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Psychometric examination of the Psychological Capital (PsyCap) and the Career Decision-Making Process (CDMP) scales

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ABSTRACT. Questo studio contribuisce alla validazione di due scale, potenzialmente utilizzabili in modo congiunto, incentrate sulle quattro componenti del Capitale Psicologico (speranza, resilienza, autoefficacia e ottimismo) e quattro dimensioni del *Career Decision-Making Process* (ansia verso la scelta, percezione di importanza della scuola, autoefficacia nel processo decisionale, pianificazione del futuro). Basandosi su due campioni di studenti della scuola secondaria di primo grado, l'analisi fattoriale esplorativa e confermativa hanno fornito supporto alla ipotesi che le scale denominate PsyCap e CDMP rappresentino misure di auto-valutazione valide nella rilevazione delle risorse in grado di facilitare il processo decisionale della carriera.

SUMMARY. The current study was aimed to validate two scales, potentially jointly used, focused on the four dimensions of Psychological Capital (i.e., hope, resilience, self-efficacy and optimism) and the four facets of Career Decision-Making Process (i.e., career choice anxiety, perceived instrumentality of education, career decision-making self-efficacy and career planning attitude) among middle school students. In Study 1 the PsyCap and CDMP scales were developed and evaluated through a principal component analysis (N = 602). In Study 2 a confirmatory factor analysis (N = 989) was performed in order to validate the four-dimensional structure of the scales. The obtained results provided evidence for two theoretically grounded 16-item scales composed of four factors each: the PsyCap and the CDMP scales. The PsyCap and the CDMP scales are valid self-report measures assessing the key dimensions of psychological capital and the resources able to ease the career decision-making process.

Keywords: *Psychological capital, Career decision-making, Middle school students*

INTRODUCTION

The transition from middle school to high school could be defined as a crucial step among Italian adolescents, essentially because it corresponds to their first vocational choice. Since adolescents' beliefs about alternative career paths develop while taking such educational decisions, the choice of a specific high school program seems to constitute a significant step for their career development (Super, 1980). In particular, it implies a demanding decision-making process during which different decisional tasks or activities are faced, such as exploring different high school programs, reflecting on their interests and skills, comparing preferences, and lastly picking out a single option. Handling this process is very complex for at least two orders of reasons. Firstly, it is faced by Italian middle school students during a vulnerable stage of their growth, that has increasingly encouraged the development and implementation of initiatives and tools aimed at facilitating their capability to deal efficiently with the difficulties that could arise (Biolcati, Palareti & Mameli, 2017). Secondly, it is more and more affected by the uncertainty that derives from the social and economic changes occurred in the last decades. The new career theories emerged in the 21st century, such as Career Construction theory (Savickas, 2005, 2011), Self-Construction theory (Guichard, 2004, 2005) and Life Construction theory (Guichard, 2013), are aimed to explain how people can construct coherence and continuity, and pursue their purpose and projects despite of the loss of stable structures and predictable trajectories in life course. These theories describe the career construction as a process through which individuals attempt to implement self-concepts in occupational roles, but, due to the changing nature of self and situations, this process is never really completed. During adolescence, it is expected that individual will be able to manage exploratory activities and make fitting educational and vocational choices based on self-knowledge and occupational information. Success in adapting to these developmental tasks results in a more effective functioning as a student and gets ready for progressively mastering the next tasks along the developmental continuum (Savickas, 2012). Accordingly, the career decision-making process faced by adolescents has been shown to affect subsequent choice implementation in term of choice actualization, choice satisfaction, performance in the chosen option, and choice stability (e.g., Germeijs & Verschueren, 2006). Overall, these theoretical frameworks and empirical evidence suggested the necessity to delve deeper into different features of the decision-making process and its effect on the positive adjustment to the selected career path. On the other hand, a noteworthy literature review revealed that most of studies focused on the transition from high school to university/job market, thus neglecting students' transition to high school (Bardick, Bernes, Magnusson & Witko, 2006). Consequently, the great number of instruments developed to measure career decision-making process are mainly validated among high school students' population (e.g., Gati & Levin, 2014). In addition, most of these instruments are aimed at assessing exclusively the difficulties and setbacks that may occur during the career decision-making process.

In line with the positive approach to psychology (Seligman & Csikszentmihalyi, 2000), that emphasizes individual strengths and virtues in order to enhance individual wellbeing and personal grow, rather than focusing on weaknesses and disease, the current study aimed to develop two instruments able to assess those personal resources that can facilitate the career decision-making process and predict the ability to adjust to a new school environment during the transition from the middle to the high school.

