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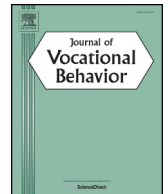
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Personal and social aspects of professional identity. An extension of Marcia's identity status model applied to a sample of university students

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ABSTRACT

The study proposed an extension of Marcia's identity status model based on validation of the Professional Identity Status Questionnaire (PISQ-5d), a scale able to measure both intra-individual and intergroup processes connected with the development of a professional identity in university students. The aims were to prove the construct validity of the PISQ-5d, to determine the appropriate number of identity statuses, and to assess the concurrent validity of the identity statuses considering both job-related and academic factors. In this study, 477 university students completed a questionnaire with the PISQ-5d scale; 220 also completed the measures of work values; and 168 completed the measures of student self-esteem and self-efficacy, academic motivation, and grades. Results confirmed the expected five-dimensional structure of the PISQ-5d and the scale's effectiveness at differentiating five types of identity status. Relationship between professional identity status and job-related and academic factors showed that the students with achievement or foreclosure identities had higher scores on measures of academic self-esteem and intrinsic work value and had lower scores for intention to leave university. Implications in terms of considering the PISQ-5d scale a useful tool for the evaluation of professional identity construction processes in university students will be discussed.

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1. Introduction

In industrialized countries, the construction of the worker identity is among the most central aspects of the transition from adolescence to adulthood (e.g., Arnett, 2004; Kroger & Marcia, 2011). This is particularly true among university students as they invest a lot of effort into exploring alternative professional identities and have to make a commitment to their career choice (Fadjukoff, Pulkkinen, & Kokko, 2005; Kalakoski & Nurmi, 1998; Skorikov, 2007; Stringer & Kerpelman, 2010). Nevertheless, there are few instruments for investigating professional identity construction processes (see Porfeli, Lee, Vondracek, & Weigold, 2011), especially in university students. In addition, drawing on revisions to Marcia's (1966) identity status model (e.g., Crocetti, Rubini, & Meeus, 2008; Luyckx, Goossens, Soenens, Beyers, & Vansteenkiste, 2005), most recent studies have focused on intra-individual processes relevant to the development of professional identity (exploration and commitment), neglecting the social dynamics of professional identity development (Ashmore, Deaux, & McLaughlin-Volpe, 2004).

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Professional identity is a type of identity that includes personal as well as social dimensions, and this study is one of the first studies to provide evidence of the combination between intra-individual and intergroup processes connected with the development of a professional identity. Its aim was to extend Marcia's identity status model through the validation of an instrument—the five-dimensional Professional Identity Status Questionnaire (PISQ-5d)—which assesses both intra-individual and intergroup processes involved in the development of professional identity in university students. Alongside construct and content validation, the study also aimed at validating the concurrent validity of the PISQ-5d by analyzing the associations between professional identity construction processes and factors relating both to academic work and to future employment.

1.1. Contemporary models of identity status

The identity status model (Marcia, 1966) is one of the most influent theoretical models that deals with the processes of identity construction in various domains. Based on semi-structured interviews conducted on a sample of 20 late-adolescent men, Marcia expanded Erikson's (1968) ideas on identity formation in different areas through two behavioral indicators: *exploration*, referring to the active questioning and weighing of various identity alternatives before making decisions about the values, beliefs, and goals that one will pursue; *commitment*, which consists of making a relatively firm choice in an identity domain considered important and engaging in significant activities oriented toward the implementation of that choice. From the combination (i.e., high and low) of exploration and commitment, Marcia classified individuals into four statuses: *Achievement* (have made a commitment after a period of exploration), *Foreclosure* (have made a strong commitment without having explored alternatives), *Moratorium* (have not made a commitment but still actively exploring possible alternatives), and *Diffusion* (have not made a commitment and lack of exploration).

In recent decades, several contributions highlighted the limitations of the original model (cf. Schwartz, 2001), and scholars have proposed adjustments and expansions (cf. Meeus, 2011 for reviews) that have also had implications for the development of measures of vocational identity (e.g., Porfeli et al., 2011). Among these contributions, Crocetti and Meeus (Crocetti, Schwartz, Fermani, & Meeus, 2010; Crocetti et al., 2008) proposed a dual cycle model of identity formation designed to measure multiple identity domains grouped as ideological (e.g., educational identity) and relational. The aim of this model was to capture the dynamic process by which identity is formed and revised over time through three processes: commitment, in-depth exploration, and reconsideration of commitment. *Commitment* refers to the choices made in the central domains of the identity and to the self-confidence that individuals derive from these choices. *In-depth exploration* represents the extent to which individuals reflect on their current commitments while searching for new information. These two processes are related to the cycle of *identity formation and maintenance*: Individuals explore their commitments in depth and decide whether these fit well with their overall talents and capacities. *Reconsideration of commitment* refers to the comparison of present commitments with alternative commitments because the current ones are no longer satisfactory. Reconsideration of commitment therefore enacts the *identity revision cycle*: If one's current commitments are not satisfying, or do not provide a good fit, individuals might reconsider choices in favor of other commitments.

