Career adaptation in higher education: a study with non-working and working students

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The career construction and sociocognitive career theories were considered to test an integrative model of career adaptation in higher education. Participants were 523 Portuguese university students (non-working, n = 335, Mage = 20.64; working, n = 188, Mage = 29.05), who completed measures of social support, protean orientation, adaptability and adapting as adaptation predictors, and career certainty, academic wellbeing, and life satisfaction as adaptation outcomes. Multigroup path analysis results indicated a good fit of the model and invariance across groups after some changes. Although more studies are needed to explore the range and limits of the proposed model validity, our findings allow the career development literature extension while informing the practice. Career counselors might facilitate university students' adjustment by helping them expand their social network and develop their career attitudes.

KEYWORDS

academic adaptation, higher education, non-working students, working students, career

1 Introduction

Academic adaptation in higher education is defined as a complex process involving the capacity to cope with academic (e.g., adapting to new learning paces and methods), personal and emotional (e.g., being autonomous, managing life roles), social (e.g., coping with family separation), and career challenges (e.g., identification and commitment to a course) (e.g., Araújo et al., 2014; Gazo and Romero-Rodriguez, 2019). Throughout their academic journey, students will not only need to solve these challenges but also face other developmental tasks. Considering students' sociodemographic heterogeneity (e.g., students of different ages) (e.g., Hauschildt et al., 2021) these tasks may include, for example, the consolidation of a vocational self-concept and committing to a career choice (e.g., students in the exploratory career phase), life role management and network expansion (e.g., students in the career establishment phase), and consolidating career successes or reviewing the career path (e.g., students in the career maintenance phase) (e.g., Lent and Brown, 2013; Hartung, 2021).

As a result, some students may struggle to adapt. A particularly vulnerable group is the working students. This group includes workers who accumulate student functions for at least six months and may or may not be legally recognized as such, depending on factors such as the student's academic achievement (DGEEC, 2023). Typically, the literature distinguishes this group between "students who work" and "employees who study," depending on the salience that each role plays in people's life

(e.g., Carreira and Lopes, 2020). In other words, students who work prioritize study, and their motivations for working include the desire to get extra money for personal expenses. This subgroup usually includes younger people. Meanwhile, workers who study prioritize work. Typically, this group comprises older students who see the study as a way to advance their careers, renew their knowledge, or even change their path.

Regardless of these fluctuations, both subgroups face added challenges in managing time between life roles (e.g., study, work, family), which can often generate conflicts (e.g., Tetteh and Attiogbe, 2019). For example, if we consider the Portuguese context where the average time spent on academic activities is around 42 h per week (European Commission, 2017) and a full-time worker is required to work at least 35 h per week, we conclude that the time left after a working day to dedicate to study and other activities (e.g., rest) is scarce, compared to the 42 h used by those who do not work. This may justify why studies comparing non-working with working students find more health problems (e.g., anxiety, emotional exhaustion), and worse levels of academic performance and satisfaction for the latter group (e.g., Santana and Salcedo, 2013; Tessema et al., 2014; Chiang et al., 2020). Literature indicates that working students are more susceptible to dropping out due to difficulties in the academic adaptation process (e.g., Hovdhaugen, 2015). Eventually, throughout the academic journey, these students may be forced to decide between continuing their studies or working.

In Portugal, this choice scenario seems even more salient. In 2021, Portugal was 29% points behind the average of the European Union in the number of university students working (Hauschildt et al., 2021). According to OECD (2022) report, this may be justified by the Portuguese institutions' greater focus on traditional students' needs (i.e., non-working full-time young students, Sánchez-Gelabert and Andreu, 2017), presenting a relatively inflexible educational offer (e.g., few options after working hours). As a result, fewer working students attend this level of education, or for those who attend we may observe more difficulties in adapting. In the long run, we may expect a negative impact, both on individuals' career prospects (e.g., graduate, reskilling) and in the labor market (e.g., lack of specialized human resources) (World Economic Forum, 2020; OECD, 2022). It is, therefore, urgent to understand which resources facilitate the working students' adaptation to transform higher education into an appealing and inclusive environment. In particular, because the expression of these students in higher education has been steadily increasing in Europe, including in Portugal, despite its lower expression compared to other countries (e.g., 85% of working students in Netherlands versus 49% in Portugal). The last Eurostudent report indicates that, on average, almost 80% of European students combine their studies with work, and around 60% work during their lecture period (Hauschildt et al., 2021). This increase may be explained by factors such as the current labor market requirements of futureproof skills, thus, a lifelong learning approach. At the same time, European policies have encouraged postgraduate education to address this growing need for markets to re- and upskill their human resources (European Commission, 2018).

