational processes underlying students' road to entrepreneurship and through the entrepreneurial process and (2) the process of identity transformation from student to entrepreneur.	High rigor/the research was rooted in the Social Cognitive Career Theory.	Relationships among individual inputs (academic coursework, demographics, general self-efficacy, risk taking propensity, etc.), entrepreneurial experience, prior family business exposure, barriers and support, entrepreneurial self-efficacy, outcome expectations, entrepreneurial intentions and interests, and entrepreneurial goals were examined.	The study found significant positive correlations between EIs, ESE, and EOE in the full data set, consistent across seven regional regions. Total exposure to entrepreneurship and subjective norms showed positive correlations to intentions, self-efficacy, and outcome expectations. The number of entrepreneurship course offerings correlated positively with core SCCT motivational constructs, while the number of entrepreneurship extracurricular activities was generally not related to any of these constructs.	147

Table 2. Cont.

Article	Location/ Sample	Perspective	Theoretical Rigor	Models and Constructs	Findings	Impact (Citations)
Wilson et al. (2009) [50]	USA Sample: over 5000 middle- and high school students, 1132 MBA students, and 832 alumni.	Explored the correlation between locus of control, need for achievement, and youth entrepreneurial intention, examining the impact of education on consolidating skills and career options and the relationship between gender, entrepreneurial education, self-efficacy, and entrepreneurial intentions in several youth samples.	This research tested gender differences in entrepreneurial intention and behavior formation, based on self-efficacy theory [51] and research suggesting that women have lower success expectations in various occupations.	The study analyzed the relationship between locus of control, need for achievement, entrepreneurial education, and entrepreneurial intentions, with a focus on gender's moderating effects. Models tested included entrepreneurial self-efficacy, interest, intention, and behavior and the role of gender in this relationship.	Positive relations between entrepreneurial self-efficacy, entrepreneurship interest, and actual career choice were demonstrated. Entrepreneurship education also had a positive influence on self-efficacy. This relationship appeared to be stronger for women than for men, while self-efficacy moderated the interactions between gender and education and actual entrepreneurial behavior.	117
Vodă & Florea (2019) [52]	Romania Sample: 270 university students	Investigated relationships between locus of control, need for achievement, and youth entrepreneurial intention, exploring education's impact on consolidating skills and career options.	The study used a cognitive approach based on Theory of Planned Behavior [10] and Shapero's model of the entrepreneurial event [42], focusing on the role of locus of control and need for achievement. It also examined the impact of entrepreneurial education on young generation's intentions in economics and technical fields and gender differences in business start-up probability.	The study analyzed the relationship between locus of control, need for achievement, entrepreneurial education, and entrepreneurial intentions, with a focus on gender's moderating effects. Models tested included entrepreneurial self-efficacy, interest, intention, and behavior and the role of gender in this relationship.	The study found that locus of control, need for achievement, and entrepreneurship education are crucial factors for venture creation among young students. Gender also significantly influences future business intentions, with males being more inclined to become entrepreneurs.	109
Franco et al. (2010) [53]	Eastern and Western Germany and Central Portugal Sample: 988 university students	Aimed to explore university students' entrepreneurial intentions across European regions, identify factors influencing these intentions, and identify potential regional differences.	This research used the Theory of Planned Behavior [10] to examine the relationship between various constructs and entrepreneurial intention. It used intentionality theories to understand the reasons behind individuals' career decisions [54]. It also jointly incorporated social learning [8], entrepreneurial event theory [42], and the Theory of Planned Behavior [10] to understand environmental factors influencing entrepreneurial career intention.	This cross-sectional research examined the career paths of university students from Germany and Portugal, focusing on the relationship between entrepreneurial intention, demographic profile, social background, occupational choice, and entrepreneurship education.	A small percentage of students were interested in self-employment, with most not yet making the decision. Demographic profile, social background, and entrepreneurship education have no significant impact on entrepreneurial intention, while underlying motives and regional dimension were found to be highly relevant.	98
Lanero et al. (2016) [55]	Spain Sample: 400 university students	Aimed to test a model of entrepreneurial career choice in university students based upon Social Cognitive Career Theory.	High rigor/Social Cognitive Career Theory [13] was employed to reflect the complexity of how career interests and consequent choices may be formulated.	The study examined entrepreneurial interests, outcome expectations, entrepreneurial self-efficacy, and career choice, hypothesizing that entrepreneurial interests influence career choice, and perceived self-efficacy is related to outcome expectations.	Self-efficacy had a positive impact on outcome expectations, entrepreneurial interests, and career choice, regardless of discipline, but interests did not influence career choice, while outcome expectations depended on extrinsic/intrinsic nature and academic orientation.	68

