social sciences

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Exploring University Students' Career Resources Profiles to Cope with Career Insecurity and Promote Employability

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Abstract: The aim of this study was to characterize profiles of career resources among university students and identify differences in career insecurity and employability between these profiles. The conservation of resources theory (Hobfoll 1989) and career resources model (Hirschi 2012) were used as theoretical lenses. Specifically, psychological career resources (i.e., present positive time perspective, future positive time perspective, resilience) and social career resources (i.e., university career support, social career support, studies challenge) were explored as university students' resources to cope with their career insecurity and promote their employability. Survey data were collected from university students (N = 281) in this cross-sectional research. Cluster analysis results revealed four career resources profiles of university students: (1) low career resources; (2) high career resources; (3) high psychological career resources–low social career resources; (4) low psychological career resources–high social career resources. Additionally, career resources profiles with high levels of psychological career resources were found to have significantly lower scores on career insecurity and higher scores on employability in comparison to other career resources profiles. The study has theoretical and practical implications for a person-centered approach to promoting career preparation among university students.

Keywords: career resources; time perspective; resilience; career insecurity; employability

Citation: Antonio, Audrey Ansay, and Rita Chiesa. 2024. Exploring University Students' Career Resources Profiles to Cope with Career Insecurity and Promote Employability. *Social Sciences* 13: 455. https://doi.org/10.3390/socsci13090455

Academic Editor: Nigel Parton

Received: 25 June 2024
Revised: 8 August 2024
Accepted: 23 August 2024
Published: 30 August 2024

1. Introduction

The trajectory of modern careers has become fragmented and unpredictable in contrast to the stability and linearity of a traditional career path (Chudzikowski 2012; Potter 2020). Individuals have acknowledged the increasing uncertainties in the work environment caused by factors such as the rise of alternative employment arrangements and rapid technological advancements that may bring potential threats to their careers (Kunda et al. 2002; Skrbiš and Laughland-Booÿ 2019). These changes in the work environment generate further uncertainty among university students as their educational and career routes to success have become more complicated (Appadurai 2004; Bynner 2005). In particular, the complexity of contemporary university-to-work transitions subject students to a vulnerable start in the labor market that can have a detrimental impact on their future career development and later life outcomes (Blokker et al. 2023; Luijkx and Wolbers 2009; Mills et al. 2005). In light of this context, the present research was interested in understanding the significance of university students' resources to navigate their future careers in the current labor market. Specifically, our study focused on identifying profiles of psychological and social career resources among university students. Though previous results of student profiles have been reported in the careers literature (e.g., career orientations, career decision statuses; Rojewski et al. 2017; Santos and Ferreira 2012), existing studies have yet to consider how university students can be grouped based on the levels of career resources they possess.

The significance of career resources is further underscored when examined in relation to university students' career insecurity and employability. These two concepts have been

continuously examined in past research considering their relevance in the modern career environment (e.g., Donald et al. 2023; Spurk et al. 2022). The impact, however, of career resources on both career insecurity and employability still needs to be clarified or expanded better in the current literature. For instance, few studies have explored how a combination of career resources may affect university students' insecure thoughts and worries about their future careers after graduation. Additionally, there is still a lack of evidence on how different forms of career resources interact with each other to determine university students' perceptions of successfully gaining and maintaining employment. Thus, our study also focused on exploring how profiles of career resources can differ with regard to university students' experiences of career insecurity and employability.

1.1. Theoretical Framework

According to the conservation of resources (COR) theory, resources are defined as "those objects, personal characteristics, conditions, or energies that are valued by the individual or that serve as the means for attainment of other objects, personal characteristics, conditions, or energies" (Hobfoll and Ford 2007, p. 563). Or simply, it is "anything perceived by the individual to help attain his or her goals" (Halbesleben et al. 2014, p. 1337). Individuals are motivated to protect their current resources (conservation) and acquire new ones (acquisition; Hobfoll and Ford 2007). It means that a threat of a net loss of resources, an actual loss of resources, or a lack of resource gain after investing one's resources can generate psychological stress (Hobfoll 1989).

Considering work is regarded as a valuable resource, career insecurity is viewed as a stressor in the uncertain work environment. Career insecurity concerns the individual's inability to control one's work situation, sense of efficacy to cope with circumstances, and perceived threat in both the continuity and quality of subsequent employment (Colakoglu 2011; Tien et al. 2005). In particular, the stress induced by career insecurity is due to the collective understanding that people have of a career. Traditionally, careers have been associated with hierarchical advancements (Dries 2011; Potter 2020). Even though changes in work institutions and non-linear career trajectories have emerged, the traditional notion of a stable career path persists as a marker of social status and identity (Amundson 1994; Potter 2020). This causes psychological stress among individuals who are not in a stable work position, such as university students. Situated at the early stages of their careers, university students tend to possess fewer resources due to their limited work experience or job tenure, which makes them vulnerable to resource loss such as unemployment (e.g., Berglund et al. 2014; Symeonaki et al. 2019). Furthermore, the stress caused by career insecurity among university students can be attributed to the threat of a lack of resource gain (e.g., employment) after one's investment of resources in higher education (Hobfoll 1989; Rouvroye and Liefbroer 2023).