The role of personal resources in the career decision-making process

The career decision-making process may be conceptualized as a developmental process consisting of different tasks related to the need to make a choice, starting from the contemplation of several alternatives that have to be compared considering their specific qualities and possible implications (Tinsley, 1992). As argued by Gati, Krausz and Osipow (1996), career decisions are characterized by the following features: a) the number of potential alternatives to consider is often fairly large; b) an extensive amount of information is available on each alternative; c) a large number of aspects (e.g., length of training, type of relationship with people) is required to adequately describe the occupations and the individual's preferences in a detailed and meaningful way; d) uncertainty plays a major role because the development of individual's characteristics (e.g. abilities and interest) and the future career opportunities are difficult to predict. These characteristics make the career choices a demanding task: accordingly, a large amount of research has focused on the difficulties that may arise during the career decision-making

process. These difficulties include, for instance, lack of readiness, lack of motivation to engage in the career decision-making process, general indecisiveness concerning all types of decisions, dysfunctional beliefs about career decision-making, lack of information and inconsistent information (Amir & Gati, 2006).

In addition to the prevailing negative accent on these obstacles, previous studies revealed at least three fundamental features to cope with decisional tasks (Germeijs & Verschueren, 2006): the orientation to choose or awareness of the need to take a decision and the motivation to engage in the career decision process; the exploration or proactive collection of information about oneself and the environment; the strength of confidence in – and attachment to – a particular career goal. Thus, research has started to devote growing attention to the personal resources that enable individuals to cope with these tasks. Savickas (1997) introduced the construct of career adaptability to refer to "…the readiness to cope with the predictable tasks of preparing for and participating in the work role and with the unpredictable adjustments prompted by the changes in work and work conditions" (p. 254). Career adaptability includes four dimensions: *concern* reflects the awareness of the need to plan a vocational future; *control* entails the ability to take deliberate action being aware of one's responsibility in influencing and tackling oneself and the surrounding context; *curiosity* denotes an attitude to discover one's environment; *confidence* refers to the ability to successfully overcome obstacles and move forward in order to chase and achieve one's main career goals. Recent findings on samples of Italian students indicated that career adaptability is related to a lower perception of internal and external career barriers, as well as a wider range of career interests, and higher quality of life (Soresi, Nota & Ferrari, 2012). Furthermore, career adaptability has been shown to result in a greater orientation toward future and career decisiveness (Nota, Ginevra & Soresi, 2012), and higher satisfaction (Santilli, Marcionetti, Rochat, Rossier & Nota, 2016; Wilkins et al., 2014).

The present study identified four personal aspects that may influence how students face with these decisional tasks: *career choice anxiety, perceived instrumentality of education, career decision-making self-efficacy and career planning attitude*.

Career decision-making self-efficacy refers to an individual's degree of belief that he/she can successfully perform and complete the tasks required to take career decisions (Betz, Klein & Taylor, 1996). In general, self-efficacy has been shown to play a crucial role in the self-regulation process of motivation: actually, this personal resource influences the adoption of a specific behavior, the amount of effort expended, and how long it will be sustained in the face of obstacles and aversive experiences (Bandura, 1982). More specifically, empirical evidence suggested that the career decision-making self-efficacy is related to a greater level of engagement in the career decision-making process, particularly in exploration activities (Chiesa, Massei & Guglielmi, 2016).

If on the one hand, career decision-making self-efficacy can foster students to take an educational choice, on the other hand, career decision-making process may be hindered by *career choice anxiety*, that has been defined as affective distress negatively associated with career choice certainty and vocational identity (Vidal-Brown & Thompson, 2001) and positively related to the need for career information and self-knowledge (Dickinson & Tokar, 2004). A critical personal resource for career decision-making is the attitude toward planning (i.e., *career planning attitude*), which reflects a future direction and the involvement in preparing oneself to make long-run occupational or educational choices (Super, Thompson, Lindeman, Myers & Jordaan, 1988). Adolescents' career planning is associated with career decision self-efficacy and several positive outcomes, such as high levels of goal-setting and career expectations and goals (e.g., Rogers, Creed & Glendon, 2008).

Finally, since the outcomes of personal investment in education on one's career will be visible far in the future, a key facet is represented by the *perceived instrumentality of education*, a resource that could meaningfully stimulate students to commit to their choices. Perceived instrumentality entails the individual understanding of the relevance of a present task for valued future goals. This perception boosts the value attributed to the task and, consequently, the level of interest and motivation in fulfilling it. This perception translates into practice when students engage in learning activities given the value that they can represent for their educational and professional future (Miller & Brickman, 2004). Thus, a first goal of the present research was to explore the psychometrics properties of a scale aimed at assessing the four facets of career decision-making *process among middle school students: career choice anxiety, perceived instrumentality of education, career decision-making self-efficacy and career planning attitude*.

