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# The Impact of Career Insight in the Relation with Social Networks and Career Self-Management: Preliminary Evidences from the Italian Contamination Lab

Giustina Secundo <sup>1,\*</sup>, Elisa De Carlo <sup>2</sup>, Andreina Madaro <sup>2</sup>, Giuseppe Maruccio <sup>3</sup> ,  
Fulvio Signore <sup>2</sup> and Emanuela Ingusci <sup>2</sup> 

<sup>1</sup> Department of Innovation Engineering, University of Salento, Via per Monteroni, s.n, 73100 Lecce, Italy

<sup>2</sup> History Society Human Studies Department, University of Salento, Via di Valesio, N° 24, 73100 Lecce, Italy; elisa.decarlo@unisalento.it (E.D.C.); madaroandreina@gmail.com (A.M.); fulvio.signore@unisalento.it (F.S.); emanuela.ingusci@unisalento.it (E.I.)

<sup>3</sup> Department of Mathematics and Physics, University of Salento, Via per Monteroni, s.n, 73100 Lecce, Italy; giuseppe.maruccio@unisalento.it

\* Correspondence: giusy.secundo@unisalento.it; Tel.: +39-083-2297-916

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**Abstract:** Universities are developing more education initiatives to increase the entrepreneurial mindset of students to enhance the social sustainability and self-employment. Young people should work to increase their managerial and soft skills in order to face the process of innovation and change. This exploratory study identifies some features of the participants in the first edition of the contamination laboratory (CLab) of the University of Salento (Lecce, Italy) whose mission is to develop creativity, soft skills and entrepreneurial mindset. In particular, it aims to investigate the relationship between career insight, social network and career self-management in a sample of University's students during a training course organized according to the basic principles of Entrepreneurship Education. Data collection is carried out before and after the project. Results highlighted that there are significant differences before and after the course attendance in terms of personal and professional growth. These preliminary results present innovative aspects. From a theoretical point of view, the study laid the groundwork for future research in employability and entrepreneurial skills topics. About the practical implications, the study can provide some suggestions to promote and plan sustainable interventions in order to encourage young entrepreneurship and employability.

**Keywords:** social capital; social networks; contamination lab; career self-management; career insight; entrepreneurship education; sustainable development.

## 1. Introduction

In the last decades the labor market has changed significantly [1–3]. In particular, permanent employment is now less frequent and the career has become borderless and unpredictable [4]. In this scenario, people must take responsibility for their professional development and try to increase their chances [5] in addition to enhancing social sustainability. Changing context is characterized by more frequent economic and technological transformations, we witness the development of new forms of atypical work [6]. The disorder and anxiety connected with these changes undermine the career development and well-being of individuals who face uncertainty and instability in their work lives [7].

Recently, worldwide Governments started promoting self-employment [8]. The EU 2020 Employment Strategy is significant in this regard: it recognizes entrepreneurship and self-employment

as key factors for achieving smart, sustainable and inclusive growth and as a way to create new jobs [9]. The EU 2020 Employment Strategy recognizes entrepreneurship and self-employment as key factors for achieving sustainable, smart and inclusive growth and as a way to create new jobs [9]. In this framework, young people continue to be challenged by the unpredictability of the labor market since a mismatch between the skills possessed, acquired during the training, and those required by employers [8]. Also, the concept of career is assuming different meanings. In recent years, researchers' attention has been progressively moved by a so-called paradigm of career development towards a paradigm of career self-management [10].

In literature, career skills contribute to both employability orientation and activities, in terms of career identity and self-management, networking, professional development, and environmental monitoring. Career identity and self-management are the first components of employability, according to Lo Presti and Pluviano [4], these dimensions would allow the individual to find meaning in the past work experience and to prepare themselves for future career [4]. Career identity and career self-management are developed over time as the individual experiences in different work and organizational contexts; the past component progressively increases the individual improvements experience, while the future component is very important at earlier stages of a career [4].

Personal adaptability, intentionality, proactivity and life-long learning are essential for maintaining employability [11,12]. Young people need to develop skills for career management to support the process of change, innovation and entrepreneurship [13]. Career self-management skills and the employability skills are strictly related to the international debate around the opportunity to develop an entrepreneurial mindset at all levels of educational activities coherently with the debate about the strategic role of entrepreneurship for supporting social and environmental sustainability.

The entrepreneurial mindset represents the competence of helping young entrepreneurs and start-uppers, students at all levels of education, the members of society, to be creative and confident in whatever they undertake in order to cope with business ambiguity, uncertainty, and complexity [14]. Furthermore, they need to be equipped with an entrepreneurial mindset, which is defined by five constituent elements: (1) the capacity to think creatively, analytically, strategically and reflectively, (2) confidence in one's abilities, (3) the ability to collaborate, (4) well-developed communication skills and (5) an understanding of the current business context [15].

Youth entrepreneurship is at the top of the EU's political agenda because it is seen as a tool to tackle unemployment and social exclusion, as well as to stimulate innovation among young people [16,17]. The EU's Vision for Young People should make the best of their potential [18]. Entrepreneurship is one of the key competences of the European reference framework on key competences for lifelong learning [16]. The European Commission defines entrepreneurship as an initiative sense, and it refers to a personal ability to translate ideas into actions [19]. It includes innovation, creativity, risk-taking and the ability to plan and manage projects in order to achieve goals [18].

Therefore, the development of this competence, together with other soft skills, is useful to people, not only in their daily life at home and in society, but also at work, giving awareness of their work's context and the ability to seize opportunities, provides a basis for more skills and knowledge [20]. The goals of entrepreneurship education (EE) is to increase the progressive development of skills from an early age [21,22]. Recently, it has emerged that EE not only has a priority for business schools, but it has also a relevant aspect to be improved at all levels of education and for each discipline. Thanks to the fast development of new technologies, an expansion of EE to other disciplines and departments (such as science and technology) is crucial for competencies, skills and mindsets development that are important for launching and evolving high-growth, technology-based business [11]. This led to the success in the academic community and showed the significant role of EE through further initiatives in order to promote a more entrepreneurial mindset in the technology entrepreneurship [12,17] as well as in the humanities and social sciences.