By contrast, individuals with greater resources are less susceptible to threats of resource loss and have greater opportunities to invest and gain more resources (Hobfoll 1989). In a context where the circumstances of resource loss are high, the possession of greater resources plays a significant role in not only reducing the threat of resource loss induced by career insecurity but also in developing and improving the employability of university students (Hetty van Emmerik et al. 2012; Jabeen et al. 2022; Tomlinson et al. 2017). Various definitions of employability exist in the current literature. One example defined employability as "the capability to move self-sufficiently within the labor market to realize potential through sustainable employment" (Hillage and Pollard 1998, p. 12). Notably, more recent studies on employability have increasingly related it to the knowledge, skills, and attitudes that individuals possess. For instance, Tomlinson (2017) conceptualized employability to be constitutive of five main forms of capital or resources (i.e., human capital, social capital, cultural capital, psychological capital, identity capital) that can empower graduates when making transitions into the job market. In a similar vein, Clarke (2017) considered six dimensions of graduate employability: human capital, social capital, individual attributes, individual behaviors, perceived employability, and labor market factors. Recently, the

systematic review by Donald et al. (2023) identified nine forms of employability capital: social capital, cultural capital, psychological capital, personal identity capital, health capital, scholastic capital, market-value capital, career identity capital, and economic capital. Essentially, all these employability models are based on the concept of resource accumulation and resource gain when navigating the labor market.

In further extension of the COR theory's propositions, Hirschi's (2012) career resources model provides a useful lens for understanding what critical career resources university students can possess and acquire to cope with their career insecurity (i.e., a threat of resource loss or lack of resource gain) and to promote their employability (i.e., an outcome of resource gain). The present study focused on two critical career resources: psychological and social career resources. These key resources are argued to equip university students and make them ready to negotiate the challenges of labor market entry (Tomlinson et al. 2017). In previous research, psychological and social career resources were found to significantly relate to career anxiety (Boo et al. 2021; Jung et al. 2015), career decision-making outcomes (e.g., Kvasková and Almenara 2021; Shin and Kelly 2015), employability (Tentama et al. 2019; Xia et al. 2020), psychological wellbeing (Çivitci 2015; Saltzman et al. 2020), and subjective career success (Fernández-Díaz et al. 2021; Mishra and McDonald 2017). The succeeding paragraphs provide more details of the career resources that were examined in this research.

1.2. Psychological Career Resources

Psychological career resources refer to positive psychological traits and states that are considered pivotal for successful career development (Hirschi 2012). Considering these resources come in various forms, the present study focused on two psychological career resources, time perspective and resilience, that can facilitate the proactive and reactive coping of university students in light of the modern career environment.

1.2.1. Time Perspective

The first psychological career resource refers to an individual's conceptualization of time, or their time perspective, which can affect an individual's response or appraisal towards uncertainty in their careers (Anagnostopoulos and Griva 2012; Nuttin and Lens 1985). Conceptualized as a multidimensional construct involving positive feelings toward the present and future (Mello and Worrell 2015), time perspective allows university students to proactively cope by influencing outcome expectations, motivation, and task-related performance (Epel et al. 1999; Lewin 1951). It enables them to perceive potential stressors in one's future career, generate specific behaviors or actions in response to future stressors, and mitigate negative effects (Aspinwall and Taylor 1997; Felaco and Parola 2022; Zeng et al. 2022). Furthermore, people with greater future orientation were shown to demonstrate more engagement in proactive career behaviors and higher perceptions of employability (Praskova and Johnston 2021).

1.2.2. Resilience

While time perspective is related to the reduction of a potential career stressor's development (e.g., by setting goals and planning for the future; Zimbardo and Boyd 1999), the second psychological career resource refers to resilience, which is related to the reduction of negative consequences induced by a career stressor (Aspinwall and Taylor 1997). Defined as the ability or capacity to bounce back from adversity or disruptions (Luthans 2002; Seibert et al. 2016), resilience regulates how one copes with an experienced stressor for a long period of time (Ng et al. 2012). It concerns endurance to withstand pressures and disruptions in the early stages of one's career (Tomlinson et al. 2017). Considered a dimension of dispositional employability (Fugate and Kinicki 2008), resilience aids university students in tolerating uncertainty and adapting to the challenges of the labor market such as periods of unemployment or underemployment (Fourie and Van Vuuren 1998; Tomlinson et al. 2017).

In summary of these defined psychological career resources, on the one hand, time perspective supports proactive career planning and self-management, while, on the other hand, resilience boosts the ability to react to environmental challenges.

1.3. Social Career Resources

Social career resources generally concern the structure of an individual's social relations (Adler and Kwon 2002; Hirschi 2012). For university students, social career resources can take the form of receiving social support regarding career-relevant tasks or issues from their social networks, including family, school/teachers, and peers (Jiang et al. 2017; Xia et al. 2020). These academic- and career-related networks and relationships may provide university students with relevant information and support to successfully access the labor market. For example, support from teaching staff was found to improve perceived employability (Petruzziello et al. 2023), career engagement, and movement capital among university students (Petruzziello et al. 2022). Teaching staff may offer some connections with potential employers, act as referees, and facilitate university students' awareness of labor market opportunities (Pham 2023; Tomlinson et al. 2017). Social career resources are also argued to help university students cope with stressful situations such as the current career landscape by serving as a protective factor between stressful events and negative feelings (Jemini-Gashi and Hoxha 2024; Lazarus and Folkman 1984).

1.4. Present Study

In their models, Hirschi (2012) and Hobfoll (1989) contended that career resources promote the development of other career resources. In other words, the accumulation of one resource (e.g., psychological career resource) can lead to the accumulation of other resources (e.g., social resources). Prior studies have supported this contention and found significant meaningful relations between psychological and social career resources (Ataç et al. 2018; Hui et al. 2018). In line with this notion, our study aimed to explore university students' resource accumulation by exploring profiles of psychological (i.e., time perspective, resilience) and social career resources. In particular, our exploratory study focused on addressing the following research questions: (1) Can profiles of university students be identified based on the psychological and social career resources they possess? (2) To what extent do these profiles differ in relation to university students' career insecurity and employability?