Personal resources for school adjustment: Psychological Capital

The positive psychology movement inspired the conception of the Positive Organizational Behavior (POB), that is "the study and application of positively oriented human resource strengths and psychological capacities that can be measured, developed, and effectively managed for performance improvement in today's workplace" (Luthans, 2002, p. 59). This theoretical framework led to the definition of Psychological Capital (PsyCap), a personal resource that entails "an individual's positive psychological state of development that is characterized by: (1) having confidence (*self-efficacy*) to take on and put in the necessary effort to succeed at challenging tasks; (2) making a positive attribution (*optimism*) about succeeding now and in the future; (3) persevering toward goals and, when necessary, redirecting paths to goals (*hope*) in order to succeed; and (4) when beset by problems and adversity, sustaining and bouncing back and even beyond (*resiliency*) to attain success" (Luthans, Youssef & Avolio, 2007, p. 3). PsyCap represents a second-order construct determined by the shared variance between the four positive psychological resources described, each of which has demonstrated both discriminant and convergent validity (Newman, Ucbasaran, Zhu, & Hirst, 2014). A key characteristic of PsyCap, that makes it a very interesting construct both for scholars and practitioners, is represented by its state-like nature, that implies the opportunity to develop and implement intervention strategies able to promote this resource that, in turn, has been shown to foster employees' levels of engagement in their work and to prevent them from harmful outcomes such as symptoms of psychological distress (Mazzetti, Guglielmi, Chiesa & Mariani, 2016). Although PsyCap has been originally applied to the investigation within organizational settings, empirical research has started to explore and support its positive association with the academic performance. Siu, Bakker and Jiang (2014) found that PsyCap affect the university students' engagement through the enhancement of intrinsic motivation. Moreover, Luthans, Luthans and Palmer (2016) indicated that PsyCap is associated with student-faculty engagement, community-based activities, and transformational learning opportunities.

Finally, a great amount of studies confirmed the relationship between the individual psychological resources that constitute PsyCap and positive academic outcomes. Indeed, the individual confidence in one's ability to attain any desired goal can predict several positive outcomes, such as academic performance (Valentine, DuBois & Cooper, 2004), and may also foster students' levels of effort, persistence, and perseverance (Zeldin & Pajares, 2000). In addition, empirical results revealed that optimistic students report a greater performance when compared to their pessimistic colleagues and a higher level of engagement in their study activity (Medlin & Faulk, 2011). Moreover, previous findings suggested that high levels of hope among university students may result in a greater student engagement, as well as an improved academic performance (Van Ryzin, 2011). Additionally, students characterized by the ability to tackle and overcome successfully potential adversities and risks also report higher levels of study enjoyment and an active participation in schools' activities (Martin & Marsh, 2006). Furthermore, optimism and hope represent personal resources able to foster the experienced level of satisfaction through career adaptability among adolescents (Santilli et al., 2016; Wilkins et al., 2014). In line with this theoretical background and the empirical results described, a second aim of the current study was to validate a scale measuring the four PsyCap dimensions (i.e., *hope, resiliency, self-efficacy and optimism*) on a sample of middle school students.

Development of the PsyCap and CDMP scales

Two different lists of items were created in order to describe actual behaviors and attitudes able to capture and describe the key characteristics of Psychological Capital and Career Decision-Making Process among middle school students. Based on the theoretical perspectives and empirical evidence described, we developed an initial set of 6 items for each PsyCap dimension (i.e., *hope*, *resiliency*, *self-efficacy* and *optimism*) and each core resource that could enable the Career Decision-Making Process among middle school students (i.e., *career choice anxiety, perceived instrumentality of education, career decision-making self-efficacy and career planning attitude*). In order to elaborate a sound and pertinent instrument, the content validity of these different sets of items was assessed using a panel of five judges who have worked on average 11 years as academic researchers in the field of education studies and vocational psychology. In particular, the panel was composed of four women and one man, with a *Mage* = 34.4 (*SD* = 7.16). The content validity of these pools of items was evaluated using the procedure proposed by Lynn (1986). The five judges were asked to evaluate the content

validity of items using two main criteria: 1) *Theoretical relevance*: each of the 6 items included in the afore-mentioned pools was evaluated considering its pertinence in describing attitudes/behaviors referable to the theoretical definition of the specific resource involved; 2) *Suitability to the target population*. As these instruments were intended for middle school students, a further criterion was the level of suitability and clarity with regard to this target population.