In studies conducted with early and middle adolescent samples (Crocetti et al., 2008, 2010), university students (Crocetti, Sica, Schwartz, Serafini, & Meeus, 2013) and adult employees (Crocetti, Avanzi, Hawk, Fraccaroli, & Meeus, 2014), researchers have found that these three processes contributed to the identification of people as achieved (high on commitment and in-depth exploration but low on reconsideration of commitment), foreclosed (moderately high on commitment and low on in-depth exploration and reconsideration of commitment), and diffused (low on all the three processes). Commitment, in-depth exploration and reconsideration of commitment also led to a refinement of the definition of the moratorium status, dividing it into moratorium and searching moratorium statuses. The *Moratorium* status consists of individuals who scored low on commitment, medium on in-depth exploration, and high on reconsideration of commitment. The *Searching moratorium* status encompasses people with high scores on commitment, in-depth exploration, and reconsideration of commitment: It characterizes individuals who vacillate between the moratorium and achievement statuses that Stephen, Fraser, and Marcia (1992) have outlined. While individuals in the moratorium statuses evaluate alternatives in order to find satisfying identity-related commitments, those in the searching moratorium status seek to revise commitments that have already been enacted, starting from the secure base provided by their current commitments (Crocetti, Palmonari, & Pojaghi, 2011).

1.2. Professional identity: a combination of both intra-individual and intergroup processes

Studies on professional identity construction processes based on Marcia's (1966) identity status model and on the recent revisions to this model (Crocetti et al., 2008; Luyckx et al., 2005) have analyzed identity processes at an *intra-individual* level. The latter considered identity statuses as results of motivational and cognitive processes that individuals put in place to meet their talent and their abilities. However, professional identity is a type of "collective identity" (Ashmore et al., 2004), and so it is also related to the *intergroup* processes of categorization, group identification, and social comparison (Tajfel, 1981). Professional identity describes both one's awareness of being a worker doing a specific job and one's identification with the groups and social categories to which one belongs by virtue of one's job. Studies have consistently shown that job satisfaction and performance were highest in workers who identify strongly with their workgroup and/or a larger organization (e.g., Van Dick & Haslam, 2012). In their recent analysis of connections between the personal and social facets of professional identity, Crocetti et al. (2014) also found significant associations between four types of identity status and the way in which employees identified with an organizational and/or work group. However, Crocetti and colleagues measured identification profiles and identity statuses as independent even if associated variables; in fact, the authors did not considered identification profiles as processes of professional identity construction or revision.

The goal of this research was to extend Meeus and Crocetti's model to the intergroup process of identification, which we have here named as *affirmation*. Affirmation captures the importance one attributes to the professional category to which one belongs and the sense of pride one feels as a member of that category. The review of ethnic and professional identity studies by Ashmore et al. (2004) stressed the importance of this dimension, which has been shown, for example, to be related to commitment and to the search for an ethnic identity (e.g., Phinney, 1992). Nevertheless, Ashmore et al. (2004) stressed also the importance of the activities associated with membership of a specific group. They considered the behavioral involvement—the degree to which an individual engages in actions that directly reinforce the identity category in question—as a key element of a collective identity. Organizational researchers have consistently shown high positive correlations between identification and both organizational citizenship behaviors and other work-related behaviors (e.g., Mancini & Montali, 2009; Meyer, Becker, & Van Dick, 2006). Behavioral involvement with a professional category might also be considered an essential feature of training, especially of training that is directly related to a particular profession. On the basis of this premise, we proposed that the analysis of the processes involved in the professional identity construction should be enlarged to include also a measure of behaviors, which we refer to as *practices*. Practices measure the probability of engaging in actions directly relevant to a professional category—that is, a measure of commitment to a behavioral form of exploration of a specific career choice that we wanted to differentiate from that of cognitive exploration, which is encompassed in the Crocetti and Meeus model as in-depth exploration.

1.3. The current study

Taking into account these considerations, this research proposed an extension of Meeus and Crocetti's identity status model, introducing two new social processes: affirmation and practices. More specifically, this study aimed to validate the PISQ-5d that includes the practices and affirmation alongside in-depth exploration, identification with commitment, and reconsideration of commitment.

This first specific aim was to *test the construct (convergent and discriminant) validity of the PISQ-5d*. According to previous research [name withheld for review], we expected:

Hypothesis 1. PISQ-5d allowed us to discern five processes implicated in the professional identity formation in university students, including both the three processes described by the model from Crocetti et al. (2008), which are identification with commitment, in-depth exploration, and reconsideration of commitment, and the two processes derived from social identity theory literature, which are affirmation and practices.

