Introducing Sources of self-efficacy and Dysfunctional Career Beliefs in Socio-cognitive Career Theory in Entrepreneurship

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Abstract: A missing link between entrepreneurship education and career choices is how and when alumni decide to behave entrepreneurially. This question pertains to the impact of entrepreneurship education as envisaged in various educational policies. The vast majority of relevant studies have examined the concepts of entrepreneurial self-efficacy and entrepreneurial intention across courses and audiences worldwide. A recent trend adopts more systematic career development theories as the social cognitive career theory (SCCT). In this line, the present article provides new insights in SCCT models including the construct of dysfunctional career beliefs that represents an essential element in career decision-making. The article presents a small-scale quantitative research through a sample of Greek adults aimed to examine the relations between entrepreneurial intention and dysfunctional career beliefs as well as the informational sources of self-efficacy representing fundamental premises of SCCT. The pilot findings show that "significant others", a dimension of dysfunctional career beliefs, influence the entrepreneurial career decision process as an extraneous personal parameter. Linear multiple regression analysis demonstrated that positive emotions, mastery experiences and the perceptions regarding significant others' influence in career decision-making significantly predicted entrepreneurial intention. It is also shown that influence from significant others moderates the relationship between positive emotions and entrepreneurial intention, that is, intensifying the previous relationship when influence of significant others is low and decreasing it when this influence is high. These findings are discussed in the context of entrepreneurial career decision making with implications to educational and career counselling practices.

Keywords: Entrepreneurship Education, Entrepreneurial Intention, Dysfunctional Career Beliefs, Socio-Cognitive Career Theory, Career Decision-Making

1. Introduction

Entrepreneurship has been internationally viewed as a panacea for firm performance, technological innovation and economic development. Moreover, entrepreneurship is suggested as a key-mechanism for endogenous growth and social cohesion in modern, knowledge-driven societies and economies (Kakouris, Dermatis & Liargovas 2016). As a result, studies of entrepreneurial intention and behaviour have been attractive for many researchers and policy makers (e.g. Belchior & Lyons 2021). However, despite these desirable directions which are reflected in the various policies, the failure rates of start-ups are particularly high (around 90%), a fact that deters a large number of population and stakeholders from entrepreneurship. Formal or informal training and counselling is provided to strengthen the entrepreneurial behaviour of young people, while entrepreneurship is proposed as a career option (Walmsley, Decker-Lange & Lange 2022) for graduates in all disciplines (Tampouri, Kaliris, & Kakouris, 2023) across the globe.

The creation of a new venture is often viewed as an intentional, planned behaviour (Krueger et al., 2000) thus entrepreneurial intention (Thompson, 2009) has received extensive attention in the entrepreneurship literature (e.g. Krueger et al. 2000; Liñán & Fayolle 2015). Entrepreneurial intention has been conceptualized as a state of mind directing a person's attention, experience, and actions towards the specific goal of creating a new business venture (Bird & Jelinek 1989). However, the formation of intention may be identified a long time before actual behaviour, whereas behaviour may also never take place. Several studies show that several variables (e.g. personal inputs, background variables, beliefs regarding entrepreneurial success and others) may also be crucial regarding the formation of entrepreneurial behaviours (e.g. Belchior & Lyons 2021; Kakouris 2019; Laukkanen 2022; Liguori et al. 2020) and can affect the formation of intention for one to be an entrepreneur. Krueger (2009) argues that intention is a core construct "deeply fundamental to human decision making" (p. 53) that might offer multiple fruitful opportunities to researchers to study new theories and models relating to decision making under risk and uncertainty. In this line, emerging models used to investigate the phenomenon of entrepreneurial intentions are becoming more integrative of past models, such as combining those generated by Ajzen (1991) and Shapero (1984), and extending them to include demographic characteristics, perceived university support, entrepreneurial conviction, tolerance for risk, perceived benefits and so forth (Liguori et al. 2020). A variety of

new theoretical frameworks, techniques and methods have been recently implemented by several researchers (Tampouri et al. 2023).