With this aim, in recent years, some universities have dedicated some entrepreneurship centers to support many learning and research initiatives, raising funding for many educational programs and

supporting social community development [23,24]. However, even though the role of entrepreneurship centers is becoming even more important, there is a lack of investigation connected to how to evaluate the development of such entrepreneurial mindset, career self-management and career self-development skills to the difficulty to measure the results of the educational initiatives involved in such challenging activities. The value of the paper resides in the intersection of these relevant fields, generally treated as separate in the literature: entrepreneurship education, career self-management and sustainability. Entrepreneurship and entrepreneurial mindset demonstrated a positive enhancement of career self-management, social and environmentally sustainable development with positive impacts in the areas of financial inclusion, empowerment of women, sustainable farming, and minority integration, among many others.

In this frame, this preliminary study aims to analyze a novel initiative financed by the Italian Ministry of University and Research for developing an entrepreneurial mindset and awareness in the university students to support their capacity of career self-development and employability. The analysis of operational model of the “Contamination Lab” at Salento University (Italy) developed according to the typical Entrepreneurship Education learning strategies, allowed to explore the level of this capacity developed by 39 students attending six months’ program to acquire an entrepreneurial mindset and awareness. Findings demonstrates that the laboratory includes all the University’s students with different backgrounds through an innovative extra-curricular learning program to create an entrepreneurial awareness, mindset and capability. The experience of Contamination Lab can be crucial for students, because it’s part of the career practices and career interventions useful to enhance a balance between personal attitudes and global needs.

The remainder of the paper is organized as follows: Section 2 highlights the relevance of career management within entrepreneurship education; Section 3 describes the research method; Section 4 presents the data analysis; Section 5 describes the main findings. Finally, in the conclusion section, the results are discussed, along with the identification of implications for theory and practices.

## 2. Career Self-Management and Entrepreneurship Education

Some of the most relevant issues in the frame of the EE concern the separation between the academic world and the Business environment or the mismatch between labor market demands and training offer [25,26] that characterize high unemployment and underemployment [27]. To cover this gap, European policymakers aim to formulate appropriate policy initiatives, to establish programs to promote entrepreneurship education in schools, vocational training institutions and universities [25]. In recent years, this has led the academic world, even in Italy, to place education and entrepreneurship at the center of training, promoting special study courses, encouraging research and experimentation, encouraging the development of startup, through the creation of incubators and contacts with the business world [28].

“Entrepreneurial self-capital is defined as a core of individual entrepreneurial resources used to cope with career and life construction challenges and includes dimensions of core self-evaluation, hardiness, creative self-efficacy, resilience, goal mastery, decisiveness, and vigilance” [20].

Universities are developing additional initiatives compared to the sole teachings [29], which allow them to increase the creativity and entrepreneurial mindset of the students [30,31]. These initiatives are implemented through the adoption of innovative learning methods, extra programs that encourage group work, competitions of business ideas and other activities essential for developing soft skills [32]. Universities and colleges have implemented reforms in education and introducing advanced teaching theories of entrepreneurship education [33], continuously carrying out entrepreneurial education activities, deepening the model of personnel training, and cultivating students’ spirit of innovation [29]. Many university projects, in fact, provide a methodology of learning focused on virtuous process of contamination among people background, capabilities and competences that tends to develop the individual capacity for goal attainment and social skills for cooperation and integration of ideas and knowledge.

Practitioners and scholars gradually comprehended that identifying and coping with learning demands imposed by the changing environment are going to be the key elements for support individuals to manage successful careers [34].

In line with the historical and cultural framework, the concept of Career has shown significant changes. According to Hall, in 1996, the concept of psychological success derives from individual Career management [35]. Career today is characterized by instability and insecurity, this means a greater mobility, personal flexibility and a more whole-life perspective [36]. In other words, career is based on individual goals, including the whole life space, as well as being driven by psychological success rather than objective success. Career insight is: “the ability to be realistic about one’s career and consists of establishing clear, feasible career goals and realizing one’s strengths and weaknesses” [37]. Employable individuals, by definition, have a collection of personal qualities essential for effective adaptation—career identity, personal adaptability, and social and human capital [38]. Nowadays, evaluating the perception of career insight of young students can be an essential element to investigate the predictor aspects related to career and the ability to knowingly balancing between work and family life.

Career management skills refer to multifaceted skills and attitudes that involve collection, analysis, composition and organization of information about self, education and professions [39]. This construct is considered very significant as they may support people in taking full advantage of educational and career opportunities and deal with difficulties in the workplace and in maintaining balance among several roles at education, at work and family. Moreover, career management skills can help academic students react effectively to the ambiguity of labor market and career development [40]. Several studies have focused on career identity and complex mediation relationships between preparatory career actions and career progress indicators [41] or career attitudes in employability and professional success [42].

Nowadays, people’s career patterns are becoming boundaryless and non-linear [43]. The current industrial revolution opened a framework characterized by uncertainty, complexity of career environments and the decrease of many traditional jobs and traditional types of contracts [32,36]. These modifications affect the occupational and career management, especially for the students who are in transition from the University to labor market. A strategy to cope with this problem, is to consolidate the skills and the employability of the undergraduates for career self-management. Through career self-management, the job seekers (students overall) can use and enhance the personal resources to adapt to the upcoming transformations in a way useful for both their own goals and for those of the economy in general [36]. Despite the importance of these topics, there is a lack of integration of research and practical interventions [4]. Based on career success framework, the career self-management is defined according to a double perspective: it as a process of action regulation and thus, of resource management [36]. The career self-management is often studied relating it to employability of college students. According to Lo Presti and Pluviano’s model (2016) [4], the employability is a resource that help individuals to manage challenges, identifying and taking advantage of opportunities of the current labor market. One of the dimensions of employability is the career identity and self-management, which refers to the “awareness that individuals might have about their professional experience and the ability to make sense of them in line with specific present and future career objectives” [44]. In the recent literature about employability and career self-management there is no in-depth analysis on the impact of career insight in the relation between social networks and career self-management within higher education’s courses.

The general purpose of this study was to identify the relationships between social networks, career self-management and career insight.

In the present study, we hypothesize that career insight will have an impact in the relationship between social networks and career self-management, based on the following hypotheses:

**Hypothesis (H1):** *Social networks at T1 will be positively related to career self-management at T2;*

**Hypothesis (H2):** *Social networks at T1 will be positively related to career insight at T2;*

**Hypothesis (H3):** *Career insight at T2 will be positively related to career self-management at T2;*

**Hypothesis (H4):** *Career insight at T2 will have an impact in the relation between social networks at T1 and career self-management at T2.*

The model is illustrated in Figure 1. T1 and T2 represent respectively abbreviations for Time 1 and Time 2 of observation. T1 is the measurement before the CLab; T2 is the measurement at the end of the CLab.