Nevertheless, alongside the correlation among the three variables derived from Crocetti and Meeus' model and in line with other literature (Crocetti et al., 2014; Mancini & Montali, 2009; Meyer et al., 2006; [citation removed for review]), we expected the following: significant and positive correlations between affirmation and commitment (H1a), affirmation and practices (H1b), commitment and practices (H1c); significant and negative correlations between both affirmation and reconsideration of commitment (H1d) and practices and reconsideration of commitment (H1e); a significant and positive correlation between practices and in-depth exploration (H1f).

Second, this study aimed to *determine the appropriate number of identity statuses resulting from the PISQ-5d*. Identity status literature combined measures of identity construction processes on four or more statuses. In this research we hypothesized:

Hypothesis 2. To find five clusters similar to those emerged in the Italian and Dutch adolescents and university students (Crocetti et al., 2008, 2010, 2013). When we considered the introduction of the two new measures of affirmation and practices, we expected that (1) students with the achievement status would score high not only on commitment and in-depth exploration but also on practices and affirmation, and we expected that they would score low on reconsideration of commitment; (2) students with the moratorium status would score low not only on commitment but also on affirmation and practices, and we expected that they would score medium on in-depth exploration and high on reconsideration of commitment; (3) students with the diffusion status would score low on all five dimensions; (4) students with the foreclosure status would score high not only on commitment but also on affirmation, medium on practices, and low on in-depth exploration and reconsideration of commitment; (5) finally, students with the searching moratorium status would score high (or medium) not only on commitment, in-depth exploration, and reconsideration of commitment but also on affirmation and practices.

The third aim of this research was to assess the validity of the identity statuses that resulted from the PISQ-5d by assessing both job-related and academic factors. In order to reach this goal, *work values, student self-esteem and self-efficacy, academic motivation, and grades* indicators were taken into account.

1.3.1. Work values

Different studies have underlined the importance of work values for positive career development (Taris & Feij, 2001) among college and high school students. *Intrinsic* values (i.e., orientation toward immaterial aspects of a job; Malka & Chatman, 2003) as opposed to *extrinsic* values (i.e., orientation toward security and material acquisition) have been shown to promote career maturity (Post-Kammer, 1987), to promote higher learning, motivation, and achievement in different domains (Eccles & Wigfield, 2002), and to predict positive career development in young adolescents (Hirschi, 2009). Nevertheless, very few studies have accounted for the correlation between work-value orientation and professional identity statuses. Using a sample of nurses, Caricati et al. (2014) showed that holding intrinsic more than extrinsic work values drove participants to be more committed to their profession, which in turn enhanced their job satisfaction. Similarly, Marletta et al. (2014) found that nurses in the achievement and searching

moratorium statuses showed higher intrinsic but also extrinsic motivations than did individuals in moratorium and foreclosure statuses. Given the protective role against negative careers and negative work outcomes of intrinsic-value orientation as opposed to extrinsic-value orientation, in this research we hypothesized:

Hypothesis 3. Students in foreclosure and achieved statuses would score higher on intrinsic work values when compared with students in diffusion and moratorium statuses.

1.3.2. Consequences on well-being

A growing number of studies have consistently suggested that identity commitments are important to individuals' well-being and emotional adjustment (e.g., Kroger & Marcia, 2011; Schwartz et al., 2011). Studies generally showed that participants with high commitment statuses (achievement and foreclosure) exhibited better psychological functioning than individuals with moratorium statuses (moratorium and, to a lesser extent, searching moratorium) who experienced more distress and maladjustment. Researches on professional identity showed similar results (Crocetti et al., 2011; Porfeli et al., 2011). Other studies conducted on college and university students have also demonstrated that self-efficacy and self-esteem were positively associated with career decidedness (Hirschi, 2009) and career exploration (Cai et al., 2014; Lucas, 1997); that they predicted career commitment (Chung, 2002) and their internalization (Stringer & Kerpelman, 2010); that they were longitudinally associated with in-depth career exploration (Porfeli & Skorikov, 2010); and that they were associated with future work self and career adaptability (Cai et al., 2014). In line with this literature, we hypothesized:

Hypothesis 4. Students classified with achieved and foreclosure statuses would score highest and those in diffusion and moratorium statuses would score lowest—on indices of academic self-esteem and self-efficacy.

1.3.3. Job/academic-related outcomes

Professional identity commitments have also been positively associated with job-related outcomes. For instance, Luyckx, Duriez, Klimstra, and De Witte (2010) found that young employees with foreclosure and achievement statuses showed the most optimal measures of job outcomes, while those low in commitments (with moratorium and diffusion statuses) reported higher burnout and lower work engagement. This result was confirmed by Crocetti et al. (2014) in a sample of Italian teachers. Nevertheless, little research has connected professional identity statuses with performance indicators in students' samples. Based on a secondary analysis of previous reviews, Meeus (1992) reported that students on identity achievement performed well at school and that students in foreclosure status were very satisfied about school compared with adolescents in the other statuses. Similar results were more recently obtained by [name withheld for review] on a sample of psychology and veterinary university students. Results showed that albeit both commitment and affirmation showed to significantly reduce the motivation to leave the university studies, only behavioral exploration (practices) was positively associated with students' average grades on exams and with a reduction of motivation to leave the courses. In line with this last research we hypothesized:

Hypothesis 5. Students with foreclosure and achieved statuses would score lower in motivation to leave university courses (H5a) and higher on academic grades (H5b) compared to those with diffusion and moratorium statuses.