Considering this background, we attended to the higher education literature and working students' studies, looking for facilitators of the academic adaptation process. Overall, we might

conclude that one's social support in studies and career self-management skills are cornerstones in this process (e.g., Byl, 2019; Gazo and Romero-Rodriguez, 2019; Chu et al., 2021; Creed et al., 2022). As a result, we draw on two of the most well-established career theories—the career construction theory (CCT, Savickas, 2005, 2021), and the social cognitive career theory (SCCT, Lent, 2005, 2021), as they consider both contextual and personal dimensions to explain adaptation processes in different contexts and across the life course. Facilitating students' academic adaptation throughout their journey will increase academic engagement (Šverko and Babarović, 2019) while promoting the conditions for them to dream about and develop career-life projects (Gazo and Romero-Rodriguez, 2019; Savickas, 2021).

1.1 Career construction theory

Career construction theory defines career adaptation as an attempt to bring one's self-concept and outer opportunities into harmony (Savickas and Porfeli, 2012). Individuals need to face three environmental challenges: vocational development tasks (i.e., social expectation about age-graded normative transitions), occupational transitions (i.e., un/wanted and un/expected transitions from one job to another), and work trauma (i.e., unwanted and unpredicted challenges as occupational injuries or contract violations). The adaptation to these environmental challenges, mirrored in results of career satisfaction, development, and success, depends on one's willingness to change (i.e., adaptivity), self-regulatory resources (i.e., adaptability), and performed adaptative behaviors (i.e., adapting, Savickas and Porfeli, 2012; Savickas, 2021).

Evidence regarding the sequence ranging across adaptivity, adaptability, adapting, and adaptation, as well as, adaptability and adapting mediator role, is well reported in the literature, including among university students (e.g., Hirschi et al., 2015; Rudolph et al., 2017; Savickas et al., 2018; Soares et al., 2021a, 2022a; Yıldız-Akyol and Öztemel, 2021). For example, Yıldız-Akyol and Öztemel (2021), in a sample of Turkish university students, found significant and positive relations between students' adaptivity (i.e., grade point average), adaptability (i.e., concern, control, curiosity, confidence), adapting (i.e., crystallizing, exploring, deciding, preparing), and adaptation (i.e., academic satisfaction). Moreover, adaptability and adapting played a mediation role in the adaptivity-adaptation relationship. In the Portuguese context of university students similar paths were found. Soares et al. (2021a) found a direct and indirect positive relation between adaptability (i.e., concern, control, curiosity, confidence) and adaptation (i.e., perceived employability). The indirect relationship was mediated by adapting mirrored on career identity, exploration, self-efficacy, career decision, and locus of control.

1.2 Social cognitive career theory

Another perspective assuming humans' capacity to influence their career development and surroundings is the social cognitive career theory (SCCT) (Lent, 2005, 2021). This theory emphasizes the interplay among three cognitive-person variables (i.e., self-efficacy beliefs, outcome expectations, and personal goals) that

partly influence people's behaviors. Self-efficacy refers to a dynamic set of self-beliefs regarding one's capabilities to perform a task. Outcome expectations refer to the imagined consequences of performing a given behavior (i.e., what will happen if I do this?). Personal goals refer to one's determination to engage in a particular activity. These three cognitive-person variables operate together with another person (e.g., personality) and environmental (e.g., social support) variables to explain one's career development (Lent, 2021). Drawing on this rationale, Lent and collaborators began by formulating four interconnected models, where these personal and environmental variables explained individuals' career choices and performances (Lent et al., 1994) and under what conditions people are satisfied (Lent and Brown, 2008). However, considering the volatility of the 21st century, that requires people to be prepared to deal with (un)expected career changes, a new model was proposed—the SCCT career self-management model (SCCT CSM, Lent and Brown, 2013). This model focus on analyzing how people negotiate occupational transitions and solve career developmental tasks and setbacks to adapt.

