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**The role of employability in students during academic experience: a preliminary study through PLS-PM technique**

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# The role of employability in students during academic experience: a preliminary study through PLS-PM technique

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In the current socio-economic scenario, affected by constant changes in the labor market, employability found greater echo. Universities frequently adopt strategies aimed at improving the employability and usefulness of the areas of competence, motivation and interests of young graduates and workers. In this study a preliminary research was conducted on a sample of 84 university students who attended a consulting service at the University of Salento, the Career Service Office. The average age of the sample was 26.74 years (DS = 4.95), 63% women, 71.4% unemployed. The tool used was a questionnaire-interview. The aim of this research was to assess the role of employability and its influence on personal variables and active work behaviours, as job searching activities. Analyses were conducted through PLS-PM technique, a non-parametrical SEM modeling, and demonstrated that employability affects job search and self-efficacy, while self-efficacy had a non significant relation with job search behaviours.

**keywords:** Employability; career service; PLS-PM, job search, academic experience, self-efficacy.

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## 1 Introduction

In recent years labor market changed significantly. Precarious work is a growing problem, in particular among young employees (Nielsen et al., 2019). Graduates and students must work to increase their skills and become more flexible and adaptable (Lo Presti and Pluviano, 2016; Lo Presti et al., 2019). Currently, permanent employment is less frequent and career has become unpredictable and borderless.

Unstable global economy and technological changes which characterize the current working environment are reducing companies' time horizons and increasing the employment difficulties of workers. Economic and social changes and the new forms of atypical work have an impact on career development and well-being of people facing uncertainty and instability in their working lives (Gevaert et al., 2018). In this context, young people continue to be challenged by unpredictability of the labor market. Governments around the world promote the creation of new jobs in order to promote smart, sustainable and inclusive growth (Di Fabio and Kenny, 2016). In fact, in line with these issues, United Nations has proposed some objectives for sustainable development including: absence of poverty, health and well-being, quality education, decent work and economic growth, partnership to achieve the goals.

These objectives highlight the possibility to progress and promote the development of individuals. In the current scenario, employability has become a strategic element in the phase of access to the labor market but also as a career support during working life. For this reason, universities often adopt strategies aimed at improving employability and usefulness of the areas of competence, motivation and interests of young graduates and workers. Universities and Career Centres around the world are now adapting their services towards empowering students with employability skills that will make them employable in the market economy and enable sustainable career development for future development (Terzaroli and Oyekunle, 2019). Employability can be considered as a social psychological resource that individuals put in place to manage the different obstacles that characterize the course of their career, in order to build a sense of professional identity. People must be able to proactively navigate the world of work and self-manage the career building process to achieve optimal economic and social outcomes (Bridgstock, 2009). This perspective is consistent with the assumptions underlying university job placement service. Job placement is a service provided by universities and consists in helping people who are unemployed in searching a job. Universities offer to students and recent graduates an important help in searching an employment and in career planning. This type of service aims to develop a proactive approach to job search based on the level of education, skills, and personal resources. The difficult transition from school and university to work has long been a problem, which undoubtedly the economic crisis has contributed to aggravate (Boffo et al., 2017). This problematic entry of young people into the labor market has brought out a need to implement policies and practices oriented at supporting the transition between academic world and the professional world. This transition, in fact, represents an important issue for the university student, who

very often appears disoriented about his job opportunities (Boffo and Gioli, 2017).

Job Placement and University Career Service services include a long list of activities such as recruitment, job training, psychological counseling to support project and career planning and entrepreneurial development (Boffo et al., 2017; Candia and Cumbo, 2015). In the Anglo-Saxon context, the Career Service and the Job Placement services are configured as a center for creating links between the world of work and those who in various ways turn around the university (Boffo et al., 2017; Ingusci et al., 2019a). In Italy, it can be observed that the employment services have been established only since 2005, as a strategic reaction of the universities in the wake of the Biagi Law (2003) (Candia and Cumbo, 2015). Job placement and Career service can provide important tools for the building employability, to improve resources, to promote the sustainability (Di Fabio and Kenny, 2016) and working life projects as a key for success and well-being. University of Salento, for several years, has been offering tools and resources to increase the job opportunities. Scholars and researchers, are engaged not only in projects aimed at facilitating the matching between labor supply and demand (career days and weeks of work) (Ingusci et al., 2019a) but also orientation and career counseling interventions. Thus, through the workshops, students' skills and transversal skills are enhanced. Recently, in May 2018, a curriculum vitae review and work orientation desk was set up at the career service. The research described in this paper was carried out within the career service office of Salento's University.

In this framework employability became an important personal resource. In fact, it can be considered as an individual competence whose advantages are in a double level: subjective and organizational. Employability oriented students will be, in the future, workers able to learn, to change, to get involved by trying to capitalize any experience offered by the context (De Vos and Soens, 2008; De Dreu and Nauta, 2009; De Vos et al., 2011).

## **2 Theoretical framework**

### **2.1 Employability and self-efficacy**

Employability is a pedagogical construct elaborated at the end of the 1990s by Harvey (Harvey, 2001), and resumed later by Yorke and Knight (2006). It has no unequivocal definition although it is tendentially defined as the set of skills possessed by an individual that allows him, on the one hand, to be able to successfully occupy certain job positions, on the other, to develop, in the course of working life, new skills (Yorke and Knight, 2006). Employability does not depend exclusively on what the employer wants from his employees, but, above all, on what an individual evaluates and undertakes to do to increase his own internal or external career success (Lo Presti and Pluviano, 2016; Lo Presti et al., 2019). In literature, different authors conceive employability as a construct centered on the person. This assumption helps to comprehend the ways in

which people can promote better levels of adaptation, in order to face the changes in the current working environment (Fugate et al., 2004). According to Fugate et al. (2004), employability includes three dimensions:

1. Adaptability;
2. Career identity;
3. Human and social capital.

Lo Presti and Pluviano (2016) and Lo Presti et al. (2019) extended the model, considering employability as a dynamic construct and identifying four dimensions:

1. Career identity and self management;
2. Professional development;
3. Networking;
4. Environmental monitoring.

Theoretical model proposed by the authors confirms employability as a resource able to understand and improve individual experiences on the labor market. Employability is a central variable since it represents an individual strategy toward a continuous updating of relevant skills for reemployment. Van Dam (2004) investigated employability orientation, considered as a set of attitudes and activities oriented at strengthening, developing and maintaining individual employability. It is a crucial variable in the understanding of active job search behaviour since it could allow people to enhance each personal and professional experience in view of professional improvement and attainment (Button et al., 1996). Nevertheless, studies (Van Dam, 2004) revealed that an employability orientation could be an important but not sufficient factor to produce individual employability. However, the construction of employability becomes more concrete until it reaches continuous effort and involvement in initiatives aimed at improving learning and development. This is what is generally defined as employability activity, or a series of proactive and adaptive behaviors that allow a better match between individual and organization (Crant, 1995). Employability is a multidimensional whole, linked to various factors such as career development, flexibility, adaptability (Fugate et al., 2004; Urbini et al., 2018; Van der Heijden, 2002). Moreover, several studies are specified oriented to deepen the antecedent variables and the consequences of employability. In general, antecedents have been categorized as situational factors (that is to say variables outside the control of the individual), for example demand / job offer or individual factors (such as human and social capital, dispositions, personality traits) while outcomes include proximal type variables such as self efficacy and distal variables as job search behaviors.

