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Optimism, General Self-Efficacy, and Entrepreneurial Self-Efficacy Among Greek Students: Research, Management, and Society

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Abstract

This study explored the mediating role of general self-efficacy between dispositional optimism, a construct within the domains of positive emotions and entrepreneurial self-efficacy. Using a sample of 484 Greek business administration students from public universities, it was found that dispositional optimism influenced entrepreneurial self-efficacy via general self-efficacy. The findings are discussed with reference to social cognitive career theory (SCCT) conceptual framework to entrepreneurial intentions. The study contributes to and expands on the specific literature on this topic by introducing dispositional optimism as a person input variable in the first component of the conceptual framework. Implications for research and students' career counseling, entrepreneurial education programs, and social policy are also discussed.

Keywords: entrepreneurial intentions; entrepreneurial self-efficacy; social cognitive career theory; career decisions; career counseling; social policy

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1. Introduction

Entrepreneurship has been identified as planned behavior and the outcome of a cognitive process occurring when individuals seek and create additional values for both themselves and society, through entrepreneurial action or other innovative and smart endeavors (Mira-Solves et al., 2021). Entrepreneurial intentions are a key concept used to better understand why individuals embark on this process. They can be defined as the will and desire to think about starting a new business (e.g., Bird & Schjoedt, 2009), and are closely linked to actual startup activity as a career choice years later (Delanoë-Gueguen & Liñán, 2018).

Extensive research on individual entrepreneurial activity has revealed that someone's intentions to start a new business are influenced by a number of factors, including their needs, habits, beliefs, wants, and values (Lee & Wong, 2004; Liñán & Fayolle, 2015). Studies about the factors affecting students' entrepreneurial intentions have revealed four primary categories of factors: contextual (economic, social, and political environment), motivational (such as individuals' personal needs, personality traits, and characteristics), and factors related with the personal background of individuals such as family, education, and peers) (Xanthopoulou & Sahinidis, 2024). Outcomes have been inconsistent, though, because entrepreneurship is not a linear process. In the same situational circumstances, different people would act differently, suggesting that human and contextual factors play a crucial

role in entrepreneurial behavior and activity. Recent research has paved the way for considering entrepreneurship and self-employment as complex behaviors which may involve the interrelationships of various personal and environmental factors that affect the formation of entrepreneurial intentions, as well as a variety of mechanisms and conditions that are important to them (see Liguori et al., 2018).

Social cognitive career theory (SCCT—Lent et al., 1994, 2002; Lent & Brown, 2013) has been presented as a robust theoretical framework to study individual entrepreneurial activity and gain an understanding of how entrepreneurship can be approached as a career option (Kakouris et al., 2023; Liguori et al., 2018). Grounded in Bandura's work on social cognitive theory and self-efficacy (Bandura, 1982, 1986, 1989, 1991, 1997), the conceptual framework of the social cognitive career approach to entrepreneurial intentions suggests that the development of entrepreneurial self-efficacy, which is impacted by a mix of social, environmental, and internal motivations, is a key cognitive mechanism influencing entrepreneurial intentions. Therefore, there is a strong trend to use the SCCT approach to examine the factors that influence entrepreneurial intentions and behaviors (Kakouris et al., 2023). Although there are some empirical tests that support the validity of social cognitive career theory as a fruitful theoretical ground for understanding factors that affect entrepreneurial intentions (e.g., Santos & Liguori, 2019a, 2019b; Lareno et al., 2016; Liguori et al., 2019; Pérez-López et al., 2019; Santos & Liguori, 2019a, 2019b; Uysal et al., 2022), empirical studies are still scarce. Hence, more empirical tests are required for the validation of each part of the framework.

To the best of our knowledge, research initiatives are lacking in our country (namely Greece). Within this scope, we decided to study how general-self efficacy influences entrepreneurial self-efficacy. Furthermore, we expand on Liguori et al.'s (2018) approach by hypothesizing that dispositional optimism is yet another significant person-input element beyond traditional ones (such as gender or prior experience) that indirectly affects entrepreneurial self-efficacy through general self-efficacy. We then test the validity of the above hypothesis for Greek students in the discipline of business administration who consider pursuing a career in business.

2. Theoretical Background and Literature Review

2.1. Self-Efficacy, Social Cognitive Career Theory, and Entrepreneurship

Social cognitive career theory (SCCT—Lent et al., 1994, 2002) is rooted in social cognitive theory (Bandura, 1982, 1986, 1997), which holds that a person's ability to regulate his or her own cognition, motivation, affect, and action originates from personal agency mechanisms (Bandura, 1989). Self-efficacy, a key cognitive factor which enables efforts to be directed to personal, environmental, or behavioral issues, interacts with people's perceptions of the results of their actions and provides information. Additionally, it changes how they perceive their surroundings, ultimately determining their behavior. Bandura (1986) coined the term triadic reciprocality to describe the reciprocal determination based on the interaction of personal, environmental, and behavioral influences implying that people are both producers and products of their surroundings.

Self-efficacy refers to the individual's belief in his or her capacity to successfully perform a particular set of behavior to implement actions to pursue a particular goal and reach his or hers designated performance (Bandura, 1982, 1986, 1997). When presented with difficult tasks, a person with high self-efficacy demonstrates greater flexibility, perseverance, and an active search for answers. They also tend to work harder to fulfill their obligations. According to Gielnik et al. (2015), self-efficacy additionally dictates how a person views and responds to a circumstance, which is closely linked to their intended behavior.

These beliefs develop through four mechanisms: (a) mastery experiences (the individual's previous experiences in the same or similar situations) which are the most influential source of beliefs about self-efficacy, (b) vicarious experiences and learning or modeling that one acquires indirectly through observation, (c)verbal persuasions (encouragement or discouragement received from others whose opinions are valued), and (d) physical or emotional states for which individuals make judgments (Bandura, 1982, 1986, 1991).

Social cognitive career theory (SCCT), thus, is a motivational theory driven by self-efficacy, outcome expectations, and goal-directed action, which explains how people exert personal agency over their careers. It is also a well-established theory in vocational psychology, that discusses performance behaviors, choices and interests associated with schooling and careers (Lent et al., 2002). More recently, it has been used to explain career self-management (Lent & Brown, 2013). SCCT has also emerged as a valid and widely applied framework for comprehending academic and professional choice (Betz, 2008; Lent et al., 2008; Sheu & Bordon, 2017).

SCCT reconciles generalized self-efficacy, a person input variable (e.g., trait-like), and domain specific self-efficacy (e.g., state-like) as fundamental elements of cognitions. When combined with outcome expectations, they influence one-another bi-directionally over time and help individuals form career goals and intentions that allow them to exercise personal agency; that is, they help them to focus, guide, and sustain behavior). According to SCCT, individuals shape their career interests or intentions influenced by an array of contextual, individual, and behavioral factors. Specifically, personal and contextual factors affect one's self-efficacy beliefs and outcome expectations about a specific career through which, in turn, affect their career interests and lead to career preferences and performance rates. SCCT illustrates the individual motivational processes underlying intentions and behaviors across a variety of domains (i.e., academic, career decision-making, careerself-management, STEMcareer choices, computer science, work context (Sheu & Bordon, 2017).

Self-efficacy is crucial for entrepreneurs as they need to have faith in their capacity to carry out a variety of tasks, many of which are unanticipated, in a variety of circumstances (Baum & Locke, 2004). According to empirical findings within the framework of intention-based theories regarding entrepreneurial intentions, self-efficacy is one of the most relevant and consistent variables in the research field of the entrepreneurial intention and motivation. This is because of all the individual factors that might account for the entrepreneurship process (e.g., internal locus of control, personality traits, emotional intelligence, innovativeness, need for autonomy, proactive personality, etc.), self-efficacy is crucial to moving from implementation to goal intentions and then to business venture launch (Barbosa et al., 2007; Boyd & Vozikis, 1994; Shahab et al., 2019; Hsu et al., 2019; Zhao et al., 2005). Self-efficacyhas also been identified as one of the most relevant and consistent variables in the research field of entrepreneurial intention and performance (see Spagnoli et al., 2017). Thus, self-efficacy has been spotted as a key antecedent of entrepreneurial intention (e.g., Boyd & Vozikis, 1994; Carr & Sequeira, 2007; Mauer et al., 2013; Zhao et al., 2005; Wilson et al., 2007) and business performance (Forbes, 2005; Hmieleski & Baron, 2009; Hmieleski & Corbett, 2008).