Evidence regarding SCCT validity is well reported in the literature, including with university students (e.g., for a revision see Brown and Lent, 2019; Lent and Brown, 2019). For example, studies on the SCCT CSM often indicate positive and significant relationships between the three cognitive-person variables (i.e., self-efficacy beliefs, outcome expectations, and goals), as well as relations from social support and these three cognitive-person variables to adaptative behaviors (e.g., career exploration, networking, planning). Regarding the Portuguese context of university students, studies on SCCT satisfaction theory indicate positive and significant relationships between social support to self-efficacy and academic satisfaction. Self-efficacy predicts one's goals and academic satisfaction, and positive affect predicts self-efficacy, social support, and satisfaction with life and course (Lent et al., 2012, 2018). Notwithstanding this empirical evidence, Brown and Lent (2019) emphasize that the strength between pathways varies by domain. For example, when analyzing studies with Portuguese samples, the pathway that produced statistically larger coefficients in the academic domain was social support (Taveira, 2019). Meanwhile, the variable of outcome expectation presents inconsistencies in predicting satisfaction outcomes (e.g., Sheu et al., 2016; Lent et al., 2018).

1.3 Model of career adaptation in higher education

Both CCT and SCCT highlight the role of context and individuals's resources in explaining career development and consequent results of success, satisfaction, and development (Rudolph et al., 2017; Lent, 2021; Savickas, 2021). Even the latest update of the SCCT delves deeper into career self-management behaviors, approaching the construct of adapting in CCT (Lent and Brown, 2013). This proximity between models and strong validation are at the base of our study. Especially, because the higher education literature also highlights the role of context, particularly social support in studies, and individuals' career competencies as crucial for the higher education adaptation process (e.g., Byl, 2019; Gazo and Romero-Rodriguez, 2019; Chu et al., 2021; Creed et al., 2022).

As a result, we argue for a model (**Figure 1**) that captures the contextual dimension of SCCT (i.e., social support) and the career adapt-abilities dimensions of CCT (i.e., adaptivity, adaptability, adapting) to explain adaptation results in higher education. Although the CCT considers the relevance of context, namely for developing one's career adaptability, it does not specify this dimension, and the SCCT approach does not detail the career self-regulatory attitudes in as much detail as the CCT. Therefore, we decide to complement the CCT approach with SCCT elements. Concerning the adaptation results, our model combines objective results of students' achievements with subjective results of students' career certainty, academic wellbeing, and life satisfaction. According to the higher education literature, pairing objective with subjective indicators is advantageous for a broader understanding of the adaptation process (e.g., York et al., 2015; Araújo, 2017). Moreover, the academic wellbeing indicator will include the cognitive and affective dimensions of subjective wellbeing (Diener et al., 2018), as considered in the domain-specific outcomes of the satisfaction SCCT (Lent and Brown, 2008). For the adaptivity dimension, we considered the protean career orientation as an indicator. This orientation mirrors one's flexibility to change and the ability to autonomously manage a career (e.g., Hall et al., 2018), which is key to dealing with 21st-century unpredictable contexts (e.g., work, study) (e.g., Hirschi and Koen, 2021). Moreover, empirical evidence indicates significant relations between this protean orientation and one's personality traits of conscientiousness, openness to experience, and exploration (e.g., Wiernik and Kostal, 2019), usually described as indicators of adaptivity in CCT (e.g., Perera and McIlveen, 2017; Rudolph et al., 2017), and personality traits in SCCT (e.g., Brown and Lent, 2019).