Self-efficacy is considered particularly important to promote behaviors related to work and the search for it (Bandura, 1977). It corresponds to the awareness of being able to

dominate specific situations, tasks and aspects of one's social and psychological functioning. Self-efficacy is the conviction of being able to succeed. Numerous studies have identified self-efficacy as one predictor of work performance, confirming the link between being convinced of being successful in an organizational domain (Argentero and Cortese, 2017). Individuals with greater self-efficacy perform more active coping behavior in stressful situations, exert greater effort and persistence in facing obstacles, establish higher goals for themselves, develop more concrete plans and are more likely to achieve their goals (Bandura, 1977; Bandura and Adams, 1977; Gecas, 1989; Skinner et al., 1998).

The link between employability and self-efficacy has often been investigated in the literature. The direction of this relationship seems to be a more controversial issue. Berntson et al. (2008) assumed that employability is not an expression of self-efficacy, but that it is the perception of employability that has benefits on self-efficacy beliefs. According to Berntson et al. (2008), employability is empirically different from self-efficacy (in terms of measures and constructs). Furthermore, employability predicts self-efficacy, even considering moderators as age, gender, educational level and geographical differences. For these reasons the direction of the relation could be from employability perception to general efficacy beliefs: improving employability abilities could have effects on self-efficacy, as proposed in this study.

## 2.2 Job search

Job search process is a stressful experience, especially for students and young graduates; this because of the difficulties in finding a satisfactory job due to professional inexperience or professional networks (Koen et al., 2012). Job search behavior has been shown to be one of the most important predictors of job attainment and employment status (Kanfer et al., 2001; Saks and Ashforth, 1999, 2000; Hooft et al., 2004).

The job search behavior is conceptualized as “*a purposive, a voluntary pattern of action that begins with the identification and commitment to pursuing an employment goal*” (Kanfer et al., 2001, p. 838). Job search behavior can be classified according to the research effort and the research intensity of a job (Blau, 1993; Kanfer et al., 2001). According to Blau (1994), job search intensity includes *preparatory* job search behavior intensity (i.e., *gathering information and identifying potential jobs during the planning phase of the job search*) and *active* job search behavior intensity (i.e., *the actual job search and choice process, such as sending out resumes and interviewing with prospective employers*) (Wang et al., 2017). In the preparatory phase, people tend to identify a number of work alternatives, using formal or informal sources. During the active phase, individuals collect information, plan an action plan and materialize in the job position they identified during the preparatory phase (Ingusci et al., 2016). Starting from the assumption that employability plays an important role in the active search for work, this research aims to investigate the role of employability in college students during academic experience related.

## 2.3 Psychological Capital

Psychological capital is understood as a positive psychological asset that characterizes one individual over another and facilitates the expression of talent. Contributes to the realization of people at work and the success of work performance. These are the qualities that support people in effectively dealing with scenarios, roles and trades by acting proactively, without being discouraged by the absence of external references and supports, finding in themselves the resources to succeed. These resources represent the real intangible assets of the organizations that too often are not the object of the organizational evaluation that is traditionally based only on the competences and on the classic meaning of potential on the job (Rolandi et al., 2015). The main components of psychological capital are personality, values and motivations, sense of self-efficacy, resilience, optimism and determination. Other components of psychological capital are individual values, deep and rooted beliefs that define what is important for everyone, and the motivational inclinations that create energy in individuals.

The reading of the positive psychological capital present in the organization does not cancel, but goes alongside the traditional reading of the contributions of individuals. Alongside skills and performance, the determinants of behavior, or the psychological potential that influence the genesis and expression of talents, also become the object of detection and development. We pass from the evaluation and management of the potential to the liberation of the potential of individuals, and therefore of the intangible resources present in the company. Some studies that are positive psychological capital can influence the search for work, employability, adaptability and career identity (Chen and Lim, 2012; Luthans et al., 2007; McArdle et al., 2007).

A prolonged state of unemployment can lead to an irreversible deterioration of psychological capital, such as to render complete the recovery of difficult resources, even once reintroduced into the labor market (Cole, 2006). The national institute for the analysis of public policies (INAPP) has tried to link the concept of employability of psychological capital by defining employability as “the intertwining of human, social and psychological capital of the person mediated by situational variables” (Grimaldi et al., 2015).

## 2.4 Transversal Skills

Nowadays, the concept of transferability of skills is very important. The transversal competences, today, are the additional element that implements job opportunities. In fact, the ability to transfer competences, for example acquired through training, to use them in a professional context is fundamental to face new demands and job offers (Ingusci and Ripa Montesano, 2015). The employability, as mentioned before, is a varied and malleable construct. Synthesizing the available literature it is possible to define the key competences, the so-called soft skills, essential for employability of young graduates (Robles, 2012). The term soft skills or transversal competences has been around a long time in both business and educational settings, in corporate meetings, and in curriculum development (Evenson, 1999). Soft skills are character traits, attitudes, and behaviors

- rather than technical aptitude or knowledge. Soft skills are intangible, nontechnical, personality-specific skills that determine one's strengths as a leader, facilitator, mediator, and negotiator (Robles, 2012). These traits character, attitudes and behaviors are:

- Professionalism;
- Reliability;
- The ability to cope with uncertainty;
- The ability to work under pressure;
- The ability to plan and think strategically;
- The capability to communicate and interact with others, either in teams or through networking;
- Good written and verbal communication skills;
- Information and Communication Technology skills;
- Creativity and self-confidence;
- Good self-management and time-management skills;
- A willingness to learn and accept responsibility.

[Adapted from McLarty (1998); Tucker et al. (2000); Nabi (2003); Elias and Purcell (2004) in utilizing and amalgamating the above skills and competencies for the purposes of defining employability, the intrinsic link between skills and competencies and the needs of the labor market (Širca et al., 2006)].