2. Materials and Methods

2.1. Participants and Procedure

The study received approval from the ethics committee of the authors' university. To address the research questions, a cross-sectional research design was carried out. Data were collected from October to November 2022 using an online survey created on the Qualtrics platform. Convenience and snowball sampling strategies were used to recruit university students as study participants. The survey was distributed through an anonymous link and a QR code.

A total of 389 individuals accessed the survey. Among them, 296 participants provided their informed consent and completed the entire survey. Considering the differences in available resources between age groups, an inclusion criterion was applied in the study in which the age of the participants needed to be 30 years or less. Fifteen participants did not satisfy this criterion and were excluded from the study. The final sample (N = 281) consisted of 62.28% female participants, 35.23% male participants, and 2.49% participants who did not indicate their gender. The median age was 24 (SD = 2.276). The participants came from different universities and were studying in different year levels of their respective degree programs: 1st-year bachelor's degree (2.85%); 2nd-year bachelor's degree (8.90%); 3rd-year bachelor's degree (12.46%); 4th-year single cycle degree (2.14%); 5th-year single cycle degree (2.85%); 1st-year master's degree (12.10%); 2nd-year master's degree (43.77%); other year levels in a bachelor's degree (3.20%); other year levels in a master's degree

(11.74%). The majority of the participants came from Italy (53.4%). Additionally, among the participants, 40 were current or former international students who spent a period of their studies in Italy as part of the Erasmus+ mobility program founded by the European Union. In relation to previous work experiences, 31.67% of the participants had prior full-time work experience, 55.16% had prior part-time work experience, 53.74% had prior internship experience, and 34.16% had other kinds of prior work experience.

2.2. Measures

All scales used in this study were originally validated in the English language. For scales that had no prior validation study in Italy, these were translated into the Italian language following back-translation procedures. The factor structure or dimensionality of the measures that needed Italian translation was assessed using confirmatory factor analysis. The following model fit indices and threshold values were considered to evaluate goodness-of-fit: Comparative Fit Index (CFI) $\geq$ 0.90; Standardized Root Mean Square Residual (SRMR) $\leq$ 0.08; RMSEA (Root Mean Squared Error of Approximation) $\leq$ 0.08 (Hu and Bentler 1999). A 5-point Likert scale ranging from 1 (Strongly disagree) to 5 (Strongly agree) was used as a response scale for all measures.

2.2.1. Time Perspective

The English and Italian versions of the Adolescent and Adult Time Inventory (Mello and Worrell 2010; Mello et al. 2011) were used to measure individuals' time perspective. Specifically, two dimensions of time perspective were measured using 5 items for each subscale: present positive time attitude (e.g., "Overall, I feel happy about what I am doing right now"; alpha = 0.891); future positive time attitude (e.g., "I look forward to my future"; alpha = 0.896).

2.2.2. Resilience

The Brief Resilience Scale (Smith et al. 2008) was used to measure resilience. It consisted of 6 items (e.g., "I tend to bounce back quickly after hard times") and reported a Cronbach's alpha of 0.802. The scale's one-dimensionality was confirmed: CFI = 0.977; SRMR = 0.027; RMSEA: 0.075 (CI = 0.032–0.118).

2.2.3. Social Career Resources

Three subscales from the Career Resources Questionnaire (Hirschi et al. 2018) were used to measure university students' social career resources. Namely, these subscales were the 3-item university career support (e.g., "I feel fully supported in my career development by my current university"; alpha = 0.842), the 4-item social career support (e.g., "I know many people who support me in my career development"; alpha = 0.811), and the 3-item studies challenge (e.g., "My studies help me to increase my skills"; alpha = 0.769). A good model fit was found for the three-factor structure: CFI = 0.964; SRMR = 0.039; RMSEA = 0.071 (CI = 0.051–0.091).

2.2.4. Career Insecurity

Career insecurity was measured using two 4-item subscales from the Multidimensional Career Insecurity Scale (MU-CI-S; Spurk et al. 2022). The subscales pertained to career opportunities (e.g., "I am anxious that in my future career, no promotion possibilities could arise") and contractual employment conditions (e.g., "I fear that I might have to conduct my future work under worse conditions (e.g., working hours, salary)"). The following Cronbach's alpha values were reported: career opportunities (alpha = 0.814) and contractual employment conditions (alpha = 0.803). The results of the confirmatory factor analysis reported a satisfactory model fit for the two-factor structure: CFI = 0.977; SRMR = 0.031; RMSEA = 0.065 (CI = 0.037–0.092).

2.2.5. Employability

To measure employability, the scale developed by Berntson and Marklund (2007) was used. The scale was also available in Italian (Caricati et al. 2016) and consisted of 5-item statements (e.g., "My competence is sought-after in the labor market"). It reported a Cronbach's alpha value of 0.762.