The relationships between these individual and context predictors to higher education adaptation results are documented in empirical studies, which reinforces our proposal. For example, significant and positive relations were found from social support and protean orientation to adaptability (e.g., Ghosh and Fouad, 2017; Ataç et al., 2018; Chui et al., 2020), adapting (e.g., Kaur and Kaushik, 2020; Chu et al., 2021), life satisfaction (e.g., Baruch, 2014; Parola and Marcionetti, 2021), and career certainty (e.g., Hirschi et al., 2017; Ireland and Lent, 2018). Social support also predicts results of academic achievement (e.g., Lopes and Carreira, 2018; Tinajero et al., 2020), and wellbeing (e.g., Garriott et al., 2015; Sheu et al., 2016; Lent et al., 2018). Meanwhile, the relation between protean orientation to these academic outcomes is scarce. Nevertheless, results in the labor setting indicate positive paths from this orientation to job satisfaction and engagement (e.g., Herrmann et al., 2015; Hirschi et al., 2017). Regarding adaptability, studies indicate positive relations with adapting (e.g., Merino-Tejedor et al., 2016; Yıldız-Akyol and Öztemel, 2021). Also, both adaptability and adapting predict life satisfaction (e.g., Barroso, 2016; Magnano et al., 2021; Takao and Ishiyama, 2021), career certainty (e.g., Levin and Lipshits-Braziler, 2021; Park et al., 2021), and academic wellbeing results (e.g., Wilkins-Yel et al., 2018; Yıldız-Akyol and Öztemel, 2021). Adaptability also predicts achievement (Öncel, 2014), and adapting relates to study engagement (e.g., Šverko and Babarović, 2019), which is related to academic achievements (e.g., Elphinstone et al., 2019). The (in)existence of dependents was included in our model as a covariate because the higher education literature indicates that this variable may compete for time in roles management (i.e., study/work-family), worsening

FIGURE 1
Integrative model of career adaptation in higher education.
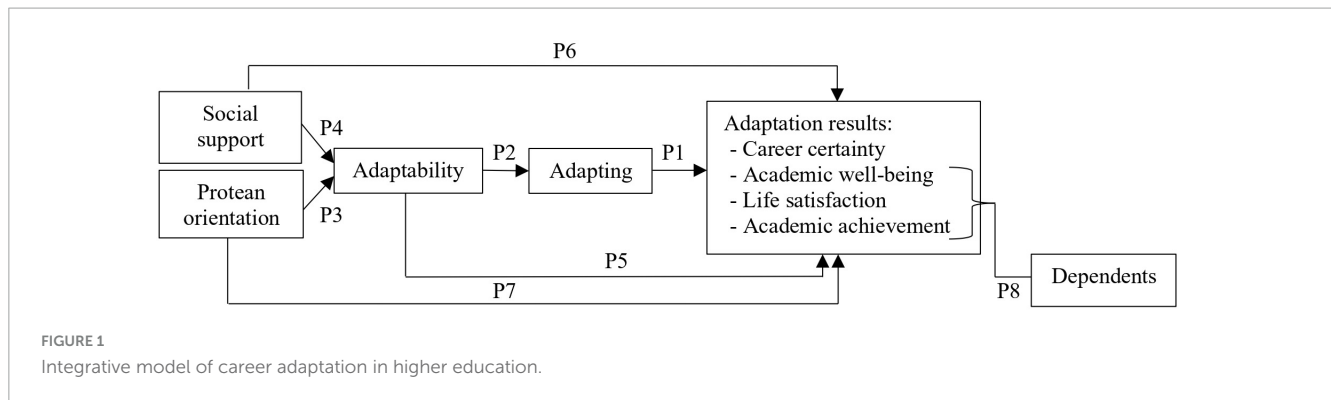
one's satisfaction with life, academic performance, and wellbeing (e.g., Creed et al., 2015; Burston, 2017).

1.4 Study aims

We aim to examine the proposed model among Portuguese working and non-working university students (Figure 1), two groups with different occupations to manage. According to the model, students are more likely to be adapted to the extent that they (P1) engage in adapting behaviors, which are motivated by (P2) adaptability, acquired through (P3) protean orientation and (P4) perceived social support. Also, better adaptation results are enabled by (P5) adaptability, (P6) perceived support, and (P7) protean orientation. The presence of dependents may negatively influence one's (P8) life satisfaction, academic achievement, and wellbeing.

Complementing these direct paths, the model specifies indirect paths. For example, favorable levels of perceived support and protean orientation are indirectly linked to adaptation results through adaptability and adapting. Likewise, adaptability will predict adaptation through adapting.

Adopting this systemic view that weighs cornerstone variables to career adaptation in higher education, in general, and for working student adaptation, in particular, we expect to verify models' invariance across groups. Such evidence will be crucial to refine the career counseling practices among these groups. Moreover, it will be advantageous to have a rationale, that is both generic and inclusive, considering the scarce human and time resources observed in some higher education institutions.