### 3 Methods

This article reports data collected in the career service office. In particular, the research was conducted on users who benefited from the consulting and work orientation service. Specifically, the research intends to investigate the characteristics of those individuals who actually turned to the job orientation desk, located at the University of Salento's career service office. The purpose of the survey is to assess the influence of individual employability on a range of personal and individual variables and how this is reflected in professional success.

Data were analysed using *JASP* (version 0.10.2.0), *R-Studio* (Version 1.2.1335), through *plspm* package (Sanchez, 2013) and *SPSS (IBM SPSS Statistics 23)*.



### 3.1 Objectives and hypotheses

This study aim was to test the theoretical relationships between employability, individual variable (self-efficacy) and outcome variable (job search). Furthermore, the goal is to check if there is a direct relation between self-efficacy and job search behaviours. The hypotheses were tested through Partial Least Square Path Modeling procedure, with the creation of different latent variables (*employability*, *self-efficacy* and *job search*) constituted by various items measured in our self-report questionnaire. We tested two models, one with all items related to latent variables and the second one with only indicators with good indexes for the outer model. Furthermore we want to verify possible differences of groups (under and over 25) regarding outer and inner structure for the best model.

### 3.2 Partial Least Squares Path Modeling

The Partial Least Squares-Path Modeling (PLS-PM) technique is an extension of Structural Equation Models (SEM). PLS-PM and SEM applications in social sciences are increasing in different topics (Ciavolino, 2012; Lecciso et al., 2019; Ciavolino and Nitti, 2013; Ciavolino et al., 2015a; Nitti and Ciavolino, 2014; Ciavolino et al., 2015b). The aim of PLS-PM analysis is to compute two different models: one outer model (*measurement*, arrows between sky blue circles in Figure 1) that includes the relations between observed variables and their latent constructs and an inner model (structural, arrows between sky blue circles and yellow rectangles in Figure 1), which is focused on detecting the causal association between endogenous and exogenous latent variables (Ciavolino et al., 2018, 2019). At a general level, PLS can be considered as a set of different methods which deals with exploration, visualization, explanation, prediction, classification (Pasca et al., 2018) and study of structural paths (Sanchez, 2013). The technique's aim is to analyze multiple regression coefficients between different blocks of data (items, indicators) and latent variables through interdependent equations.

Moreover, PLS-PM does not require any assumption on the sample size and there is no rule about the minimum size of the required sample (Sanchez, 2013). By considering that our sample is not too big, we adopted this model because this research is an explorative, the percentage of missing values is very low one and the model is not extremely complex.

The PLS-PM approach has different important properties. Among these:

- Independence from distribution assumptions and variables measurement;
- Score of latent variables estimate taking into account their structure and measurement system;
- Lack of parameters identification and non-acceptable solutions.

In general, in PLS-PM the path diagram represents the multiple regression of the existent relations between analyzed variables. According to our model, we consider *employability* as a predictor and self-efficacy and job search as outcome variables. Furthermore, in the relation between self-efficacy and job search, *self-efficacy* will be a predictor and *job search* an outcome.

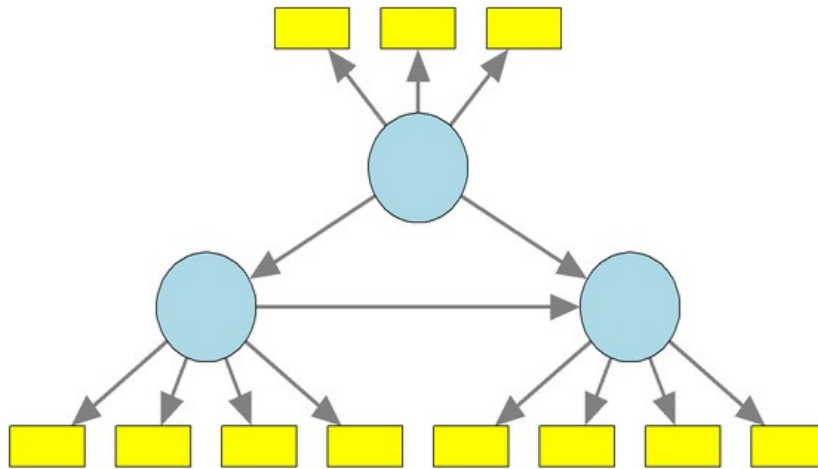


Figure 1: Example of Partial Least Squares Path Modeling Structure

### 3.3 Procedure and participants

Participants were recruited in the career service of the University of Salento. The purpose of the survey was to respect privacy and anonymity, ensuring confidentiality and analyzing data in aggregated manner. All participants gave an informed consent, with detailed information and description of research. Sample was a purpose one. Additional 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 research was conducted in accordance with the Helsinki Declaration (Association, 2001) and with Italian data protection regulation (Legislative Decree No. 196/2003). Participants took part in the research voluntarily and unrewarded. 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.

The sample examined is composed of 84 subjects, represented by the users of the curricula review service offered by the Career Service of University of Salento. The data collection period lasted approximately two months (from February to March 2019). The subjects, who benefited from the mentioned service, are students and recent graduates of the University of Salento. Response rate was 100%. Principal descriptive demographic statistics of the sample are reported in Table 1.

Table 1: Principal statistics of the sample

<b>Gender</b>	<b>Frequency</b>	<b>Percentage</b>
Male	31	36.9%
Female	53	63.1%
<b>Educational Level</b>		
High School's degree	12	14.3%
Bachelor's degree	31	36.9%
Master's degree	37	44%
Post-University degree	4	4.8%
<b>Disciplinary area</b>		
Economic and Legal	5	6%
Scientific and Technological	37	44%
Humanistic and Social	42	50%
<b>Working conditions</b>		
Employed	24	28.6%
Unemployed	60	71.4%
<b>Age</b>		
Mean	26.74	
Standard Deviation	4.95	
Maximum	52	
Minimum	20	
Mode	26	

Participants were 84, almost 37% male and 63% female. The average age of the sample was 26.74 years old ( $SD = 4.95$ ), ranging from 20 to 52 years old. The most frequent age was 26 years old. In regards to the educational level, 14.3% had a high school degree, 36.9% a bachelor degree, 44% a master degree and the remaining a post-university degree (4.8%). By considering the disciplinary area of provenience, the majority of respondents derived from humanistic and social studies (50%), then scientific and technological (44%) and economic and legal (6%). Regarding the occupational status, the 71.4% of the sample was unemployed, while the 28.6% had an occupation.