2. Material and methods

2.1. Participants and procedure

Our sample included 477 university students with a participation rate estimated at around 50% of students enrolled in the two different psychological programs. A total of 69.4% of them were in the undergraduate programs in psychological science and 30.6% (N = 146) were in the master's degree programs in psychology. All participants attended the same public university in northern Italy. The average age was 22.96 (SD = 3.73), and women accounted for 88.9% of the sample, whereas men accounted for 11.1%. This is in line with Italian statistics regarding students enrolled in graduate programs in psychology.

A self-report questionnaire was administered to the students during the first semester of their respective academic years. Students did not receive any compensation for their participation. The questionnaire consisted of three parts: the first, containing the PISQ-5d, was submitted to all students in the sample (N 477); the second, containing the "work-values" scale (job-related factors) was administered to 220 out of 477 students; the third, including the "academic self-esteem" and "self-efficacy" scales, the "intention to leave university," and the "average grade as a measure of academic performance" forms (academic-related factors), was administered to 168 out of 477 students. Along with the questionnaires, we provided a brief letter introducing the research goals and explaining the guarantee of confidentiality and anonymity of answers.

2.2. Measures

2.2.1. Professional Identity Status Questionnaire (PISQ-5d)

The PISQ-5d included 20 items (Appendix A) to which participants responded using a five-point scale ranging from 1 (not at all) to 5 (very much). The 12 items referred to—in-depth exploration, identification with commitment, and reconsideration of

commitment—were a re-adaptation of instruments related to the identity status model (Crocetti et al., 2008). The other eight items were a re-elaboration of instruments that measure social identity: Four of these items were derived from Phinney's (1992) Multigroup Ethnic Identity Measure (MEIM) and measured practices, and the other four items were derived from Brown, Condor, Mathews, Wade, and Williams's (1986) Identification Scale and Measured Affirmation.

2.2.2. Intrinsic and extrinsic work values

We used the Italian version of the research in work socialization of youth (WOSY) (1992). The scale was made up of seven items referring to *intrinsic work values*, such as interest and personal development ($\alpha = .69$), and four items referring to *extrinsic work values*, such as work conditions and economic rewards ($\alpha = .64$). We scored all items on a five-point rating scale ranging from 1 (not important) to 5 (very important).

2.2.3. Academic self-esteem

We measured academic self-esteem with five items on a five-point rating scale (1 = totally disagree; 5 = totally agree) from Rosenberg (1965), adapted for academic students (i.e., "I consider myself a student with a lot of good qualities"; $\alpha = .79$).

2.2.4. Academic self-efficacy

We assessed the academic self-efficacy with five items on a five-point rating scale (1 = totally disagree; 5 = totally agree) from the Italian translation (Sibilia, Jerusalem, & Schwarzer, 1995) of the Generalized Self-Efficacy Scale (GSES; Jerusalem & Schwarzer, 1992). The items were adapted for students (i.e., "Through my abilities and my commitment, I am able to pass examinations cleverly"; $\alpha = .81$).

2.2.5. Intention to leave university study

We measured the intention to leave university study with two questions that assessed the frequency (from 1 = never to 5 = often) with which respondents had thought about leaving the university, in general or the psychology courses in particular ($\alpha = 0.93$).

2.2.6. Academic performance

The academic performance was assessed by asking students to indicate the overall average of the marks.

3. Results

3.1. Factor Structure of the PISQ-5d Scale

In order to investigate the construct validity of the PISQ-5d, we analyzed items through the confirmatory factor analysis (CFA), which tested the expected five-factor model. We used Mplus software (Muthén & Muthén, 2006) and a maximum likelihood estimation with a robust standard error in order to adjust for distributional problems and to adopt a relatively conservative approach. In order to assess the model's fit, we used multiple goodness-of-fit indexes. According to Kline (2005), a model fit can be satisfactory when χ^2 and the degree of freedom ratio is less than three, the comparative fit index (CFI) and the Tucker Lewis index (TLI) are greater than .90, and the standardized root mean square residual (SMSR) is lower than .08. Moreover, if the root mean square error of approximation (RMSEA) is lower than .05, this indicates a close fit, and values between .05 and .08 indicate a reasonable fit (Browne & Cudeck, 1992). The CFA showed that the fit of the five-factor model was not fully satisfactory: $\chi^2(160) = 407.42$, $p < .001$, $\chi^2/df = 2.55$, CFI = .900, TLI = .881, RMSEA = .057, 90% CI = .050–.060, $p = .05$, SRMR = .055. Thus, we inspected modification indexes and allowed errors of two couples of items that referred to the same factor (commitment and practices) to covariate. Results indicated a satisfactory fit of the model ($\chi^2(158) = 340.60$, $p < .001$, $\chi^2/df = 2.16$, CFI = .926, TLI = .911, RMSEA = .049, 90% CI = .043–.056, $p = .57$, SRMR = .053). All items were measured significantly by the intended latent dimension (all $p < .001$; Appendix A). Each dimension was then calculated as the mean of the intended items. Table 1 shows descriptive statistics, zero-order correlations, and the internal consistency of dimensions.