2 Materials and methods

2.1 Participants and procedure

A non-probabilistic convenience sample of 523 Portuguese university students, between 18 and 59 years old (Mage = 23.66, SD = 7.54), was collected. The majority being women (n = 414, 79.2%).

Non-working student group consists of 335 (64.1%) participants aged 18 to 59 (Mage = 20.64, SD = 3.71), 282 (84.2%) women and 53 (15.8%) men. The majority were attending Bachelor programs (n = 255, 76.1%), followed by Master (n = 52, 15.5%), Integrated Master (n = 26, 7.8%), and Doctoral programs

(n = 2, 0.6%). Also, more than half were in the first (n = 107, 32.9%) and second year (n = 79, 23.6%). Three hundred and fifteen (94%) attended university educational institutions and 20 (6%) polytechnic institutions. Participants' fields of study included: social sciences, journalism and information (n = 211, 63%), natural sciences, mathematics and statistics (n = 34, 10.1%), health and welfare (n = 24, 7.2%), engineering, manufacturing and construction (n = 23, 6.9%), business, administration and law (n = 12, 3.6%), arts and humanities (n = 11, 3.3%), education (n = 8, 2.4%), services (n = 5, 1.5%), information and communication technologies (n = 5, 1.5%), and generic programs (n = 2, 0.6%) (UNESCO, 2015). Student's grade point average ranged mostly between 16–17 (n = 124, 37%) and 14–15 (n = 122, 36.4%). Moreover, 328 (97.9%) reported having no dependents, three (0.9%) had two dependents, two (0.6%) had one dependent, and another two (0.6%) had three or more dependents.

Working student group consists of 188 (35.9%) participants aged 18 to 57 (Mage = 29.05, SD = 9.41), 132 (70.2%) women and 56 (29.8%) men. The majority were attending Bachelor programs (n = 94, 50%), followed by Master (n = 75, 39.9%), Integrated Master (n = 10, 5.3%), and Doctoral programs (n = 9, 4.8%). Also, more than half were in the first (n = 66, 35.1%) and second year (n = 64, 34%). One hundred eighty (95.7%) attended university educational institutions and eight (4.3%) polytechnic institutions. Participants' fields of study included: social sciences, journalism and information (n = 74, 39.4%), business, administration and law (n = 26, 13.8%), education (n = 23, 12.2%), engineering, manufacturing and construction (n = 16, 8.5%), arts and humanities (n = 14, 7.4%), natural sciences, mathematics and statistics (n = 11, 5.9%), health and welfare (n = 11, 5.9%), information and communication technologies (n = 7, 3.7%), services (n = 5, 2.7%), and agriculture, forestry, fisheries and veterinary (n = 1, 0.5%) (UNESCO, 2015). Student's grade point average ranged mostly between 14–15 (n = 70, 37.2%) and 16–17 (n = 53, 28.2%). Moreover, 138 (73.4%) reported having no dependents, 20 (10.6%) had one dependent, another 20 (10.6%) had two, and 10 (5.3%) had three or more dependents. Among the 188 participants, 78 (41.5%) worked 35 h per week, 71 (37.8%) one to 20 h, 30 (20.7%) 21 to 34 h, and only 86 (45.7%) had a legal status of working student. Participants were from diverse occupational backgrounds (e.g., lawyers, social workers, fireman).

The numerical difference between groups mirrors a rough reality of the Portuguese higher educational institutions (Hauschildt et al., 2021).

This study was approved by the Ethical Committee for Research in Social and Human Science (CEICSH 093/2021). The protocol was elaborated on SPSS Data Collection. It included the study aim and a guarantee of data confidentiality. Individuals who voluntarily agreed to participate in the study were then asked about demographic, academic, and occupational data, followed by measures of social support, career orientation, attitudes and behaviors, career certainty, academic wellbeing, and life satisfaction. Protocol completion took approximately 20 min. Individuals were recruited by email between November 2021 and February 2022. We emailed several Portuguese students' associations, from north to south of Portugal, asking them to share and fill in the protocol online. Later, these associations were emailed again and a free webinar on time management was offered. Webinar started with a presentation of research objectives and an invitation to fill in the protocol. In the end, individuals received a certificate of webinar participation.