## 4 Measures

### 4.1 The questionnaire: dimensions and items

All participants answered to a questionnaire composed by different items. More specifically, the items analysed in the study measured:

- **Psychological Capital**, through a subset of items from the questionnaire of Luthans et al. (2007). The questionnaire was composed by 6 items rated on a 6-point Likert Scale: the range was from 1 (completely disagree) to 6 (completely agree). The dimensions covered were *self-efficacy*, *optimism* and *resilience*. In this study overall Cronbach's alpha reached for this scale .79.
- Different measures of **employability** based on Lo Presti and Pluviano (2016) and Lo Presti et al. (2019) model. Items comprised three themes: human capital and professional development (12 items), social capital and networking (6 items), environmental monitoring (14 items). All items were based on a 6-point Likert Scale ranging from 1 (completely disagree) to 6 (completely agree).

In particular:

**Human capital and professional development** refer to the possession of adequate skills and expertise acquired through formal and informal education, as the inclination to develop own profile (i.e. lifelong learning orientation), the perceived ease in doing so (i.e. learning self-efficacy) and the awareness of possessing competencies easily transferable across different contexts (i.e. adaptability) (Lo Presti et al., 2019). Cronbach's alpha calculated on this subscale reached .84.

**Social capital and networking** refer to the ability to effectively manage social relationships (i.e. socio-relational competencies), the availability of social support from a wide variety of sources (i.e. social networks), as well as the ability to develop new social relationships (i.e. networking) (Lo Presti et al., 2019). Cronbach's alpha for this subscale was .71.

**Environmental monitoring** regards the confidence in job-search activities (i.e. job-search self-efficacy), and the knowledge of labor market characteristics and trends (i.e. occupational trends knowledge) as well as employability activities (Lo Presti et al., 2019). Cronbach's alpha was .90.

- **Job search activities** (8 items), through the Job Search Scale of Blau (Blau, 1994). It comprises a two-dimensional measure of job search behavior. More specifically preparatory job search behavior (6 items) and active job search behavior (2 items). All items were based on a 6-point Likert Scale ranging from 1

(never) to 6 (always – more than 6 times a week) which measured the frequency of certain behaviors. Cronbach's alpha reached .75.

- **Transversal skills:** in addition, twenty items were introduced to investigate transversal skills (Spencer and Spencer, 1993): realization and recreational skills such as result orientation, attention to order, spirit of initiative, information's research; assistance and service skills such as interpersonal skills and customer orientation, skills of influence such as persuasion and influence skills, organizational awareness, ability to build relationships, managerial skills as leadership and teamwork, cognitive skills such as analytic and conceptual thinking, personal effectiveness skills i.e. self-control, self-confidence, flexibility. Five items were introduced 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. All items were based on a 6-point Likert scale ranging from 1 (not at all owned) to 6 (completely owned).

Cronbach alpha was measured for each sub-dimension of Spencer and Spencer scale. More specifically:

- Realization and recreational skills, Cronbach  $\alpha = .74$  (4 items). Example of item: *“Please indicate how much you believe the following skills belong to you: Result orientation (interest to work well or to compete with standards of excellence)”*;
- Assistance and service skills, Cronbach  $\alpha = .71$  (2 items). Example of item: *“Please indicate how much you believe the following skills belong to you: Interpersonal sensitivity (ability to listen, understand and respond to the desires, feelings and concerns of others even if not expressed or partially expressed)”*;
- Skills of influence, Cronbach  $\alpha = .77$  (3 items). Example of item: *“Please indicate how much you believe the following skills belong to you: Persuasiveness and influence (desire to have an influence or a specific effect on others, so as to persuade or induce them to obey)”*;
- Managerial skills, Cronbach  $\alpha = .80$  (4 items). Example of item: *“Please indicate how much you believe the following skills belong to you: Team work and cooperation (ability to work in collaboration with others and to be part of a group rather than working alone or in competition)”*;
- Cognitive skills, Cronbach  $\alpha = .84$  (3 items). Example of item: *“Please indicate how much you believe the following skills belong to you: Ability to transfer and adapt the technical, professional and managerial skills possessed to the various work situations”*;

- Personal effectiveness skills, Cronbach  $\alpha = .79$  (4 items). Example of item: “Please indicate how much you believe the following skills belong to you: Flexibility (ability to adapt and work effectively in a wide range of situations or with different people or groups)”;
- Entrepreneurial attitudes, Cronbach  $\alpha = .79$  (5 items). Example of item: “Please indicate how much you believe the following skills belong to you: Being able to grasp and identify opportunities in critical situations that arise (ability to take the initiative in front of situations that offer new opportunities for the future)”.

## 4.2 Implementing the model: indicators and latent variables

In the previous paragraph we explained the general structure of the conducted questionnaire. In order to test the proposed aims, we considered three latent variables: *self-efficacy*, *employability* and *job search*. The latent variables were composed by different indicators of the described questionnaire, as proposed in Table 2:

Table 2: Constructs and indicators of the models proposed

Name	Block	Questionnaire	Dimension
EMPLOYABILITY 1	EMPLOYABILITY	Lo Presti et al. (2019)	Environmental monitoring
EMPLOYABILITY 2	EMPLOYABILITY	Lo Presti et al. (2019)	Environmental monitoring
EMPLOYABILITY 3	EMPLOYABILITY	Lo Presti et al. (2019)	Environmental monitoring
EMPLOYABILITY 4	EMPLOYABILITY	Lo Presti et al. (2019)	Environmental monitoring
EMPLOYABILITY 5	EMPLOYABILITY	Lo Presti et al. (2019)	Environmental monitoring
EMPLOYABILITY 6	EMPLOYABILITY	Lo Presti et al. (2019)	Environmental monitoring
SELF-EFFICACY 1	SELF-EFFICACY	Luthans et al. (2007)	Self-efficacy
SELF-EFFICACY 2	SELF-EFFICACY	Luthans et al. (2007)	Self-efficacy
PERSONAL EFFICACY 1	SELF-EFFICACY	Spencer and Spencer (1993)	Personal effectiveness skills
PERSONAL EFFICACY 2	SELF-EFFICACY	Spencer and Spencer (1993)	Personal effectiveness skills
PERSONAL EFFICACY 3	SELF-EFFICACY	Spencer and Spencer (1993)	Personal effectiveness skills
PERSONAL EFFICACY 4	SELF-EFFICACY	Spencer and Spencer (1993)	Personal effectiveness skills
JOB SEARCH 19	JOB SEARCH	Lo Presti et al. (2019)	Environmental monitoring
JOB SEARCH 20	JOB SEARCH	Lo Presti et al. (2019)	Environmental monitoring
JOB SEARCH 21	JOB SEARCH	Lo Presti et al. (2019)	Environmental monitoring
PREPARATORY 1	JOB SEARCH	Blau (1994)	Preparatory
PREPARATORY 2	JOB SEARCH	Blau (1994)	Preparatory
PREPARATORY 3	JOB SEARCH	Blau (1994)	Preparatory
PREPARATORY 4	JOB SEARCH	Blau (1994)	Preparatory
PREPARATORY 5	JOB SEARCH	Blau (1994)	Preparatory
PREPARATORY 6	JOB SEARCH	Blau (1994)	Preparatory
ACTIVE 1	JOB SEARCH	Blau (1994)	Active
ACTIVE 2	JOB SEARCH	Blau (1994)	Active