**Figure 1.** The hypothesized model.

### 3. Research Method

This explorative study aimed to investigate the employability and the entrepreneurial skills of the participants at the first edition of the Contamination Lab of the University of Salento (Lecce, Italy), hereafter “CLab@Salento” and to explore any subsequent changes over time. The purposes of the study can be identified as follows:

- (1) To investigate the participants’ perception of their skills and their employability, in particular social networks, career self-management and career insight, also to explore if there are crucial changes over time before and after the contamination lab training intervention;
- (2) To analyze the entrepreneurial mindset at the end of the Contamination lab and to study if they present significant differences at the end of the Contamination-Lab intervention.

The study was carried out using longitudinal data involving two waves of measurement and six-month time intervals between measurements. Given the exiguous sample, our aim is to explore and describe this innovative EE experience for measuring the employability skills and the entrepreneurial skills of the students, in order to provide evidences about the positive relationship between entrepreneurial mindset and the enhancement of career self-management, so impacting on social and environmentally sustainable development.

#### 3.1. Research Context

In Italy, the Ministry of Education, University and Research (MIUR), launched in 2013 a competitive announcement for Italian universities to present project proposals for creating and enhancing a Contamination Lab (CLab) [45], places of contamination between high school students, university students and Ph.D. students of different disciplines to develop an entrepreneurial awareness.

CLabs are inspirational places that spread the culture of entrepreneurship and innovation and aim at promoting interdisciplinary, new learning models and the development of entrepreneurial and social innovation projects, in close collaboration with the territory [46]. CLab is a physical and digital creative reality and stimulating space where innovative ideas and projects are realized [47].

The cornerstone of the laboratory is the contamination of ideas among students of different background, and belonging to bachelor, master and Ph.D. programs. Also, contamination occurs thanks to the close interactions with the other Italian CLabs, with national and international universities and with stakeholders of the business environments, institutions, companies and chambers of commerce and spin-offs. Within the CLab learning activities, students are strongly encouraged to develop their needs in terms of competences, experience and capabilities to acquire the knowledge to complete their innovative projects idea. The contamination process with CEO, entrepreneurs and company managers

represent a fruitful opportunity to get in touch with the business worlds. CLabs, therefore, constitute themselves as “places of impulse for the culture of entrepreneurship and innovation, aimed to promote new learning models and the development of entrepreneurial and social innovation projects, in close connection with the territory” (Directorial Decree of 29 November 2016 No. 3158).

Consistent with the vision and the mission of the national CLabs, the University of Salento, starting from September 2017 has designed, organized and launched its first edition (CLab@Salento) [48].

The selection was attended by university students enrolled in the three-year and master’s degree programs, recent graduates and Ph.D., students of all disciplines, both from the aforementioned university and high school (students enrolled at least in the third year). Within the CLab@Salento all the University’s students with different backgrounds (business, humanities, social science, science, engineering, biology, arts etc.) have been selected to take part to an innovative extra-curricular learning program to create an entrepreneurial awareness, mindset and capability. The final value is to grow in effectiveness and contamination of ideas, knowledge and skills within the University and the local entrepreneurship ecosystem according the quadruple helix model [49,50]. The Vision of the “Clab@Salento” is to activate virtuous contamination processes in order to develop in the students the spirit of initiative, creativity and entrepreneurial culture, the ability to know how to translate ideas into actions, to carry out innovation projects having a social and entrepreneurial vocation in line with the strategic areas of the University of Salento and the territory and with the strategic areas of the smart specialization, through the organization of extra-curricular activities for students by adopting innovative learning models [51,52]. According to this vision in January 2018 the first edition of the CLab@Salento has been launched.

### 3.2. Participants and Procedure

The students involved in the CLab@Salento ( $N = 39$ ) were encouraged to voluntarily participate in this study by completing a questionnaire, taken and adapted from the Lo Presti et al. (2016) [4] and integrated with the Spencer and Spencer [53] competence model and informal skills and entrepreneurial attitudes (EU, ENTRECOMP) [24,54]. The questionnaires were introduced by a short text clarifying that the study examine with a series of factors linked to employability. We asked participants to respond to a series of professional and work statements, divided into sections.

However, it was possible to carry out the longitudinal study only on about the 77% of the participants ( $N = 23$ ) at the first edition of the CLab@Salento.

Empirical data were collected in two waves in February 2018 (T1) and July 2018 (T2). In addition, an additional survey was conducted, through questionnaire-interview adapted by Spencer and Spencer and Entrecomp, in October 2018 (T3).

The final sample of the study consists of 23 subjects, who accepted to participate to the survey. In terms of sex, 12 were males (52%) and 11 were females (48%). The mean age was 25.20 ( $SD = 3.72$ ) with a ranging between 17 and 35 years. The 77% of the participants at the longitudinal study have a university degree (three-year degree or master’s degree). The 43% of the subjects involved in the research are biotechnology students or biology graduates; 22% study or graduate in engineering; 18% graduated or Ph.D. students in human and social science; 8% graduate in law or geopolitical and international studies, additional 4% have a Ph.D. student in physics and only 4% are high school students.

### 3.3. Ethical Aspects

Supplementary ethical approval was not necessary according to the Institution, due to the absence of medical treatment or other procedures that could undermine participants’ psychological or social comfort. The study was conducted in accordance with the Helsinki Declaration [55] and with Italian data protection regulation (Legislative Decree No. 196/2003). Participants took part in the research voluntarily and unrewarded; their privacy has been respected both for data collection and analysis. The questionnaire was complete with a cover letter providing information about the

study goals, guarantees about privacy, voluntary participation, data treatment and instructions to fill in the questionnaire. By deciding to fill in the questionnaire, all study participants agreed on terms and provided their informed consent.

### 3.4. Measures

For all measures explored, Italian validation scales are used. The questionnaire was composed of a section made up by the scales used to measure the constructs investigated and a socio-demographic section (sex, age, educational training and experience, educational qualification, current working).

The instrument used was composed by four sub-scales adapted from the Lo Presti et al. [44] (human capital and professional development, social capital, career and knowledge of the world of work).