2.3. Statistical Analysis

Preliminary analyses of the measured variables were run using correlations. A minimum effect size index of 0.30 was considered to establish a meaningful correlation between the variables (Cohen 1988). Cluster analysis was conducted in this study in relation to the first research question. Considering cluster analysis is an exploratory technique that researchers use to classify people into a preferred small number of clusters based on observed variable scores (Hofstetter et al. 2014), this analysis was chosen for its bottom-up or data-driven approach to answer the study's research question (Gartstein et al. 2017). In contrast to a latent profile analysis that is driven strongly by a model or theory concerning underlying assumptions about the data (Spurk et al. 2020), the study's exploratory nature benefits from the use of cluster analysis and its main goal of deriving the most homogenous subgroups possible (Gartstein et al. 2017). Through this analysis, the actuality of creating meaningful clusters from career resources can be elaborated (Huberty et al. 2005). Specifically, a two-step cluster analysis, which is suitable for both continuous and noncontinuous data (Norusis 2003), was performed. The two-step clustering method combines hierarchical and non-hierarchical clustering methods and creates groups of similar cases based on a probabilistic model (Chiu et al. 2001; Hair et al. 2013). In this study, the Euclidian distance measure was used to separate groups, and the optimal cluster solution was determined using Akaike's Information Criterion (AIC; Benassi et al. 2020; Kent et al. 2014). The cluster solution with a low number of clusters, low value of AIC, and strong change of AIC was selected as the most parsimonious cluster solution with the best fit (Benassi et al. 2020; Jones 2011).

One-sample t-tests were also executed to confirm the significant differences between each cluster's mean scores and the total sample's mean scores with regard to the clustering variables. In addition, one-way analysis of variance and non-parametric tests (i.e., chi-squared test, Kruskal–Wallis H Test) were conducted to compare differences in the sociodemographic composition between clusters. To assess the relationships between sociodemographic characteristics and cluster memberships, multinomial logistic regression was run. In relation to the second research question, a one-way analysis of variance was performed to examine the mean differences in career insecurity and employability between the career resources profiles. The analyses were run using statistical software, namely Mplus 8.9 and IBM-SPSS 26.0.

3. Results

Table 1 reports the reliability and correlations of the measured variables. Meaningful correlations were established between career resources, career insecurity, and employability. Specifically, all resources except social career support were negatively related to the two dimensions of career insecurity. Future positive time perspective and resilience, however, had more meaningful correlations with the career insecurity dimensions, in contrast to the other resources. In addition, all resources were positively related to employability, with future positive time perspective and the three social career resources showing stronger relations. It is interesting to note that while the two time perspectives and social career resources were reciprocally related, there were weak or no relationships between resilience and social career resources.

Table 1. Correlations.

	Variables	α	1	2	3	4	5	6	7	8
1	PCR: Present positive time perspective	0.891								
2	PCR: Future positive time perspective	0.896	0.451 **							
3	PCR: Resilience	0.802	0.206 **	0.301 **						
4	SCR: University career support	0.842	0.366 **	0.327 **	0.122 *					
5	SCR: Social career support	0.811	0.430 **	0.325 **	0.120 *	0.577 **				
6	SCR: Studies challenge	0.769	0.326 **	0.326 **	0.097	0.637 **	0.567 **			
7	CI: Career opportunities	0.814	−0.262 **	−0.356 **	−0.287 **	−0.122 *	−0.106	−0.179 **		
8	CI: Contractual employment conditions	0.803	−0.270 **	−0.426 **	−0.307 **	−0.242 **	−0.108	−0.246 **	0.730 **	
9	Employability	0.762	0.235 **	0.397 **	0.245 **	0.346 **	0.352 **	0.383 **	−0.280 **	−0.251 **

PCR = psychological career resources; SCR = social career resources; Career Insecurity = career insecurity; * $p < 0.05$; ** $p < 0.01$.

3.1. Career Resources Profiles

To address the first research question, the profiles of career resources were identified based on university students' scores on three psychological career resources (i.e., present positive time perspective, future positive time perspective, resilience) and three social career resources (i.e., university career support, social career support, studies challenge). The skewness and kurtosis values of all measured career resources fell within the acceptable range of −2 and +2, so the distributions of the scores in this sample were close to normal.

Using AIC as a statistical measure of fit, a four-cluster solution was chosen as optimal because of the low AIC value (1150.348) and strong change of AIC (−5.426; see Table 2), demonstrating generality and parsimony (Multon et al. 2007; Santos and Ferreira 2012). The final cluster solution is presented in Table 3.

Table 2. AIC, AIC change, and ratio of AIC change of solutions with different numbers of clusters.

Clusters (*n*)	AIC	AIC Change [a]	Ratio of AIC Change [b]
1	1189.643		
2	1198.129	8.485	1.000
3	1196.391	−1.738	−0.205
4	1150.348	−46.043	−5.426
5	1158.530	8.181	0.964

AIC = Akaike's information criterion. [a] The changes are from the previous number of clusters in the table. [b] The ratios of changes are relative to the change for the two cluster solution.

Table 3. Means and standard deviations of career resources by cluster.

	(1) Low CR *n* = 53		(2) High PCR–Low SCR *n* = 99		(3) Low PCR–High SCR *n* = 66		(4) High CR *n* = 63		Total *N* = 281	
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
PCR: Present positive time attitude	2.857	0.675	3.762	0.496	3.718	0.512	4.124	0.481	3.662	0.677
PCR: Future positive time attitude	2.781	0.831	3.723	0.614	3.264	0.646	4.213	0.500	3.547	0.808
PCR: Resilience	2.906	0.766	3.311	0.481	2.455	0.491	3.561	0.578	3.090	0.699
SCR: University career support	2.082	0.695	3.077	0.547	3.566	0.545	4.053	0.505	3.223	0.870
SCR: Social career support	2.708	0.754	3.321	0.515	3.761	0.522	4.290	0.461	3.526	0.771
SCR: Studies challenge	2.579	0.785	3.310	0.562	3.848	0.434	4.312	0.478	3.523	0.818

CR = career resources referring to both psychological and social career resources; PCR = psychological career resources; SCR = social career resources.