Table 1
Zero-order correlations and reliability of the five identity-status dimensions.

Identity-status dimension		1	2	3	4	5
1	Affirmation	0.83	−0.03	0.36***	0.62***	−0.53***
2	In-depth exploration		0.48	0.13**	−0.02	0.29***
3	Practices			0.68	0.18***	−0.17***
4	Identification with commitment				0.79	−0.39***
5	Reconsideration of commitment					0.78
	<i>M</i>	4.05	3.59	3.21	3.19	2.06
	<i>SD</i>	0.67	0.66	0.76	0.80	0.83

Note: N = 477. Cronbach's alpha on the diagonal. SD = Standard deviation. ** $p < .01$ *** $p < .001$.

Reliability was good or acceptable, except for in-depth exploration. Affirmation was positively correlated with both practices and commitment, as we expected from hypotheses H1a and H1b. Moreover, as predicted by hypotheses H1c, commitment and practices were significantly and positively correlated. Furthermore, as expected in H1d and H1e, affirmation and practices were negatively and significantly correlated with reconsideration of commitment. Finally, for hypothesis H1f, practice and in-depth exploration were positively correlated.

3.2. Identifying identity states: cluster analysis

We conducted a hierarchical cluster analysis with Ward linkage and squared Euclidean distances on standardized scores of the five dimensions. To decide the number of clusters, we considered several criteria, such as silhouette criterion, Akaike Information Criterion (AIC), Schwarz Bayesian Information Criterion (BIC) and the Calinski–Harabasz index. As has been demonstrated in previous studies (Calinski & Harabasz, 1974; Fraley & Raftery, 1998), the higher the silhouette criterion and the Calinski–Harabasz index, the better the cluster solution is. However, the lower the AIC and the BIC, the better the cluster solution is. We computed and compared these indexes of solutions from three to seven clusters. On the basis of all criteria, the five-cluster solution seemed to be the best solution for the present data, and thus, we kept it. After we decided on the five-cluster solution, we conducted the K-mean cluster analysis with the five-cluster detection, using the already-computed cluster centers as non-random starting values for determining clusters. Also, a two-half cross-validation was used in order to assess stability of cluster solution. The two-step procedure was repeated in two random subsamples, and the cluster solutions were then compared with the whole-sample clusterization through Cohen's Kappa (see Crocetti et al., 2013). Results indicated a good concordance between clusters of whole samples and clusters of random subsamples ($\kappa = .72$ and $.79$).

The final cluster solution is described in Fig. 1, which reports the mean values of the five dimensions for each cluster (standardized scores are reported in order to increase readability).

Clusters were generally consistent with the identity statuses derived from Crocetti and Meeus's model, supporting Hypothesis 2. Indeed, students with the diffusion status scored low on all five dimensions. Students with the moratorium status, instead, scored low on commitment, affirmation, and practices, while they had positive scores (medium) on in-depth exploration and higher scores on reconsideration of commitment. Students in the foreclosure status scored medium on commitment and high on affirmation and practices, while they expressed low scores on in-depth exploration and on reconsideration of commitment. Finally, students with the achievement status scored high on commitment and in-depth exploration as well as on practices and affirmation, but they scored low on reconsideration of commitment. A bit different from that of Crocetti and Meeus's model was the second cluster that emerged from the analysis. Students classified in this status were higher in in-depth exploration and reconsideration of commitment, and they were medium in affirmation and practices. However, contrary to what we expected, they scored low on commitment. Similar to Crocetti and Meeus' participants classified in the searching moratorium status, these students were revising their professional identity. In particular, they were revising the importance and the sense of pride they had already been feeling as a member of the category of "psychologist" that continued to give them a secure base. In addition, they were realizing that they needed to find more satisfying