To better understand the formation of entrepreneurial intention and entrepreneurship as a career choice, we draw on Social Cognitive Career Theory (SCCT) (Lent et al., 1994), an approach with great explanatory power which has proven useful in identifying the relationships between core variables that underpin career decision-making (Blaese, Noemi & Brigitte 2021; Lent et al. 2000, 2002, 2008; Liguori, et al. 2018; 2020; Meoli et al. 2020). Stemming from Bandura's theory, the sources of self-efficacy have received attention in research on SCCT's content models, particularly in the context of mathematics (e.g., Lent, Lopez, & Bieschke 1991), STEM education (e.g. Sheu et al. 2016), Holland theme domains (e.g., Schaub & Tokar 2005) and quite recently in the context of formulating career counselling self-efficacy beliefs (e.g. Kaliris 2019). However, there have been few studies investigating associations between the sources of self-efficacy, goals, intention and outcome expectations regarding career process behaviours, such as decision-making (Lent et al. 2017).

Much research in the entrepreneurial intention inquiry has drawn attention to the impact of entrepreneurial self-efficacy on entrepreneurial intention (e.g Wilson, Kickul, & Marlino 2007; Zhao, Seibert and Hills 2005). However, there is a void in the entrepreneurship literature in examining the theoretical antecedents of self-efficacy beliefs that may, in turn, affect entrepreneurial intention. These informational sources have more general features than task-specific entrepreneurial self-efficacy which has been commonly investigated as predictor of intention so far. Further, these sources may be conceptualised as the origins of self-efficacy beliefs which reflect distinctive influential learning experiences. Thus, these primary learning sources could act as particular pillars of tailored career counselling and educational interventions for potential young entrepreneurs. Apart from Bandura's sources of self-efficacy, we also explore the potential role of dysfunctional career beliefs in the formation of entrepreneurial career choices, as they have been recognized as an important factor in the career decision-making process (Austin et al. 2004; Hechtlinger & Gati 2019). Thus, the driving research question for the rest of the article pertains to the role of the sources of self-efficacy along with dysfunctional career thoughts (or beliefs) in the formation of entrepreneurial intention.

2. Theoretical framework and research questions

A person's beliefs about his or her abilities seem to be shaped through four main sources that are linked both to the environment and to the cognitive interpretation that the individual makes of the influences he or she receives from it (Bandura 2012). Thus, the sources of self-efficacy read as follows:

i. ***Mastery experiences***. Research results on various learning-educational domains, for example, academic achievement and academic attainment (Fong & Krause 2014; Phan & Ngu 2016), self-efficacy in writing (Pajares et al. 2007), mathematics, and reading (Butz & Usher 2015; Usher & Pajares 2009) suggest that past performance experiences are potentially the strongest source of self-efficacy information because they are based on experiences of skill over which the individual exercises personal control (Bandura 1997). Successes tend to increase the strength and generalisation of self-efficacy beliefs, while repeated failures cause them to weaken.

ii. ***Vicarious learning.*** This source is provided by social role models (teachers, parents, peers, colleagues, etc.). Often, one's perception of self-efficacy for a situation is a reflection of the results related with others' efforts and behaviours. The more individuals feel they resemble a model of success or failure, the more likely they are to change their beliefs about their self-sufficiency by following that model (Schunk 1987).

iii. ***Verbal persuasion***. This informational source, referred as social persuasion as well, is about advice, verbal patterns, encouragement as well as stories or "myths" conveyed by others that shape one's level of confidence in one's abilities. Positive, encouraging messages about evaluating specific outcomes, especially when perceived as realistic and authentic, contribute to enhancing one's effort as a result of positive feedback (Fong & Krause 2014, p. 252). Those who are verbally convinced that they possess the abilities to control their actions are likely to be motivated and more persistent in solving problems that may arise.

iv. ***Physiological and emotional states***. People rely, to some extent, on the level of emotional arousal they experience to judge how dangerous a stressful situation is and interpret their anxious reactions as signs of vulnerability. Consequently, these emotions can lead to poor performance. Thus, people feel that

they are effective in situations where they do not experience much tension, whereas in activities that require strength and endurance, they may judge fatigue, anxiety and pain as obstacle (Bandura 1997).

