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PSYCHOLOGICAL CAPITAL AND LOCUS OF CONTROL AS DETERMINANTS OF GRADUATE EMPLOYABILITY BEYOND HUMAN AND SOCIAL CAPITAL

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Abstract. *This paper discusses the dimensions of psychological capital and locus of control that influence graduate employability beyond human and social capital. To highlight this relationship, data were collected from a large sample of graduates from the University of Padua, Italy. Graduates completed two questionnaires: one at graduation and another two years later. The questions were related to both human capital, which refers to the outcome of graduates' educational investments, and other social factors, and to a specific psychometric test used to evaluate the graduates' psychological capital and locus of control. The collected data showed that psychological factors can explain graduate employability more accurately than the effects of human capital and social differences alone. The results also revealed differences among the categories of graduates with respect to conditional opportunities to either find a job in a relatively short time or enter a higher study programme.*

Keywords*: Academic psychological capital, Locus of control, Graduate employability, Human capital, Social capital.*

1. INTRODUCTION

The dynamics of productive organisations and labour markets, the ever-changing roles of technological and technical innovations in the workplace, the speed-to-market business environment and labour market turbulences and adversities challenge knowledge, skills and expertise – commonly defined as *human capital* – as the main factors of individual performance outcomes in labour markets (Schultz, 1961; Becker, 1975). Softer skills (e.g. flexibility, innovation adaptability, human relations openness) and a labour-oriented mentality are required to keep pace with these dynamics for both career development and recruitment when people compete for lucrative jobs (Block and Smith, 1977; OECD; 1992; Fabbris and Favaro, 2012; Suneela, 2014).

Social capital, which is related to interpersonal and intergroup relationships, networks and connections (Granovetter, 1973; Coleman, 1988), can also be relevant at the recruitment stage. These relationships can generate implicit norms, rules of behaviour and trust in the potential roles of job seekers when recruited (Aguilera, 2002; Fabbris et al., 2012).

Positive psychological capital (PsyCap) is a rather recent extension of the economic notion of non-tangible capital, which is an individual (positive) psychological state of development capable of providing competitive advantage (Luthans and Youssef, 2004). This psychological state of development can be defined in terms of its four characterising dimensions (Luthans and Youssef-Morgan, 2017): *(1) having confidence (self-efficacy*, or simply *efficacy) to take on and put forth the effort necessary to succeed at challenging tasks* (Schwarzer and Jerusalem, 1993; Bandura, 1994, 1997; Stajkovic and Luthans, 1998); *(2) making a positive attribution (optimism) to succeeding now and in the future* (Seligman, 1998); *(3) persevering toward goals and, when necessary, redirecting paths to goals (hope) to succeed* (Snyder et al., 1996); and *(4) when beset by problems and adversity, sustaining and improving (resilience) to attain success* (Masten, 2001; Coutu, 2002).

The *locus of control* (LoC) is another psychological construct that refers to the extent to which individuals believe they have control over their own fates. LoC is tightly related to beliefs; beliefs being assumptions that we make about the world and hold to be true without proof or evidence. Rotter (1966) juxtaposed internal and external LoC: individuals with strong internal LoC believe that they are the masters of their fates and expect contingent outcomes based on their behaviours; conversely, individuals with strong external LoC believe that they have insufficient control over what happens to them and tend to attribute personal achievements to external entities, chance or luck.

PsyCap and LoC have been extensively related to work outcomes, including job and career performance and satisfaction, employees' organisational commitment and, conversely, occupational diseases (see, among others, Vidotto and Argentero, 1994; Sherman et al., 1997; Judge and Bono, 2001; Luthans et al., 2007a, 2007b; Avey et al., 2010, 2011; Caza et al., 2010; Liu et al., 2012) and educational achievement (Sherman et al., 1997; Majzub et al., 2009; Severino et al., 2011; Callaghan and Papageorgiou, 2015). The intertwined effect of psychological capital and perceived employability has also been studied (Fugate et al., 2004; Chen and Lim, 2012; Guan et al., 2013; Heitler Lehoczky, 2013; Ngoma and Ntale, 2016), though a systematic investigation of how psychological capital can affect graduates' job search outcomes is lacking.

This paper discusses the roles of psychological factors that help some graduates find jobs soon after graduation, while others with the same degree, the same final marks and a similar curriculum vitae (CV) must devote more effort to the job search. Specifically, it explores the diversity of recent graduates with respect to employability, highlighting the roles of PsyCap and LoC beyond human and social capital.

To identify the relationships between psychological factors and graduates' employability, two surveys were administered to graduates of an Italian university at graduation and approximately two years later. The aim of the first questionnaire was to highlight both academic human capital and other social and background factors, and a specific psychometric test aimed to evaluate graduates' PsyCap and LoC. The second questionnaire aimed to examine the pathways graduates traversed in the labour market and the outcomes of their job search. The responses obtained from the two surveys were then linked.