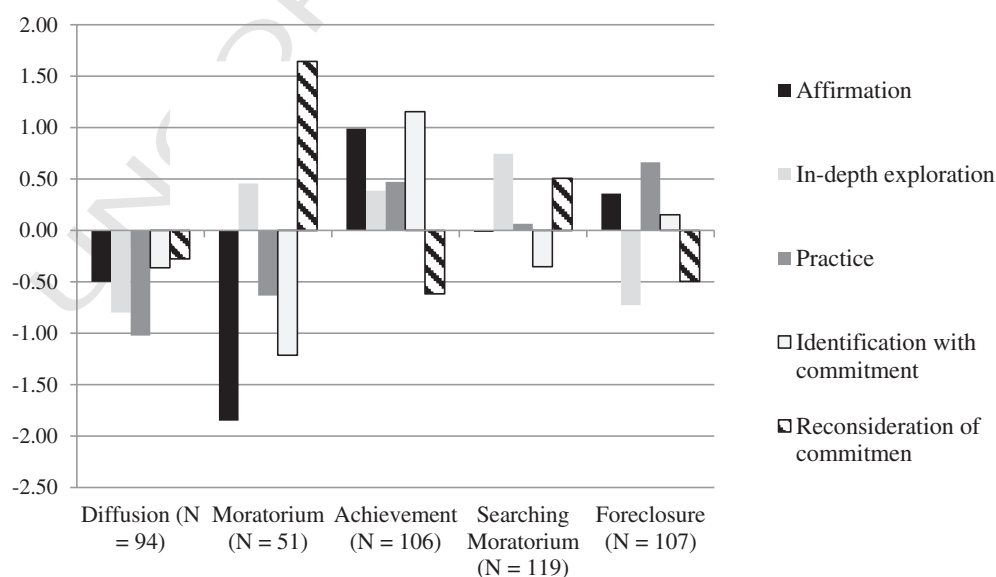


Fig. 1. Mean values of the five status-identity dimensions according to clusters.

identity-related commitments. For this reason, they were strongly engaging in cognitive (in-depth exploration) and behavioral (practices) explorations, although they were also questioning the meanings of their educational choices (reconsideration of commitment). Based on this description, we decided to call this cluster a searching moratorium, just like the one detected by Crocetti and Meeus's model.

3.3. Identity status differences on work-related and academic outcomes

In order to test hypotheses about identity status differences on correlates of professional identity, we conducted multivariate and univariate analyses of variance with identity statuses as an independent factor. Moreover, in accordance with our hypotheses, we planned a contrast for each analysis, in which achievement and foreclosure statuses were contrasted to other three statuses.

3.3.1. Work values

Results of a multivariate analysis of variance revealed a significant multivariate difference among identity statuses: Wilks' $\lambda = 0.85$, $F(16, 428) = 4.65$, $p < .001$, $\eta_p^2 = .08$. Univariate results evidenced a significant difference on intrinsic values— $F(4, 215) = 8.50$, $p < .001$, $\eta_p^2 = .14$ —and extrinsic values— $F(4, 215) = 3.39$, $p = .010$, $\eta_p^2 = .06$. Contrast analysis revealed that those with achievement and foreclosure statuses scored higher than those with the other three statuses, on intrinsic values: $t(215) = 3.53$, $p = .001$, $d = 0.48$, as expected from hypothesis 3. Contrasts on extrinsic values— $t(215) = 0.55$, $p = .58$, $d = 0.07$ —were not significant. Table 2 shows the means according to identity status.

3.3.2. Academic self-esteem and self-efficacy

Results of a multivariate analysis of variance revealed a significant multivariate difference among identity statuses: Wilks' $\lambda = 0.83$, $F(8, 324) = 3.94$, $p = .001$, $\eta_p^2 = .09$. Univariate results evidenced that identity statuses were significantly different on both academic self-esteem— $F(4, 163) = 4.08$, $p = .003$, $\eta_p^2 = .09$ —and self-efficacy— $F(4, 163) = 2.96$, $p = .02$, $\eta_p^2 = .07$. Contrast analysis revealed that those with achievement and foreclosure statuses scored higher (see Table 2) than those with other statuses on both self-esteem— $t(163) = 3.48$, $p = .001$, $d = 0.55$ —and self-efficacy— $t(163) = 2.70$, $p = .008$, $d = 0.42$ —as expected from Hypothesis 4.

3.3.3. Intention to leave university

Results of an analysis of variance revealed a significant difference among identity statuses on intention to leave university: $F(4, 163) = 12.38$, $p < .001$, $\eta_p^2 = .23$. The contrast analysis was significant— $t(163) = 5.86$, $p < .001$, $d = 0.92$ —indicating that those with achievement and foreclosure statuses scored lower (see Table 2) than those with other statuses on intention to leave university, as expected from Hypothesis 5a.

3.3.4. Academic grades

Results of an analysis of variance revealed no significant difference among identity statuses on mean academic grade— $F(4, 243) = 1.46$, $p = .22$, $\eta_p^2 = .02$ —indicating that, contrary to Hypothesis 5b, students with achievement and foreclosure statuses had the same mean academic grade (see Table 2) as students with other statuses.

4. Conclusion

Results of this research suggested that the proposed PISQ-5d scale showed adequate psychometric properties. The results confirmed five independent and partly-related factors and the scale's effectiveness in differentiating five types of identity status similar to those of studies conducted with early and middle adolescent samples (Crocetti et al., 2008, 2010) and with adult employees (Crocetti et al., 2014). Moreover, the five processes measured by the PISQ-5d contributed to the identification of more complex

Table 2
Means of professional identity and wellbeing variables according to identity statuses.