Table 2. Cont.

Article	Location/ Sample	Perspective	Theoretical Rigor	Models and Constructs	Findings	Impact (Citations)
Santos & Liguori (2020) [56]	USA Sample: 1026 university students	Aimed to investigate outcome expectations as a mediator and subjective norms as a moderator in the relationship between entrepreneurial self-efficacy and intentions.	High rigor/the research was grounded in the Social Cognitive Career Theory [13].	The study tested a two-step mediation model involving outcome expectations, subjective norms, entrepreneurial self-efficacy, and intentions. It examined the relationship between entrepreneurial intentions, motivation, and cognitive profiles, including attitudes towards entrepreneurship, perceived behavior control, and subjective norms. The authors also investigated if these factors mediate the relationship between entrepreneurial motivation and intention formation.	Entrepreneurial self-efficacy positively influenced intentions, with a partial mediating effect of entrepreneurial outcome expectations, and this relationship was consistent across different scores on subjective norms towards entrepreneurship.	64
Farooq et al. (2018) [57]	Malaysia Sample: 381 graduates	Aimed to explore the correlation between perceived social support and entrepreneurial intention, examining the mediating effect of attitude towards entrepreneurship, subjective norms, and perceived behavioral control.	Robust theoretical framework based on the tenets of the Theory of Planned Behavior [9], also employing research supporting the potential of perceived social support in explaining entrepreneurial behavior.	The study examined the influence of network social support on entrepreneurial intentions (EIs). The research model was grounded in attitudes towards entrepreneurship, subjective norms, and perceived behavioral control and their mediating effect on the social support–EIs relationship.	Perceived social support had a positive impact on entrepreneurial intention. This relationship was fully mediated by attitude towards entrepreneurship, subjective norms, and perceived behavioral control.	57
Feder & Nițu-Antonie (2017) [58]	Romania Sample: 650 university students	Aimed to understand the factors influencing entrepreneurial intentions among students attending entrepreneurial higher education studies and entrepreneurial role models.	Framework of rational action and planned behavior (TPB) reference model [9,10] was applied to this study.	The authors examined factors influencing entrepreneurial intentions using structural equation modeling, including entrepreneurial intentions, higher education training, behavioral characteristics, psychological traits, parental/social entrepreneurial role models, and gender identity.	Entrepreneurial intentions were significantly influenced by higher education training and behavioral characteristics, which also mediated the influence of psychological and environmental factors on intentions. Gender identity also played a moderating role in these effects.	49
Liguori et al. (2020) [59]	USA Sample: 320 university students	Aimed to empirically test a model of entrepreneurial intentions based upon Social Cognitive Career Theory (SCCT) constructs	High rigor/research was grounded in the Social Cognitive Career Theory [13], a quite explanatory theoretical framework regarding career decision making.	Research examined the impact of prior exposure to entrepreneurship and social support mechanisms on entrepreneurial intentions and entrepreneurial outcome expectations. The role of entrepreneurial attitude as a mediator in the relationship between entrepreneurial motivation and intention was also explored.	The study supports entrepreneurial intentions research using SCCT, confirming that exposure to entrepreneurship and social support positively influences entrepreneurial self-efficacy and outcome expectations. Entrepreneurial attitude mediates the relationship between self-efficacy and intention.	47
Fietze & Boyd (2017) [60]	Denmark Sample: 1027 university students	Aimed to describe the entrepreneurial intention (EI) applying the Theory of Planned Behavior.	Robust theoretical framework, applying Theory of Planned Behavior [10] to describe interrelationships of various constructs with entrepreneurial intention.	The Danish Global University Student Spirit Survey 2013 was analyzed using Joint Correspondence Analysis, focusing on entrepreneurial self-efficacy, attitude, subjective norm, perceived behavioral control, entrepreneurial climate, learning, university, family, social context, and preferred career path.	The majority of students preferred a career as employee (82.7%), showing a low EI. Both very high and very low EIs were related to very high/low self-efficacy and perception of entrepreneurial climate and learning.	47

Table 2. Cont.