Considering that entrepreneurship is a complex and risky cognitive process (Segal et al., 2005) that is additionally recognized as a career path (Liguori et al., 2019), researchers have recently adopted SCCT as a theoretical basis for explaining entrepreneurial intention. The conceptual model of entrepreneurial intentions, based on the social cognitive theory, elucidates how person-level inputs (e.g., gender and general self-efficacy) and environmental or background inputs (e.g., exposure to family businesses, previous entrepreneurial experience, prior entrepreneurial work) relate to entrepreneurial self-efficacy and expectations for entrepreneurial outcomes, both of which have an impact on entrepreneurial

intentions. The model is more relevant for explaining the non-linear and recursive processes of entrepreneurship as it posits that domain-specific self-efficacy should fully mediate the person inputs-intention relationship and interact with environmental inputs bi-directly and across time (Liguori et al., 2018). Therefore, classical intention-based entrepreneurial models, such as entrepreneurial event theory (Shapero & Sokol, 1982) or Ajzen's theory of planned behaviour (Ajzen, 1991, 2002), cannot account for reciprocal and moderating relationships, but rather explain predicted behavior via attitudinal antecedents of intentions, such as perceived attitudes toward outcomes, perceived social norms, and self-efficacy (Liguori et al., 2018).

Considering the above, compared with intention-based theories which view entrepreneurship as a cognitive process that takes place inside people's brains, SCCT offers a more comprehensive framework taking contextual and person-input elements into account. Furthermore, self-efficacy, identified as a significant antecedent and one of the catalysts of entrepreneurial intents, is a fundamental mechanism in SCCT (see above). Hence, SCCT appears to be pertinent to the context of entrepreneurial intentions.

2.2. Entrepreneurial Self-Efficacy

Self-efficacy, most likely because of its robust explanatory power, has gained the attention of entrepreneurship and academia alike. Entrepreneurial self-efficacy is a construct that specifically measures a person's belief in his or her ability to successfully launch an entrepreneurial venture (McGee et al., 2009). Within the entrepreneurial context, entrepreneurial self-efficacy is also defined as the belief that one can perform various specific tasks related to entrepreneurship (Tsai et al., 2014). Among all the individual factors that might account for the entrepreneurial process, entrepreneurial self-efficacy is one of the most relevant and consistent variables in the relevant research field (Spagnoli et al., 2017).

As entrepreneurial behavior requires the accomplishment of many demanding tasks, a person with a higher level of entrepreneurial self-efficacy will be more inclined to start and maintain an enterprise (Liguori et al., 2019). Empirical studies have examined various aspects of the social cognitive career approach to entrepreneurial intentions since its conceptual framework was presented. Specifically, these studies have examined entrepreneurial self-efficacy or entrepreneurial outcome expectations as mediator mechanisms that are important for the relationship between contextual variables or person-input and entrepreneurial intention, as well as other moderators, such as subjective norms or vicarious entrepreneurial failures. The results have indicated significant positive relationships with regard to entrepreneurial ventures (e.g., Bae et al., 2014; Santos & Liguori, 2019a, 2019b; Seo et al., 2024; Shahab et al., 2019; Uysal et al., 2022). Therefore, SCCT is especially relevant to entrepreneurial self-efficacy and serves as a helpful theoretical tool for its understanding.

2.3. General Self-Efficacy

Judge et al. (1998, p. 170) define generalized self-efficacy (GSE) as "individuals' perception of their ability to perform across a variety of different situations". According to Chen et al. (2001, 2004), GSE is an individual'svariation in the tendency to view oneself as capable of meeting task demands across a variety of situations (Chen et al., 2001, 2004). In line with Bandura's definitions of self-efficacy is task- and domain-specific (Bandura, 1997). Domain specificity is an important aspect of self-efficacy, indicating that individuals may be highly effective in one area while being ineffective in another.

Two distinct conceptualizations of self-efficacy are prevalent within the entrepreneurial literature: domain-specific self-efficacy (e.g., Zhao et al., 2005) and generalized self-efficacy (Markman et al., 2002). Advocates for the use of generalized self-efficacy in entrepreneurship argue that because entrepreneurship is a behavior that requires the accomplishment

of many demanding tasks and entrepreneurs must possess diverse skill sets in multiple domains (e.g., sales, finance, accounting, marking, human resources), we should not create a list of specific tasks related to entrepreneurial actions.

General self-efficacy has been identified as an individual factor related with the entrepreneurialbehavior (Rauch & Frese, 2007) and a construct that sufficiently predicts entrepreneurial cognition (McGee et al., 2009). The conceptual framework of the social cognitive career approach regarding entrepreneurial intentions (Liguori et al., 2018) contended that the inclusion of generalized self-efficacy is warranted in an entrepreneurial context. This way, a more thorough explanation of how entrepreneurial intentions are formed is provided and the connection between generalized self-efficacy and entrepreneurial self-efficacy is further illustrated.

The SCCT framework suggests that generalized self-efficacy and entrepreneurial self-efficacy are positively correlated. Considering Banduras' theoretical background, which presents entrepreneurial self-efficacy and generalized self-efficacy as separate constructs in entrepreneurship, each of which significantly and independently contributes to the formation of entrepreneurial intentions, researchers should distinguish between these two different forms of self-efficacy when examining the formation of entrepreneurs' intentions and behavior.

Given that the entrepreneurial process framework identifies the individual entrepreneur as a key contributor to the process (Kuratko et al., 2015); bearing in mind that several unique variables, including affective predispositions and other individual factors (i.e., gender, personality traits like the Big Five traits, alertness, innovativeness, locus of control, subjective norms, optimism, creativity, overconfidence, etc.) account for the individual choice of conceptualization and implementation of a new venture process (see Spagnoli et al., 2017); considering that the conceptual framework on the social cognitive career approach with regard to entrepreneurial intentions adopts both conceptualizations (generalized self-efficacy and entrepreneurial self-efficacy) and presents a set of propositions explaining the relationship between person-inputs on entrepreneurial self-efficacy, all of which need to be investigated, a cross-validation of the effects of generalized self-efficacy as a person-input could be helpful for acquiring a better understanding of how it affects entrepreneurial self-efficacy. Additionally, as career optimism attitude will likely influence one's expectations for engaging in future actions (including entrepreneurial ones) (Peterson & Seligman, 2004), it would appear appropriate to consider it as one of the person-level input variables.

2.4. Positive Emotions: Optimism

Positive psychology is the scientific study of the merits and internal powers of character which strengthen individuals and help societies to prosper (Fredrickson et al., 2000, 2004). Prior research has shown the importance of perennial values, psychosocial powers, skills, and emotions such as courage, optimism, perseverance, hope, vocational adaptability, endurance, joy, altruism, etc. The current research trend, which is consistent with the shift toward positive psychology, focuses on affective predispositions, goodwill, and positive emotions. Generally, over the past 20 years, positive psychology scientists have studied a number of fundamental topics such as happiness, life satisfaction, subjective well-being, compassion, flourishing, motivation, positivity, sustainable happiness, gratitude, mindfulness, creativity, and humor. This is also true for Greek researchers. This body of research has indicated the beneficial effects of affective predispositions, goodwill, and positive emotions on human behavior (Malikiosi-Loizos, 2020).