Cluster 1 (18.9%) presented low levels in almost all career resources. Specifically, the mean scores on two psychological career resources (i.e., present positive time perspective, future positive time perspective) and all three social career resources were observed to be lower in this cluster compared to the sample's mean scores. The cluster's mean score on resilience, however, was comparable to the sample's mean score. This cluster is referred to as low career resources (Low CR).

Cluster 2 (35.2%) alluded to high levels of psychological career resources but low levels of social career resources. Particularly, this cluster's mean scores on present positive time perspective, future positive time perspective, and resilience were higher than the sample's mean scores. However, its mean scores on university career support, social career support, and studies challenge were lower than the sample's mean scores. This cluster is referred to as high psychological career resources–low social career resources (High PCR–Low SCR).

Cluster 3 (23.5%) was characterized by low scores on two psychological career resources but high scores on social career resources. Specifically, this cluster's mean scores on future positive time perspective and resilience were lower than the sample's mean scores, but its mean score on present positive time perspective was average in comparison to the sample's mean score. Furthermore, its mean scores on all three social career resources were higher than the sample's mean scores. This cluster is referred to as low psychological career resources–high social career resources (Low PCR–High SCR).

Lastly, Cluster 4 (22.4%) indicated high levels of all career resources. The mean scores on all psychological and social career resources in this cluster were higher than the sample's mean scores. This cluster is referred to as high career resources (High CR).

This four-cluster solution appears to align with Hirschi's (2012) proposal on the mutual reinforcement of career resources over time. To elaborate, a current lack of career resources is implied to hinder the development of other categories of career resources, whereas the existence of one category of career resources is implied to promote the development of other categories of career resources (Hirschi 2012). In line with this notion, this four-cluster solution seemingly considers the different timepoints in the dynamic process that resources can aggregate.

As detailed in Table 4, significant differences in gender were found between clusters, χ^2 (3, N = 274) = 11.952, p = 0.008. It can be observed that males composed 44.44% and 41.27% of Clusters 2 (High PCR–Low SCR) and 4 (High CR), respectively, whereas males composed only 22.64% and 25.76% of Clusters 1 and 3, respectively. The disproportion in the gender composition (e.g., the higher proportion of females) seems more pronounced in Clusters 1 (Low CR) and 3 (Low PCR–High SCR). Additionally, results of a Kruskal–Wallis test showed significant differences in age between some clusters, χ^2 (3, N = 281) = 9.922, p = 0.019, in which the median age for all clusters is 24, except for Cluster 3, which has a median age of 23. Dunn's pairwise comparisons with Bonferroni correction indicated the median age of Cluster 3 (Low PCR–High SCR) to be significantly lower compared to that of Cluster 1 (Low CR), p = 0.005. In relation to the clusters' composition of university year levels and work experiences, no significant differences were found between the clusters. The distribution of university year levels and work experiences for each cluster is comparable to the overall sample distribution (e.g., the majority of the university students who comprise each cluster are second-year master's degree students).

Table 4. Sociodemographic characteristics.

		Total		**(1) Low CR**		**(2) High PCR–Low SCR**		**(3) Low SCR–High PCR**		**(4) High CR**		χ^2	p
Gender (n)	Male	99	(35.23%)	12	(22.64%)	44	(44.44%)	17	(25.76%)	26	(41.27%)	11.95	0.008
	Female	175	(62.28%)	39	(73.58%)	50	(50.51%)	49	(74.24%)	37	(58.73%)		
Age	*M* (*SD*)	23.87	(2.276)	24.38	(2.177)	24.08	(2.368)	23.21	(2.004)	23.79	(2.363)	9.922	0.019
	Mdn	24		24		24		23		24			
University degree level (n)	Bachelor	77	(27.40%)	16	(30.19%)	24	(24.24%)	23	(34.85%)	14	(22.22%)	3.393	0.335
	Masters	204	(72.60%)	37	(69.81%)	75	(75.76%)	43	(65.15%)	49	(77.78%)		
Previous work experience (n)	Yes	249	(88.61%)	47	(88.68%)	90	(90.91%)	55	(83.33%)	57	(90.48%)	2.557	0.465
	No	32	(11.39%)	6	(11.32%)	9	(9.09%)	11	(16.67%)	6	(9.52%)		

CR = career resources referring to both psychological and social career resources; PCR = psychological career resources; SCR = social career resources.

In further assessment of the relationships between sociodemographic variables and cluster memberships, the results of the multinomial logistic regression (with Cluster 1 as the reference category) revealed a statistically significant model. In other words, the inclusion of the sociodemographic variables as predictors in the model showed a better fit with the data in contrast to a null model, χ^2 (12) = 27.382, p = 0.007. In line with the previous results, gender, χ^2 (3) = 13.557, p = 0.004, and age, χ^2 (3) = 10.215, p = 0.017, were statistically significant predictors of cluster membership. To elaborate, males have increased odds of belonging to Cluster 2 (High PCR–Low SCR), B = 1.190, p = 0.003, 95% CI (1.494, 7.226), and Cluster 4 (High CR), B = 1.021, p = 0.019, 95% CI (1.185, 6.497) over Cluster 1 (Low CR). Furthermore, older university students have increased odds of belonging to Cluster 1 (Low CR) over Cluster 3 (Low PCR–High SCR), B = −0.298, p = 0.004, 95% CI (0.606, 0.909) and Cluster 4 (High CR), B = −0.254, p = 0.013, 95% CI (0.635, 0.949). University year levels and work experience were not significantly associated with cluster membership.