Article	Location/ Sample	Perspective	Theoretical Rigor	Models and Constructs	Findings	Impact (Citations)
Pérez-López et al. (2019) [61]	Spain Sample: 376 university students	The Social Cognitive Model of Career Self-management [12] was utilized to analyze university students' decision making towards an entrepreneurial career and their adaptive behaviors in career management.	High rigor/used an advanced SCCT model [12]	Social Cognitive Career Theory (SCCT). Constructs: self-efficacy, outcome expectations, goals, intention, level of decidedness for entrepreneurial career. Mediators: adaptive and coping behaviors	This research confirmed the hypothesized relationships between the core cognitive personal variables of SCCT (self-efficacy, outcome expectations, and intention) and the mediating role of adaptive exploratory and coping behaviors in the relation between goals and the level of decidedness for an entrepreneurial career.	41
Georgescu & Herman (2020) [62]	Romania Sample: 617 high school and university students	Intended to explore the effect of entrepreneurial family background on the relationship between effectiveness of entrepreneurship education and entrepreneurial intention.	High rigor/a combination of renowned theories was used to explain entrepreneurial intention.	The study utilized Social Learning Theory [8] and Dyer's model [63] to analyze entrepreneurial careers, focusing on factors such as family background, entrepreneurship education effectiveness, personality traits, and intention.	Entrepreneurial family background, effectiveness of entrepreneurship education, and entrepreneurial personality traits positively influenced students' entrepreneurial intentions. The entrepreneurial family background negatively moderated the relationship between effectiveness of entrepreneurship education and entrepreneurial intention.	28
Bazan et al. (2019) [64]	Canada Sample: 479 university students	Aimed to understand the influence of the academic environment and support network on the antecedents of university students' entrepreneurial intentions and develop a methodology to investigate how EI changes over time in relation to motivational variables linked with the university ecosystem.	High rigor/Ajzen's Theory of Planned Behavior [9,10] applied as the framework of the research.	The study used a customized entrepreneurial intention model based on the Theory of Planned Behavior to understand the factors influencing entrepreneurial intentions: university's environment, attitude towards behavior, perceived behavioral control, and entrepreneurial intention.	University's ecosystem had a significant positive relation with students' perceived behavioral control. However, university's ecosystem had a positive but not significant influence on students' attitude towards the behavior of starting a new business.	27
Steinbrink et al. (2020) [65]	Germany Sample: 43 non-athletes and 67 top athletes	Intended to investigate the personality traits of top athletes practicing low-risk and high-risk sports and, based on the person–job fit theory, to compare them to the personality traits commonly associated with entrepreneurship.	High rigor/research was grounded in the Big Five Personality Theory [66] and the person–job fit theory [67] to find similarities and differences between different groups of athletes on entrepreneurial characteristics.	Big Five Personality Theory and person–job fit theory. Variables being co-examined were big five personality traits and risk propensity.	The results showed top athletes' personality traits match the detected directions for entrepreneurial intention and success. Specifically, the results of the ANOVA showed a significant difference between the groups in terms of neuroticism, extraversion, conscientiousness, and risk propensity. Unexpectedly, openness and agreeableness failed to register significance.	26
Al-Shammari & Waleed (2018) [68]	Bahrein Sample: 550 university students	Explored factors that shape entrepreneurial intention.	High rigor/relevant conceptual framework/used TPB [9,10] as theoretical framework.	Factors examined: attraction toward becoming entrepreneur, perceived behavioral control, subjective norms, social valuation of entrepreneurship, entrepreneurial education, and intention.	Students' entrepreneurial interest and behavioral control had a positive effect on their entrepreneurial intention (EI), while perceived subjective norms and social valuation also showed moderate positive relationships with EI.	26
Fellnhofer (2017) [69]	Austria, Finland, and Greece Sample: 426 participants	Aimed to highlight the potential of entrepreneurial role models in entrepreneurship education.	High rigor/integrating Ajzen's TPB [9,10], Bandura's Social Learning Theory [70], and Dyer's model of entrepreneurial careers [63].	A research model including role models, entrepreneurial perceived behavior control, and self-efficacy was tested.	Regression analysis showed that role models increase learners' entrepreneurial perceived behavioral control (PBC) by increasing their self-efficacy.	23