As anticipated, this tendency provided a boost to research on the relationship and impact of various positive emotions, particularly optimism, on key career development

variables in both Greek and international contexts. It also provided evidence on how optimism significantly affects high school students' career goals, career decision-making, and career indecision (Charokopaki & Argyropoulou, 2019; Charokopaki et al., 2019; Kaliris et al., 2017; Sovet et al., 2018), academic satisfaction (Ganguly & Perera, 2018), career decisiveness (Gunkel et al., 2010), and career choice satisfaction (McIlveen et al., 2013) across a variety of academic fields.

Dispositional optimism refers to generalized expectations regarding positive future occurrences (Scheier & Carver, 1985). Optimistic people are more likely to have expectations for success in the present and the future. Optimists are also less likely to dwell on negativity, more likely to persevere in the face of adversity, and more likely to use positive coping behaviors. Optimists do not expect problems to be solved on their own; they apply the proper methods. They are also able to deal with threatening situations because they adopt active coping strategies, focusing on solving rather than avoiding the problem (Peterson & Seligman, 2004).

Empirical studies have provided evidence that anindividual's entrepreneurial self-efficacy is positively impacted by psychological and emotional support (Nowiński et al., 2017; Gielnik et al., 2015; Wardana et al., 2020). Advocates for the use of positive emotions in entrepreneurship argue that positive emotions, motivation, and confidence enhance motivation, confidence, and the likelihood of future success. Furthermore, optimism has been recognized as an individual component that accounts for the individual's decision of how to conceptualize and carry out a new venture process in the context of entrepreneurship and intention-based models (Hmieleski & Baron, 2009).

Within SCCT, meta-analysis has revealed several studies that demonstrate the positive effects of personality traits or affective predispositions on the core components of SCCT models, both directly and indirectly, through person-cognitive variables (e.g., self-efficacy). Further empirical investigation of this literature would be beneficial (see Sheu & Bordon, 2017). To the best of our knowledge, only one study conducted in a Greek context with a sample of Greek adolescents provided empirical evidence for the extension ofSCCT models concerning the effect of positive psychological capital as personal input that exhibits a direct and indirect effect on career indecision via career decision-making self-efficacy. This study extended the SCCT hypotheses, including positive emotions, to person-level inputs (Charokopaki & Argyropoulou, 2019).

Therefore, taking into consideration researchers' conclusions about the limited attention on person-level inputs and calls, as far as empirical evidence is concerned for better understanding of how affective predispositions and especially optimism function on the core portions of the SCCT models including self-efficacy (Sheu & Bordon, 2017), together with empirical studies mentioned above providing empirical evidence that emotional support has positive effect on individuals' entrepreneurial self-efficacy, it could be interesting to cross-validate the effect of dispositional optimism beliefs as the person inputs to affect entrepreneurial self-efficacy directly and indirectly, via general self-efficacy.

3. Methodology

3.1. Purpose of the Study

In light of the aforementioned findings and suggestions, as well as the conceptual framework of the social cognitive career approach regarding entrepreneurial intentions, we decided to examine the role of general self-efficacy as a mediator between inputs at the individual and entrepreneurial self-efficacy level by introducing a new construct: dispositional optimism. In other words, we decided to examine the role of optimism a as person input variable and its direct or indirect, through person-cognitive, variables

(general self-efficacy), and predictive role in entrepreneurial self-efficacy in Greek students of administrative studies (see Figure 1).

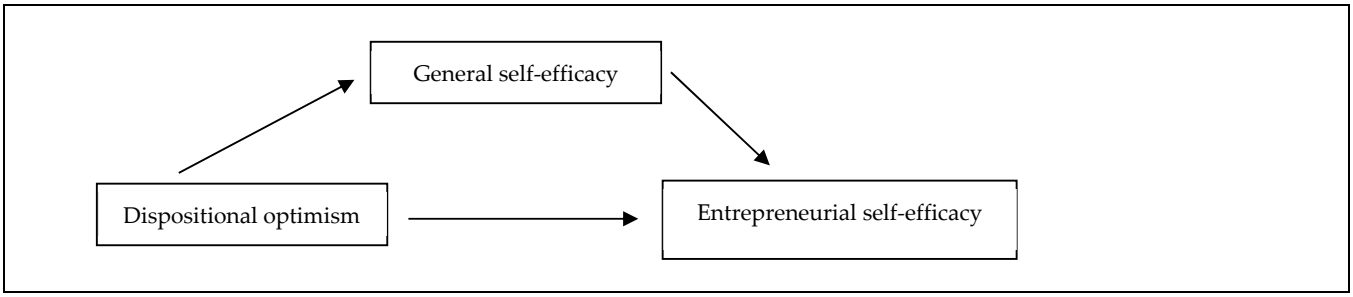

Figure 1. The hypothesized mediating role of general self-efficacy between dispositional optimism and entrepreneurial self-efficacy.

The following primary research question guiding this study: does general self-efficacy mediate the relationship between optimism and entrepreneurial self-efficacy among Greek undergraduate students? Therefore, the following hypothesis was generated: optimism is expected to influence the students' level of general self-efficacy, which, in turn, influences the level of their entrepreneurial self-efficacy.

Specifically, while previous research has recognized the impact of positive emotions (i.e., optimism), as well as a number of individual factors and personality traits (e.g., BigFive traits, emotional intelligence, generalized self-efficacy, need for autonomy, proactive personality, etc.) on entrepreneurial behavior, efforts to extend SCCT to the career choice process have not looked at optimism as an individual input variable or whether the identified patterns of relationship among constructs apply within the SCCT framework.

Therefore, the main research questions of the survey were as follows:

(a) Is there a significant relationship between optimism (predictor/independent variable) and the level of entrepreneurial self-efficacy? (outcome/dependent variable)
(b) Is there a significant relationship between optimism (predictor/independent variable) and general self-efficacy? (mediator variable)
(c) Is there a significant relationship between general self-efficacy (mediator variable) and the level of entrepreneurial self-efficacy (outcome/dependent variable) with the predictor controlled?
(d) Is the strength of the relationship between optimism (predictor/independent variable) and entrepreneurial self-efficacy (outcome/dependent variable) significantly reduced when general self-efficacy (mediator) is added to the model?
(e) Is the parameter coefficient (standardized beta) weight reducedwhen both the independent variable/predictor (optimism) and themediator (general self-efficacy) are related to the outcome variable (entrepreneurial self-efficacy) rather than standardized beta, indicating the relation between the independent variable/predictor (optimism) and outcome/dependent variable (entrepreneurial self-efficacy)?

3.2. Sample and Procedure

The study participants were Greek undergraduate students of business administration degree courses at the University of West Attica, the University of Piraeus and the Athens University of Economics and Business. The participation of students from academic disciplines with a focus on business was noteworthy given that self-efficacy is mostly a psychological construct based on experiences in the particular fields—in our case, entrepreneurship. Thus, integrating students with a business background will provide preliminary robust empirical findings to test a comprehensive SCCT model of entrepreneurial

intentions. At the end of the academic year, students between the ages of 18 and 29 answered the questionnaire (paper and pencil version) in the classroom, after the informed consent provided by the researchers. Participation was voluntary.

The sample comprised 487 business administration students, with 227 males (46.6%) and 260 females (53.4%). In terms of age, 65 students (13.3%) were between 16 and 18 years old, 371 (76.2%) were between 18 and 23 years old, and 51 students (10.5%) were 23 years old or older.

3.3. Measures

The entrepreneurial self-efficacy (ESE)was measuredby the adjusted Greek form of the ESE scale developed by McGee et al. (2009). It consists of 19 items. The translation of the scale from English to Greek was carried out by two bilingual persons according to the protocol of Sousa and Rojjanasrirat (2011). Subsequently, a two-way translation from Greek to English was made, using forward–backward translation to ensure linguistic accuracy and conceptual equivalence. The translation was made with the involvement of bilingual experts and the use of an expert panel to review the translated version, ensuring that cultural nuances are appropriately addressed. A first test application was made on a sample of 10 business administration students where useful information and observations were obtained.