3.2. Profile Comparisons

To address the second research question, the mean scores of two dimensions of career insecurity (i.e., career opportunities and contractual employment conditions) and employability were compared between the four identified clusters. Checking for the assumption of equal variances, the results of Levene's test were nonsignificant for all dependent variables: career insecurity–career opportunities, F(3,277) = 1.916, p = 0.127; career insecurity–contractual employment conditions, F(3,277) = 0.781, p = 0.506; and employability, F(3,277) = 1.152, p = 0.329. The assumption of equal variances was satisfied in this sample. The results of the one-way analysis of variance (ANOVA) showed significant differences in both dimensions of career insecurity, career opportunities, F(3,277) = 14.734, p < 0.001, and contractual employment conditions, F(3,277) = 17.170, p < 0.001, and in employability, F(3,277) = 20.438, p < 0.001, among the clusters. A Tukey HSD post hoc test was performed. Table 5 presents the results of the ANOVA and post hoc comparisons.

Table 5. Means, F values, and Tukey HSD post hoc comparisons of career insecurity and employability across clusters.

	Total		**(1) Low CR**		**(2) High PCR–Low SCR**		**(3) Low PCR–High SCR**		**(4) High CR**		**F**	**Post hoc**
	M	***SD***	***M***	***SD***	***M***	***SD***	***M***	***SD***	***M***	***SD***		
CI: Career opportunities	3.093	0.846	3.528	0.691	2.806	0.814	3.394	0.734	2.861	0.881	14.734 **	1, 3 > 2, 4
CI: Contractual employment conditions	3.408	0.798	3.892	0.694	3.174	0.742	3.663	0.672	3.103	0.823	17.170 **	1, 3 > 2, 4
Employability	3.425	0.699	3.060	0.701	3.349	0.642	3.339	0.549	3.940	0.652	20.438 **	4 > 3, 2 > 1

CI = career insecurity; CR = career resources referring to both psychological and social career resources; PCR = psychological career resources; SCR = social career resources; ** p < 0.01.

A pattern in the cluster mean differences can be observed in the career insecurity scores. Specifically, Clusters 1 (Low CR) and 3 (Low PCR–High SCR) scored significantly higher in both dimensions of career insecurity compared to Clusters 2 (High PCR–Low SCR) and 4 (High CR). However, no significant differences in the career insecurity dimensions were found between Clusters 1 (Low CR) and 3 (Low PCR–High SCR). Similarly, no significant differences in both dimensions of career insecurity were found between Clusters 2 (High PCR–Low SCR) and 4 (High CR). Considering these results, Clusters 1 (Low CR) and 3 (Low PCR–High SCR) can be noted to share a similar characteristic of having low scores on two psychological career resources (i.e., future positive time perspective and resilience). Individuals with lower levels of these resources are likelier to feel more insecure about certain aspects of their future careers (i.e., career opportunities, contractual employment conditions) in contrast to those with higher levels of psychological career resources.

Regarding employability, the mean score of Cluster 4 (High CR) was significantly higher than the mean scores of all the other clusters. Additionally, the employability mean score of Cluster 2 (High PCR–Low SCR) was significantly higher than that of Cluster 1 (Low CR). No significant differences in employability mean scores were found between Clusters 2 (High PCR–Low SCR) and 3 (Low PCR–High SCR). Furthermore, no significant differences in employability mean scores were found between Clusters 1 (Low CR) and 3 (Low PCR–High SCR). These results highlight the relevance of both psychological and social career resources in nurturing employability among university students.

4. Discussion

This study's aims were to explore the profiles of career resources among university students and their differences in relation to career insecurity and employability. Correlation analysis revealed that resourceful people tended to perceive less career insecurity and more employability. This was particularly true for psychological resources, whereas social career resources showed stronger relations to employability than career insecurity. These findings could suggest that respondents considered social career resources to have more instrumental purposes instead of emotional ones. Indeed, people who felt their careers were supported by their university and personal networks may have higher expectations of successfully gaining a job. At the same time, however, they appeared to perceive their networks as insufficient in reducing their worries about their future careers.

Regarding the first research question, the results of the cluster analysis revealed four career resources profiles. In these profiles, different levels of psychological career resources (i.e., present positive time perspective, future positive perspective, resilience) and social career resources (university career support, social career support, studies challenge) were observed. Specifically, the Low CR profile (i.e., Cluster 1) was the smallest group in the study and was characterized by low levels of both psychological and social career resources. In contrast, the High CR profile (i.e., Cluster 4) was characterized by high levels of both psychological and social career resources. These two profiles align with the postulations of the COR theory (Hobfoll 1989) and career resources model (Hirschi 2012), which suggest the hindrance or promotion of resources based on the absence or existence of other resources. It is worthwhile to consider that Cluster 1 has the lowest levels of all career resources, except resilience. According to the COR theory (Hobfoll 1989), these students are more exposed to the risk of resource loss, and, for this reason, they could have developed the ability to deal with adversity.

The other two career resources profiles that emerged in the analysis represented the next highest levels of career resources after the High CR profile, but only in one category of career resources. To elaborate, the High PCR–Low SCR profile (i.e., Cluster 2) exhibited high levels of present positive time perspective, future positive time perspective, and resilience, but low levels of university career support, social career support, and studies challenge. Additionally, this profile is noteworthy because it comprises the largest group in the study, hinting that the majority of the examined university students rely more on their psychological career resources rather than their social career resources. One explanation for this finding can be attributed to university students' perceptions that the social relations surrounding them provide career support that still adheres to normative or linear career trajectories (e.g., higher education will progress to stable or long-term employment; Brzinsky-Fay and Solga 2016). Instead, university students may be seeking more social career resources that acknowledge the individualized nature of modern career paths and can cater to different kinds of routes or attempts to establish themselves in the modern labor market (Cebulla and Whetton 2018; Schoon and Silbereisen 2009). Another explanation could be that university students have already maximized the career support they receive from their current social relations and thus have a necessity to build and establish new social relations to gain further career support (McArdle et al. 2007; Wethington and Kessler 1986).