These two aspects were evaluated independently by each judge on a 4-point Likert scale including the following response options: 1 = irrelevant; 2 = somewhat relevant; 3 = quite relevant and 4 = extremely relevant. The Item-level Content Validity Index (I-CVI) was calculated using the number of judges giving a rating of either 3 or 4 divided by the total number of judges in the panel. In line with the guidelines provided by Lynn (1986), the I-CVI must be equal to 1.00 when the panel consists of 5 or fewer judges: accordingly, in the current study only items reporting a total agreement among judges for both the above-mentioned criteria (clarity of language and theoretical dimension) were considered in the final version of the scales. As a result, each subscale within the PsyCap scale (i.e., *hope*, *resiliency*, *self-efficacy* and *optimism*) and the CDMP scale (i.e., *career choice anxiety, perceived instrumentality of education, career decision-making self-efficacy and career planning attitude*) included 4 items. Thus, the PsyCap and the CDMP scales were composed of 16 items each. Then, the Content Validity Index for the overall scale (i.e., S-CVI) was calculated as the average I-CVI across items. Since the PsyCap and the CDMP scales included only items reporting an I-CVI of 1.00, in the current study the S-CVI was equal to 1.00, thus exceeding the cutoff of .80, considered as a rule of thumb for an acceptable content validity of the scales (Davis, 1992).

AIMS

Based on the theoretical background already described, the aim of the current study was to describe the process that led to the development and validation of two questionnaires designed to assess the core aspects of Psychological Capital (PsyCap) and Career Decision-Making Process (CDMP) among middle school students. In particular, the purposes were: (1) to develop and evaluate the factorial validity of two questionnaires aimed at measuring the key dimensions of psychological capital and the resources able to ease the career decision-making process (*Study 1*); (2) to cross-validate the results of the exploratory factor analysis conducted in Study 1, through a confirmatory factor analysis investigation aimed at supporting the factorial structure previously identified (*Study 2*).

METHODS

Participants and procedure

In order to evaluate the psychometric properties of the PsyCap and the CDMP scales previously developed, data were collected on two different samples. Both samples consisted of middle school students from different Italian regions, who filled-out an online questionnaire as part of a project concerning school career guidance. For both scales, all items were scored on the following five-point Likert scale: 1 = *Not at all*, 2 = *Slightly*, 3 = *Moderately*, 4 = *Very*, 5 = *Extremely*. First, the psychometric properties of the PsyCap and the CDMP scales were explored using an exploratory factor analysis conducted on Sample 1 (N = 602), where the slight majority were men (51.2%) and the mean age was 12.91 (SD = 1.09). Then, a confirmatory factor analysis was performed on Sample 2 (N = 989). Within this sample, 51.4 of respondents were men and the mean age was 12.92 (SD = 1.30).

RESULTS

Sample 1: Exploratory factor analysis

The factorial structure of our questionnaires was evaluated through a principal component analysis (PCA) on the 16 items of each scale with oblique rotation. In the current study, only factors with an Eigenvalue≥1 were considered. Moreover, a cut-off value of loading larger than .40 was used as a criterion to retain items. The obtained results supported the hypothesized 4-factor structure of both the PsyCap and the CDMP scales. Furthermore, the dimensions of both scales reported an internal consistency above the criterion of .65 (DeVellis, 2003). Concerning the PsyCap scale, the factor labelled as *hope* explained 15.57% of the variance, the factor named as *resiliency* explained 14.96% of the variance, the factor corresponding to the *self-efficacy* dimension explained 14.5% of the variance and the *optimism* factor explained 12.65% of the variance. Together, these four factors explained 57.68% of the variance. Table 1 reports the items (in Italian),

Table 1 – Exploratory factor analysis results of the PsyCap scale (*N* = 602)

Items	M	SD	Item loadings			
			Factor 1 Hope	Factor 2 Resiliency	Factor 3 Self-Efficacy	Factor 4 Optimism
1. Ho diversi modi in mente per ottenere le cose che per me sono più importanti	3.96	.85	.58			
2. Quando ho un problema penso a diversi modi per risolverlo	3.68	.85	.81			
3. Anche nelle situazioni dove gli altri non vedono una soluzione. io riesco a trovare il modo per risolvere il problema	3.86	.95	.75			
4. Penso che ogni problema possa essere risolto in tanti modi differenti	4.01	.82	.73			
5. Sono bravo a reagire quando incontro degli ostacoli (ad esempio. se prendo un brutto voto a scuola o se i professori mi dicono che non ho svolto bene un compito)	3.49	.91		.55		
6. Faccio in modo che lo stress derivante dallo studio non mi travolga	3.57	.97		.70		
7. Penso di essere bravo a resistere all'ansia dei compiti o delle verifiche a scuola	3.17	.95		.84		
8. Sono capace di controllare emozioni e paure che potrebbero crearmi difficoltà nel raggiungere buoni risultati a scuola	3.68	.92		.73		
9. A scuola è soprattutto il mio impegno a portarmi ad avere buoni risultati	3.44	.98			.81	
10. Riesco ad affrontare lo studio in modo da ottenere delle valutazioni positive	3.13	1.11			.76	
11. Penso che le cose che ho fatto in passato potranno aiutarmi per affrontare il futuro	2.98	1.22			.63	
12. Grazie all'impegno riesco a raggiungere i miei obiettivi	3.24	1.02			.72	
13. Anche se possono capitare degli imprevisti. sono fiducioso riguardo il futuro	3.31	1.20				.74
14. Affronto le situazioni con ottimismo	3.41	1.12				.46
15. In genere mi aspetto che le cose vadano per il verso giusto	3.43	1.14				.78
16. Spesso penso che mi capiterà qualcosa di bello	3.47	1.18				.75
Eigenvalue			**4.60**	**1.75**	**1.60**	**1.28**
% of variance			**15.57**	**14.96**	**14.50**	**12.65**
Cronbach's α			**.74**	**.75**	**.74**	**.70**