The basic research questions are as follows:

1. *Do PsyCap positivity and internal LoC add value for employment beyond human and social capital?* The aim was to ascertain whether PsyCap and LoC are not only subrogates of some combination of human and social descriptors, but also independent factors that transcend all groups of graduates, regardless of their educational and social qualifications. The final aim was to obtain data related to psychological robustness to accompany graduates in their transitions to work.
2. *Which PsyCap and LoC factors are relevant to graduate employment?* The four factors of academic PsyCap and the two factors of LoC described by Robusto et al. (2018), derived from a specific set of tests aimed to measure the psychological resources of students and graduates, indicate that the positive and negative poles of each dimension, despite being at opposite ends of the same continuum, represent people with distinct constructs and processes (see also Sackett et al., 2006; Sridevi and Srinivasan, 2012). Graduates who experience positive stimuli are privileged from a socio-economic viewpoint because, ceteris paribus, they are able to find better jobs more quickly. Although even those at the far-positive positions may encounter problems due to being overconfident or overly hopeful (Gooty et al., 2009), the far-negative students experience more dramatic stimuli and represent a relevant social concern both before and after graduation. Moreover, a highly negative value for an individual in a single psychological dimension could compromise the individual's overall psychological capacity to achieve labour effectiveness, even if other dimension scores are high. This would indicate the non-compensatory property of PsyCap dimensions. Hence, to understand which psychological resources are relevant to graduates' employability, the single PsyCap and LoC factors that could affect employment must be identified.
3. *In the labour market, do all graduates require the same dimensions of PsyCap, or do these aspects interact with graduates' social, curricular or other background variables?* In other words, we will scout if there are different labour markets for

graduates who possess different psychological dimensions.

The remainder of the essay is organised as follows. The data and the methods used to test the hypotheses are described in Section 2. The relevant results of the analyses, for which multivariate methods were used, are presented in Section 3. The analytical results and a comparison with the relevant literature are discussed in Section 4. Section 5 concludes the paper.

2. DATA AND METHODS

2.1. THE DATA

The research study considered all students who graduated from the University of Padua between June 2014 and July 2015, except majors in medicine and surgery. An initial Computer Assisted Web-based Interviewing (CAWI) questionnaire was sent via email to $n = 7102$ graduates, of whom $n = 3628$ graduates (51.1% of those contacted) completed it. Respondents were required to fill in the questionnaire alone on their own computers according to their time availability. A second electronic questionnaire was sent approximately two years after graduation to those who completed the first questionnaire. A total of 1978 graduates responded to both questionnaires. The records pertaining to those who completed both questionnaires were linked to create a longitudinal dataset.

The surveys included questions on both graduates' pre-academic and academic paths and their social and psychological resources (see also the predictor description in Section 2.2). Demographic and academic data drawn from administrative records were also added to this dataset. For practical purposes, non-Italians and those for whom administrative data were not available were excluded from the analyses, reducing the sample size to 1865.

The first electronic questionnaire included a set of psychometric tests on a 4-point scale, which the graduates self-administered. The tests were presented to each respondent in a fully randomised order, such that each test was administered the same number of times in each order position over the whole sample of graduates. This allowed us to eliminate any possible order effect had the test been administered in the same order to all respondents.

Robusto et al. (2018) analysed and validated the responses to the psychometric tests and ascertained that the graduates' responses revealed six factors, as expected from the psychological theory viewpoint. The validation and the analysis required an exploratory factor analysis with an oblique (*oblimin*) rotation followed by a confirmatory analysis (Robusto et al., 2018). In fact, if an orthogonal factor analysis is performed on PsyCap testing measures, it yields a large general factor and a set

of minor factors. The general factor basically absorbs the correlations among all tests, mostly defining a self-efficacy factor. Then, the oblique rotation spreads the tests' loads over the initially minor factors.

In total, 26 tests were used to define the four dimensions of PsyCap. The tests included six for the resilience and hope scales and seven for the self-efficacy and optimism scales. Seven tests were used for the two dimensions of LoC (four for the external LoC scale and three for the internal LoC scale). For the purposes of this paper, the six factors have been normalised to vary between zero and one, with one being the maximum attainable value.

The correlation coefficients between the six factors are presented in Table 1. The factors correlated with one another as follows: The largest correlation was between self-efficacy and all other sub-dimensions except hope: resilience (0.46), optimism (0.32) and internal LoC (0.26). Resilience was also slightly correlated with optimism (0.25) and internal LoC (0.28). External LoC was negatively correlated with all other academic PsyCap dimensions but hope, particularly with internal LoC (-0.19) and optimism (-0.26). These correlations are consistent with psychological theory and with previous research using PsyCap factors to determine personal efficacy (see, among others, Judge and Bono, 2001; Heitler Lehoczky, 2013).

Tab. 1: Correlation coefficients between Psycap and LoC dimensions

	External LoC	**Internal LoC**	**Self-efficacy**	**Resilience**	**Optimism**
Internal LoC	-0.194				
Self-efficacy	-0.067	0.261			
Resilience	-0.090	0.279	0.457		
Optimism	-0.255	0.261	0.315	0.245	
Hope	0.081	0.152	-0.084	-0.133	-0.036

The correlation coefficients show that the external LoC scale is not a mirror image of the internal one. If this were the case, a -1 correlation coefficient between the two scales would be found. So, believing in externalities, random or luck as determinants of what happens is not the opposite of believing that anyone's outcome is due to own competence and behaviour. Indeed, the way the loci of a person weave together is complex and depends on one' culture, experience and community conditionings.

Hope seems to be a rather peculiar dimension, and it shows mild but negative correlations with all PsyCap dimensions and an unexpected positive correlation with both external (0.08) and internal (0.15) LoC. In this analysis, the hope factor

seems almost independent of the psychological dimensions that drive personal efficacy and is instead related to beliefs regarding what controls individuals' personal outcomes.

It should be noted that the correlation coefficients between PsyCap components are much lower than those (0.6 to 0.7) hypothesised by Avey et al. (2011). The reasons for this difference could be a direction for future work. Nevertheless, it is still possible to conceptualise PsyCap as a second-order construct resulting from a merging of the four first-order dimensions. In any case, the merging of the basic dimensions into a unifying construct is beyond the scope of this work. Instead, the aim was to identify the first-order psychological dimensions correlated with graduates' probability of early employment and study continuation.