In addition, six dimensions were taken from the skills model of Spencer and Spencer and finally the last scale investigates entrepreneurial attitudes.

All the items adapted by Lo Presti et al. [44] in the scales were scored on five points of Likert ranging from 1 (not at all) to 5 (completely), while the skills and entrepreneurial attitudes are measured by a Likert scale ranging from 1 (not at all important) to 5 (absolutely necessary).

#### 3.4.1. Human Capital and Professional Development

We used fifteen items to investigate the first-dimension Human capital and professional development. These items considered the possession of ample competencies (i.e., expertise “I feel enough confident for engaging in a discussion with other professionals about technical aspects of my work or my profession”), acquired through formal and informal education (i.e., education and training “I think that my current level of professional experience is adequate for carrying out satisfactorily my work”), as well as the propensity to constantly develop own profile (i.e., lifelong learning orientation “I think I must develop as much as possible my professional competencies and knowledge”), the awareness of possessing competencies easily transferable across different contexts (i.e., adaptability “The competencies I developed are easily applicable to different organizational and/or professional contexts”).

Finally, this scale consists of fifteen items that measure the perception related to their skills, training and experience, lifelong learning, meta skills, flexibility.

In summary, Human capital concerns the wealth of knowledge, skills and abilities that the subject has acquired or could acquire through training and professional experience and which could be useful for work. Professional development is expressed through the participation in all those activities aimed at increasing one’s knowledge, skills etc. and that demonstrates the importance that is given to self-career [56].

#### 3.4.2. Social Capital and Networking

Social capital and networking was measured with a fourteen items concerning the ability to effectively manage social relationships (i.e., socio-relational competencies “I am usually able to recognize my emotions and how these can impact on the way I interact with others”), the availability of social support from a wide variety of sources (i.e., social networks “I can count on a network of relatives and friends that could be helpful from a professional point of view”), as well as the ability to develop new social relationships (i.e., networking “Knowing new people is an opportunity that I miss rarely”).

Social capital refers to the degree of support that an individual can enjoy thanks to the relationships she/he has developed over time or which she/he could acquire and develop in new situations due to her/his social skills while networking refers to the creation and maintenance of social networks. For instance, that set of behaviors aimed at increasing one’s own social capital both inside and outside the organization.

### 3.4.3. Career Identity and Self-Management

We used seven items to detect the present and future career perception compared to personal areas of life such as the family. This scale was divided in three sub-dimensions: career insight, career planning and career self-management. To measure career insight, we used three items developed by [27]. Sample item included “My career goals are realistic”. The measure for career planning was assessed with two items developed by [57]. Surveyed items included: “I think I have a clear plan for my career”. Also career self-management was assessed using two items. Representative items include: “I am clear about how much importance giving to my career and to my family”.

### 3.4.4. Career Exploration

We used eight items aiming to measure the confidence in job-search activities (i.e., job-search “I am able to collect useful information about a potential employer before meeting him/her for a job interview”), and the knowledge of labor market characteristics and trends (i.e., occupational trends knowledge “In regard to my reference professional scope, I know the local occupational opportunities and barriers”).

### 3.4.5. Transversal Skills and Entrepreneurial Attitudes

In addition, twenty items were introduced to investigate transversal skills [53] (i.e., realization and recreational skills “result orientation, attention to order, spirit of initiative, information’s research”; assistance and service skills, skills of influence, managerial skills, cognitive skills, personal effectiveness skills) and five items to detect entrepreneurial attitudes (EU, ENTRECOMP) such as evaluating ideas critically, recognizing and identifying opportunities, knowing how to develop a business plan, ability to manage complexity, ability to learn from experience. Before administering this scale, it was made a translation (from English to Italian) and a back translation (from Italian to English) with the help of an expert English mother tongue. The result was a good correspondence between item. Cronbach’s alpha of the scale was acceptable because it’s  $> 0.70$  [58].

## 4. Data Analysis

Data collection was carried out in an ad hoc prepared grid (Excel). Descriptive analyzes, means, standard deviations and correlations were carried out, using the SPSS software (version 23).

Furthermore, different regression analyses were run, in order to test the role of Career insight T2 in the relationship between the Social Networks T1 and Career self-management T2. To test hypothesis H1, we considered as independent variable Social Networks T1. To test hypotheses H2, we regressed independent variable (Social Networks T2) on Career Insight T2 (Step 2). To test hypotheses H3, we regressed Career Insight T2 on dependent variable (Career Self-management T2) (Step 3). Finally, we hypothesized a mediational model: we regressed independent variable (Social Networks T1) and mediator (Career Insight T2) on dependent variable (Career Self-Management T2) (Step 4). The different regression models performed is illustrated in Figure 2.



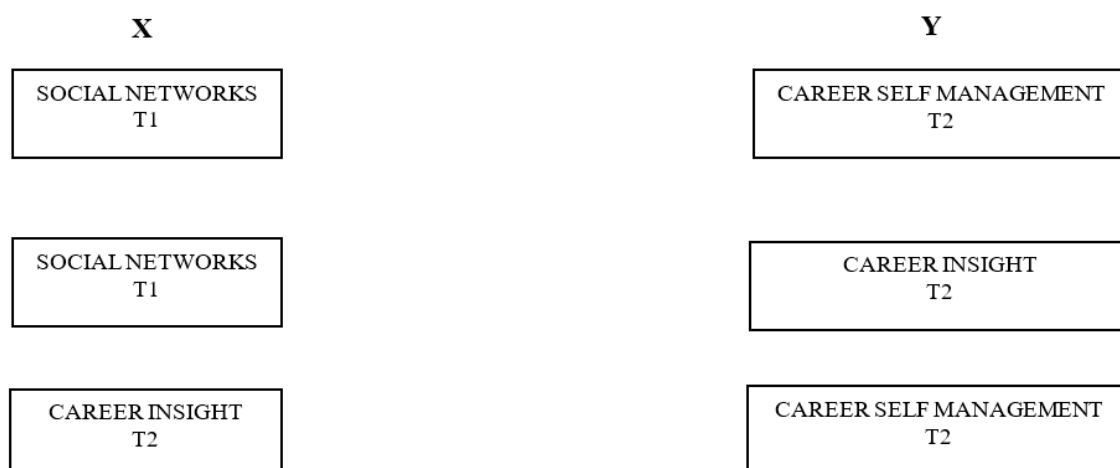


Figure 2. The different regression models performed.