In the entrepreneurship domain, although past research has examined relationships between entrepreneurial self-efficacy beliefs and formation of entrepreneurial intentions, there is a lack of research investigating the links between the previous four core informational self-efficacy sources and entrepreneurial intention. Therefore, in this study we intended to examine the relations between the above variables. Accordingly, the following research question is articulated:

RQ1: Are informational sources of self-efficacy beliefs associated with entrepreneurial intention?

Beyond sources of self-efficacy, the dysfunctional career thoughts (or beliefs) have been recognised as an important factor in the career decision-making process (Austin et al. 2004). They refer to prejudiced or twisted career beliefs, unreasonable expectations, various career myths, negative estimations regarding the individual‘s actions and professions, which influence each one‘s ambitions and his actions. Career counsellors have observed that many clients express some dysfunctional thoughts and beliefs about their careers, which affect and impede the resolution of problem solving and decision making (e.g. some people expect to find the perfect career, others believe that career choice is only possible once and cannot be changed in the future, etc.). Such dysfunctional beliefs may lead the individual to avoid the decision-making process, to give up when difficulties arise at some stage of the decision-making process, or cause uncertainty about the appropriateness of the choice and lack of commitment to it. The recognition of the individual's dysfunctional beliefs about career issues is a particularly critical issue for the provision of career counselling and educational services (Hechtlinger & Gati 2019; Kleiman et al. 2004). In this line, dysfunctional beliefs might prevent an individual from selecting entrepreneurship as an optimal career choice. Grounded on this rationale, the following research questions is articulated:

RQ2: Do the dysfunctional career beliefs act as a moderator between the sources of self-efficacy beliefs and entrepreneurial intention?

A pilot quantitative survey follows in order to confront the previous research questions.

3. Methodology

3.1 Procedure

A pilot sample of N=102 responses to a questionnaire was collected in Greece. Snowball sampling was employed as the data collection method. In this technique, initial participants are selected based on their availability and they are then asked to assist in expanding the sample by identifying other potential participants. This technique was selected as it provides practical advantages such as low cost and less time for the data collection without implying significant bias for the explorative results. The questionnaire was administered online, including brief instructions on the aim of the research project, the importance of participating in it, and on confidentiality credentials. The participants’ acceptance to complete the questionnaire was thus considered a form of informed consent. A dropout rate of 50% was observed (about half of the responses were found incomplete).

3.2 The research instrument

For data collection, a number of constructs were included in the questionnaire:

(I) Beliefs about Career Decisions Questionnaire (BCD, Hechtlinger & Gati 2019)

Beliefs about Career Decisions Questionnaire (BCD) is consisted of 16 statements investigating difficulties in decision-making regarding the career path. They are scored on a nine-point Likert scale (1= completely disagree … 9= completely agree). BCD assesses the following five factors: i) The role of chance or fate, ii) The criticality of the decision, iii) The role of significant others, iv) The role of professional help, and v) The role of gender stereotypes. Internal consistency reliability coefficients are above 0.70 for all factors. The factor structure of the questionnaire was tested with exploratory and confirmatory factor analysis and there is evidence of concurrent validity with other decision making tools.

(II) Entrepreneurial Intention Scale (Thompson 2009)

Entrepreneurial Intention Scale is consisted of 6 items/statements (direct and inverted) scored by the respondents on a seven-point Likert scale (1=completely untrue ... 7=completely true).

(III) Sources of Entrepreneurial Self-Efficacy

In order to measure the sources of entrepreneurial self-efficacy, an adapted scale including selected items drawn from a Lent et al.'s (2017) scale measuring sources of decision-making self-efficacy, was constructed by the authors. This new adapted scale consists of seven items that evaluate sources of entrepreneurial self-efficacy. The first six questions evaluate personal entrepreneurial mastery experiences (e.g., successes and failures), verbal persuasion (e.g., social encouragement or discouragement of entrepreneurship), vicarious learning (i.e., observation of entrepreneurial role models), on a 5-point Likert-type scale using the anchors 1 "totally disagree" to 5 "totally agree". Further, the fourth source of self-efficacy, "physiological and affective states", is assessed via the last question regarding the extent to which a person has a particular feeling of those included in a given list based on a 5-point Likert scale, ranging from 1 "not at all" to 5 "greatly". Four positive and four negative emotions were included from which two variables are constructed (positive and negative emotions). Example items for the scale are: "I admire people who own an enterprise, with whom I share common traits" and "I have gathered effectively information and resources regarding the initiation of a new business venture". All Cronbach alphas were found over 0.7.