Reliability analysis were performed on the indicators reflecting the different latent variables. Employability, based on six items, reached .83 (Cronbach’s  $\alpha$ ) and .84 (McDonald’s  $\omega$ ), self-efficacy, six items,  $\alpha = .79$  and  $\omega = .80$ , and job search, 11 items,  $\alpha = .87$  and  $\omega = .87$ .

The items comprised to figure latent variables are depicted in Figure 2:

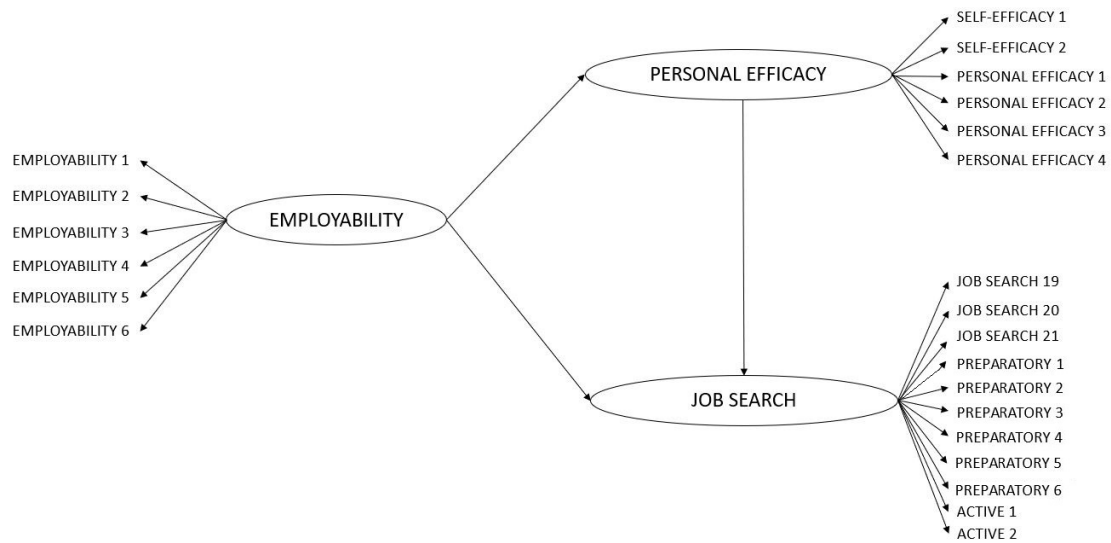


Figure 2: Hypothesised Model 1

Each indicator has a reflective link with its latent variable. In this case latent variable is considered cause of the manifest indicators. In order to test our hypotheses, several steps were followed:

1. We run the overall model and evaluated measures of reliability of variables, fit indices of measurement and structural models and goodness of fit;
2. We run further models with the aim to improve the indices of the first one, following the rule of loadings and communalities;
3. We run a multi-group analysis by splitting the sample in *under 25*<sup>1</sup> and *over 25* of age.

## 5 Results

### 5.1 The starting point: Model 1

In Model 1 we linked six observed variables with the dimension *employability* from Lo Presti et al. (2019) questionnaire, six items with *self-efficacy*, in particular the self-efficacy dimension from Luthans et al. (2007) and the personal-efficacy dimension from the metacompetencies of Spencer and Spencer (1993) and eleven items with *job search*, more specifically three regarding the *job search* dimension of Lo Presti et al. (2019) questionnaire and the *preparatory* and *active* dimension of Blau (1994) questionnaire. The indicators were associated to the corresponding constructs.

<sup>1</sup>The age of 25-years-old were included in the *under 25* group.

Table 3: Unidimensionality of the measure of Model 1

	Items	Cronbach $\alpha$	DG $\rho$	1st eigenvalue	2nd eigenvalue
Employability	6	.84	.89	3.37	.95
Self-Efficacy	6	.80	.85	3.00	1.28
Job search	11	.87	.89	4.82	1.90

Table 4: Loadings and communalities of the Model 1 block

Name	Block	Loading	Communality
EMPLOYABILITY 1	EMPLOYABILITY	.79	.63
EMPLOYABILITY 2	EMPLOYABILITY	.82	.67
EMPLOYABILITY 3	EMPLOYABILITY	.85	.72
EMPLOYABILITY 4	EMPLOYABILITY	.67	.45
EMPLOYABILITY 5	EMPLOYABILITY	.53	.28
EMPLOYABILITY 6	EMPLOYABILITY	.78	.61
SELF-EFFICACY 1	SELF-EFFICACY	.77	.59
SELF-EFFICACY 2	SELF-EFFICACY	.81	.66
PERSONAL EFFICACY 1	SELF-EFFICACY	.53	.28
PERSONAL EFFICACY 2	SELF-EFFICACY	.59	.35
PERSONAL EFFICACY 3	SELF-EFFICACY	.77	.59
PERSONAL EFFICACY 4	SELF-EFFICACY	.63	.40
JOB SEARCH 19	JOB SEARCH	.69	.48
JOB SEARCH 20	JOB SEARCH	.73	.53
JOB SEARCH 21	JOB SEARCH	.71	.51
PREPARATORY 1	JOB SEARCH	.41	.17
PREPARATORY 2	JOB SEARCH	.75	.57
PREPARATORY 3	JOB SEARCH	.58	.34
PREPARATORY 4	JOB SEARCH	.61	.38
PREPARATORY 5	JOB SEARCH	.61	.38
PREPARATORY 6	JOB SEARCH	.70	.49
ACTIVE 1	JOB SEARCH	.63	.40
ACTIVE 2	JOB SEARCH	.63	.39

Values of Cronbach  $\alpha$  are acceptable, because they are bigger than the cut-off of .70 (Table 3). Dillon-Goldstein's  $\rho$  measures the unidimensionality of a reflective block and it considers a good indicator when its value is larger than .70. In this case all dimensions are unidimensional. The last index is the eigenvalue. If a block is unidimensional, the first one eigenvalue should be larger than 1 (Sanchez, 2013; Tenenhaus et al., 2004; Henseler and Sarstedt, 2013; Chin, 2010). In our study these three conditions are respected. Loadings indicate the correlation between an item, or observed variable, and the latent variables. Communalities are squared correlations. In general, loadings greater than



.70 are considered acceptable, as they correspond to more of the 50% of the explained variance by the latent variable (Sanchez, 2013; Tenenhaus et al., 2004; Henseler and Sarstedt, 2013; Chin, 2010). For this reason, our choice was to run another model by excluding all those variables with loadings smaller than .70 (see Table 4).