Variable	Achievement		Searching moratorium		Foreclosure		Moratorium		Diffusion		N	Total	
	M	SD	M	SD	M	SD	M	SD	M	SD		M	SD
Intrinsic work values	4.47	0.33	4.26	0.41	4.21	0.41	4.16	0.40	3.99	0.47	220	4.23	0.43
Extrinsic work values	4.39	0.51	4.31	0.51	4.11	0.55	4.26	0.41	4.06	0.52	220	4.23	0.52
Academic self-esteem	3.86	0.63	3.27	0.81	3.67	0.60	3.33	0.87	3.42	0.81	168	3.52	0.77
Academic self-efficacy	3.71	0.61	3.61	0.65	3.69	0.56	3.31	0.59	3.31	0.76	168	3.55	0.66
Intention to leave university	1.36	0.74	2.00	1.18	1.24	0.41	3.09	1.47	1.60	0.93	168	1.73	1.09
Mean academic grade*	25.64	2.12	26.03	2.01	25.58	1.84	25.75	2.26	25.08	2.40	248	25.64	2.12

Notes: SD = Standard deviation. * Range = 18–30.

patterns, showing that also intergroup processes, as well as intra-individual processes, played a central role in the university students' construction of their professional identity. Results also confirmed the validity of the identity statuses resulting from the PISQ-5d, considering both job-related and academic factors. Among the five identity statuses, achievement and foreclosure identities were the statuses most associated with better job-related and academic outcomes.

5. Discussion

5.1. Theoretical Implications

This study confirmed the importance of integrating personal and social aspects when professional identity construction processes are under investigation. Extending Marcia's identity status model, this is one of the first studies to provide evidence of a combination between two kinds of exploration (in-depth and practices) and two kind of commitment (identification and affirmation), along with reconsideration of commitment.

Compared to in-depth exploration, as it was extensively studied in the literature, practices refer here to a more contextual, active, and participation-oriented exploration. Allowing students to "anticipate" the practical aspects and contents related to their future profession (in their legal, ethical, and practical aspects), practices contribute to the acquisition of professional identity through a dual path: on the one hand, it allows students to explore the implications related to their career choice, and on the other, it supports their commitment and their identification with the relative professional category. It was the positive, even if moderate, correlation between practices and in-depth exploration that convinced us to hypothesize that practices had the function to enact the cycle of identity formation (Crocetti et al., 2008, 2010), stimulating in university students an active exploration of the possibilities that their professional choices involve.

Nevertheless, in line with results of previous studies on professional identity (Mancini & Montali, 2009; Meyer et al., 2006; [citation removed for review]) and confirming our hypotheses, practices were also positively and highly correlated with commitment and affirmation and were highly and negatively correlated with reconsideration of commitment. If reconsideration of commitment enacted an identity revision cycle, we could then suppose that practices, alongside commitment and affirmation, has the primary function of maintaining the professional identity, as occurred in the acquisition status or of protecting the students from identity crisis that might occur when they feel that their current commitments are not more satisfying, as occurred in the searching moratorium status. These trends indicated that, at least for the construction of professional identity, exploration through practices, rather than a more cognitive exploration, has the function of keeping alive and validating existing commitments (Luyckx et al., 2005).

About the two types of commitment, data showed that to be proud and happy about becoming a professional (affirmation) sustained the students' professional choices. This is particularly evident in the acquisition and in the foreclosure statuses, where high affirmation scores were associated with high scores on identification with commitment. The same path was not found for the searching moratorium status. In this latter case, positive scores on affirmation were associated with negative scores on identification with commitment, demonstrating that when students are still in search of their identity, their affirmation of professional identity could support the cognitive and behavioral exploration of alternatives that, in turn, could hold up the search for more satisfying identity-related commitments.

Even if longitudinal studies are needed in order to detect the causal relation between identity statuses and work/academic-related variables, data established the importance that work values have for a positive career development (Eccles & Wigfield, 2002; Hirschi, 2009; Post-Kammer, 1987), and professional outcomes (Caricati et al., 2014; Marletta et al., 2014). In particular, the orientation toward immaterial aspects (intrinsic values) of the psychology profession and not toward security and material job acquisitions (extrinsic values) was related with a professional identity characterized by a secure commitment and a clear affirmation. We found also that students with achieved and foreclosed statuses reported higher academic self-esteem and self-efficacy than those with diffusion and moratorium statuses. Achieved and foreclosed students also reported less willingness to abandon university studies, as noted in a previous search ([citation removed for review]). We could, therefore, assume that having a good image of themselves as students and feeling able to adequately perform tasks that are associated with this role could facilitate the construction of a professional identity, as other studies have shown (Chung, 2002; Hirschi, 2009; Lucas, 1997; Stringer & Kerpelman, 2010). High academic self-esteem and self-efficacy also protect students from the intention to leave university studies. Data not reported here also showed a correlation between self-efficacy and academic performance, but other studies should clarify the direct and indirect—via identity construction processes—impact that self-efficacy has on university grades and then explain why, contrary to our hypothesis 5b, results showed that participants in searching moratorium status tended to report the highest academic grades.