The last profile showed an opposite pattern in its career resources compared to the High PCR–Low SCR profile. Specifically, the Low PCR–High SCR profile (i.e., Cluster 3) was noted to have high levels of university career support, social career support, and studies challenge, but low levels of future positive time perspective and resilience. Interestingly, an average level of present positive time perspective was observed in the Low PCR– High SCR profile. This could mean that a supportive social context can ascribe and maintain a positive attitude toward the present. Moreover, considering three out of four career resources profiles were characterized by average-to-high levels of this career resource, the present positive time perspective may be implied to be a prevalent psychological career resource among university students. These individuals' positive perceptions and feelings of their present can allude to their attempts to relate their behavior with the present temporal context through exploration and engagement with their environment (Anagnostopoulos and Griva 2012; Park et al. 2017). This is an interesting result considering the differing age trends found in previous research regarding the salience of present and future time orientations among young adults (e.g., Praskova and Johnston 2021; Steinberg et al. 2009).

Regarding gender differences in our results, even though the general sample was primarily composed of women (62.28%), females were overrepresented in the Low CR (Cluster 1) and High SCR–Low PCR (Cluster 3) profiles. These results seem to imply that, educational level being equal, females possess fewer career resources, especially psychological ones, than males to build up their professional development. The low levels of career resources in the low CR profile are particularly concerning for women because previous literature has found women's career success to be associated with their ability to manage career setbacks and barriers, which unfortunately occur more frequently in women's professional development (e.g., Koekemoer et al. 2023). Concerning the High SCR–Low PCR profile, it was surprising to find that this cluster was composed mainly of women. In general, females have reported a lack of support, role models, and mentors during the school-to-work transition (Greer and Kirk 2022). The gender difference observed in the High SCR–Low PCR profile can be attributed to the present study's focus on the support received from one's university and studies. In Italy, girls currently exceed boys in registering for university and obtaining degrees (Salmieri 2022), so we can expect their higher education experiences to provide them with valuable support in their career development. However, there is still little evidence of the long-term effect of university support on career achievements.

In relation to the second research question, the results gave interesting insights into how university students' career insecurity and employability can differ based on combinations of existing and/or absent career resources. The study findings revealed that the career resources profiles that reported high scores on all three psychological career resources (i.e., High CR, High PCR–Low SCR) experienced significantly lower career insecurity compared to other profiles. These results highlight the importance of the present positive time perspective, future positive time perspective, and resilience as resources among university students to successfully cope with their career insecurity. Possessing positive thoughts and feelings about the present and the future, as well as resilience amidst adversity, can aid persons at the onset of their careers to tenaciously confront worrisome or undesirable aspects of their future careers (e.g., career opportunities, contractual employment conditions).

The impact of social career resources becomes more evident when interpreting the differences between career resources profiles on employability. The High CR profile had the highest employability score compared to all other profiles. In line with previous findings in the literature (e.g., Jabeen et al. 2022), this result underscores the relevance of accumulating both psychological and social career resources to enhance the employability of university students. However, when comparing profiles that possess high levels of career resources only in one category, high levels of psychological career resources (i.e., High PCR–Low SCR profile) had a more significant impact on employability. Specifically, individuals with this profile demonstrated higher employability than those with low levels of all career resources (i.e., Low CR profile). In a similar light as the profile comparison results for career

insecurity, it is implied that psychological career resources play a key role in university students improving the qualities and competencies necessary for employment.

Significant differences in both career insecurity and employability were not observed between individuals who possess only high levels of social career resources (i.e., Low PCR–High SCR profile) and individuals who possess low levels of both psychological and social career resources (i.e., Low CR profile). These nonsignificant findings may be connected with the foci of the scales that were used in this study. In particular, university career support, social career support (e.g., family and friends), and studies challenge were measured as university students' social career resources and refer more closely to the concept of "strong ties" of social capital development (Tomlinson et al. 2017). Whereas these strong ties can facilitate immediate access to job openings or employment opportunities (Tomlinson et al. 2017), the consideration of "weak ties" (i.e., the thin spread of social contacts and connections that an individual acquires; Granovetter 1985) may be necessary to produce a significant impact on university students' career insecurity and employability. Weak ties that are composed of wide associations and networks are argued to increase university students' confidence in their future employment by gaining insider knowledge on job opportunities and establishing new relationships with targeted employers (Tomlinson et al. 2017). In the context of coping with career insecurity and promoting employability, examining both strong ties and weak ties of university students may better clarify the relevance of social career resources, which has been previously associated with positive career outcomes (e.g., Peng 2022; Shiyuan et al. 2022).

4.1. Limitations and Future Research Directions

Certain limitations of this study need to be noted. Self-report measures were used in this research and may have been subject to reporting bias. In relation to the generalizability of the research findings, the study had a heterogenous sample with more than half the participants originating from Italy and the rest of the participants coming from various countries. The majority of the sample was also female, and almost half the sample comprised second-year master's degree students. This limits the interpretation of the analysis of gender and university year levels as predictors of cluster membership in the four career resources profiles. Thus, more studies with a better representative sample of university students are necessary to gain more accurate insights into the relationships between sociodemographic characteristics and cluster membership. In addition, succeeding research can extend the sample demographics and examine the career resources profiles of early career individuals as well (e.g., fresh graduates, job seekers, new workers). The present study also employed a cross-sectional research design in which the effects of common method variance cannot be ruled out. Further studies can carry out the data collection in waves to better clarify the impact of career resources profiles on outcome variables, which can also consider other individual outcomes such as job performance, career success, and psychological well-being.