## 5. Results

### 5.1. Descriptive Statistics

Means and standard deviations in the two times are presented in Table 1: in bold the variables which improved at the end of the service (the mean at Time 2 is greater than mean at Time 1). Cronbach's alpha coefficients are presented in Table 2. Moreover, the correlations are shown in Table 4. In the table, the values in bold shows the increase in the averages over time T2.

Table 1. Means and standard deviations.

Variables	Means T1	Standard Deviation	Means T2	Standard Deviation
1. Age	24.6	3.85	25.3	3.79
2. Competences	2.46	0.64	<b>2.60</b>	0.52
3. Education and Experience	2.75	0.71	<b>2.88</b>	0.71
4. Meta Competences	3.11	0.40	<b>3.16</b>	0.63
5. Adaptability	2.83	0.60	<b>2.87</b>	0.55
6. Social Networks	2.65	0.88	<b>2.81</b>	0.70
7. Career Insight	2.42	0.72	<b>2.81</b>	0.51
8. Career Planning	2.22	0.58	<b>2.41</b>	0.69
9. Career Self-Management	3.01	0.63	2.85	0.84
10. Job Search	2.40	0.72	<b>2.83</b>	0.68
11. Occupational Trend	2.14	0.61	<b>2.64</b>	0.67

*N* = 23. T1 is the measurement before the CLab; T2 is the measurement at the end of the CLab.

Table 2. Cronbach's alpha coefficients.

Variables	Cronbach's Alpha t1	Cronbach's Alpha t2	Cronbach's Alpha t3
1. Human Capital and Professional Development	0.86	0.84	
2. Social Networks	0.80	0.70	
3. Career Self-Management	0.78	0.77	
4. Career Insight	0.70	0.72	
5. Transversal Skills		0.80	0.80
6. Entrepreneurial Attitudes		0.70	0.70

Table 3 shows the summary of the regression analysis: predicting career self-management; Table 4 shows the correlations between the study variables T1 and T2.

**Table 3.** Summary of regression analysis: predicting career self-management.

Career Self-Management (N = 23)				
	Step I (c)	Step II (a)	Step III (b)	Step IV (c')
Social Networks T1	−0.621 *	−0.554 *		−0.320 *
Career Insight T2			0.720 **	0.543 *
R	0.621	0.554	0.720	0.768
R <sup>2</sup>	0.386	0.274	0.519	0.590
F	13.189 **	9.300 *	22.636 **	14.385 *

\*  $p < 0.05$ ; \*\*  $p < 0.001$ . Step I: regression of self-management on independent variable (Social Networks T1). Step II: regression of career insight on independent variable. Step III: regression of career self-management on mediator variable (Career Insight T2). Step IV: regression of career self-management on independent variable and on mediator variable (Career insight T2).

Firstly, Cronbach's alphas were good for all the variables and for all three measurement points. From the analysis of Cronbach's Alpha values, we can see how the variables taken into consideration are highly reliable, since they all have a Cronbach Alpha coefficient between 0.70 and 0.86.

Compared to T1, averages are higher in T2 for human capital, social capital and career. In addition, descriptive analysis of entrepreneurial attitudes in T2, showed that the participants perceive themselves as competent. As illustrated in Table 1, competences, education and experience, meta competences, adaptability, social networks, career insight, career planning, job search and occupational trend have increased in T2.

Moreover, Social Networks T1 was correlated negatively to Career self-management T2. This negative relationship is positively mediated by the career Insight T2. In order to test mediation hypotheses, regression analyses were performed (Table 3). In the Step I, Social Network T1 ( $\beta = -0.62$ ,  $p < 0.05$ ) was negatively related to career self-management T2. In the Step II, social network T1 was negatively related to Career insight T2 variable ( $\beta = -0.55$ ,  $p < 0.05$ ). In the Step III, Career insight T2 variable (Career insight T2) was positively related to career self-management T2 ( $\beta = 0.72$ ,  $p < 0.05$ ). Finally, in the Step IV, Career insight T2 ( $\beta = 0.54$ ,  $p < 0.05$ ) was still related to career self-management T2, while social network T1 had not a significant relation with the dependent variable. The effect of the independent variable (Social Network T1) on the dependent variable (Career Self-Management T2) was non-significant when introducing mediator in the regression; therefore career insight T2 fully mediated the relationship between social network T1 and career self-management T2, supporting H4. Furthermore, the effect indirect was 0.002. Due to the small size of the sample, this study is merely preliminary but provide an insight of the role of CLab@Salento service.

**Table 4.** Correlations between the study variables T1 and T2.

	Correlations Between the Study Variables T1										
	1	2	3	4	5	6	7	8	9	10	11
1. Competences	0.08	−0.18	-								
2. Education and Experience	−0.16	0.01	0.72 **	-							
3. Meta Competences	−0.17	−0.11	0.71 **	0.74 **	-						
4. Adaptability	0.02	0.16	0.56 **	0.58 **	0.39	-					
5. Social Nets	0.03	−0.09	0.45 *	0.32	0.26	0.51 *	-				
6. Networking	0.12	0.26	−0.08	0.19	0.01	0.42 *	0.33	-			
7. Career Insight	0.02	0.02	0.65 **	0.47	0.55 **	0.12	0.31	−0.21	-		
8. Career Planning	−3.00	−0.28	0.22	−0.07	0.15	−0.27	0.11	−0.18	0.60 **	-	
9. Career Self-Management	0.03	0.31	0.14	0.12	0.13	0.25	0.54 **	0.18	0.35	−0.01	-
10. Job Search	0.08	−0.03	0.52 *	0.26	0.24	0.07	0.51 *	−0.09	0.63 **	0.37	−0.15
11. Occupational Trend	0.03	−0.35	0.55 **	0.32	0.33	0.12	0.51 *	−0.15	0.58 **	0.42 *	0.08
	Correlations Between the Study Variables T2										
	1	2	3	4	5	6	7	8	9	10	11
1. Competences	-										
2. Education and Experience	0.42 *	-									
3. Meta Competences	0.66 **	0.26	-								
4. Adaptability	0.47 *	0.38	0.77 **	-							
5. Social Nets	0.61 **	0.13	0.36	0.34	-						
6. Networking	0.40	0.02	0.45 *	0.28	0.56 **	-					
7. Career Insight	0.32	−0.09	0.35	0.11	0.33	0.40	-				
8. Career Planning	0.16	−0.08	0.28	0.09	0.42 *	−0.01	0.36	-			
9. Career Self-Management	0.48 *	0.11	0.39	0.20	0.47 *	0.45 *	0.72 **	0.21	-		
10. Job Search	0.20	0.18	0.01	−0.15	0.46 *	0.36	0.37	0.45 *	0.42 *	-	
11. Occupational Trend	0.22	0.10	0.12	−0.11	0.44 *	0.33	0.46 *	0.56 **	0.49 *	0.88 **	-

\*  $p < 0.05$ ; \*\*  $p < 0.001$ .