(IV) Impromptu Questionnaire of Individual – Demographic elements.

A few demographic and other relevant information to the research objectives were assessed (8 questions in total). More specifically, there were included questions on the respondents' gender, age, educational level and work experience. Additionally, the participants were asked if they had taken an entrepreneurship course in the past and if their parents have or had had a business.

3.3 Sample

The sample of this research consisted of N=102 participants, aged from 19 to 64, with an average age of 39 (SD=13.31). As to gender, 60 (59%) were male and 42 (41%) female. Regarding the educational level of the sample, 48 individuals (47.1%) had completed secondary education by the time the survey took place and 38 participants (37.3%) had completed tertiary education. Fourteen persons (13.7%) hold a Master's degree, and only one was a PhD holder. From the total sample only 33.3% had developed a type of entrepreneurial action (7.8% had their own employees in their enterprise whereas 25.5% stated they are self-employed). Forty one percent of the participants (42 individuals) had attended at least one entrepreneurial course whereas the rest of them (64.7%) had not. Variability was observed in length of work experience with half of the participants possessing extensive experience, over 15 years.

4. Results

4.1 Descriptive statistics and correlations

It is seen from Table 1 that all sources of self-efficacy (except negative emotions) and significant others variable from Beliefs about Career Decisions (BCD) (referred as dysfunctional career beliefs here) can be considered as determinants of entrepreneurial intention. Since positive correlations of all self-efficacy sources (except negative emotions) were found, the research question (RQ1 is answered positively. It has to be noted that despite non-significant in the present sample, negative emotions anticorrelate with intention and positively correlate with significant others (ρ=.263, p<.008). Stepwise linear regression (Table 2) for these five predictors of entrepreneurial INTENTION reveals POSITIVE EMOTIONS as the most significant one, MASTERY the second most significant and SIGNIFICANT OTHERS as the third one. Thus, the basic model of the present study is:

$$\text{INTENTION} = \beta_1 \times \text{POSITIVE EMOTIONS} + \beta_2 \times \text{MASTERY} + \beta_3 \times \text{SIGNIFICANT OTHERS} + c \quad (1)$$

Table 1: Mean, standard deviation and significant Spearman correlations between the variables

	INT.	SOURCES OF SELF-EFFICACY					BCD				
	1	2	3	4	5	6	7	8	9	10	11
MEAN	4.06	3.34	3.19	3.75	3.75	2.46	2.74	2.16	4.43	3.92	3.43
SD	1.37	1.06	1.08	1.11	1.00	1.10	1.74	1.48	2.03	1.88	2.23
1. INT.	-	.364**	.235*	.315**	.355**	n.s.	n.s.	-.243*	n.s.	n.s.	n.s.
* p<.05, ** p<.01											

1. ENTREPRENEURIAL INTENTION, 2. MASTERY, 3. SOCIAL PERSUASION, 4. VICARIOUS LEARNING, 5. POSITIVE EMOTIONS, 6. NEGATIVE EMOTIONS, 7. CHANCE OR FAITH, 8. SIGNIFICANT OTHERS, 9. CRITICALITY, 10. PROFESSIONAL HELP, 11. GENDER STEREOTYPES

Table 2: Stepwise regression model summary for ENTREPRENEURIAL INTENTION

Model	Adj. R^2	R^2 Change	F Change	p(F Change)
POSITIVE EMOTIONS	.144	.153	16.617	.000
POSITIVE EMOTIONS **MASTERY**	.172	.037	4.185	.044
POSITIVE EMOTIONS **MASTERY** **SIGNIFICANT OTHERS**	.202	.038	4.380	.039

4.2 Multiple regression model

Linear multiple regression analysis for the basic model (1) and for the interaction model are shown in Table 3. The two models are statistically significant and no multicollinearity issues were observed (all VIFs are well below 4). Standardized beta coefficients are positive for all variables except significant others which show a negative effect on entrepreneurial intention. Through the interaction model, a statistically significant moderation effect by significant others is observed on the influence of positive emotions on entrepreneurial intention (β=-3.005, p<.003). This effect is shown in Figure 1.