their means, standard deviations, internal consistency (Cronbach's α), and factor loadings.

Within the CDMP scale, the factor labelled as *career choice anxiety* explained 18.8% of the variance, the factor corresponding to the *perceived instrumentality of education* explained 16.91% of the variance, the *career decision-making self-efficacy* dimension explained 15.35% of the variance and the last factor, named as *career planning attitude*, explained 12.38% of the variance. Overall, these dimensions explained 63.44% of the variance.

Descriptive results for the CDMP and factor loadings are indicated in Table 2.

Sample 2: Confirmatory factor analysis

With the purpose of corroborating the results obtained through the exploratory factor analysis performed on Sample 1, the four-factor structure of the PsyCap scale (i.e.,

Table 2 – Exploratory factor analysis results of the CDMP scale (*N* = 602).

Items	
1. Sono in grado di raccogliere le informazioni che mi servono riguardo le scuole superiori a cui sono interessato	
2. Se avessi una lista di tutte le scuole superiori. saprei scegliere quelle che più mi interessano	
3. Penso che adesso saprei già dire quale scuola superiore sarebbe meglio che io scegliessi	
4. Sono già in grado di scegliere la scuola superiore più adatta ai miei interessi	
5. Penso che raccogliere più informazioni possibili sulle scuole superiori che potrei frequentare mi permetterà di scegliere quella più adatta a me	
6. Devo riflettere con attenzione sui miei interessi e le mie capacità per poter scegliere l'indirizzo di studi più giusto per me	
7. Penso di dover raccogliere più informazioni di quelle che già ho riguardo gli indirizzi di studio delle scuole superiori	
8. Ho intenzione di confrontarmi con diverse persone (ad esempio. genitori. professori e compagni di scuola) riguardo le scuole superiori che potrebbero interessarmi	
9. Mi interessa molto continuare a studiare	
10. Penso che le energie che si impiegano nello studio siano ben spese	
11. Penso che studiare sia importante se si vuole avere successo nella vita	
12. Credo che lo studio sia importante per il mio futuro	
13. Se penso al futuro. ho paura che potrei scegliere un percorso di studi che in realtà potrebbe non essere adatto a me	
14. Sono preoccupato per la scelta della scuola superiore perché questa decisione porterà dei cambiamenti importanti nella mia vita	
15. Sono preoccupato per la scelta della scuola superiore perché se dovessi sbagliare mi sentirei responsabile di questo errore	
16. Pensare di scegliere la scuola superiore mi fa sentire agitato perché è una decisione che richiede molto sforzo	
Eigenvalue	
% of variance	
Cronbach's α	

hope, *resiliency*, *self-efficacy* and *optimism*) and the CDMP scale (i.e., *career choice anxiety, perceived instrumentality of education, career decision-making self-efficacy and career planning attitude*) was tested on Sample 2 (N = 989) using a confirmatory factor analysis with the AMOS software package (Arbuckle, 2005). Several indices were examined in order to assess model fit: the χ^2 goodness-of-fit statistic, the Tucker-Lewis Index (TLI), the Comparative Fit Index (CFI), the Goodness of Fit Index (GFI), and the Root Mean Square Error of Approximation (RMSEA).

Values ≥ .90 for TLI, CFI and GFI, and values ≤.08 for RMSEA indicate acceptable fit (Byrne, 2001). The fit indices of the CFA's for the PsyCap and the CDMP scales are reported in Table 3.

The four-factor model obtained in the exploratory factor analysis showed a good fit to our data for both the PsyCap and the CDMP scales, with all values consistent with the criteria previously defined as a norm for a satisfactory fit. The item loadings and the correlations between the four dimensions of the PsyCap are illustrated in Figure 1.