Finally, internal LoC was correlated negatively but mildly (-0.19) with external LoC, again indicating that a person could possess the two LoC factors in a non-complementary fashion.

It must be noted that the testing set administered to graduates included aspects of both the labour market and academic performance to make it specific to graduates during the data collection stage. Thus, the behavioural aspects of the PsyCap testing were conceptualised as proactive (as opposed to reactive or habitual), with reference to personal motivation and freedom to choose what to do, as well as to promote perseverance when faced with obstacles and setbacks (see also Huitt and Cain, 2005; Youssef and Luthans, 2013).

2.2 OTHER PREDICTORS

The predictors considered for the analysis were clustered into four blocks, as follows:

i) Control variables (*Age at graduation; Gender; Working at graduation*) were forced into the model and tested for significance. They remained fixed in the model independent of the significance level.

ii) Then, variables describing human capital were assessed. These variables included *Field of study* (Life sciences, Humanities, Engineering, Social science, [Hard] sciences); *Study level* (Bachelor, Master); *Final degree mark* (three levels); *Years exceeding the curricular duration of the study programme* (three levels); *Participation in an international mobility programme* (Erasmus, dichotomous); *Participation in an internship programme* (dichotomous); *English language skills* (three levels); *Other foreign language skills* (three levels); *Computer skills* (three levels); and *High school degree* (Lyceum, Other high school types).

iii) Then, variables indirectly describing social capital were assessed. These variables included: *Volunteering*; *Playing competitive sports*; *Playing a musical instrument or participating in a choir*; *Perceived usefulness of social networks*; *Willingness to start a family within 12 months after graduation*; and *Obstacles to job searching.* A more thorough description of the social variables can be found in the Appendix.

iv) Finally, psychological capital was considered for inclusion. It included the factor scores of the four *PsyCap factors*, the two *LoC factors* and the following variables: *Perceived usefulness of degree*; *Main motivation for enrolling in university* and *Attitude toward the labour market.* A more thorough description of the psychological variables can be found in the Appendix.

The way in which the predictors considered for the analysis were selected within blocks is described in detail in Section 2.3.

2.3 THE ANALYTIC METHOD

In this work, at the time of the second questionnaire, a graduate could have had any of three conditions. Specifically, a graduate could:

a) have a job;
b) be attending another degree course or be preparing for the state exam for admission to a professional association; or
c) be in another position (be looking for a job, or not having any job neither looking for a job nor being in an education or training programme).

These three possible conditions represent the criterion variable, *Y*. The effects of the possible predictors of employment or continuing studies were analysed. The latter was considered both a path for achieving higher educational levels and a shelter from unemployment after some scouting of the job market. The analyses used a multinomial logistic regression model (Engel, 1988; Agresti, 2002), which is a model that generalises a logistic regression to a dependent variable with more than two discrete outcomes and that can be used to predict the probabilities of *Y* given a set of predictors. According to this model, the probability of outcome Y_i for respondent *h* (*h*=1, …, *n*), with *n* being the sample size, is:

$$P\left(Y_{ih}=1\middle|x_h\right)=\frac{exp\left(\beta_i' x_h\right)}{\sum_j exp\, exp\left(\beta_i' x_h\right)} \quad \text{(i = 1, 2)} \qquad (1)$$

where $\boldsymbol{\beta}_i$ represents the vector of the logistic regression coefficients for outcome Y_i and $\boldsymbol{x}_h$ represents the vector of covariates measured for respondent *h*. The baseline

of the analyses was Y_3: namely, being neither employed nor in pursuit of further studies.

Schematically, the model can be expressed as (Hosmer and Lemeshow, 2000):

$$logit(\mathrm{P}(Y_i \mid \boldsymbol{x})) = f(\boldsymbol{X_1}, \boldsymbol{X_2}, \mathrm{X}_3 \mid \boldsymbol{Z}) = \mathbf{X}\,\boldsymbol{\beta_i} \qquad (2)$$

where $P(.)$ represents the probability of the outcome Y_i; $logit(P(.)) = ln[P(.)/(1\text{-}P(.)]$ is the function linking the outcome Y_i to the set of control variables, $\mathbf{Z}$, and the three sets of explanatory variables, $\boldsymbol{X_k}$ (k=1, 2, 3): namely, the human, social and psychological capitals; $\boldsymbol{b_i} = \{\boldsymbol{b}_{ik}\}$ is the vector of parameters estimated for Y_i; and $\mathbf{X} = \{\mathbf{Z} \mid \mathbf{X_1} \mid \mathbf{X_2} \mid \mathbf{X_3}\}$ is the data matrix comprising the control and explanatory variables.

Each block of possible predictors except the first was evaluated for significance using a stepwise variable selection process. This way, only significant predictors remained in the model.

This allows for the potential contributions of the psychological variables to the explanation of the criterion variable – given the control variables – to be added to those of the human and social factors.

The data were analysed using the R programme version 3.3.3 (https://www.R-project.org/). Only variables with a 0.05 significance level were inserted and retained in the model.

3. RESULTS

The sample under scrutiny is in line with the distribution of Padua graduates, who are primarily women (61%). The largest portion of respondents stated they were still studying (44.6%, of whom 87% were attending a master's degree course), while 43.8% were working and 9.8% were still looking for a job. Only 1.8% declared they were not working, studying or looking for a job. Considering that the largest portion of these graduates were out of the labour market because they were beginning their own families or waiting for an internship or to own a business, it can be concluded that the number of people not (engaged) in education, employment or training (NEET) is irrelevant to the sample. The large majority (77.6%) of the employed graduates began working after graduation, and most (74.3%) stated that the job they obtained was either sufficiently consistent or very consistent with what they learned at university.