Table 2. Cont.

Article	Location/ Sample	Perspective	Theoretical Rigor	Models and Constructs	Findings	Impact (Citations)
Munyaradzi Ndofirepi & Rambe (2017) [71]	Zimbabwe Sample: 154 vocational education students	The study aimed to investigate the impact of entrepreneurship education exposure and precursors like attitude, subjective norms, and perceived behavioral control on the actual entrepreneurship intentions.	High rigor/(i.e., Theory of Planned Behavior [9,10] was used to analyze the relationships between entrepreneurship education and intention in university students.	Investigated students' intentions to pursue entrepreneurship careers, using a cross-sectional research design. The study analyzed core constructs like attitude, subjective norms, and perceived behavioral control as mediators.	Findings demonstrated that EE had a positive correlation with the direct determinants of EI. In addition, EE predicted all the immediate determinants of EI, except for subjective norms. However, a direct predictive effect of EE on EI, controlling for other psychological factors, was not supported.	14
Zikic & Ezzedein (2015) [72]	Canada Sample: 22 entrepreneurs	Qualitative study of 22 in-depth semi-structured interviews explored career stories of entrepreneurs in the high-tech industry. The interviews focused on motivations to become an entrepreneur, ways of learning, and developing their human and social capital.	High rigor/the research was based on Intelligent Career Theory [73] to simultaneously explore the relationships between three types of entrepreneurial career capital (i.e., motivations and human and social capital). It illustrated the interconnectedness of these three forms of capital as an important way to study entrepreneurial careers.	Based on Intelligent Career Theory, focusing on motivations and human and social capital. The research aimed to understand the development of entrepreneurial skills and knowledge.	Three types of career capital were found to shape entrepreneurial careers: motivations (knowing why), knowledge (knowing how), and relationships (knowing whom). Career in this entrepreneurial field is formed through a continuous cycle of interrelationships between these three types of capital.	14
Liao et al. (2022) [74]	Taiwan Sample: 290 university students	Aimed to examine the effect of entrepreneurial education, entrepreneurial mindset, and cognitive mediators on entrepreneurial intention and entrepreneurial competencies.	High rigor/Theory of Planned Behavior [9,10] and Social Cognitive Career Theory (SCCT) [13] were employed.	The study explored the correlations between entrepreneurial education, mindset, attitude, social norms, self-efficacy, competencies, and intention, while also examining the role of entrepreneurial passion.	Entrepreneurial education positively impacts students' attitudes towards entrepreneurship, leading to greater aspirations to become entrepreneurs. It also positively influences social norms and entrepreneurial self-efficacy.	13
Chang et al. (2018) [75]	Taiwan Sample: 279 university students	Intended to provide an in-depth understanding of the driving factors that influence cyber-entrepreneurial intentions.	Robust theoretical framework based on goal setting theory [76] and social cognitive theory [77].	The impact of cyber-entrepreneurial self-efficacy and goal commitment on cyber-entrepreneurial intentions in undergraduate entrepreneurship education was explored, as well as the influence of entrepreneurial role models on these intentions.	Goal commitment had a partial mediating effect between cyber entrepreneurial self-efficacy (CESE) and cyber entrepreneurial intention (CEI) only in the cases of students without entrepreneurial role models (ERMs). Multisample SEM revealed a significant difference between the effects of CESE on CEI in students with and without ERMs.	12
Othman & Mansor (2012) [78]	Malaysia Sample: 460 university students	Aimed to identify the factors that influence students' intention to become an entrepreneur on the basis of the Theory of Planned Behavior (TPB).	High rigor/TPB [9,10] was employed to analyze the determinants of EI.	Explored the predictive role of attitude towards entrepreneurship, subjective norms, and perceived behavioral control in terms of entrepreneurial intention.	Attitude towards entrepreneurship was the strongest factor influencing students' intention to become entrepreneurs, indicating that the TPB model can predict and explain future entrepreneurial decisions. No significant differences were found between business and non-business students in entrepreneurial intentions.	12