The authors reported five dimensions underlying the ESE construct that match the four typical phases of starting a new venture. The number of items in each of the five dimensions and item samples are provided in the data that follows: research and development, 3 items (e.g., "How much confidence do you have in your ability to identify the need for a new product or service?"); planning, 4 items (e.g., "How much confidence do you have in your ability to estimate customer demand for an new product or service?"); marshaling, 3 items (e.g., "How much confidence do you have in your ability to get others to identify and believe in your vision and plans for a new business?"); implementing human resource, 6 items (e.g., "How much confidence do you have in your ability to recruit and hire employees?")'; and implementing financial resource, 3 items (e.g., "How much confidence do you have in your ability to read and interpret financial statements?"). Respondents were asked to indicate on a 5-point scale (1 = very little, 5 = a lot) how much confidence they had in their ability to engage in each of the 19 entrepreneurial tasks. In this study, the internal consistency (Cronbach's a) was 0.84. The complete Greek version of the scale is available from the associated author.

Life orientation: in the present study, we used the adjusted Greek form of the Life Orientation Test–Revised Scale (LOT—R. Scheier et al., 1994) to explore dispositional optimism beliefs. The Greek adaptation of the scale has been tested in a sample of 112 Greek career counselors with the internal consistency Cronbach's a = 0. 82 (Tsechelidou, 2015). It has also been applied in a sample of 112 Greek high-school students with the internal consistency Cronbach's a = 0.67 (Charokopaki & Argyropoulou, 2019) and to a sample of 269 Greek students of various subjects with the internal consistency Cronbach's a = 0.81 (Charokopaki et al., in press). The 10-item life orientation scale, which consists of six scale items and four filler items, measures dispositional optimism. Examples include "I usually expect the best in uncertain times" and "If something can go wrong for me, it will" (items reverse-scored). Respondents were asked to indicate their level of agreement with each of the items on a 4-point scale (from strongly agree to strongly disagree). In this study, the internal consistency (Cronbach's a) was 0.69.

Generalized self-efficacy: the adjusted Greek form of GSE Scale developed by Chen et al. (2001, 2004) was used to indicate the level of participants in Generalized Self-Efficacy. The scale was adapted into Greek, tested and showed very good psychometric properties

in employees of human resources department of large companies by Kaliris et al. (2013) (Cronbach's a = 0.82). The scale has a single factor and includes 8 items. Items were preceded by the instruction "Please indicate your agreement with each of the following statements". Answers were given on a 5-point scale (1 = strongly disagree, 5 = strongly agree). Sample items include "I can always manage to solve difficult problems if I try hard enough", "I am confident that I could deal efficiently with unexpected events", and "When I am confronted with a problem, I can usually find several solutions". In this study, the internal consistency (Cronbach's a) was 0.87.

Demographics questionnaire: an improvised questionnaire for the collection of demographic data was created, which included questions about age and gender (coded as a dummy variable; 1 = male, 2 = female, 3 = other).

3.4. Statistical Methodology

Because this was the first application of the entrepreneurial self-efficacy scale in a Greek sample, we first conducted confirmatory factor analysis (CFA) to evaluate the measurement model and establish the scale's psychometric properties. Following this, we employed structural equation modeling (SEM) to test the mediation model, and determine if the inclusion of general self-efficacy attenuates the direct effect of optimism on entrepreneurial self-efficacy.

Confirmatory factor analysis (CFA) and structural equation modeling (SEM) were implemented using R (Rosseel, 2012) with the Lavaan package. To account for potential deviations from multivariate normality, the robust maximum likelihood estimator (MLR) was employed (Yuan & Bentler, 2000) and missing data were handled using full information maximum likelihood (FIML). Model modifications (e.g., freeing correlated residuals) were informed by modification indices.

In the CFA, observed items were examined for their adequacy in representing the latent constructs. Items with standardized loadings below 0.40, if any, were removed to ensure that only reliable indicators contributed to the measurement model. In addition, theoretically justified correlated residuals were permitted among specific items of the GENSE construct (e.g., between GENSE_01 and GENSE_03, between GENSE_03 and GENSE_04, and between GENSE_06 and GENSE_07) as suggested by prior methodological work (Cole et al., 2007) due to their similar wording. The overall fit of the measurement model was evaluated using several indices with recommended cutoff criteria: a comparative fit index (CFI) of 0.90 or higher, a Tucker–Lewis Index (TLI) of 0.90 or higher, a root mean square error of approximation (RMSEA) of 0.06 or lower (with its 90% confidence interval), and a standardized root mean square residual (SRMR) of 0.08 or lower (Hu & Bentler, 1999; Kline, 2016). For the measurement model, convergent validity was evaluated by computing composite reliability (using omega; McDonald, 1999) and average variance extracted (AVE; Fornell & Larcker, 1981). Discriminant validity was then assessed by comparing the square root of each construct's AVE to the inter-factor correlations; for adequate discriminant validity, the square root of AVE should exceed the corresponding inter-construct correlations (Fornell & Larcker, 1981).

Next, a structural (mediation) model was specified in which general self-efficacy (GENSE) was posited to mediate the relationship between optimism (POS) and entrepreneurial self-efficacy (ESE). The significance of the indirect effect was tested using the product-of-coefficients approach (Preacher & Hayes, 2008). This approach allowed us to directly examine whether the effect of optimism on entrepreneurial self-efficacy is transmitted through general self-efficacy, and whether the direct relationship between optimism and entrepreneurial self-efficacy is attenuated when the mediator is included.

4. Results

Prior to hypothesis testing, data were screened for missing values. No missing data were found.

At first, CFA was conducted. All standardized factor loadings exceeded the recommended cutoff of 0.40 (Brown, 2015). For example, loadings for the general self-efficacy (GENSE) indicators ranged from 0.662 to 0.709; optimism (POS) from 0.476 to 0.609; and for the dimensions of entrepreneurial self-efficacy (ESE), the loadings ranged from 0.462 to 0.858. (See Table 1 and Figure 2 for a summary of the loadings).

Table 1. Standardized factor loadings for the CFA model.

Latent Variable	Indicator	Standardized Loading
GENSE	GENSE_01	0.662
	GENSE_02	0.684
	GENSE_03	0.657
	GENSE_04	0.664
	GENSE_05	0.727
	GENSE_06	0.608
	GENSE_07	0.600
	GENSE_08	0.709
POS	POS_01	0.476
	POS_03	0.404
	POS_04	0.608
	POS_07	0.573
	POS_09	0.540
	POS_10	0.549
S	ESE_01	0.725
	ESE_02	0.596
	ESE_03	0.719
P	ESE_04	0.596
	ESE_05	0.588
	ESE_06	0.567
	ESE_07	0.462
M	ESE_08	0.605
	ESE_09	0.554
	ESE_10	0.492
IHR	ESE_11	0.517
	ESE_12	0.714
	ESE_13	0.717
	ESE_14	0.592
	ESE_15	0.574
	ESE_16	0.614
IFR	ESE_17	0.754
	ESE_18	0.858
	ESE_19	0.666

Table 1. *Cont.*

Latent Variable	Indicator	Standardized Loading
Second-order ESE	S	0.693
	P	0.844
	M	0.782
	IHR	0.756
	IFR	0.559

Note. All loadings are statistically significant ($p < 0.001$).