Four logistic regression models were estimated in a stepwise fashion: (0) the 'empty' model with the intercept and the three stratification variables, including the graduates' gender and age and whether they worked at the time they graduated; (1)

Model 1, which also included human capital descriptors selected through a stepwise procedure; (2) Model 2, which retained the stratification variables, the selection of human capital descriptors and a selection of social capital variables, again through a stepwise procedure; and (3) Model 3, in which the psychological variables were added to the model containing the three stratification variables and the selected human and social capital descriptors. The results of Models 1, 2 and 3 are described in synthesis in Table 2, which also presents the Akaike information criterion (AIC) and the Bayesian information criterion (BIC) used as measures for the relative fitting quality of the models for the analysed data. The preferred model was the one that minimised the information criteria.

The estimates highlight the following:

- Age at graduation was relevant in all three models to explain the graduates' decision to proceed with higher-level studies, but irrelevant for employment. As expected, the relation between age and the extension of academic studies beyond the curricular duration was negative because graduates who obtained their degrees at later ages did not tend to begin new study programmes.
- Working at graduation was significant for the probability of being employed two years later. This may not indicate a tautology because graduates who achieved a new academic degree, even if they worked with an open-ended contract, tended to relocate themselves in the labour market, aspiring to higher positions and better career perspectives. Moreover, those who were already employed often occupied dominant positions in securing advancement in career opportunities. In times of job market difficulties, among those who completed the surveys, employed graduates might have been better supported due to the opportunity of grabbing sudden job offers.
- Gender was relevant in explaining both the working and studying conditions of graduates in the model that included human and social capital, but it was much less relevant in the model also containing psychological variables. In this latter model, gender was mildly significant in explaining both working status and the decision to continue with studies. This means that psychological variables interact with gender to explain graduates' decisions to either orient themselves toward the job market or continue with studies.

Tab. 2: Multinomial logistic regression model of graduates' condition *(working or studying vs. Not employed, nor being in education or training)* two years after graduation

	Model 1		Model 2		Model 3	
	Work	**Study**	**Work**	**Study**	**Work**	**Study**
Intercept	-0.266	1.115 *	-0.179	1.418 **	-2.004 **	1.212 *
Male *vs.* Female	0.581 **	0.590 **	0.571 **	0.543 *	0.422 *	0.479 *
Age: 26-30 years *vs.* Less than 26	0.025	-1.067 ***	0.076	-1.018 ***	0.224	-1.174 ***
Age: 31-50 years *vs.* Less than 26	0.037	-2.309 ***	0.188	-2.047 ***	0.357	-2.110 ***
Age: More than 50 years *vs.* Less than 26	0.223	-2466 **	0.221	-2.583 **	0.175	-2.977 **
Working at graduation *vs.* Not	1.110 ***	-0.038	1.092 ***	-0.033	1.131 ***	-0.076
Lyceum high school *vs.* Other school	0.221	0.656 **	0.201	0.624 **	0.264	0.677 **
Engineering *vs.* Social science	1.044 **	1.016 **	1.020 **	0.984 **	0.909 *	0.882 *
Hard sciences *vs.* Social science	0.185	-0.002	0.004	-0.181	-0.087	-0.186
Life sciences *vs.* Social science	0.625 **	-0.930 ***	0.605 **	0.942 ***	0.621 **	-0.855 ***
Humanities *vs.* Social science	0.309	-0.799 **	0.278	-0.804 **	0.454	-0.627 *
Master *vs.* Bachelor	-0.131	-1.729 ***	-0.110	-1.704 ***	-0.068	-1.466 ***
Internship after degree *vs.* Never	-0.167	-1.000 ***	-0.149	-0.993 ***	-0.119	-0.984 ***
Internship before degree£*vs.* Never	0.205	-0.250	0.244	-0.202	0.251	-0.166
Erasmus after degree *vs.* Never	-1.289 **	-0.125	-1.324 **	-0.136	-1.160 **	0.040
Erasmus before degree *vs.* Never	0.347	0.846 **	0.257	0.752 *	0.318	0.895 **
Final degree mark 88-99 *vs.* <88	0.278	0.954 *	0.318	0.991 *	=	=
Final degree mark 100 and more *vs.* <88	0.462	1.332 **	0.486	1.343 **	=	=
Skilled programming *vs.* No	1.180 **	1.004 *	1.133 *	0.987 *	1.044 *	1.997 *
Skilled using PC programs *vs.* No	0.231	-0.148	0.227	-0.137	0.156	-0.162
Social media for leisure *vs.* Useless	=	=	0.284	-0.012	0.167	-0.093
Social media for job search *vs.* Useless	=	=	-0.885 ***	-0.784 **	-0.862 ***	-0.716 **
Willing to settle down soon *vs.* Not	=	=	-0.059	-0.696 *	-0.144	-0.755 **
Internal LoC	=	=	=	=	4.918 ***	2.534 **
Enrolled university to improve employ.	=	=	=	=	0.421*	0.137
Enrolled university: family conditioning	=	=	=	=	-0.196	-1.774 **
University relevant not to be left behind	=	=	=	=	-0.632	-1.027 **
I have to study a lot more *vs.* Not at all	=	=	=	=	-0.244	0.739 **
quite more vs. Not at all	=	=	=	=	-0.200	0.221 *
little more vs. Not at all	=	=	=	=	-0.295	0.173
University useless *vs.* Would enrol again	=	=	=	=	-1.192 **	-1.495 **
Parameters of analysis: Pseudo R^2	0.246		0.260		0.286	
Loglikelihood	-1366.1		-1340.3		-1293.9	
AIC	3027.8		2772.7		2703.9	
BIC	3094.2		3027.1		3024.7	
Significance of model fitting	***		***		***	

Significance levels: ***: 1%o; **: 1%; *: 5%.