### 5.2. Efficacy of CLab@Salento in Entrepreneurial Attitudes

One of the aims of CLab@Salento was to investigate the development of entrepreneurial attitudes in the individuals who benefited of the service. The measurement was performed in two different times: one at the end of the experience (T2) and the second three months after the experience (T3). The purpose was to highlight if the achievement could be considered persistent in time or not. Table 5 shows the means of the item at Time 2 (T2) and Time 3 (T3). Items regarded:

- IMP1: critical thought about new ideas;
- IMP2: the opportunities in critical situations;
- IMP3: a business planning in the financial and economic aspects;
- IMP4: facing ambiguity and complexity;
- IMP5: learning in the experiences.

**Table 5.** Summary of entrepreneurial attitudes at T2 and T3.

	Mean	N	SD
IMP1_T2	6.27	22	6.577
IMP1_T3	4.27	22	0.703
IMP2_T2	4.17	23	0.834
IMP2_T3	4.35	23	0.573
IMP3_T2	3.78	23	0.850
IMP3_T3	4.26	23	0.689
IMP4_T2	3.96	23	0.638
IMP4_T3	4.35	23	0.647
IMP5_T2	4.13	23	0.815
IMP5_T3	4.48	23	0.593

Meaning of T3 defined before the Table 5.

Figure 3 showed the mean of entrepreneurial attitudes after the CLab@Salento intervention and three months after the end of the experience. This measurement's aim was to test the persistence of the achievement due to the service. Regarding the time of measurement:

- T1 is the measurement before the CLab
- T2 is the measurement at the end of CLab
- T3 is the measurement three months later the end of CLab.

Figure 3 allows to state that all the entrepreneurial attitudes measured by Spencer and Spencer questionnaire improved in the three months after the intervention, except critical thought, where the mean deviation is very high.

Table 6 displays the statistical significance of differences between entrepreneurial attitudes at T2 and T3. The columns of the table represent the difference of the means (Mean difference), the standard deviation of it (SD), the mean of the standard deviation (Mean SD), the lower (Lower) and upper (Upper) confidence interval of the mean difference, the T value (t.value), or the size of the difference relative to the variation in the sample, the degrees of freedom (Degrees of freedom), or number of varying independent values without breaking any constraints, and finally the p.value (Significance): if  $< 0.05$  the outcome is significant.