5.2. Limitation, future direction, and practical implications

The current study has several limitations. First, we found a lower internal consistency for in-depth exploration. It should be remembered that in this regard, some authors (e.g., Berzonsky, 1990) have long since launched a reflection on the ability to consider exploration as a personal style rather than as a behavioral indicator of the process of identity construction. However, one can also assume that the lack of an ideal coherence was related to the content of the items proposed, which should be carefully improved in future studies. Specifically, a revisited version of this subscale should replace "do you pay attention to

what other people think or say about psychologists?" That seems to refer more to a social comparison process than to a cognitive exploration, as it should.

Second, reaching a cause-and-effect conclusion about the impact of identity statuses on both job-related and academic-related factors cannot be achieved based on this study's findings, due to its cross-sectional design. Longitudinal studies are still necessary to verify the predictive validity of the five identity-process dimensions (and statuses) with respect both to the paths by which students build their professional identities when they attend university courses and to the job-related outcomes when they have completed their university studies.

A third limitation of this study is the fact that we were not able to get academic performance data from archival sources. Nevertheless, we can reasonably assume that students' reports of their average marks were sufficiently accurate because such average were in line with what was reported in official statistics (see Alma [Laurea, 2013](#)).

Finally, although the versatility of the PISQ-5d makes it easy to adapt for use regardless of university courses, further research should be conducted in order to confirm its validity in students who study subjects other than psychology. It should be noted, however, that a previous exploratory study with a sample of university students who studied psychology and veterinary science demonstrated identity processes similar to those investigated here. Future studies should also be conducted in order to apply the measure to samples of different workers and to workers in different stage of their career. Furthermore, because the proportion of men in this sample was small, further research is needed to confirm our conclusions about gender differences.

This study opened up many issues related the role of university rules and educational programs in training, especially training which is closely related to professional development. Our findings suggest that university education should provide and enrich not only declarative knowledge but also more practical knowledge and employment-related skills and competences. It is in fact this kind of knowledge that can "anticipate" the practical aspects and contents related to students' future professions and that can contribute to the acquisition of a professional identity.

From a practical point of view, the PISQ-5d scale may be considered an important tool for the evaluation of processes that govern professional identity construction in university students. The associations we found between identity statuses and academic factors highlighted also the importance of assessing the professional identity status as part of interventions to improve students' academic experiences, including enhancing their academic self-efficacy and self-esteem. Moreover, the associations between identity statuses and job-related factors showed that evaluating the processes that govern professional identity construction might be useful to improve new graduates' approaches to the search for employment, help them to make good decisions about their career, and develop a positive attitude toward work in general.

Appendix A. Items, dimensions and standardized regression weights of the PISQ-5d

Items	<i>b</i>
<i>Affirmation</i>	
1. How important is for you to become a psychologist?	0.72***
4. How do you feel at this moment in time as a future psychologist?	0.66***
7. Are you looking forward to becoming a psychologist?	0.83***
11. Are you proud of becoming a psychologist?	0.78***
<i>In-depth exploration</i>	
2. To what extent is becoming a psychologist a concern for you?	0.52***
15. Do you ever think about the advantages and disadvantages associated with becoming a psychologist?	0.51***
17. Do you pay attention to what other people think or say about psychologists?	0.26***
19. Do you ever wonder whether the profession of psychology is the most suitable for you?	0.49***
<i>Practices</i>	
6. Do you ever read books and / or articles written by psychologists?	0.76***
9. Do you ever seek information about the different job options that a degree in psychology may offer?	0.41***
13. Do you ever seek information about the regulations of the psychological practice (deontological code, requirements for practicing this profession in your country, etc.)	0.51***
20. Do you ever participate in meetings and /or conferences where professional psychologists speak?	0.59***
<i>Identification with commitment</i>	
5. Does thinking of yourself as a psychologist help you to understand who you are?	0.61***
10. Does thinking of yourself as a psychologist make you feel secure in your life?	0.67***
14. Does thinking of yourself as a psychologist make you feel self-confident?	0.81***
18. Does thinking of yourself as a psychologist make you feel confident about the future?	0.66***
<i>Reconsideration of commitment</i>	
3. If you could change your choice of becoming a psychologist, would you do it?	0.78***
8. Do you ever think that choosing a different profession would make your life more interesting?	0.61***
12. Do you ever think that it would be better to prepare yourself for another profession?	0.80***
16. Are you considering the possibility of changing your University major in order to be able to practice another profession in the future?	0.58***

Note: *** $p < .001$.

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