- The AIC and BIC indices show that Model 3, which includes the psychological variables, has minimum values and could be considered the most preferable model. The log-likelihood tests of the three nested models do not add any information beyond that provided by the AIC and BIC.
- The pseudo R^2 was high with reference to human capital (24.6%), increasing significantly over that of the three control variables (R^2 = 17.1%), e.g gender, age and working during studies. The pseudo R^2 increased slightly following the addition of social descriptors (26%) and much more (28.6%) following the further addition of psychological variables. This means that having a job or continuing with studies after graduation mainly depends on educational variables, that social capital increases predictability only slightly and that psychological variables are relevant to graduates' conditions in addition to human and social capital.
- The human capital descriptors selected through the stepwise procedure include having completed a technical *versus* a social or humanistic study programme, having earned a master's instead of a bachelor's degree, having obtained a good final mark, having attended an internship or an Erasmus or other international mobility programme and being skilled in computer use.
- Having attended a lyceum high school was relevant to the decision to continue with studies. Indeed, this type of high school is more culturally, rather than technically, centred and is believed to prepare students for longer educational paths; however, the type of high school attendance did not influence employment opportunities. This result confirms that having attended an exclusive type of high school is correlated with top educational choices, but not necessarily with quick employment.
- Technically-qualified academic path (engineering and life science degrees) graduates tended toward both quick employment and specialised courses, whereas students with humanistic bachelor's degrees were more inclined toward continued studies. In contrast, graduates with social science degrees exhibited negative relationships with both employment and study continuation.
- The completion of a bachelor's programme was related to the decision to continue studies. This seems obvious and may have been influenced by the challenging labour market conditions at the time of the interviews. What was unexpected was that having obtained a master's degree had no significant relationship with employment. Indeed, it was expected that a master's degree would be much more beneficial than a bachelor's degree in finding a job. Even internships, despite appearing to indicate a positive attitude toward work, and the final mark appeared to be irrelevant to employment. Moreover, the relation

between employment and enrolment in an international mobility programme after graduation was negative. This could indicate that companies expect graduates to possess fair academic knowledge and to be prepared to shape it based on career needs through specific training.

- A positive relationship between furthering studies and any indicator of educational investment was also expected, and, indeed, enrolment in an international mobility programme and the final mark, as an indicator of study proficiency, were positively related to proceeding with higher-level studies. In contrast, internships after graduation were negatively related to study continuation. This could indicate that internships after graduation are perceived by many graduates as a "foretaste" of the labour market. The final degree mark was no longer significant as a predictor of study continuance in the model including psychological variables.
- The indicators of social capital selected as model components were a willingness to settle down in a short time, which was inversely related to the intention to continue with studies, and repeated use of social networks for job searching, which was negatively correlated with both employment and further study conditions. While a positive relationship between study continuation and the utilisation of social media is, in some sense, conceivable, the negative relationship between employment and the use of social media for a job search was remarkable. There was a clear indication that this is neither the norm nor the preferable way to search for job opportunities and that consulting social networks to become acquainted with the job market may activate reassurance mechanisms that may delay employment, at least in the short term. This is a research outcome that could benefit from deeper analysis; however, it is striking that such a simple question regarding how social media were used revealed a clear relation between a relaxed attitude toward scouting social relations and graduates' strategic choices.
- The psychological factors that are particularly suitable to explain post-graduation behaviours are the two LoC factors. These factors show, as expected, opposite signs, and internal LoC is positively related to both employment success and the undertaking of further studies. The external LoC becomes irrelevant following the introduction of the variable *'If I could go back in time, I would attend the same university course'*, meaning that those who strongly believe their future depends more on luck than their own efforts represent a relevant part of the so-called 'discouraged' graduates seeking employment. These people represent the large majority of graduates (about 3%) who were disappointed by denials from the labour market, expressed highly negative opinions that university education

was useless to them and stated that they would not enrol in a university course if they could go back in time. They were highly discouraged with the labour market conditions and so disappointed with their choice of university enrolment that they blamed the higher education system that did not make them aware that their hard-earned title would be irrelevant. They could also blame themselves, which could cause them frustration and resignation (see also Hammarström and Janlert, 2002), and, in some cases, also physiological consequences, such as depressive symptoms (Goldsmith et al., 1996).

- Resilience is the only PsyCap factor that enters the model if human and social capitals are considered. In contrast to expectations, resilience is not related to occupational success; however, it is positively but mildly correlated with study continuation. Optimism enters the model only if human and social capitals are ignored. Furthermore, optimism is negatively correlated with study continuation and is irrelevant to employment. Its significance also vanishes with respect to study continuation if human and social capitals are present in the model. Resilience also becomes irrelevant if the variable *'I will have to study a lot more'* is introduced into the model because this variable characterises a large part of the lower-resilience graduates engaged in further education.
- The other socio-psychological variables related to the decision to choose a certain academic education path at the university enrolment stage indicated that choices were not forced by parental or other conditioning influences and were, indeed, conscious choices that could improve one's social position.