Table 3: Multiple regression models for ENTREPRENEURIAL INTENTION

	Basic model			**Interaction model**		
	Stand. B	t	p	Stand. β	t	p
POS. EMOTIONS	.275**	2.687	.009	.225*	2.225	.029
MASTERY	.255*	2.471	.015	.215*	2.149	.034
SIG. OTHERS	-.199*	-2.093	.039	-.250*	-2.421	.018
POS. EMOTIONS X MASTERY				.122	1.341	.183
POS. EMOTIONS X SIG. OTHERS				-.303**	-3.005	.003
MASTERY X SIG. OTHERS				.149	1.411	.162
R^2	.228			.310		
F-value	8.850**			6.525**		
ΔR^2	.228			.083		
$F(\Delta R^2)$	8.850**			3.471*		
* p<.05, ** p<.01						

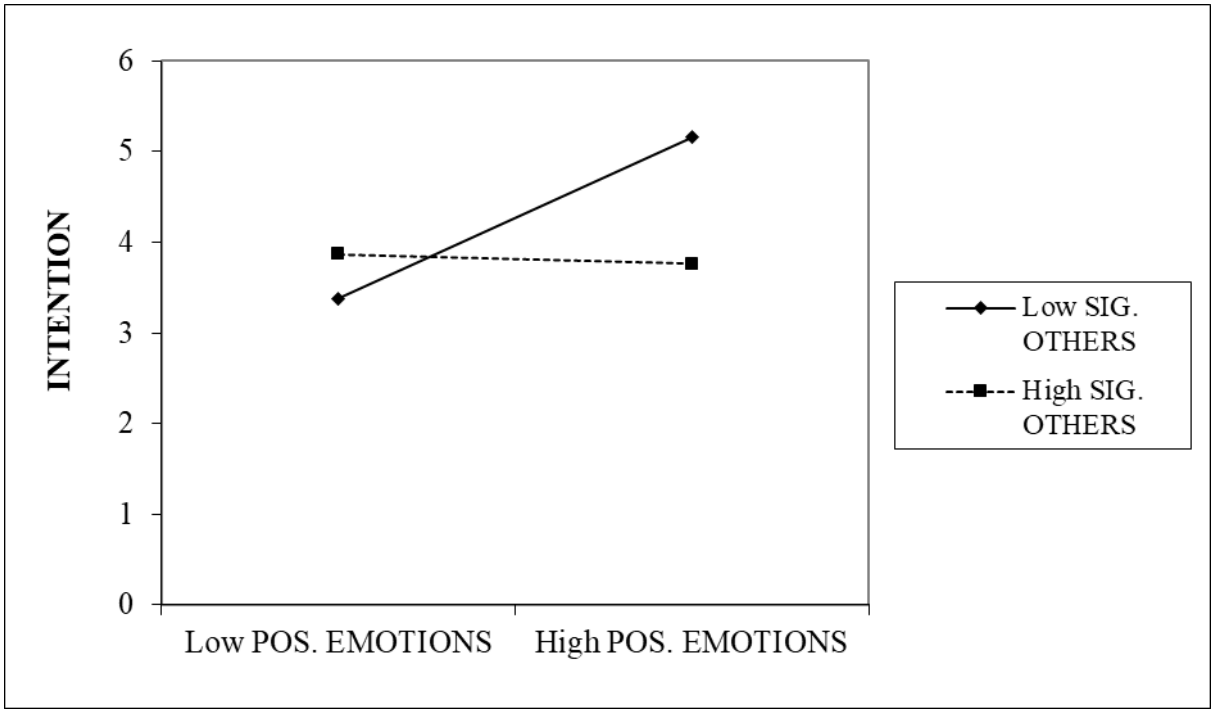

Figure 1: Moderation effect of significant others BCD on the dependence of entrepreneurial intention on positive emotions.

The moderation effect of Figure 1 shows that positive emotions increase entrepreneurial intention when the personal influence from significant others is low where high personal influence from significant others reverses this relationship. Thus, the answer to research question RQ2 is that the personal influence from significant others, a dysfunctional career belief, does moderate the impact of positive emotions, a source of self-efficacy, to entrepreneurial intention.