The selected studies appear in the following journals:

- *International Journal of Entrepreneurial Behavior and Research* (n = 4)
- *Education and Training* (n = 3)
- *Sustainability* (n = 2)
- *Career Development International* (n = 1)
- *Eurasia Journal of Mathematics, Science and Technology Education* (n = 1)
- *Global Business and Organizational Excellence* (n = 1)
- *International Entrepreneurship and Management Journal* (n = 1)
- *International Journal of Learning and Change* (n = 1)
- *International Business Management* (n = 1)
- *International Small Business Journal* (n = 1)
- *International Journal of Gender and Entrepreneurship* (n = 1)
- *Journal of Small Business Management* (n = 1)
- *Journal of Developmental Entrepreneurship* (n = 1)
- *Journal of Small Business and Entrepreneurship* (n = 1)
- *Journal of Vocational Behavior* (n = 1)
- *Journal of Entrepreneurship Education* (n = 1)
- *Problems and Perspectives in Management* (n = 1)
- *Transylvanian Review of Administrative Sciences* (n = 1)

Furthermore, Table 2 introduces details on the authors' names, the country in which the research was conducted, the perspective of each study, and notes on the theoretical rigor of the articles, along with the models or constructs being involved in each study. Finally, a brief summary of the main findings for each study is provided.

Most of the studies reviewed were conducted in the USA (n = 4) and Romania (n = 3), while Spain, Canada, Germany, Taiwan, and Malaysia follow by producing two studies each. One study was conducted in Zimbabwe, United Kingdom, Ukraine, Denmark, and Bahrein, respectively. One study was conducted in Austria, Finland, and Greece. One presented data spanning over 70 countries.

In the studies reviewed, quantitative methodologies dominate the field (n = 23). Zikic and Ezzedein [72] conducted qualitative research of 22 in-depth semi-structured interviews, exploring the career stories of entrepreneurs in the high-tech industry to examine three aspects of their career: motivations to become an entrepreneur, ways of learning, and developing their human and social capital. In their study, three types of career capital were found to shape entrepreneurial careers: motivations (knowing why), knowledge (knowing how), and relationships (knowing whom).

Selected studies mainly focused on the core factors that might be associated with and shape entrepreneurial intentions or behaviors. These studies were based on established models such as Entrepreneurial Event Theory [42], Theory of Planned Behavior [9,10], Social Cognitive Career Theory [13], Intelligent Career Theory [73], Big Five Personality Theory [66], Dyer's model of entrepreneurial careers [63], and Social Learning Theory [77]. They demonstrated a synthetic explanatory approach of entrepreneurial career decision making. Commonly used variables included perceived social support, entrepreneurial self-efficacy, perceived behavioral control, attitudes towards entrepreneurship, subjective norms, prior entrepreneurial experience and family business exposure, outcome expectations, interests, and goals. Many studies investigated the interrelations among variables drawn from the Theory of Planned Behavior such as subjective norms and perceived behavioral control [60], as well as attitudes towards entrepreneurship [47].