Whether there is a non-linear relation between the six PsyCap and LoC dimensions and the likelihood of employment was also investigated by adding a squared term to the model that included the psychological variables after including the human and social capital variables. The results are summarised in Table 3. Model 4, which retains only the factors that showed a 5% significant value for either the linear or the quadratic relationship. The significant factors were the internal and external LoC (though resilience would be included at a 10% level). The BIC criterion, in contrast to the AIC criterion, showed Model 4 as the best of the computed models.

Thus, the following results were obtained: external LoC had a significant and negative impact in its quadratic relationships with both employment and study continuation. This relationship indicates a non-linear effect: a roughly inverse U-shaped relation in which the graduates' likelihood of finding a job increases from low to medium values of external LoC and then tends to decrease at larger values. In other words, extreme values of LoC externality, the closest to its negative and positive tails, may be problematic for finding employment.

Finally, whether the psychological variables interacted with aspects of human and social capital was investigated. We can say that two variables interact if the variable obtained from their product is significant. For this purpose, the potential interactions between each control or predictive variable significant in Model 2 and each PsyCap or LoC factor were examined. The significant interactions at the 5% level are presented in Table 3, Model 5. Four interactions were significant: self-efficacy jointly with bachelor' degree (negatively), external LoC with superior computer skills (negatively), resilience with being a male (negatively) and hope with humanities (positively). Interactions improved the pseudo R^2 beyond the level ascertained for Model 3, and the log-likelihood test gave the same result, although the BIC criterion, unlike the AIC criterion, suggested that Model 5 is too detailed with respect to Model 3. Because our purpose was to identify relationships, single interactions are discussed.

Tab. 3: Multinomial logistic regression model of graduates' conditions two years after graduation (reference category: *Not employed or pursuing education or training*)

	Model 4		Model 5	
	Work	**Study**	**Work**	**Study**
Intercept	-1.324	0.708	-2.119 ***	1.281 *
Male *vs.* Female	0.475 *	0.560 *	2.080 **	0.669
Age: 26-30 years *vs.* Less than 26	0.187	-0.957 ***	0.096	-1.156 ***
Age: 31-50 years *vs.* Less than 26	0.340	-1.976 ***	0.232	-2.220 ***
Age: More than 50 years *vs.* Less than 26	-0.006	-2.838 **	0.127	-3.055 **
Working at graduation *vs.* Not	1.117 ***	-0.038	1.206 ***	-0.025
Lyceum high school *vs.* Other school	0.216	0.652 **	0.234	0.684 **
Engineering *vs.* Social science	0.957 **	0.989 **	0.884 **	0.812 **
Hard sciences *vs.* Social science	-0.114	-0.279	-0.200	-0.303
Life sciences *vs.* Social science	0.651 **	-0.884 ***	0.593 **	-0.897 ***
Humanities *vs.* Social science	0.433	-0.703 **	-4.008 **	-3.814 **
Master *vs.* Bachelor	-0.085	-1.697 ***	1.423 *	0.561
Internship after degree *vs.* Never	-0.108	-0.955 ***	-0.136	-1.003 ***
Internship before degree *vs.* Never	0.198	-0.213	0.265 -	0.161
Erasmus after degree *vs.* Never	-1.200 **	-0.034	-1.175 **	0.062
Erasmus before degree *vs.* Never	0.389	0.877 **	0.320	0.904 *
Skilled programming *vs.* No	1.020 *	0.897	9.388 **	8.673 **
Skilled using PC programs *vs.* No	0.135	-0.205	0.139	-0.177

following

following from page 42 **Tab. 3:**

	Model 4		**Model 5**	
	Work	**Study**	**Work**	**Study**
Social media for leisure *vs.* Useless	0.161	-0.094	0.128	-0.134
Social media for job searching *vs.* Useless	-0.905 ***	-0.822 **	-0.812 **	-0.718 **
Willing to settle down soon *vs.* Not	-0.070	-0.707 **	-0.187	-0.796 **
Internal LoC	4.952 ***	2.343 *	5.277 ***	2.548 **
External LoC	-5.665	4.986	=	=
External LoC squared	3.779	-7,117	=	=
Enrolled university: improve employability	=	=	0.410 *	0.121
Enrolled university: family conditioning	=	=	-0.445	-1.940 **
University relevant not to be left behind	=	=	-0.705 *	-1.093 **
I have to study a lot more *vs.* Not at all	=	=	-0.217	0.713 *
quite more vs. Not at all	=	=	-0.169	0.234
little more vs. Not at all	=	=	-0.284	-0.123
University useless *vs.* Would repeat it again	=	=	-1.276 **	-1.506 **
Master * self-efficacy (interact)	=	=	-2.738 *	-3.936 **
Skilled programmer * External LoC (interact)	=	=	-15.235 **	-13.836 **
Male * Resilience (interact)	=	=	-3.288 *	-0.190
Major humanities * Hope (interact)	=	=	9.572 ***	6.986 **
Pseudo R^2	0.275		0.299	
Loglikelihood	-1317.4		-1270.3	
AIC	2731.4		2731.2	
BIC	3019.0		3018.8	
Significance of model fitting	***		***	

Significance levels: ***: 1%o; **: 1%; *: 5%.

- Jointly being confident in one's own competence and possessing a master's degree was negatively correlated with both employment and continuing studies. The unexpected negative relationship between the possession of a master's degree and occupation soon after graduation was already highlighted by Model 1. This may mean that an awareness of being competent for employment increases the graduates' propensity to challenge the labour market, refuse inadequate job offers and wait for better ones.
- A similar effect is that of external LoC and computer skills. Higher external LoC scores were positively correlated with lower computer skills, whereas computer programming skills were inversely correlated with high external LoC scores

(data not shown). Hence, those who believed they were both low-skilled and at the mercy of external agents were considered both facing the labour market and continuing studies hopeless.