Table 5: Inner model coefficients of Model 1

Relations	Estimate	Standard error	p.value	sig
Employability - Self-Efficacy	.3918	.1028	<.0001	yes
Employability - Job search	.3546	.1118	<.0001	yes
Self-Efficacy - Job search	.101	.1118	.3692	no

Table 5 shows the estimate of coefficients and significance of inner model (Model 1). The relation between employability and self-efficacy is positive and significant, as well as employability and job search. Different results derived from the association between self-efficacy and job search: their link is not significant. The overall  $R^2$  of the model is .273 and then it explains 27.3% of variance. This amount can be considered low (Sanchez, 2013; Tenenhaus et al., 2004; Henseler and Sarstedt, 2013; Chin, 2010).

## 5.2 Improving goodness of fit: Model 1 *bis* and Model 2

Secondly, we tried to improve the Model 1 with the outputs suggested by the modification indices, or loadings and communalities. According with the previous results, we proceed by dropping the indicators with loadings  $< .70$  and communalities  $< .50$  (Model 1 *bis*) - see Figure 3. More specifically, the items removed were:

- For the dimension **Employability**:  
EMPLOYABILITY 4;  
EMPLOYABILITY 5;
- For the dimension **Self-Efficacy**:  
PERSONAL EFFICACY 1;  
PERSONAL EFFICACY 2,  
PERSONAL EFFICACY 4;
- For the dimension **Job search**:  
PREPARATORY 1;  
PREPARATORY 3;  
PREPARATORY 4;  
PREPARATORY 5;  
ACTIVE 1;  
ACTIVE 2;  
JOB SEARCH 19.

The model hypothesised (Model 1 *bis*) is showed in Figure 3.

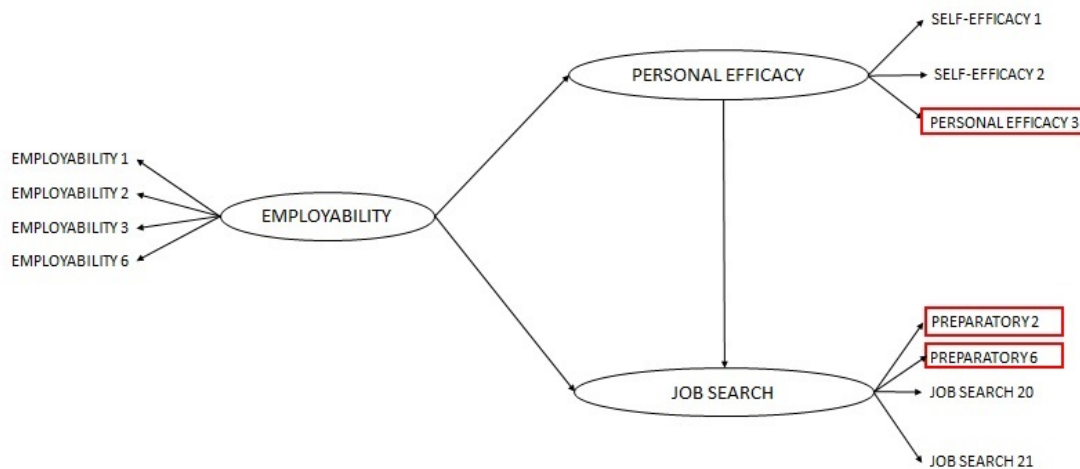


Figure 3: Outer and inner structure of Model 1 *bis*

In order to test the model, we checked the loadings and the communalities. The indicators in red rectangles in Figure 3 showed bad loadings and communalities. More specifically *PERSONAL EFFICACY 3* had a loading of .47 and a communality of .22, *PREPARATORY 2* a loading of .65 and a communality of .43 and *PREPARATORY 6* a loading of .66 and a communality of .43. For this reason, in order to improve the

goodness of the model, we decided to drop them and propose another model (Model 2). Final model (Model 2) is showed in Figure 4.

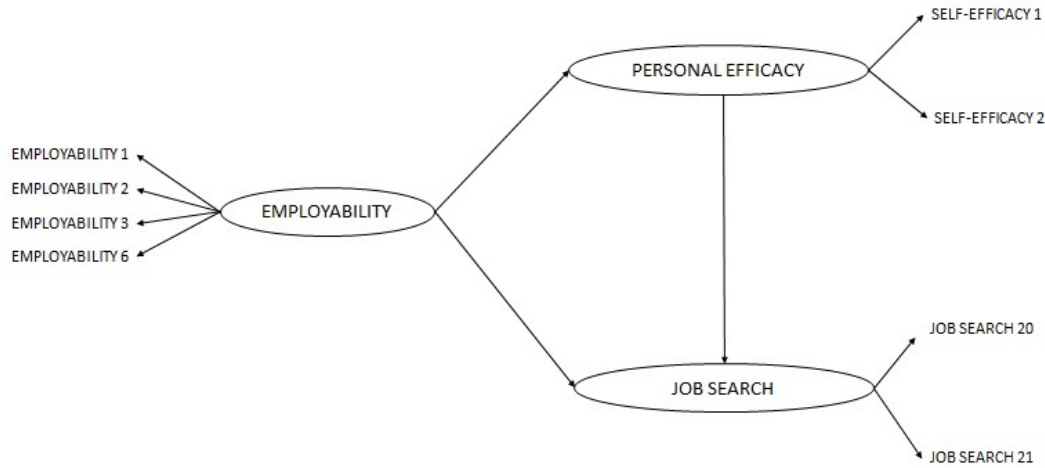


Figure 4: Final model

As indicated in Table 6, *Employability* dimension is composed by four items with  $\alpha = .86$ ,  $\rho = .90$  and the first eigenvalue of 2.80; *self-efficacy* is characterized by two items with  $\alpha = .83$ ,  $\rho = .92$  and the first eigenvalue of 1.71, while *Job search* has two items, with  $\alpha = .86$ ,  $\rho = .93$  and the first eigenvalue of 1.75. All these metrics suggested that latent variables of our model had acceptable measures of unidimensionality.