However, in several quite recent research papers, a profound tendency to employ the Socio-Cognitive Career Theory approach more systematically when examining entrepreneurial intentions has emerged [55,59,61]. Thus, there is a shift from the "entrepreneurial event" and the "theory of planned behavior" to SCCT. In this line of questioning, researchers examined the influence of various variables on entrepreneurial intention: entrepreneurial role models [58,69], prior exposure to entrepreneurship [59] or entrepreneurial family background [62], and entrepreneurial self-efficacy cultivated through

classroom activities [see 46]. In addition, researchers explored the role of entrepreneurial interests, outcome expectations and career choice [55,56,59], entrepreneurship education [71], adaptive exploratory and coping behaviors [61], and personality factors [65]. Expected relations between the above constructs were largely confirmed, thus suggesting the utility of SCCT in informing our insights about the process of entrepreneurial career decisions. There were a few studies integrating core elements of several explanatory models (e.g., TPB and SCCT) [53,74] that also offered a robust theoretical framework.

5. Discussion and Research Agenda

So far, approaches such as the Theory of Entrepreneurial Event [42] and Ajzen's Theory of Planned Behavior [9] have dominated the field, leading to numerous investigations on the beliefs that may shape entrepreneurial intention. The former was one of the first approaches to investigate the youth population in the US in the 1980s by employing perceived desirability, perceived feasibility, and propensity to act as the main antecedents of entrepreneurial intention. It was succeeded by TPB, where the antecedents turned out to be the attitude, the subjective norms, and the perceived behavioral control. Although these approaches are robust and well validated (the topic is over-researched in entrepreneurship journals), they no longer suffice to explain the complex phenomenon of the entrepreneurial career decision making process in view of emerging theories in career counseling.

Our literature review revealed several research findings showing strong positive relationships between socio-cognitive factors (e.g., career interests, outcome expectations, prior exposure, role models) and entrepreneurial intentions or choices. Thus, findings like these support the potential of the SCCT [12,13] to explain the inclination of university students or other populations toward entrepreneurship. A constellation of social cognitive constructs such as self-efficacy beliefs, outcome expectations, goals, interest, and social role models (e.g., family), as well as prior exposure to entrepreneurship provided strong explanations for the entrepreneurial career decision making process. Theories like SCCT seem to have great explanatory power and the capacity to capture the interplay of multiple influences in the process of entrepreneurial career decision making [59,79,80]. In this stream of inquiry, most studies use entrepreneurial intention as a core dependent variable, adhering to the aforementioned traditional approaches. Though extremely valuable, this is not considered actual entrepreneurial behavior or choice. Intention may be identified long before entrepreneurial behavior occurs, or the latter may even never occur [7]. The relationship between intention and behavior is still debated due to varying strengths, with intention explaining variance ranging between 10% and 37% [80]. From this perspective, further research should be conducted to bring additional outcome variables into prominence such as *actual entrepreneurial behavior* or *nascent entrepreneurial behaviors*.

Although extensive research within the entrepreneurial intention line of inquiry has drawn attention to the role of entrepreneurial self-efficacy [50], *sources of self-efficacy* beliefs represent an under-researched construct in the entrepreneurial career decision making field. The four main sources (i.e., mastery experiences, vicarious learning, social persuasion, and physiological and emotional states) reflect distinctive influential learning experiences, which are linked both to the environment and to the cognitive interpretation that the individual makes regarding the influences she or he receives from it [81]. Thus, these may, in turn, affect entrepreneurial intention or similar outcome constructs. Moreover, these primary learning sources could act as particular pillars of tailored career counselling and educational interventions for potential young entrepreneurs. The role of self-efficacy sources in entrepreneurial career choice is supported by recent findings, as linear multiple regression analysis has demonstrated that positive emotions and mastery experiences significantly predicted entrepreneurial intention [79]. Also, entrepreneurial passion [74] is rarely examined in educational settings.