- When other effects remained constant, being a male was positively correlated with employment; however, a male graduate who scored high in resilience had a lower likelihood of quickly finding a job than a male graduate who scored lower (data not shown). This unexpected result parallels the highlighted interpretation of resilience as a study-prosecution advance factor.
- The 'hope' factor was positively correlated with degrees in engineering and life sciences and negatively correlated with degrees in social and humanistic sciences (data not shown). The positive sign of the interaction between achieving a degree in a humanistic major and scoring high in hope implies that, for a graduate with such a degree, being hopeful makes the otherwise negative trend of employment tend toward the positive. The same relationship applies to the likelihood of furthering studies: Being hopeful increases also the propensity of those in humanities to continue studies after graduation.

4. DISCUSSION

Two control variables, working during study and age at graduation, complemented each other in representing graduates' irregular and lower-profile academic careers. This phenomenon was correlated with both employment and beginning a higher-level study programme, though in opposite directions: It favoured early employment and discouraged further study.

The other control variable, gender, deserves attention because it interacted with internal LoC in determining graduates' conditions. In fact, male graduates psychologically differed from their female counterparts, such that gender lost part of its otherwise relevant role as a predictor of employment and study continuation after graduation. This was somewhat unexpected for two reasons. First, gender showed to be almost independent of human and social capital, so the effects of these two types of intangible capital could be added to that of being a male to predict a graduate's condition. Second, when human and social capital remained constant, psychological factors tended to subrogate the role of gender as a predictor of graduates' conditions.

Internal LoC absorbed the largest part of the statistical significance of gender in relation to both being employed and continuing with more specialised studies, and external LoC also had a partial interaction. Instead, once human and social capital were taken into consideration, the PsyCap factors played a much less

significant role in determining a graduate's strategic behaviour after graduation. This latter relationship is not only expected, but also desired from the behavioural viewpoint: Indeed, for a university system, it is preferable to support students with guidance and tutorship (at matriculation, at any turning point and at the job-seeking stage) than to intervene a-posteriori to modify single inadequate mentalities.

The intertwined relationship between gender and PsyCap and LoC factors has been observed by many scholars (see, among others, Betz and Hackett, 1981; Sherman et al., 1997; Caza et al., 2010; Avey et al., 2011; Saleem Khan and Iqbal, 2013; Callaghan and Papageorgiou, 2015; Bernstein and Volpe, 2016), although the relationship differs across cultures and in relation to the performance indicator adopted as the criterion variable. For internal LoC, which is related to an individual's socialisation and, particularly, to potentially discriminating gender-role influences, Callaghan and Papageorgiou (2015) found that gender differences in LoC between classes of South African students did not reflect inequality patterns but represented a new pattern of female dominance reflected in women's higher educational attainment and employment numbers in educational contexts. In contrast, Saleem Khan and Iqbal (2013), who analysed the academic achievement of Chinese students, found that boys showed more internal LoC than girls. Regardless of the direction of the relationship, the convergent effect of gender in explaining the relation between psychological factors and social outcomes is mild.

In addition, a meta-analysis of two decades of research on LoC led Sherman et al. (1997) to conclude that the LoC of both males and females is becoming more external, meaning that both males and females increasingly attribute their own outcomes to society and external influences, rather than own resources and willpower. However, in general, women are becoming more external than men because they are more involved in social support networks, from which they reap more advantages and risks. The cross-sectional data in this study do not allow for a determination of whether internal LoC is declining or external LoC has greater relevance for graduates; however, it can be stated that psychological factors are highly relevant predictors of a graduate's status at workforce entry. This finding deserves the attention of academic authorities and labour market agencies willing to intervene and inform graduates about the labour market segments appropriate to their educational paths and empower them to both face market difficulties and wisely choose study paths.

Robusto et al. (2018) found that academic PsyCap and LoC scales showed significant relations not only with the conditions of graduates for workforce entry, but also with their entrepreneurial dispositions and the number of actions taken while looking for a job. Graduates with higher levels of internal LoC and resilience

were more likely to succeed in finding employment, whereas graduates with higher levels of self-efficacy had a greater probability of starting a business. Those with an external LoC orientation were likely to undertake more actions to find employment. Our results imply quite a different relationship than those of Robusto et al. (2018): we ascertained that graduates' haphazard navigation of the labour market (e.g. by scattering numerous CVs for job-seeking purposes, rather than intentionally acquiring knowledge regarding job offers) reveals that some graduates believe that luck or chance is the main driver of successful employment.

This research study revealed a group of graduates who are highly unsatisfied with university studies: graduates who would not even have enrolled in university in retrospect due to disappointment when comparing their degree-related skills with the real requirements of the labour market. The proportion of graduates belonging to this category was low, representing only 3% of the respondents, but it could be larger among non-respondents. It should be emphasised that membership in this antagonistic group of graduates was independent of the field of study and the obtained final mark and occurred across all control variables, including age, gender and working during studies. These graduates' frustration could be based on either the unexpected employment difficulties caused by the long-term economic downturn or the gap between the expected return on their education investment and the jobs offered: a gap that depends not on occasional market difficulties, but on the erroneous representations of the labour society from their perspectives. Other scholars (Kahn, 2010, in the UK and Oreopoulos et al., 2012, in Canada) found that attempting to enter the labour market during poor economic circumstances may have long-term negative effects on graduates' ambitions. Thus, this unsatisfied group of graduates represents a new issue that should be considered by academic authorities.