Table 6: Unidimensionality of the measures in Model 2

	Items	Cronbach $\alpha$	DG $\rho$	1st eigenvalue	2nd eigenvalue
1. Employability	4	.86	.90	2.80	.52
2. Self-Efficacy	2	.83	.92	1.71	.29
3. Job search	2	.86	.93	1.75	.25

We tested the outer model, which includes the relations between observed indicators and latent variables, by evaluating loadings and communalities, or squared loadings. Values of loadings  $> .70$  and communalities  $> .50$  were considered acceptable. Model 2 presented better measures than Model 1 and Model 1 bis. More specifically, all observed items highlighted loadings and communalities bigger than .70 and .50. The range of loadings for *employability* dimension was .79 - .86 (communalities .63 - .74), for *self-*

*efficacy* from .90 to .94 (communalities .81 - .89) and for *job search* from .93 to .97 (communalities .86 - .89) - see Table 7.

Table 7: Loadings and communalities of blocks in Model 2

Name	Block	Loading	Communality
EMPLOYABILITY 1	EMPLOYABILITY	.85	.72
EMPLOYABILITY 2	EMPLOYABILITY	.86	.74
EMPLOYABILITY 3	EMPLOYABILITY	.84	.70
EMPLOYABILITY 6	EMPLOYABILITY	.79	.63
SELF-EFFICACY 1	SELF-EFFICACY	.90	.81
SELF-EFFICACY 2	SELF-EFFICACY	.94	.89
JOB SEARCH 20	JOB SEARCH	.94	.89
JOB SEARCH 21	JOB SEARCH	.93	.86

Table 8 showed the measurement model assessment indices.

Table 8: Inner coefficients in Model 2

Relations	Estimate	Standard error	p.value	sig
Employability - Self-Efficacy	.3966	.10	<.0001	yes
Employability - Job search	.2966	.11	<.0001	yes
Self-Efficacy - Job search	.1431	.11	.21	no

Coefficients followed our expectations. The relation between *employability* and *self-efficacy* is positive (.40) and significant at a < .001 level, as for the association between *employability* and *job search* (.30, significant at a < .001 level). The relation between *self-efficacy* and *job search* is lower than the others (.14) and it was non significant (p.value = .21). The goodness of fit of the model is considerably improved. Explained variance of latent variables is moderate ( $R^2 = .342$ , 34,2%).

Table 9: Cross-loadings of the final model, Model 2

Item (label)	Block	Employability	Self-efficacy	Job search
EMPLOYABILITY 1	EMPLOYABILITY	<b>.850</b>	.383	.316
EMPLOYABILITY 2	EMPLOYABILITY	<b>.860</b>	.350	.166
EMPLOYABILITY 3	EMPLOYABILITY	<b>.839</b>	.330	.386
EMPLOYABILITY 6	EMPLOYABILITY	<b>.794</b>	.251	.271
SELF-EFFICACY 1	SELF-EFFICACY	.318	<b>.903</b>	.201
SELF-EFFICACY 2	SELF-EFFICACY	.406	<b>.945</b>	.273
JOB SEARCH 20	JOB SEARCH	.326	.285	<b>.945</b>
JOB SEARCH 21	JOB SEARCH	.337	.198	<b>.927</b>

As indicated in Table 9, all indicators correlate with the corresponding latent variables. Cross-correlations values are higher in the expected blocks (bold), as it is shown in Figure 5.

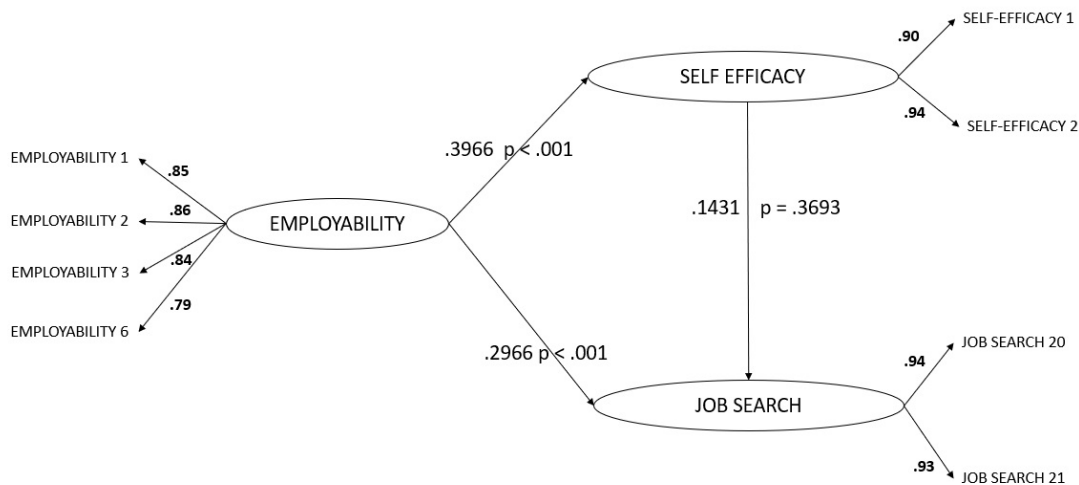


Figure 5: Inner and outer structure of Model 2

### 5.3 Comparing groups of age in Model 2

Last step of our analysis focused on the comparison between *under 25* and *over 25* students in Model 2. More specifically, our objective was to examine whether there are differences between under and over 25 in terms of paths of *employability-self-efficacy*, *employability-job search* and *self-efficacy-employability* (Ingusci, 2018; Ingusci et al., 2019b,c). Under 25's participants were 42.9% of the sample (36 individuals), while over 25 were 57.1% (48 individuals).

The model for *under 25* provided good fit indices: for *under 25* we found in *employability* scale a Cronbach's  $\alpha = .84$ , Dillon-Goldstein's  $\rho = .89$  and first eigenvalue = 2.73, with loadings from .79 to .89. For *self-efficacy*  $\alpha = .76$ ,  $\rho = .89$  and first eigenvalue = 1.61, with loadings from .85 to .93. For *job search*:  $\alpha = .75$ ,  $\rho = .89$  and first eigenvalue = 1.60, with loadings from .83 to .94.  $R^2$  was low (25.5%).