Additionally, the role of dysfunctional career beliefs, another cognitive construct playing an important role in the career decision making process [82], remains under-researched in the entrepreneurial career decision making domain. Dysfunctional beliefs may deserve

further exploration in this discipline, as they are associated with career decision difficulties and undecidedness [83,84]. Recent research [79] has also demonstrated a moderate inverse relationship between dysfunctional beliefs and entrepreneurial intention. In the same study, a dimension of dysfunctional beliefs (“significant others”) moderated the relation between positive emotions (a source of self-efficacy) and intention. Another relevant topic lies in the study of the influence of potential entrepreneurs’ career motives (e.g., linear, spiral, transitory) on entrepreneurial career decision making [85]. Therefore, a future research avenue is proposed as follows:

RA1: Extant models for entrepreneurial intention and behavior need to be enriched with associated constructs with explanatory power, such as Bandura’s sources of self-efficacy, dysfunctional career beliefs, career motives, and others. Anticipated insights will inform educators and career counselors about the type of interventions that are needed to attain a larger impact on students’ entrepreneurial intentions and behavior.

An issue that needs further research relates to the definitions that individuals (workers or students) attribute to entrepreneurial careers. Traditional career development theories focused on linear careers, including predetermined phases and goals, always attending to persons with wage jobs. Researchers might seek to discover whether individuals consider entrepreneurship as an alternative career choice under the framework of traditional career development trajectories or if they regard this as an extremely different and unusual path that they are taught to avoid [6]. How do they perceive self-employment or intrapreneurship? How do they confront failure in each context? How do they face possibilities of starting and closing down businesses or being self-employed in some periods of their life and work for others or intrapreneuring in others? A second suggested research avenue, possibly qualitative, is as follows:

RA2: Entrepreneurship as a career option that is alternative to traditional wage careers needs to be conceptually explored. What does it mean to youth populations, to the unemployed, and to entrepreneurs? Beyond intention, how could one balance between venturing and working for others? How does this conform with the modern, rapidly changing job market? Expected insights in this direction will shed light on the concept of “career” in entrepreneurship.

Based on the emergence of new, more explanatory models to predict entrepreneurial behavior, we emphasize how emergent career development theories, models, and constructs could be involved in studying this topic. To date and to the best of our knowledge, there is a lack of *constructivist* and *social constructionist* career theories to explain career decisions for entrepreneurship. Theories like the *Storied Approach in Career Counseling* [23], *Life Design* [24], *Systems Theory Framework of Career Development* [86], and *Chaos Theory of Careers* [26] have been found to inform effective interventions in helping individuals generate meaning in careers and manage work- and life-related transitions [19,87]. This sort of theory is more aligned with the era of uncertainty and non-linear careers and have the power to assess subjective or phenomenological dimensions of individuals, including lived experiences which may affect career development [21]. Such approaches may be useful in exploring entrepreneurship as a career option, since they could offer insights on how entrepreneurial decisions are shaped through individuals’ life and career narratives, which include multiple identities and roles, meaning making, and reflections. Narratives can provide rich explanatory information on a wide range of behaviors and also assist people in projecting their possible selves into the future [22]. Only one article [72] was found that exploited the narrative approach and its potential in shaping entrepreneurial career choices through knowing “why”, “how”, and “whom”. These are extraneous to predefined learning outcome dimensions of career decision making. The limited impact of this study, along with its special focus on entrepreneurs, which needs widening, introduces another future research avenue, which is as follows:

RA3: Constructivist and social constructionist career theories need to be employed in the study of entrepreneurship as a career option, especially for youth or the unemployed. The phenomenological inquiry and its potential are expected to offer novel insights re-

garding the observed complexity of making entrepreneurial career choices in the modern, rapidly changing job market.

Moreover, a trend that may be conducive to exploring the phenomenon of entrepreneurial career decision making may relate to the trend of integrating positive resources (e.g., positive emotions, hope, courage, resilience, mindfulness, etc.) in career development examinations [88,89]. Indications of this potential are provided in a recent study [79], where positive emotions were shown to predict entrepreneurial intention. However, further investigation including many other constructs, like hope, courage, and optimism, is strongly suggested. Recent research in entrepreneurship has revealed the importance of several—positive or negative—emotional states (e.g., optimal experience, peak performance, flow, anxiety, burnout, etc.) during the start-up phase. In this line of inquiry, elements of positive psychology have to be more systematically introduced in future career studies. A relevant research avenue can be suggested as follows:

RA4: The role of emotions in entrepreneurial career decisions is under-researched. Future studies are suggested to go through positive psychology constructs and methods to reveal how emotional states intervene in entrepreneurial career decision making. This may exceed the role of education; however, it underlies the main challenge of entrepreneurship education to increase the number of potential entrepreneurs.