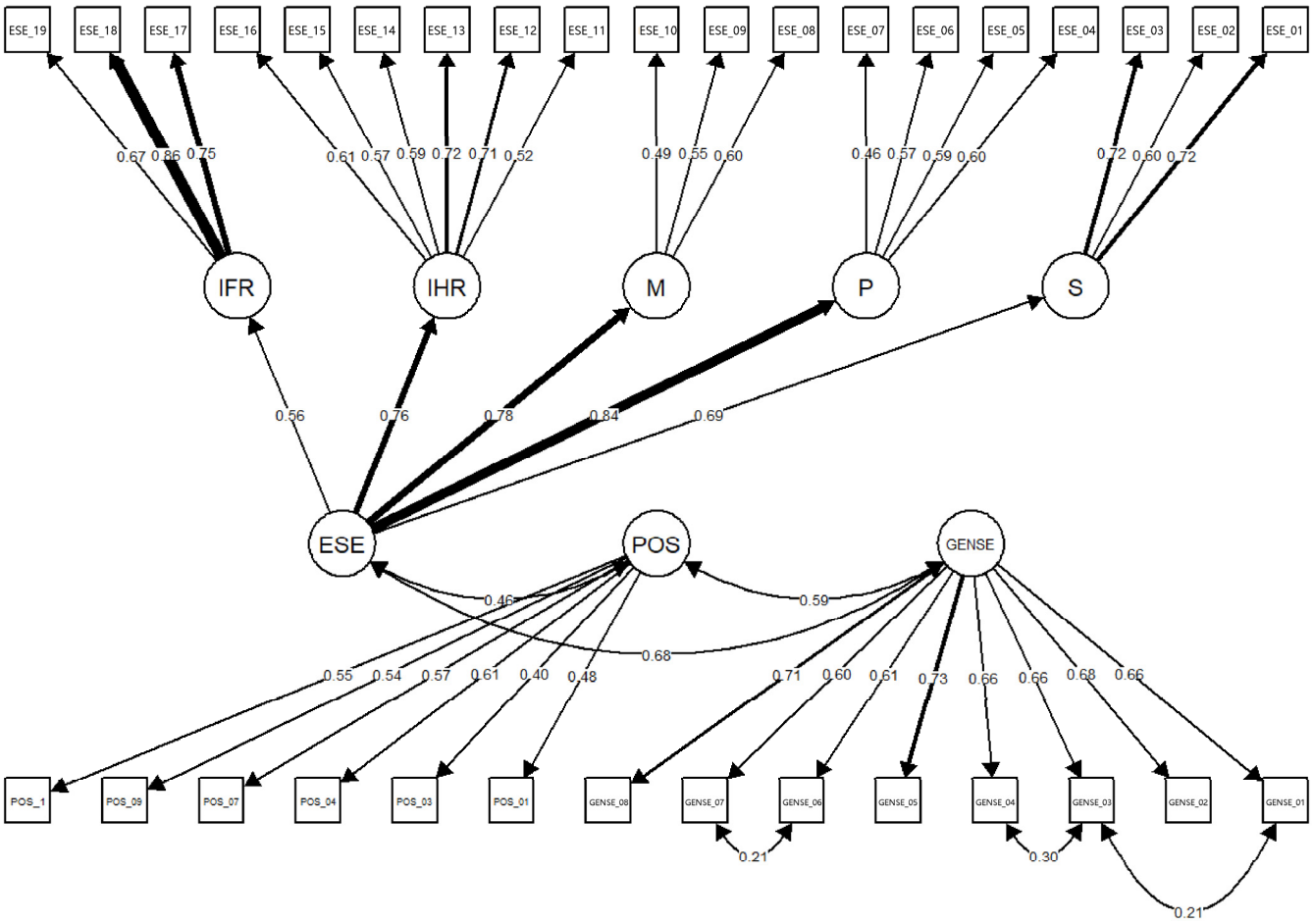

Figure 2. Measurement model evaluation using CFA.

Table 2 displays the fit indices for the CFA model. Overall, the model demonstrated acceptable fit.

Table 2. CFA model fit indices.

Fit Index	Value
Comparative Fit Index (CFI)	0.903 (robust)
Tucker–Lewis Index (TLI)	0.895 (robust)
RMSEA	0.042
90% CI RMSEA	[0.038, 0.046]
SRMR	0.054

Note. N = 487. Abbreviations: CFI = comparative fit index; TLI = Tucker–Lewis Index; RMSEA = root mean square error of approximation; SRMR = standardized root mean square residual.

Reliability was assessed via Cronbach's alpha and omega. Composite reliability (omega) ranged from 0.629 (P) to 0.804 (IFR). The AVE values, computed as the mean squared standardized loadings, were below the ideal threshold of 0.50 for several factors (Fornell & Larcker, 1981), suggesting potential issues with convergent validity (see Table 3).

Table 3. Reliability and average variance extracted (AVE).

Construct	ω	AVE
GENSE	0.841	0.440
POS	0.696	0.281
S	0.724	0.470
P	0.629	0.299
M	0.567	0.277
IHR	0.788	0.387
IFR	0.804	0.580

Note. AVE values were computed as the mean of squared standardized loadings. Abbreviations: ω = omega.

The Fornell–Larcker criterion was applied by comparing the square root of AVE for each construct to its correlations with other constructs. As shown in Table 4, for discriminant validity to be supported, the square root of a construct's AVE (displayed in the diagonal of the matrix) should be greater than any of its correlations with other constructs (Fornell & Larcker, 1981). In the present model, several comparisons did not meet this criterion, suggesting that discriminant validity was not fully supported.

Table 4. (**a**) Fornell–Larcker criterion matrix; (**b**) heterotrait–monotrait (HTMT) ratios.

Construct	GENSE	POS	S	P	M	IHR	IFR
				(**a**)			
GENSE	0.594	0.226	0.315	0.384	0.356	0.344	0.254
POS	0.473	0.315	0.206	0.585	0.543	0.524	0.387
S	0.576	0.384	0.585	0.194	0.660	0.638	0.471
P	0.534	0.356	0.543	0.660	0.167	0.591	0.437
M	0.516	0.344	0.524	0.638	0.591	0.267	0.422
IHR	0.381	0.254	0.387	0.471	0.437	0.422	0.230
IFR	0.594	0.226	0.315	0.384	0.356	0.344	0.254
				(**b**)			
GENSE	-	0.585	0.465	0.498	0.585	0.520	0.401
POS	0.585	-	0.363	0.364	0.414	0.349	0.217
S	0.465	0.363	-	0.689	0.592	0.457	0.312
P	0.498	0.364	0.689	-	0.657	0.612	0.649
M	0.585	0.414	0.592	0.657	-	0.635	0.290
IHR	0.520	0.349	0.457	0.612	0.635	-	0.416
IFR	0.401	0.217	0.312	0.649	0.290	0.416	-

Note. Diagonal elements represent the square root of AVE for each construct.

Although the Fornell–Larcker criterion (Fornell & Larcker, 1981) was not fully met for several constructs—namely, the square roots of the AVE for GENSE, POS, S, P, M, and IHR

were lower than their maximum inter-construct correlations—this issue may reflect the inherent conceptual overlap among these constructs as defined by prior theory (Hair et al., 2010). The constructs, however, demonstrated adequate composite reliability ($\omega > 0.62$ for all) and acceptable convergent validity (AVE values approaching the recommended 0.50 threshold).

In addition to the Fornell–Larcker criterion, discriminant validity was also tested by computing the heterotrait–monotrait (HTMT) ratios for the first-order factors (Henseler et al., 2015). As reported in Table 4b, all HTMT ratios were below the recommended cut-off point of 0.85, suggesting that the constructs demonstrate adequate discriminant validity contrary to the evidence provided by the traditional Fornell–Larcker criterion. In fact, whereas the Fornell–Larcker criterion may raise concerns due to the fact of complexity of the constructs or conceptually overlapping indicators, the HTMT analysis may provide a more sensitive test for discriminant validity.

The measurement model was used in the SEM to test the mediation hypothesis that GENSE mediates the relationship between POS and ESE. The final SEM demonstrated fit indices nearly identical to the CFA (CFI = 0.903, TLI = 0.895, RMSEA = 0.042, SRMR = 0.054). As reported in Table 5 and Figure 3, the standardized path from POS to GENSE was significant ($\beta = 0.594$, $p < 0.001$), as was the path from GENSE to ESE ($\beta = 0.637$, $p < 0.001$). The direct path from POS to ESE was non-significant ($\beta = 0.077$, $p = 0.363$). The estimated indirect effect (a*b) was significant ($\beta = 0.378$, $p < 0.001$), indicating full mediation.