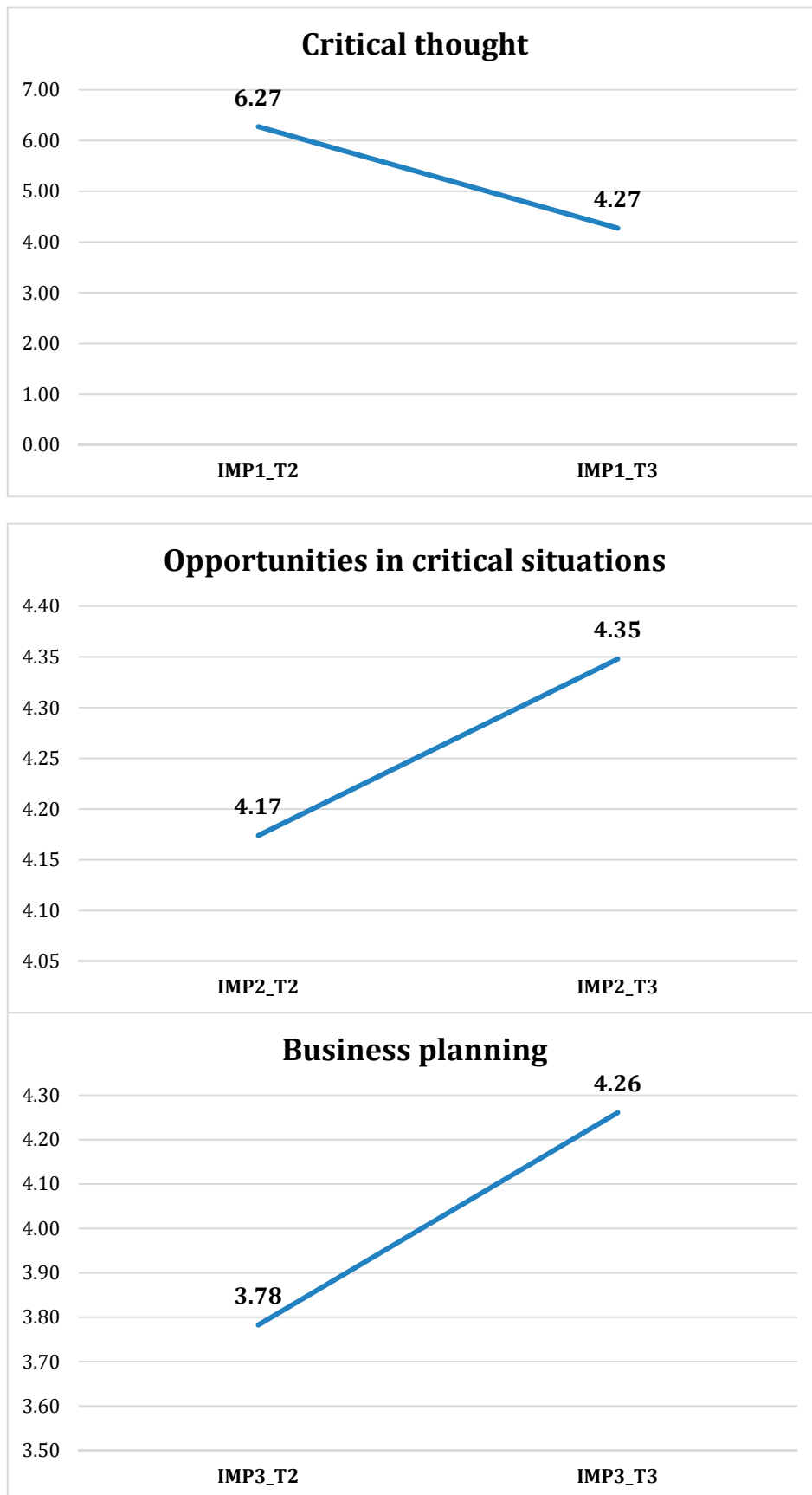
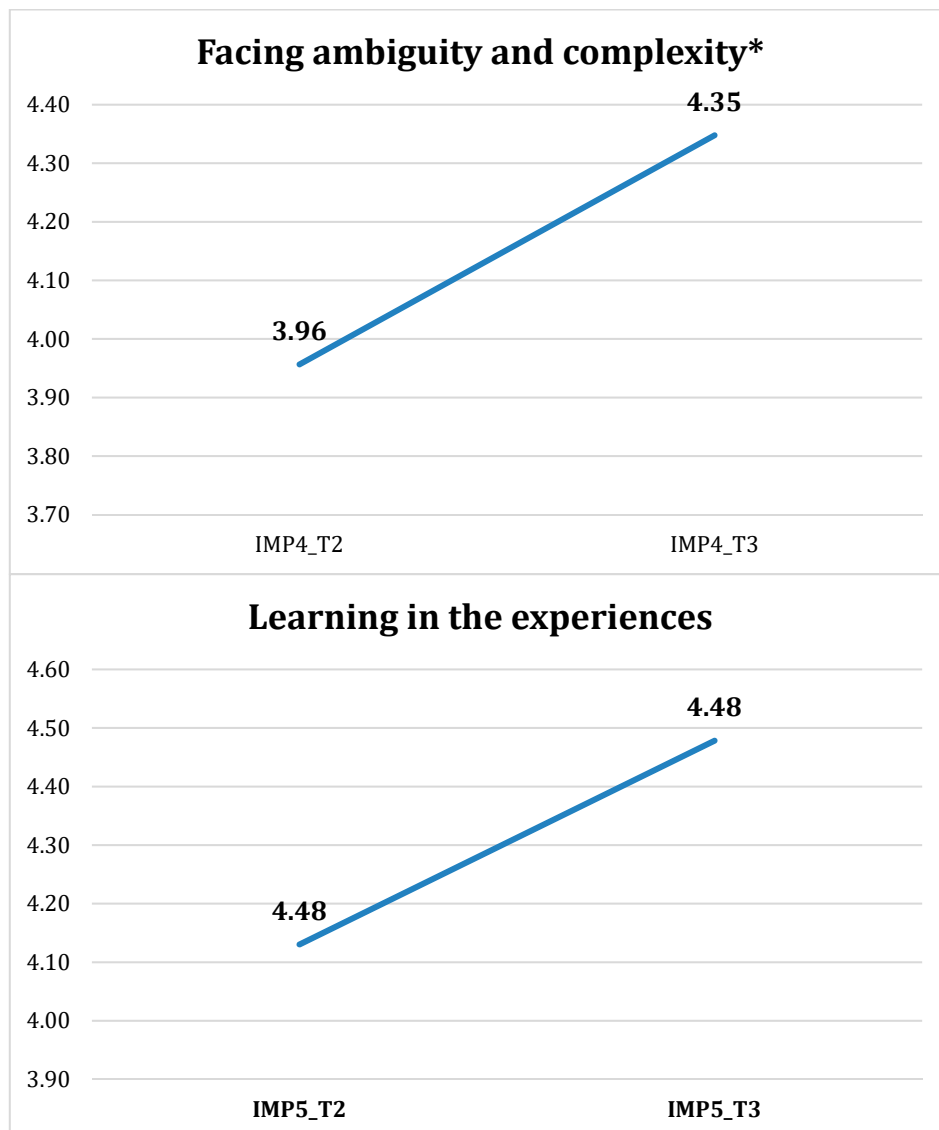


Figure 3. Cont.



**Figure 3.** Mean of entrepreneurial attitudes after CLab@Salento and three months later the intervention.

**Table 6.** Difference between variables at T2 and T3.

Difference	Mean Difference	SD	Mean SD	Confidence Interval		t.value	Deegres of Freedom	Significance
				Lower	Upper			
IMP1_T2 - IMP1_T3	2.00	6.532	1.393	-0.896	4.896	1.436	21	0.166
IMP2_T2 - IMP2_T3	-0.174	1.029	0.215	-0.619	0.271	-0.810	22	0.426
IMP3_T2 - IMP3_T3	-0.478	1.123	0.234	-0.964	0.007	-2.043	22	0.053
IMP4_T2 - IMP4_T3	-0.391	0.891	0.186	-0.777	-0.006	-2.105	22	0.047
IMP5_T2 - IMP5_T3	-0.348	0.982	0.205	-0.772	0.077	-1.699	22	0.103

The only significant outcome, in which the 0 value is not included in the confidence interval, is in the relation between IMP4\_T2 and IMP4\_T3, or facing ambiguity and complexity. This result exhibits an important improvement three months after CLab@Salento in the issue. All the other results did not show significant outcome, but except for critical thought the entrepreneurial attitudes improve in the measurement.

## 6. Discussion and Conclusions

The aim of the present research was to improve understanding about the employability and skills as social networks, career self-management and career insight. Furthermore, the purpose was to explore the crucial changes over time before and after the contamination lab training intervention, to analyze the entrepreneurial attitudes at the beginning of the contamination laboratory and to study if they show significant differences at the end of the contamination lab intervention. Social networks were found to be related significantly to career self-management as mediated by career insight.

This can be discussed as follows: social networks evaluated by participants at time 1, that is in their initial condition (before experiencing the CLab course), negatively influenced the career self-management T2 (during the course). It means that self-produced social networks are not enough for own career management; in fact, the students realize it when they are experiencing different career models and are exploring different way to build their professional identity, that is during the course attendance. Nevertheless, this negative relationship between self-developed social networks and career self-management can change direction thanks to a further variable: the career insight, which is the self-awareness toward achieving of realistic goals, and the ability to identify own strengths and weaknesses. So, this negative relationship between the social networks at T1 and career self-management at T2 is positively mediated by the career insight T2 (that is the ability and self-awareness to achieve goals developed during the course attendance). Career insight T2 helps to profitably use social networks T1. In other words, the Career Insight T2, therefore, allows participants at contamination lab to more actively and effectively use the social networks.