The present research agenda, derived through the literature review, may not exhaust the research possibilities in explaining how student populations formulate their entrepreneurial intention and increase the possibility of starting new ventures. Nevertheless, it contributes to the extant literature by suggesting overlooked approaches from counseling psychology to address, more thoroughly, entrepreneurship as a career choice.

6. Limitations

The present review is not without limitations. The current search was limited to a single bibliographic database (SCOPUS), and despite its academic esteem, this causes exclusions of various academic outlets. The Web of Science (WoS) or ERIC databases are other well-known academic resources which future research could utilize. Concerning the search keywords adopted here, they may also cause unwanted exclusions. Articles that do not explicitly refer to “entrepreneurship” and “career” in their titles, abstracts, and keywords have been omitted. This can frequently be the case in studies that examine entrepreneurial self-efficacy or intention in educational settings but which do not integrate them into the concept of career choice by simply considering them “outputs” of education. Once the present (critical) review aims to co-examine education and career theories, exclusion of such articles would be eventual in a subsequent step of the PRISMA method due to its rigor. But in future studies aiming to harvest every psychological construct used in education, this “limiting” condition can be relaxed. The present review also adopted the Foucauldian critical perspective [90], while other ethical perspectives may be followed in future studies.

Moreover, time restrictions also cause exclusions. The concept of entrepreneurship as a career appeared in the 1990s [1,63], and thus, some pieces of research has been exempted from the review corpus. This may not cause a significant bias in the results, since a few studies focused on entrepreneurship education and career before the 2000s (Figure 2), but Shapero and Sokol’s and Ajzen’s models existed long before. Thus, a longer time period could be used, especially when the topic is examined outside educational settings.

Finally, the citations criterion caused exemptions. In favor of academic impact, some research articles may have been overlooked despite their originality and importance. In addition, recent papers were also excluded, as they have not reached academic visibility and impact yet. Similar exclusions have also taken place, since we examined only articles and book chapters. Books and conference articles are known to play an important role, especially in dynamically evolving fields such as entrepreneurship and career, which are encountered here. In sum, there are limitations, but we do not believe that they alter the present findings; however, these limitations can be waived in future research.

7. Conclusions

The present critical review was based on SCOPUS database articles to examine psychological constructs and models that are commonly used in educational settings to confront entrepreneurship as a career choice of students. Twenty-four (24) articles and book chapters were found to be relevant and rigorous, illustrating the commonly used constructs of entrepreneurial self-efficacy, intention, attitudes towards entrepreneurship, perceived behavioral control, subjective norms, entrepreneurial role models, prior entrepreneurial experience, and family business exposure, as well as adaptive exploratory and coping behaviors, outcome expectations, and personality factors. Models of an “entrepreneurial event” and TPB were dominant across the studies. At the same time, there is an ongoing shift from these (over-researched) approaches to the more systematic SCCT. Nevertheless, there is a need to enrich these models with other constructs of career theory (e.g., self-efficacy sources, dysfunctional career beliefs, career motives, positive emotions, and psychological resources) to increase their explanatory power. Besides the emerging necessity to clarify the “entrepreneurial career” as a concept, alternative career theories that differentiate the dominant socio-cognitive perspective can be employed. Narrative-based approaches have received little attention in existing research examining entrepreneurship as a career choice. These theories suggest avenues for further research in the field.

In conclusion, entrepreneurship educators strive to foster an entrepreneurial mindset in students, with a tacit willingness to increase the enterprising human potential in the modern knowledge-driven society, as various educational policies mandate. But the career decision making of students challenges their roles, needing further interventions by career counselors. This will be a tangible possibility once entrepreneurship and career, loosely conceptually related so far, are better connected and researched in the context of career theories.

Supplementary Materials: The following supporting information can be downloaded at: <https://www.mdpi.com/article/10.3390/educsci14010046/s1>.

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