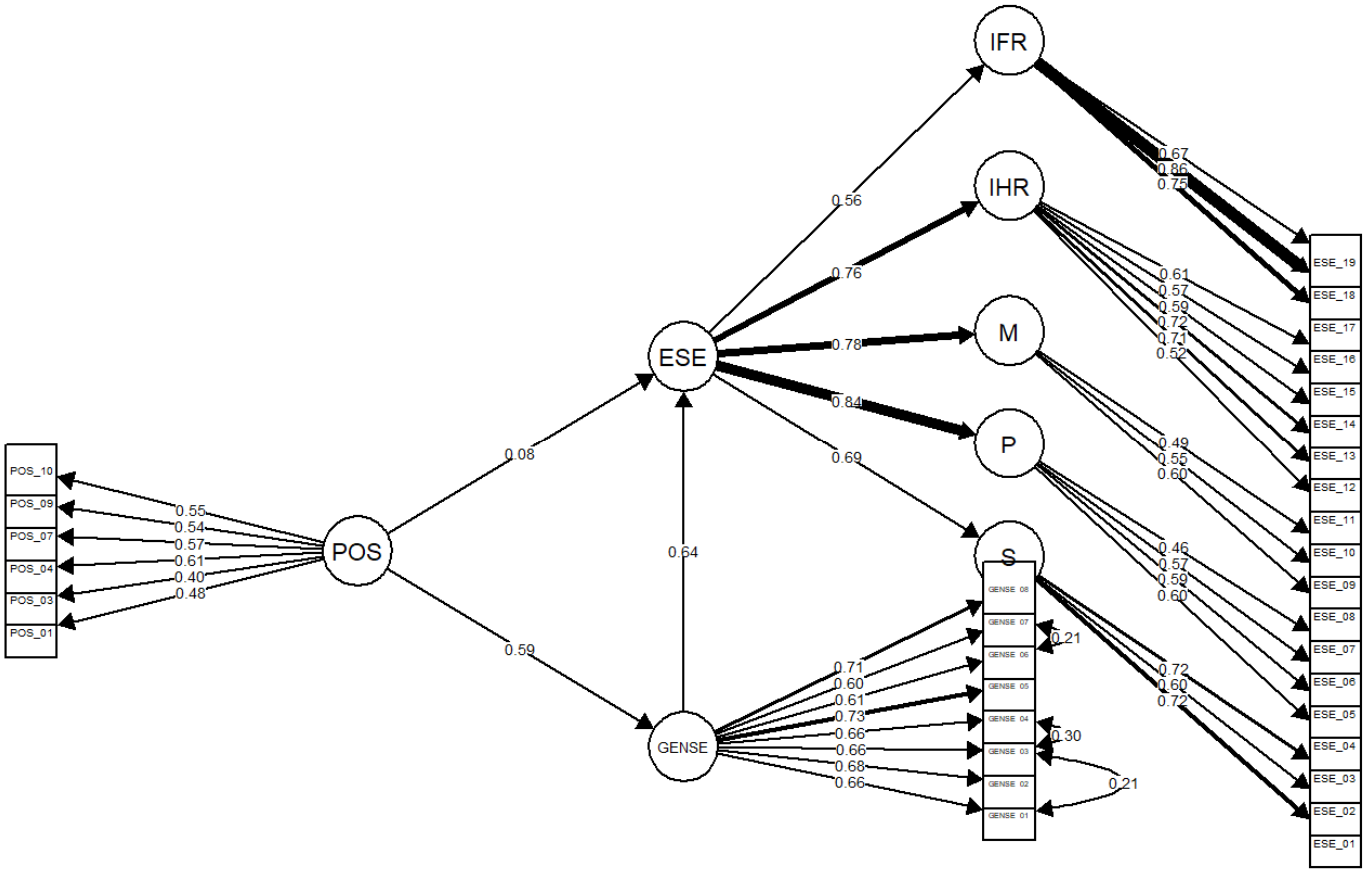

Figure 3. Structural (mediation) model using SEM.

Table 5. SEM path estimates and mediation effects.

Path	Estimate	SE	z-Value	*p*-Value
POS → GENSE (a)	0.594	0.093	7.93	<0.001
GENSE → ESE (b)	0.637	0.108	6.52	<0.001
POS → ESE (c)	0.077	0.116	0.91	0.363
Indirect (ab)	0.378	0.094	5.51	<0.001

Note. All estimates are standardized. Abbreviations: a = effect of POS on GENSE; b = effect of GENSE on ESE; c = direct effect of POS on ESE; ab = indirect effect.

5. Discussion

The study sought to extend social cognitive career theory (SCCT) to entrepreneurship by introducing positive emotions, and, in particular, dispositional optimism as a personal input variable. It also aimed to cross-validate the role of generalized self-efficacy and to extend previous research by examining its mediating role between personal inputs and entrepreneurial self-efficacy in a new cultural setting—namely, Greece.

Our findings revealed that general self-efficacy and entrepreneurial self-efficacy are significantly correlated. Students who have high perceptions of their ability to perform well across a range of contexts, and who have the tendency to view themselves as capable of meeting task demands in such contexts, appear to be more effective at starting an entrepreneurial venture. The specific results support the idea that generalized self-efficacy is important for entrepreneurs because they need to have faith in their ability to carry out various, unanticipated tasks in an array of unpredictable situations. This specific finding is consistent with previous research (Judge et al., 1998; Chen et al., 2001). Entrepreneurship is a complex and competitive career path that requires a set of key competences and skills—not only in specific tasks (e.g., marketing, human resources, sales, finance, etc.), but also in broader areas such as strategic thinking and adaptability. The specific finding also advocates for the use of the generalized self-efficacy in entrepreneurship, as mentioned by contemporary scholars and researchers (Markman et al., 2002; Santos & Liguori, 2019a, 2019b).

Most importantly, the specific finding thoroughly supports and expands upon the first element of the conceptual framework of the SCCT approach to entrepreneurial intentions regarding person-level inputs, and more specifically, generalized self-efficacy (Liguori et al., 2018). In line with the hypothesis that the interaction between generalized self-efficacy and entrepreneurial self-efficacy is positive and significant for business administration students, our result provides support for the inclusion of generalized self-efficacy as a person-level input in the entrepreneurial context as it strongly impacts the development of entrepreneurial self-efficacy. Our finding also contends that, under the SCCT approach, the inclusion of generalized self-efficacy is warranted in an entrepreneurial context as it clarifies the relationship between generalized self-efficacy and entrepreneurial self-efficacy, given that they represent distinct conceptualizations of the self-efficacy construct (task- and domain-specific) (Bandura, 1997). Therefore, researchers and educators who study entrepreneurship ought to consider both generalized and entrepreneurial self-efficacy, acknowledging that they play distinct roles in the formation of entrepreneurial intentions.

The results of the mediation analysis also support our hypothesis that general self-efficacy mediates the relationship between dispositional optimism and entrepreneurial self-efficacy among Greek undergraduate students of administration and business studies. This finding aligns with the modern mediation approach, which emphasizes the importance of indirect effects in establishing mediation (Preacher & Hayes, 2008; Zhao et al., 2005). The significant indirect effect suggests that dispositional optimism enhances general self-efficacy, which in turn increases entrepreneurial self-efficacy. This pathway underscores

the role of general self-efficacy not only as a personal input in the first component of the conceptual framework of SCCT applied to entrepreneurship (Liguori et al., 2018), but also as a critical mechanism through which dispositional optimism influences entrepreneurial confidence, thereby advancing SCCT-based research on entrepreneurial intentions.