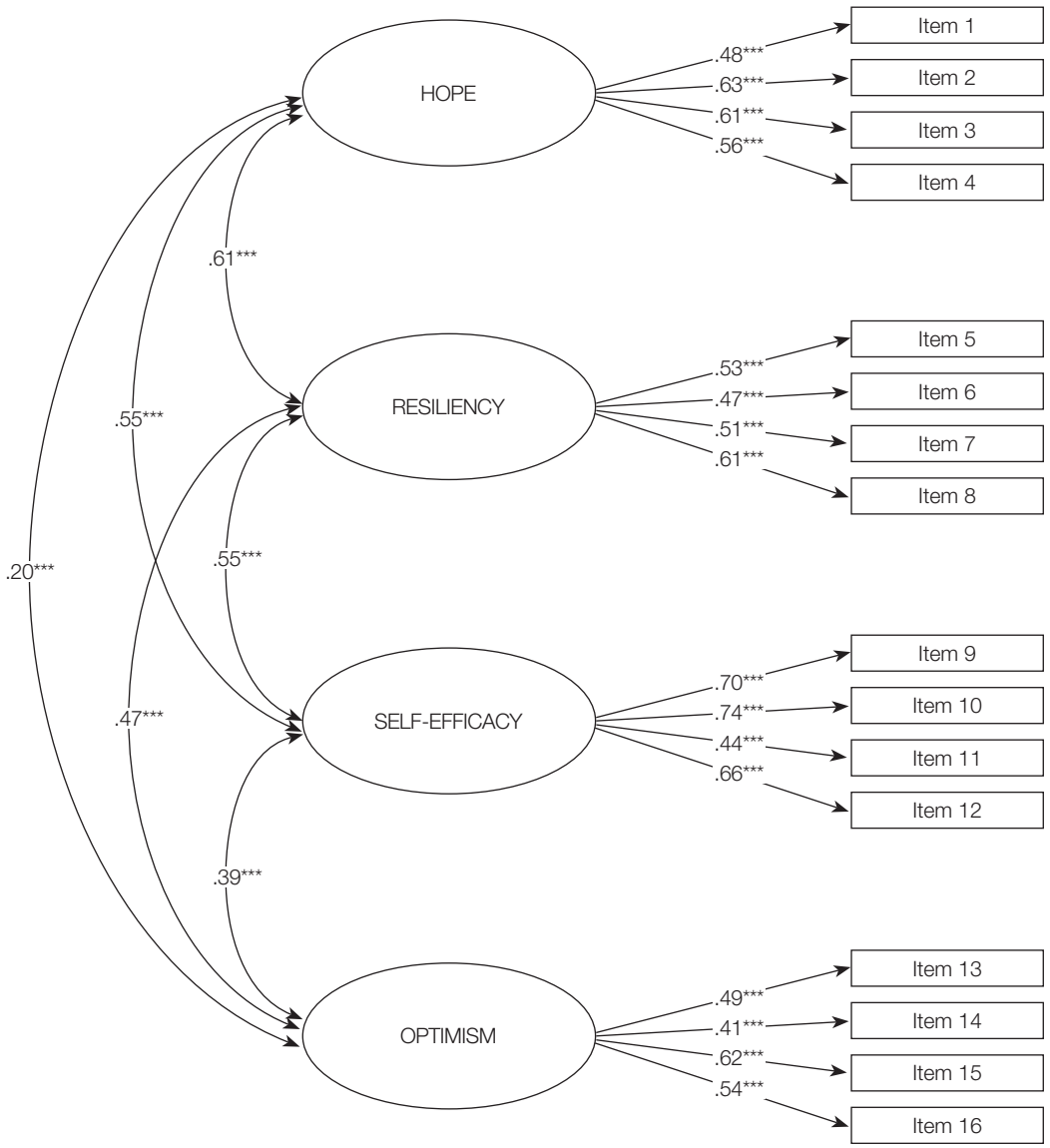
		Item loadings			
M	**SD**	**Factor 1 Career Decision-Making Self-Efficacy**	**Factor 2 Career Planning Attitude**	**Factor 3 Perceived Instrumentality of Education**	**Factor 4 Career Choice Anxiety**
3.39	.99	.66			
3.42	1.23	.79			
2.97	1.33	.75			
2.94	1.33	.78			
4.13	.85		.77		
3.98	.91		.48		
3.60	1		.70		
3.76	1.04		.68		
3.74	1			.77	
3.87	.92			.74	
4.35	.80			.85	
4.36	.81			.83	
3.08	1.22				.80
3.29	1.19				.80
3.22	1.30				.81
3.01	1.21				.72
		4.21	**3.54**	**1.41**	**1**
		18.8	**16.91**	**15.35**	**12.38**
		.84	**.83**	**.80**	**.67**

Table 3 – CFA fit indices of the PsyCap and the CDMP scales in Sample 2 (*N* = 989).