Even though this is an explorative study, this result has many interesting implications both for theory and for practice with some limitations. Firstly, the data are self-reported, this implies that the participants couldn't perceive themselves accurately. Secondly, one of the limitations of our study was, moreover, the small sample of the participants. The research is an explorative study, so the low number of the sample justifies the nature of the design. We found some insights about the role of career insight in the relations with social networks and career self-management, but due to the small sample and the non-homogeneity of the latter, no firm conclusions can be drawn on this basis. Moreover, they must be confirmed by future studies in the second edition of the CLab@Salento with a bigger number of participants.

The sample classification criteria were related to the students who benefited of the service. We did not choose any further classification because the final aim was to explore for the first time the outcomes deriving from this training course. The same argumentation could be referred to the lack of a control group. As said before, the criteria for the participation to the first edition of the CLab@Salento were:

1. University of Salento students enrolled in the three-year and master's degree programs, recent graduates and Ph.D. of all disciplines;
2. from different backgrounds (business, humanities, social science, science, engineering, biology, arts etc.);
3. had ideas, knowledge and skills within the University and the local entrepreneurship ecosystem according the quadruple helix model [49,50].

Nevertheless, we found important implications for the practical future interventions. Exploring the relations between career insight, social networks (a sub-dimension of social capital) and career self-management could be very useful for some motives:

1. Understanding what kind of abilities and competencies can lead to a sustainable and productive entrepreneurship.
2. Deeply comprehend the function of the CLab course, in terms of implementation of entrepreneurship abilities as the above-mentioned ones;
3. Analyze the mediation role of abilities improved by CLab in order to investigate the goodness of the course. More specifically, this preliminary study allowed us to suggest that the social networks measured before the CLab do not impact the management of the career. By adding the insight of working aims (career insight) this relation became significant. We measured career insight at Time 2, so in an explorative way we could state that CLab reached its goal.

Social networks, and in general the social capital, helps individuals to gain informational resources and social support as well as access to career-related networks, during the job search process [38,59]. Furthermore, according to several authors [60], social supporters can influence individuals to look at job search as a worthwhile pursuit, as well as providing advice and practical assistance throughout the process. Moreover, social networks can be an important source of reassurance and encouragement when the individual is rejected [61]. Social networks, by career insight, can affect the career self-management with crucial spillover on the future career paths.

Another important result concerns the importance for participants to experience the CLab course. We can state that CLab's intervention could have modified the participants' perception of career, social capital. Consequently, this makes the students who are identifying themselves as "Clabber", more oriented to the employability and to own future career. This positive outcome could be read as a personal and professional growth, probably related to the awareness of the clabbers with respect to their real skills and competences that would lead to a better definition of the professional and career objectives, during the course attendance. We cannot say there is just this reason, we know there are other variables implied in the personal process of growth and self-awareness, but we can observe these changes over time, in the time interval of CLab course attendance.

Findings could have many interesting implications both for theory and for practice. From a theoretical point of view, the paper has contributed to grow literature about and to its better understanding on the factors that influence the employability orientation and activities in relation to positive outcomes such as internal and external career perception. With respect to the practical implications, results could be very useful to plan and design interventions and social policies for planning social interventions and policies to increase skills and competences as well as the employability of young people [5].

We added in this study the measurement of entrepreneurial attitudes at T3. The aim was to investigate if these abilities remain stable over time (measurement at T3 was performed three months after the end of CLab intervention). Based on the results discussed above, in terms of means, all the skills remain more or less stable and indeed increase over time. This outcome can suggest that CLab improved all these abilities and that they continue to rise, except for critical thought. This latter insight can provide further suggestion in order of improvements to be made. The paper also aims to provide a contribution that is at the center of the debate about sustainability, launched in recent decades, on the importance of education and training to support productivity and growth, both socially and economically, in Italy and in Europe [62].

In particular, we offer the first results compared to an intervention of development of entrepreneurial skills such as the contamination lab of the University of Salento. On the other hand, the study can provide a contribution to those who organize and manage virtuous processes of contamination and innovation.

In a world of work characterized by an acceleration of the pace and working time, the issue of sustainable employment becomes central to social development. In line with this, the study presented shows a correspondence. In fact, the overall purpose of the CLab is to provide young students with the skills necessary to face the labor market through an integrated and sustainable training system.



The sustainable development of educational practices is therefore a key to enabling the economy to grow [63].

According with some authors [64,65], innovation and Career self-management are important aspects to face the challenges connected to the Sustainable Development Goals, which were announced by the United Nations (UN) [66,67], and to support human and productive organizations [68,69].

To achieve sustainable project goals, as well as to achieve growth and enrichment, as some studies on sustainability psychology and sustainability have emphasized, innovative behaviors are necessary [64,69] and for this reason also institutions and educational systems must focus on the promotion of innovative solutions, skills, entrepreneurial mindset and other personal variables. The entrepreneurial mindset demonstrated a positive enhancement of social and environmentally sustainable development with positive impacts in the areas of financial inclusion, empowerment of women, sustainable farming, and minority integration, among many others.

The present preliminary study is also within the psychology of sustainability and sustainable development, the latter seeks to contribute to the sustainability and sustainable development of each person, facilitating the growth of his talents both in terms of interpersonal talents and for the empowerment of the community of belonging and progress [70]. Improving the resources, strengths and talents of young people and groups is the best way to achieve well-being [71,72] and, in the current scenario, even employment. In addition, institutions promoting health transform the health and sustainability of our current and future societies, strengthening communities and contributing to the sustainability [72] of working life projects as a key to the success and well-being of the people [73].

From a practical point of view, it is essential to start by recognizing that Universities and entrepreneurship centers could support an “entrepreneurial journey” [44] by assisting the participants’ conversion from university students to entrepreneurs on their journey from university to business through the implementation of entrepreneurship education initiatives.

Furthermore, the implications of this study also apply to sustainable entrepreneurship. Therefore, entrepreneurship centers can also target the sustainable entrepreneurs that seek to base their entrepreneurship activities in solving social or environmental problems with their entrepreneurial activities. Therefore, the entrepreneurship education initiatives can be conceived according to their specific social, ecological and economic development aims.

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