Our data showed that human and psychological capitals of graduates weave together to predict employability. Also Cunha and Heckman (2007) found that the two types of personal capitals cross-fertilise each other, with high stocks of each resource at one age improving the productivity of investments at later ages. The authors state that personality skills may fertilise the cognitive ones more than the other way round. This is partly in line with the opinion of Lyubomirsky (2007), who conjectured that life history and circumstances determine approximately half of the variability in one's level of positivity and happiness, thus leaving a large part of behavioural alternatives open to intentional development and purposeful shaping.

5. CONCLUDING REMARKS

In this paper, we discussed the relationships between, on one hand, LoC and academic PsyCap dimensions, and, on the other, employment outcomes and choices regarding further education of graduates. It has been demonstrated that psychological dimensions are suitable instruments for measuring the psychological power of new graduates for employment purposes, beyond human and social capital and controlling for the potential effects of gender, age and previous work experience. Though, PsyCap factors are much less relevant factors than LoC to understand employability and could barely predict the undertaking of further educational paths. Regarding the likelihood of finding employment quickly after graduation, a positive attitude and relying on one's own efforts to succeed are significantly beneficial. Conversely, becoming entrapped in temporary or occasional job offers found on social media, ruminating on the irrelevance of time spent pursuing education and/or believing that one's destiny is determined mainly by chance, luck and social circles decrease employment chances.

Devising intervention programmes to reinforce skills that are lacking could help graduates cope with the challenges of the labour market, particularly when there is a lack of occupational opportunities. We are not in a position to decide the type of intervention programme, nor we can define whether these types of programmes could be part of an academic or governmental intervention. We can only suggest that universities make psychometric tests available to students and graduates to self-diagnose own levels of psychological resources and create supporting services for students or graduates who do not possess sufficient resources to succeed in the labour market.

A question relates to the possibility that one's psychological traits may be effectively improved through specific training programmes. Several scholars developed the psychological constructs examined in this paper (see e.g. Snyder et al., 1996; Judge and Bono, 2001; Luthans et al., 2008; Avey et al., 2010, 2011). Regarding the dimensions highlighted as critical for finding employment in the current analyses, Luthans and Youssef (2004) and Masten and Wright (2010) suggested that resilience can be developed through asset-focused, risk-focused and process-focused strategies, which emphasise the effective deployment of assets to mitigate risk factors. To develop efficacy, Bandura (1997) emphasised mastery of success experiences, vicarious learning, social persuasion and positive feedback and physiological and psychological arousal. Regarding expressions of individual willpower, Huitt and Cain (2005) suggested that young people need to imagine possibilities, set attainable goals, plan routes to those goals, systematically and consistently put goals and plans into action, practice self-observation, reflect on

results and manage emotions. In other words, there are already proposals to strengthen graduates' psychological resources.

Hence, assuming the existence of programmes able to empower graduates' psychological dimensions, the above question could be rephrased as: Would a psychologically weaker graduate be willing to enrich his or her psychological resources before entering the labour market? In particular, would he or she be able to grasp the benefits of a training programme on psychological empowerment? These questions are relevant to pedagogues and trainers. In agreement with Luthans and Youssef (2004), we believe that establishing the relevance of psychological assets as common sense is likely to create a positive spiral, paving the road for a return on PsyCap and LoC and yielding competitive advantages.

It is possible that the outcomes for graduates could be extended and have positive spillover and crossover effects on life domains beyond the labour market. Our data did not allow for determining this, although it can be conjectured that, if a graduate is supported, empowered, rewarded and allowed to be authentic and innovative, his or her psychological status will transfer vigour and engagement to other life domains (Shaufeli and Bakker, 2004; Petersen, 2015). Moreover, graduates are open to development, and the PsyCap and LoC dimensions may also change over time, particularly when they collide with labour market rules. A longitudinal study would be more appropriate for this type of investigation.

Another possible limitation of this study involves the transferability of the ascertained relationships between psychological dimensions and occupational outcomes to other graduate populations. It could be argued that the meaningful manifestations of the positivity of PsyCap and LoC may differ across cultures (see also Fineman, 2006). Indeed, only repeated analyses of analogous data could resolve this potential limitation.

APPENDIX

The psychological variables considered for regression analysis were:

- The factor scores of the four *PsyCap factors* (self-efficacy, resilience, optimism, hope);
- The factor scores of two *LoC factors* (internal, external);
- *The perceived usefulness of the degree* (If I could go back, I would not even enrol at university; I would attend a different course of study or a different major; I would attend the same course or major at another Italian university; I would attend the same course or major at a foreign university; I would attend the same course at Padua University);

- *Main motivation for enrolling in university* (Cultural interests; Willingness to progress in my career; Willingness to increase the chance of getting a job; Title indispensable for the job I had in mind; A degree is an emancipation tool; A degree is a prestigious position on the social scale; Today, those who are degreeless are left behind; Family conditioning or traditions) and
- *Attitude toward the labour market* (Worrying about work is hopeless; there are not enough jobs for youth; I will look for work abroad; there is no hope in Italy for youth; I will accept any job or contract; working matters; Graduates have the right to perform only job activities for which they studied; I must study longer because the market requires more qualified competencies; Finding a job is the top existential problem of young people; If I remained without a job, the state should give me economic aid; I belong to a generation without any real possibility of social participation; People who help at home should be assigned an income as if they worked; If young adults would leave home early, they could find a job more easily).

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