Model	χ^2	df	TLI	CFI	GFI	RMSEA
PsyCap scale - Four-factor model	340.26***	98	.90	.91	.96	.06
CDMP scale - Four-factor model	373.25***	98	.93	.95	.96	.05

Note. ***p<.001
Legenda. χ^2 = chi-square; df = degrees of freedom; TLI = Tucker-Lewis Index; CFI = Comparative Fit Index; GFI = Goodness of Fit Index; RMSEA = Root Mean Square Error of Approximation.

Figure 1 – Standardized path coefficients of the Psychological Capital (PsyCap) scale

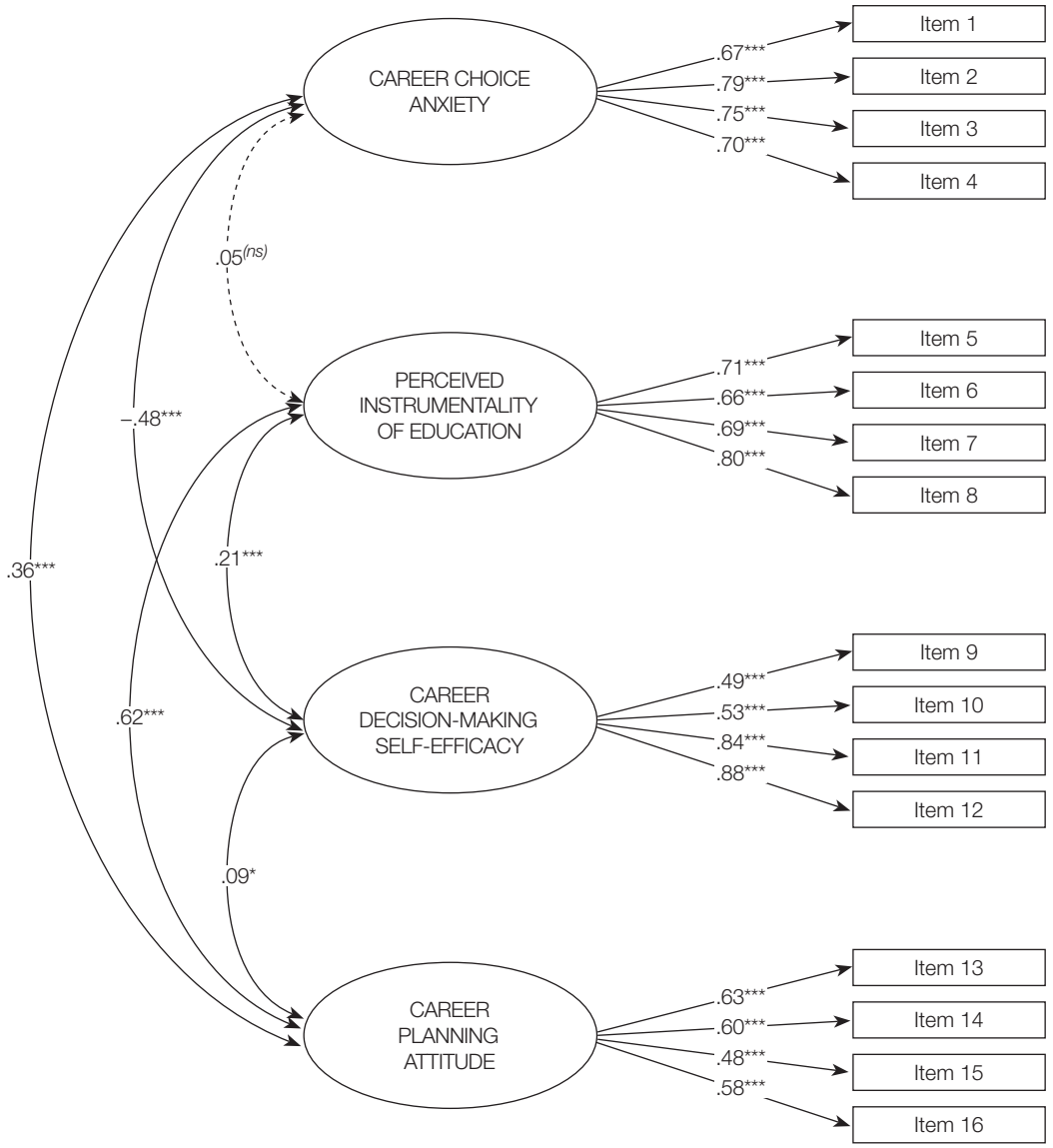


Note. ***p<.001

It should be noted that all items loaded significantly on the corresponding latent factor, with coefficients ranging from .41 to .74 (all $p<.001$). Moreover, the four resources composing the PsyCap (i.e., *hope*, *resiliency*, *self-efficacy* and *optimism*) were significantly correlated with each other.