Our findings from the mediation analyses also support our hypothesis that dispositional optimism, as a positive personality trait, appears to exhibit an indirect effect on entrepreneurial self-efficacy via general self-efficacy. Dispositional optimism fosters a generalized belief in personal competence, fueling individuals' general self-efficacy, which then amplifies entrepreneurial self-efficacy. Highly optimistic students seem to be more adept at completing multiple tasks in a variety of situations and challenges, which in turn helps them to conceptualize and carry out a new venture process (even in different forms, such as starting a new business, working for themselves, or as intrapreneurs). Positive views about the self and the world can bolster one's belief in their entrepreneurial capabilities, shaping his/her perception of his/her ability to successfully launch an entrepreneurial venture. Additionally, according to social cognitive career theory (SCCT) to entrepreneurship (Liguori et al., 2018), by expecting favorable outcomes, optimists persevere through setbacks and gain confidence across diverse tasks. They perceive entrepreneurial endeavors as more feasible and remain motivated under uncertainty.

Additionally, positive expectations about the future are dependent not only on beneficial personal factors and supportive environments, but more so on judgments of personal efficacy. Yet, the dispositional optimism to entrepreneurial self-efficacy link may vary under certain boundary conditions. For instance, in Greece's volatile economic environment, structural barriers like limited funding or bureaucratic complexity can weaken optimism's effects. It is also possible that other person inputs, such as personal values, predispositions, attitudes, aptitudes and beliefs that are directly or indirectly linked to the socio-economic reality of individuals, shape how dispositional optimism translates into self-belief. Consequently, while dispositional optimism generally boosts entrepreneurial self-efficacy via generalized self-efficacy, personal, contextual, or experiential factors or moderators determine how consistently and strongly this relationship unfolds.

Overall, optimism, general self-efficacy, and entrepreneurial self-efficacy are interrelated psychological constructs that significantly impact both individual success and societal advancement. Particularly in entrepreneurship, dispositional optimism, the inclination to anticipate favorable outcomes, fosters resilience and perseverance. Innovation and economic progress rely upon entrepreneurship, and those who are optimistic are more inclined to become involved in it. This is apotheosized when an individual is optimistic, maintains positive expectations for success in the present and future, confronts and conquers challenges, uses constructive coping mechanisms, and appears to have a tendency to believe that he or she can perform well in a wide range of situations. Accordingly, he or she comes across as a better candidate to successfully launch an entrepreneurial endeavor. Moreover, optimistic entrepreneurs are more likely to adopt a proactive approach in addressing social challenges, creating businesses that are socially responsible and foster sustainable growth. General self-efficacy, defined as the belief in one's ability to manage various tasks, influences entrepreneurial self-efficacy, which specifically measures confidence in executing entrepreneurial activities. By encouraging people to pursue challenging business endeavors with confidence, GSE fosters entrepreneurial skills. On a societal level, entrepreneurship contributes to job creation, economic growth, prosperity and innovation—all of which benefit society at large. It can also address societal issues such as unemployment and promote social mobility (Kritikos, 2024).

The specific result provides empirical support for prior research hypotheses suggesting that dispositional optimism is among other individual factors that account for

the conceptualization and implementation of a new venture process, and isin line with contemporary studies providing empirical evidence that optimism has a positive effect on someone's entrepreneurial self-efficacy (Gielnik et al., 2015; Hmieleski & Baron, 2009; Nowiński et al., 2017; Wardana et al., 2020). However, to the best of our knowledge, among key predictors of entrepreneurial intention, dispositional optimism has been understudied as a personality construct. Here, we reveal that it may have a significant impact on entrepreneurial intentions.

When it comes to the conceptual framework of the social cognitive career theory (SCCT) applied to entrepreneurial intentions (Liguori et al., 2018), our findings support the argument that dispositional optimism may serve as an additional personal input variable influencing entrepreneurial self-efficacy, alongside those factors that have been studied to date such as gender, minority status, and generalized self-efficacy (e.g., Lent et al., 2008; Carter & Brush, 2004). Our study contributes to and expands the specific literature by introducing dispositional optimism as a personal input variable in the first component of the conceptual framework, positioning it as a predictor of entrepreneurial self-efficacy through general self-efficacy within the Greek context. It seems that the extension of SCCT with regard to the impact of person input variables that influence entrepreneurial self-efficacy, and, in particular, positive psychological capital as person-level input, as proposed by previously mentioned Greek and international researchers in other aspects of careers research (Charokopaki & Argyropoulou, 2019; Sheu & Bordon, 2017), is verified in the entrepreneurial context (with respect to the Greek sample of business administration students). Additionally, by integrating affective predispositions such as dispositional optimism into the conceptual framework and propositions of SCCT in the context of entrepreneurship, our study advances SCCT-based research on entrepreneurship.

6. Conclusions, Practical Implications, Future Research

Dispositional optimism appears to exhibit an indirect effect on entrepreneurial self-efficacy, via generalized self-efficacy. It seems that the extension of social cognitive career theory (SCCT) applied to entrepreneurial intentions (Liguori et al., 2018), concerning the effect of personality traits and positive psychological capital, is confirmed (applied to a Greek sample of business administration students). Dispositional optimism may function as a personal input variable in SCCT applied to entrepreneurial intentions models. Our study contributes to and expands on the specific literature. It also advances SCCT-based research on entrepreneurship.

The present study has important implications for entrepreneurial education, student career counseling, and related interventions. The basic construct that should be addressed by career counseling interventions and entrepreneurial education is dispositional optimism. Researchers have recently claimed that career optimism is both a trait and a state. It is defined as "a disposition to expect the best possible outcome or to emphasize the most positive aspects of one's future career development" (Rottinghaus et al., 2005, p. 11). They have also provided evidence that environmental factors would influence career optimism as well as that resource-oriented interventions can also have an impact on career optimism (Spurk et al., 2015). Thus, a positive education which enhances dispositional optimism, prepares business administration students to deal with environmental demands in a flexible manner, increases their potential to improve their cognitive–affective skills (DiFabio & Kenny, 2011) and should also reduce ineffective decision-making as far as entrepreneurial career options are concerned. Educators, career counselors, and role-model entrepreneurs could provide performance entrepreneurial venture results in an optimistic way, helping students to enhance their entrepreneurial self-efficacy.

The second construct that should be addressed by career counseling interventions and entrepreneurial education is domain-specific self-efficacy, the entrepreneurial self-efficacy. The proposals of the present study mention the cultivation of entrepreneurial self-efficacy and the cultivation of entrepreneurial skills through education about entrepreneurship and for entrepreneurship. Being optimistic and persistent about a career path such as entrepreneurship, without the necessary skills to actually engage in adaptive behavior, may result in setting unworkable goals or, even worse, holding unrealistic views of success. Therefore, in order to help students develop entrepreneurial self-awareness, counselors, educators, decision-makers, and policymakers may employ self-efficacy-enhancing strategies, particularly mastery experiences, vicarious learning (modeled experiences), social persuasion, and emotion regulation techniques. These four main sources reflect distinctive and meaningful learning experiences which are linked to the environment and the individual's cognitive interpretations of the influences she or he receives form it (Bandura, 2012).

Entrepreneurial education should have a cognitive–experiential character so as to build an individual's entrepreneurial self-efficacy. Recent findings in the Greek contexts supported the relevance of self-efficacy sources in the decision to pursue an entrepreneurial career as they revealed that positive emotions and mastery-related experiences significantly predicted entrepreneurial intention (Tampouri et al., 2023). Individuals who learn from others engaged in entrepreneurship, or who are contextually embedded in a culture of support (i.e., through mentoring), are more likely to form positive motivations, to advance positive entrepreneurial self-efficacy, and, consequently, to form future entrepreneurial intentions. Additionally, individuals who have role models due to their prior exposure to entrepreneurship may have a more realistic idea of what to expect from an entrepreneurial career. Furthermore, entrepreneurial education instructors should invite guest speakers to share their professional knowledge in the classroom, visit exhibitions of business ideas, or facilitate exercises related to self-efficacy-boosting techniques, like pitching, entrepreneur interviews, and prototyping. Educators could also integrate immersive entrepreneurial problem-based learning modules into the curriculum. They could integrate immersive, entrepreneurial problem-based learning modules into the curriculum. For example, requiring students to launch small-scale ventures or virtual enterprises and organize pop-up events for their entrepreneurial ideas encourages them to experiment in a supportive environment. Such real-life simulations will help students confront ambiguity and build resilience, thus reinforcing positive expectations of success. Additionally, cross-disciplinary collaborations, e.g., between business, engineering, and design departments, introduce learners to diverse skill sets and enhance confidence in tackling real-world complexities. Coupled with structured reflection sessions with mentors who will are entrepreneurs, students can explicitly link each challenge they overcome to their growing sense of competence.