The cluster solution that emerged in the results was based on the variables (i.e., psychological and social career resources) included in the analysis. If future research were to consider other career resources (e.g., human capital resources, identity resources; Hirschi 2012), a different cluster solution may be produced that can lead to additional insights into university students' resource accumulation and career resources profiles. Relatedly, further research that hypothesizes career resources profiles based on the frameworks of resource theories (e.g., Hirschi 2012) can also apply latent profile analysis, which, in contrast to this study's sample size, should follow the minimum sample size recommendation of 500 for analysis (Nylund et al. 2007). Future research can also employ a longitudinal design to better understand the mechanism of university students' accumulation of career resources over time. In doing so, a deeper understanding can be attained of how career resources profiles emerge and how stable these career resources profiles are across a period of time.

4.2. Implications

In spite of certain limitations, the study offers meaningful contributions to the current research on careers. Four career resources profiles unique to university students were identified by considering their psychological and social career resources. In addition, these career resources profiles were assessed in accordance with the postulations of resource theories (Hirschi 2012; Hobfoll 1989) in which career insecurity was framed as a threat to resource loss and employability as an outcome of resource gain. The results highlight the roles that career resources play for university students to successfully cope with career stressors; namely, the presence or absence of psychological and social career resources can make a difference in individuals' experiences of career insecurity at the beginning phases of their careers. Time perspective and resilience were found to be essential coping resources for university students, especially in confronting uncertain aspects of their future careers. Analogous to previous career research (e.g., Akkermans and Kubasch 2017), these relevant findings on psychological career resources suggest that an agentic perspective may be necessitated to better comprehend university students' coping responses toward career stressors. At the same time, the study's findings also underscore the importance of social career resources, especially when combined with psychological career resources, in promoting university students' employability. The aggregated impact of both psychological and social career resources on employability reinforces the significance of contextual factors for sustainable career development (De Vos et al. 2020).

Practical implications concern a person-centered approach in developing university students' career resources to cope with career insecurity and improve employability. One recommendation is to assess career resources prior to implementing specific interventions that would cater to university students' career insecurity and employability. Considering the unique career resources profiles observed among university students, these individuals can still differ from each other in relation to the availability of psychological and social career resources within their reach. Thus, by performing a general assessment (i.e., formally or informally) of the career resources that university students already possess or are still lacking, the development and accumulation of relevant career resources can be better targeted in career interventions. In addition to the use of validated measures, qualitative interviews can help career counselors and guidance practitioners gain more awareness of the relevant resources that their clients enjoy and the ones they still need to attain.

In case of a lack of both psychological and social career resources, career interventions should prioritize the development of time perspective and resilience. Given these resources were highlighted as key resources for coping with career insecurity and promoting employability, the possession of a positive time perspective and resilience can better equip university students to confront their vocational tasks. Furthermore, the presence of these psychological career resources can lead to the acquirement of social career resources and help improve the employment potential of university students in the labor market (Forrier and Sels 2003). Lastly, universities, employment centers, and organizations are encouraged to invest in supporting the career development of university students in order to decrease their career insecurity and increase their employability (e.g., Alanazi and Benlaria 2023). In doing so, society may better reap the benefits and potential that university students can bring as major members of the modern workforce.

5. Conclusions

This study focused on university students' career resources, which protect them from the threat of resource loss induced by career insecurity and bolster resource gain such as employability in the modern career environment. By employing cluster analysis, four profiles of career resources were identified among university students based on the level of psychological (i.e., time perspective, resilience) and social career resources they possessed. The profiles that emerged were characterized by (a) low career resources; (b) high career resources; (c) high psychological career resources–low social career resources; and (d) low psychological career resources–high social career resources. These profiles were found to

differ with regard to career insecurity and employability. The profiles that had high levels of psychological career resources, including a combination of both high psychological career resources and high social career resources, perceived lower levels of career insecurity and higher levels of employability in contrast to other career resources profiles. The findings of this research reinforce the assumptions of resource theories (e.g., career resources model, COR theory; Hirschi 2012; Hobfoll 1989) that place emphasis on the accumulation of career resources to successfully cope with a career stressor and enhance employment prospects among university students. The significant roles that psychological and social career resources play in the research findings also highlight the interplay of agency and contextual factors in the career development of the youngest and newest entrants in the workforce. In conclusion, this research encourages practitioners to take a person-centered approach in supporting university students to enhance their career resources.

Author Contributions: Conceptualization, A.A.A. and R.C.; methodology, A.A.A. and R.C.; validation, A.A.A. and R.C.; formal analysis, A.A.A.; investigation, A.A.A. and R.C.; resources, A.A.A. and R.C.; data curation, A.A.A.; writing—original draft preparation, A.A.A.; writing—review and editing, R.C.; visualization, A.A.A.; supervision, R.C.; project administration, A.A.A. and R.C. All authors have read and agreed to the published version of the manuscript.

Funding: This research received no external funding.

Institutional Review Board Statement: The study was conducted in accordance with the Declaration of Helsinki, and approved by the Ethics Committee of the University of Bologna, Italy (Protocol number 0122490, 23 May 2022).

Informed Consent Statement: Informed consent was obtained from all subjects involved in the study.

Data Availability Statement: The data presented in this study are available on request from the corresponding author due to privacy reasons.

Conflicts of Interest: The authors declare no conflicts of interest.

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