Figure 2 illustrates the item loadings and the correlation coefficients between the four dimensions of the CDMP scale: *career choice anxiety, perceived instrumentality of education, career decision-making self-efficacy* and *career planning attitude*. As for the PsyCap scale, all items reported a significant loading on their corresponding latent dimension, with coefficients ranging from .48 to .88 (all $p<.001$). In addition, the four latent factors were significantly related, excluding the relationship between career choice anxiety and perceived instrumentality of education ($r = .05$, $p = .240$).

Figure 2 – Standardized path coefficients of the Career Decision-Making Process (CDMP) scale



Note. $*p<.05$; $***p<.001$; dotted lines denote non-significant coefficients.

DISCUSSION

This study presented two different measures aimed at assessing complementary facets of personal resources that can facilitate the career decision-making process and that anticipate the capacity to adapt to a different environment during the students' transition from middle to high school. To this purpose, data obtained on two independent samples of middle school students were used to perform exploratory and confirmatory factor analyses that provided evidence for two theoretically interpretable 16-items scales constituted of 4 factors each.

Namely, these results suggest that the PsyCap scale is a factorially valid and internally consistent measure of the four dimensions of Psychological Capital (i.e., hope, resilience, self-efficacy and optimism). Furthermore, the obtained evidence supported the suitability of the Career Decision-Making Process (CDMP) scale, as a valuable measure of the four facets of Career Decision-Making Process (i.e., *career choice anxiety, perceived instrumentality of education, career decision-making self-efficacy* and *career planning attitude*) among middle school students.

On the other hand, there are some limitations that should be acknowledged. First, all participants were Italian. Thus, future research based on the English version of the PsyCap and the CDMP scales would allow to test whether these scales produce the same results across different countries. Moreover, in the current study we did not gather data using other measures that allowed to examine whether our measures correlate well with validated scales. Hence, the concurrent validity of our measures was not tested. Analogously, we did not collect data aimed at testing discriminant validity, defined as the evidence that measures of constructs that theoretically should not be highly related to each other are, in fact, not found to be highly correlated to each other. Thus, future studies should explore these properties of the scales here developed.

Overall, it can be concluded that the PsyCap and the CDMP scales represent two factorially valid and internally consistent measures of those resources that have been identified as crucial tools in order to handle successfully the career decision-making process and also to cope with the challenges involved in the transition from the middle to the high school. In particular, the current study contributes to fill the gap of literature on the career decision-making process during the transition from middle to high school (Bardick et al., 2006). This transition requires adolescents to plan their future anticipating the academic challenges that will be faced at the high school (Benner, 2011), as well as their occupational aspiration at the end of the high school. Since PsyCap has been identified as a crucial predictor of students' engagement and motivation (Bakker & Jiang, 2014), the PsyCap scale here validated may represent a strategic tool in order to evaluate the resource pool available for adjusting to the high school environment. In a similar vein, the CDMP scale was designed to investigate four personal resources able to foster a positive attitude towards the career decision-making process during the transition to high school. Specifically, career decision-making self-efficacy and career planning attitudes may support the motivation to engage in the career decision process, as well as the collection of information about oneself and environment, while career choice anxiety and perceived instrumentality of education may affect the level of commitment to a particular career choice (Germeijs & Verschueren, 2006).

To summarize, these instruments may represent valuable tools for scholars and professionals involved in career guidance and counseling interventions among students facing critical career transitions, in agreement with the emerging focus on healthy functioning and well-being, that has increasingly encouraged the application of the positive psychology approach into non-clinical settings (Robertson, 2017).

In particular, they could be crucial for two specific purposes: first, they may provide the foundation for a suitable analysis of the vocational needs expressed by a specific target population and, subsequently, for developing tailored interventions that consider participants' strengths and weaknesses. Furthermore, they could be employed as instruments able to promote a process of self-exploration, a crucial component of the career decision-making process.

In terms of future perspectives of intervention, it should be noted that the personal resources under investigation could be significantly enhanced through specific intervention strategies that, in turn, may foster the level of well-being among middle school students. For instance, Luthans, Avey and Patera (2008) developed and tested a short training intervention that has been shown to increase the four dimensions of Psychological Capital among employees and, consequently, to attain higher levels of psychological well-being. In line with the current study, investing in intervention strategies aimed at fostering Psychological Capital and the resources involved in the Career Decision-Making Process could be particularly useful for students tackling their first vocational choice.

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