Alongside, career counselors should tailor individualized coaching and career counseling that includes strengths-based assessments, guiding students to recognize and maximize personal assets and enhance personal agency. Policymakers can support these interventions by allocating resources for entrepreneurship labs, virtual enterprises, and mentoring networks within academic institutions, fostering long-term relationships between aspiring entrepreneurs and experienced professionals. Grants or funding competitions for innovation and entrepreneurship also cultivate optimism by demonstrating genuine opportunities for venture success (Douros & Kaldis, 2024). Overall, strategies of educators, career counselors and policymakers amplify students' beliefs in their capacity to create value, thereby consolidating both their entrepreneurial mindset and optimism.

Our study is among the first that have empirically tested the relation between dispositional optimism and entrepreneurial self-efficacy. The specific result sheds light on the need to examine the role of personality traits and positive psychological capital in en-

trepreneurial intentions. Thus, future research should think about replicating our findings. We also believe the influence of dispositional optimism on generalized self-efficacy and, in turn, entrepreneurial self-efficacy could be chronic. In the process of entrepreneurship, individuals will inevitably encounter difficulties. As such, we call for a longitudinal study between dispositional optimism and entrepreneurial success. Also, testing whether dispositional optimism can be altered by interventions that are carried out separately within academic curricula or as part of entrepreneurial education, as previously mentioned, is another critical future objective.

Another suggestion for future research involves the development of models that incorporate additional variables that are conceptually relevant to entrepreneurial self-efficacy—such as locus of control—in order to examine their potential role in shaping, and consequently predicting, entrepreneurial self-efficacy. In our study, we did not include possible moderators that may either strengthen or weaken the proposed relationships. Thus, future research may want to examine whether controllability would also moderate the indirect relationships we found. Consistent with social cognitive theory, the extent to which self-efficacy influences positive expectations about the future may depend on how much control individuals perceive they have over outcomes (Bandura, 1986). A positive relationship between entrepreneurial self-efficacy and dispositional optimism would be stronger for those individuals with high levels of internal, as opposed to external, locus of control. Future research should also include other mediating variables (e.g., subjective norms, access to resources, experience, family support) and a qualitative study to ascertain the interplay between dispositional optimism and other subjective variables (e.g., personal failures) to entrepreneurial self-efficacy.

Another important goal for future research would also be to test if the person-level inputs that—as this study showed—affect entrepreneurial self-efficacy, also affect outcome expectations. As the conceptual framework of the SCCT approach to entrepreneurial intentions states, in addition to entrepreneurial self-efficacy, person-level inputs also directly affect entrepreneurial outcome expectations that impact performance attainment; therefore, further longitudinal research is needed to explore a more fully specified model. Expectations for entrepreneurial outcomes are also domain-specific and relate to the anticipated outcomes of engaging in activities or tasks relevant to entrepreneurship (Vanevenhoven & Liguori, 2013).

It should also be noted that this study focuses on entrepreneurial self-efficacy rather than actual entrepreneurial behavior. We were not able to incorporate specific behavioral outcomes that may potentially result from dispositional optimism into our model. Dispositional optimism may also lead to greater persistence in one's chosen entrepreneurial activity or other innovative and smart endeavors as career choices. Future research could include such outcome variables to empirically test whether cultivating optimism via generalized self-efficacy and entrepreneurial self-efficacy truly leads to better entrepreneurial accomplishments. Additionally, advanced statistical techniques (e.g., latent growth modeling) could reveal how dispositional optimism evolves alongside entrepreneurial self-efficacy during key entrepreneurial phases (idea generation, prototyping, launch, and scaling).

Finally, cross-cultural replications are vital for examining contextual moderators (e.g., cultural norms, economic development). Studies in emerging markets or collectivist societies can shed light on how shared values affect the interplay between optimism and entrepreneurial self-efficacy. Cultural dimensions, such as uncertainty avoidance and economic instability, may also influence the extent to which optimism impacts entrepreneurial self-efficacy and translates into proactive entrepreneurial behavior. Researchers could also investigate professional settings beyond startups such as intrapreneurship within large corporations or social enterprises to see if dispositional optimism holds equivalent weight

in fostering entrepreneurial self-efficacy. Ultimately, expanding the research scope will clarify the universal and culture-specific facets of how optimism shapes both generalized and domain-specific self-belief in entrepreneurial contexts, offering practical insights for tailored interventions worldwide.

In conclusion, this study adds to the growing body of literature by empirically exploring the propositions in social cognitive career theory (SCCT) to entrepreneurship. By providing validity evidence from a novel cultural setting (Greece), this study supports the extension of person-level input variables, such as dispositional optimism, within the aforementioned model explaining the formation of individual entrepreneurial self-efficacy.

7. Limitations

The current research's limitations point to several interesting directions for further investigation. As its empirical design is cross-sectional and all measures are self-reported and collected at the same time, this study cannot make causal inferences. Future research should benefit from longitudinal study designs that can detect causalities more accurately. This kind of research would enable researchers to better capture the causal relationships among optimism, general self-efficacy, and entrepreneurial self-efficacy, providing a clearer picture of how these constructs interact over time.

There are also methodological limitations. First, there are measurement model concerns. Although our robust maximum-likelihood CFA and SEM procedures yielded acceptable fit indices (CFI = 0.903; RMSEA = 0.042; SRMR = 0.054), several measurement concerns merit explicit acknowledgement. First, average variance extracted (AVE) fell below 0.50 for constructs such as POS, S, P, M, and IHR, and the square roots of AVE did not consistently exceed inter-construct correlations, indicating discriminant validity challenges. While HTMT ratios remained below the 0.85 threshold, this sensitivity analysis does not fully offset the overlapping variance among constructs. Second, the optimism scale's internal consistency ($\alpha = 0.69$) is marginal, potentially attenuating observed effects. These limitations constrain the generalizability of our findings and underscore the need for future studies to refine scale items, employ longitudinal designs to bolster causal inference, and consider alternative measures or multi-method assessments to strengthen construct validity. Another limitation is the first-time application of the ESE scale. This study represents the initial application of the entrepreneurial self-efficacy (ESE) scale in a Greek cohort. As a result, some psychometric properties (e.g., convergent and discriminant validity of specific dimensions) may not be as robust as established in previous research conducted in other cultural contexts. Future studies should consider refining the scales. This may involve revising or adding items and employing additional indices of discriminant validity, such as the heterotrait–monotrait (HTMT) ratio.

Another limitation is the sample specificity and single cultural context of the research. The sample consisted solely of business administration students from Greek universities. This homogeneity may limit the generalizability of the findings to other populations, such as working professionals or students from different academic disciplines. According to our study, dispositional optimism has an impact on general self-efficacy, which seems to raise the level of entrepreneurial self-efficacy. Replicating these results in wider Greek samples should be the goal of future studies. Also, replicating the study with more diverse samples—including different academic disciplines, age groups, or professional backgrounds—would help determine the generalizability of the findings and further validate the psychometric properties of the scales in various contexts. Although focusing on Greek students offers valuable insights, our findings may not be applicable to other cultural or economic settings. We hope that future research can include a comparative analysis across multiple regions or countries, which would enhance the study's generalizability.

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