Similarly, model for *over 25* had good fit indices, in terms of unidimensionality, loadings and explained variance: *employability* had a Cronbach's  $\alpha = .87$ , Dillon-Goldstein's  $\rho = .91$  and first eigenvalue = 2.87, with loadings from .77 to .88. For *self-efficacy*  $\alpha = .88$ ,  $\rho = .94$  and first eigenvalue = 1.79, with loadings from .93 to .96. For *job search*:  $\alpha = .93$ ,  $\rho = .96$  and first eigenvalue = 1.86, with loadings from .96 to .97.  $R^2$  was moderate (43.49%).

Table 10: Under 25 group coefficients

Relation	Coefficient	Standard error	p.value	sig
Employability - Self-Efficacy	.3872	.158	.019	yes
Employability - Job Search	.1542	.186	.414	no
Self-Efficacy - Job Search	.0172	.186	.092	no

Table 11: Over 25 group coefficients

Relation	Coefficient	Standard error	p.value	sig
Employability - Self-Efficacy	.4273	.136	.003	yes
Employability - Job Search	.4111	.143	.006	yes
Self-Efficacy - Job Search	.204	.143	.160	no

Table 12 and Table 13 show the path coefficients of the two models with bootstrap and permutation (Crisci and D'Ambra, 2012).

Table 12: Bootstrap method group differences, numbers of replicates = 100

Relation	Global	Over 25	Under 25	$\Delta$	p.value	sig.05
Employability - Self-Efficacy	.3966	.4273	.3872	.0401	.4528	no
Employability - Job search	.2966	.4111	.1542	.2569	.2312	no
Self-Efficacy - Job search	.1431	.2040	.0172	.1869	.2259	no

Table 13: Permutation method group differences, numbers of replicates = 100

Relation	Global	Over 25	Under 25	$\Delta$	p.value	sig.05
Employability - Self-Efficacy	.3966	.4273	.3872	.0401	.8713	no
Employability - Job search	.2966	.4111	.1542	.2569	.4356	no
Self-Efficacy - Job search	.1431	.2040	.0172	.1869	.5149	no

Results suggest a substantial invariance in coefficients between employability and self-efficacy and employability and job search in under 25 and over 25. Bootstrap method, with a number of replication of 100, highlighted non-significant p.values in the difference between employability and self-efficacy. The same results derived from permutation method with 100 replications. According to the coefficients, the paths of *over 25* are bigger than the ones of *under 25*. Furthermore, in the *under 25* the relation between employability and job search is not significant (Table 10), while the relation between self-efficacy and job search is not significant in both groups.

## 6 Discussion and conclusion

The aim of the present study was to preliminary understand the role of an important individual variable, employability, on job search behaviours and self-efficacy. The sample of this research was a group of young students and graduates of the University of Salento that took advantage of a service created to reduce the gap between the academic world and the labor market. On a statistical point of view, our hypotheses have been supported by data. Employability showed an important positive and significant relation with self-efficacy and job searching behaviours. In other words, employability influences efficacy and the research of a new job. In terms of measurement model, the latent dimensions in Model 1 highlighted good unidimensionality but not all the items had acceptable loadings. The explained variance of the first model was low, but the relations of inner structure provided significant coefficients between employability and job search behaviours and self-efficacy and not significant ones in the relation self-efficacy-job search. Results suggested that employability can be considered an important variable for academic students to improve their self-efficacy and job search strategies. The reduced second model increased the goodness of fit from a low level to a moderate level. Latent dimensions had good unidimensionality, while items showed good loadings and communalities. In this sense, the second model is better than the first, but the relations between latent variables remain the same, in terms of intensity and significance. All the indicators are related to the corresponding latent variables, although they have different loadings.

The second aim of this research was to investigate age as a factor of difference in path analysis. We splitted our sample into two groups: under 25 and over 25. Results confirm our suggestions: there is no differences in the relations between employability and job search-self-efficacy, in both techniques, bootstrap and permutation. The relations be-

tween self-efficacy and job search is not significant in the two groups, and this outcome can lead to the conclusion that services as the one described in this study can improve self-efficacy and job search by acting on the employability behaviours. At a general level this link is significant. By considering the splitted sample, we can note that it is not significant in the under 25 group. This can be due to the academic experience: at the age of 25 years old the employability skills could be weaker than in the over 25. Further research could be helpful to confirm or not this assumption.

Due to the small sample, this research can be considered an explorative and preliminary study, but provides many interesting implications both for theory and for practice.

The research had some limitations. Firstly, data are self-reported, and this implies that the participants couldn't perceive themselves accurately. This issue raises the question of whether common method biases may have influenced our results (Podsakoff et al., 2003). Moreover, the small sample prevented the generalizability of the results. Although the limit of cross-sectional study, the causal relationship may be justified from theoretical and logical point of view. Further researches can control the goodness of these assumptions through longitudinal studies.

In line with the needs of socio-economic changes, universities today are moving towards the activities of the Third Mission, in order to build relationships with society and the territory for the transfer of knowledge and technological innovations. The University of Salento is also moving in this direction. The present study, in fact, carried out on the students who, during the academic career, take advantage of work orientation desk. University of Salento, in this way, focuses not only on the situational aspects for the job search (as a job placement) but also on the personal resources put in place to encourage entry into the labor market and stay in the same. The primary objective of university placement services is to bridge the gap by providing graduate students with support in career planning and management activities. The assuming of responsibility by the university leadership should lead to the creation of strategic action plans to increase the employability of students and alumni, also involving all internal and external stakeholders. Many European universities and some Italian universities, in this regard, are reviewing the placement of job placement services within the university structure. Supporting the coherence between job demand and higher education implies the creation of an enlarged and entrepreneurial governance. Universities can undertake direct cognitive actions that may include studies, surveys and research. They can also detect the needs of students and graduates through formal and informal meetings with them. Career service professionals must proactively search for students to be effective. Often students and graduates are not aware of the possibilities offered by the territory, nor of the services offered by the university to support employability.

The role of personal resources has been abundantly emphasized in order to face the working world. The individual, today, is an entrepreneur of himself, and builds his opportunity. Furthermore, the study conducted can provide a practical contribution to promote and build ad hoc and well-calibrated interventions (Di Fabio and Cumbo, 2016). This means helping the student to plan his career and then connect it, in a personalized way, to the opportunities offered by the territory. In light of the results we can deduce the need to increase employability through the sometimes misleading development



of transversal skills and self-employment skills of both graduating students and recent graduates. These orientation interventions, for example, can be planned during the academic experience, in order to increase active research behaviors of educational and professional experiences and to develop adaptability. What is stated is more salient than the increase in self-efficacy. This thesis is largely supported by the research conducted.

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