5. Discussion

As entrepreneurship education, and other policy-driven campaigns, have undergone a tremendous expansion phase for the last twenty years (e.g. Kakouris & Georgiadis 2016), it is timely to relate the outcomes with career decision-making theories capable of consistently joining them with career options acknowledged in educational policies for entrepreneurship. Most studies in the field employ entrepreneurial self-efficacy as the major construct that determines entrepreneurial intention and can be affected by educational and other interventions. Nonetheless, career decision making is known to be a more complicated process confronted through psychological models such as the social career choice theory (SCCT, Lent et al. 2000, 2002, 2008). In this approach, sources of self-efficacy are important, more general and enduring constructs that formulate self-efficacy. These constructs interweave with others and can influence the career decision process at several points.

Since scarce research in entrepreneurship has examined the sources of self-efficacy, this work demonstrated the positive correlation of most of them with entrepreneurial intention (Table 1). Mastery experiences, vicarious learning, social persuasion and emotional states positively influence entrepreneurial intention whilst positive emotions and mastery experiences prove to be the most significant explanators of it (Table 2). Not surprisingly, most of educational and other polices have focused on these sources in order to encourage the entrepreneurial behaviour of the youth. Experiential leaning, for example, aims at equipping trainees with authentic entrepreneurial learning experiences indicative for the genuine nature of business venturing and its aspects in which trainees have to attain self-confidence. The commonly highlighted influence from a business family, or other role models massively promoted in the modern era of entrepreneurship, is also essential for vicarious learning. Widespread entrepreneurial narratives, success stories, or even propagating myths (e.g. Shane, 2008), tend to create social persuasion towards entrepreneurship. The accommodative environments of business incubators and other entrepreneurial ecosystems also strengthen the social persuasion for entrepreneurship. Perhaps, the less explored source of self-efficacy pertains to the emotional states of the individuals despite their major importance (e.g. Kakouris 2015; Zampetakis et al. 2017). This pilot study underscores the influence of

Bandura's sources of self-efficacy on entrepreneurial intention suggesting special attention to mastery experiences (through education and training) along with personal emotional states in future research.

Another contribution of the present findings concerns the role of dysfunctional career beliefs (Hechtlinger & Gati 2019) in considering entrepreneurship as a career option. Amongst them, personal influence from significant others was found to have a negative correlation with entrepreneurial intention (Table 1). Those who are influenced more by significant others do not exhibit high entrepreneurial intention. This result aligns with other studies in the field which demonstrate that entrepreneurs possess internal locus of control (e.g. Asante & Affum-Osei 2019). In this way, influence by significant others can moderate the impact of sources of self-efficacy on intention. In the present dataset the moderation is striking for the dependence of entrepreneurial intention on positive emotions (Figure 1). People with positive feelings about entrepreneurship exhibit higher entrepreneurial intention as far as they are not strongly influenced by significant others. Else, the previous positive relationship is reversed. The inclusion of dysfunctional career beliefs in the social career choice theory in entrepreneurship is new and needs further investigation since this type of beliefs is known to play an important role in career decisions in other contexts and populations (e.g. Sidiropoulou-Dimakakou, Mylonas, Argyropoulou & Tampouri 2012).

In sum, coherent career decision models are needed to inform how individuals decide to undertake entrepreneurial action. Social carer choice theory is currently adopted in entrepreneurial intention studies but there is room for enriching it through relevant psychological constructs such as sources of self-efficacy and dysfunctional career beliefs examined here. Once these sources are understood better, relevant effective interventions can be scheduled.

6. Conclusion

The study of entrepreneurship as a career option needs to employ systematic psychological theory on how individuals make career decisions. In this vein, well known sources of self-efficacy along with dysfunctional career beliefs are important constructs that interfere in entrepreneurial career decision making. Their role introduces certain implications for educators and counsellors as well as institutions which aim to support entrepreneurship. Cross-cultural research (e.g. Fleck et al. 2020) in this direction is also possible. The present results encourage further research on the formation of entrepreneurial intentions and behaviours from targeted populations under informed interventions once some of the limitations of the present exploratory study are waived.

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