2.2 Measures

Protocol included an initial form, collecting demographic (e.g., age, gender), academic (e.g., grade point average), and occupational data (e.g., weekly work hours).

Social support was assessed with a 9-item measure (e.g., "Get helpful assistance from my advisor"). Participants indicated how much they agreed with each statement, from 1 (*strongly disagree*) to 5 (*strongly agree*). Higher scores represent higher levels of perceived social support in studies. The Portuguese version showed good reliability indices ($\alpha = 0.81$, Lent et al., 2009), as well as we found for the present sample of university students ($\alpha = 0.81$).

Protean career orientation was assessed with a 6-item measure (e.g., I am in charge of my own career). Participants indicated how much they agreed with each statement, from 1 (*strongly disagree*) to 5 (*strongly agree*). Higher scores represent higher levels of readiness to manage one's career. The Portuguese version showed good reliability indices ($\alpha = 0.73$, Soares et al., 2021b), as well as we found for the present sample of university students ($\alpha = 0.77$).

Adaptability was measured with the Portuguese version of the Career Adapt-Abilities Scale-Short Form (CAAS-SF, Soares et al., 2022b), which included 12 items evenly distributed by four factors: concern (e.g., "Preparing for the future"), control (e.g., "Counting on myself"), curiosity (e.g., "Looking for opportunities to grow as a person"), and confidence (e.g., "Learning new skills"). Participants indicated how much they agreed with each statement, from 1 (*strongly disagree*) to 5 (*strongly agree*). Higher scores represent higher levels of adaptability. The Portuguese version showed good reliability indices ($0.70 < \alpha < 0.87$, Soares et al., 2022b), as well as we found for the present sample of university students ($0.75 < \alpha < 0.89$).

Adapting was measured with the Portuguese version of the student career construction inventory (SCCI, Soares et al., 2022a), which included 18 items distributed by four factors: crystallizing (6 items, "Recognizing my talents and abilities"), exploring (3 items, "Reading about occupations"), deciding (5 items, "Finding a line of work that suits me"), and preparing (3 items, "Qualifying for the job that I like best"). Participants indicated how much they agreed with each statement, from 1 (*strongly disagree*) to 5 (*strongly agree*).

Higher scores represent higher levels of adapting. The Portuguese version showed good reliability indices ($0.71 < \alpha < 0.91$, Soares et al., 2022a), as well as we found for the present sample of university students ($0.79 < \alpha < 0.92$).

Career certainty was measured with the Portuguese version of Vocational Identity Scale (VIS, Santos, 2007), which included four items (e.g., "I have already chosen a certain career option that I don't intend to move away from"). Participants indicated how much they agreed with each statement, from 1 (*strongly disagree*) to 5 (*strongly agree*). Higher scores represent higher career certainty. The Portuguese version showed good reliability indices ($\alpha = 0.85$, Santos, 2007), as well as we found for the present sample of university students ($\alpha = 0.87$).

Global life satisfaction was measured with the Portuguese version of the Satisfaction with Life Scale (SWLS, Simões, 1992), which includes five items (e.g., "I am satisfied with my life"). Participants indicated how much they agreed with each statement, from 1 (*strongly disagree*) to 5 (*strongly agree*). Higher scores represent higher levels of life satisfaction. The Portuguese version showed good reliability indices ($\alpha = 0.77$, Simões, 1992), as well as we found for the present sample of university students ($\alpha = 0.86$).

Academic wellbeing was assessed using a cognitive measure of academic satisfaction (7 items, e.g., "In general, I am satisfied with my academic life," Lent et al., 2009), and an affective measure of emotional balance (14 items, e.g., "I feel sad or depressed," Almeida, 1998). Participants indicated how much they agreed with each statement, from 1 (*strongly disagree*) to 5 (*strongly agree*). Higher scores, in the first measure, represent higher levels of academic satisfaction. The same is true for the second measure after inverting the items. Higher scores indicate higher levels of emotional balance. Good reliability indices were found for the original Portuguese versions ($\alpha = 0.89$, Lent et al., 2009; $\alpha = 0.88$, Almeida, 1998) and the present sample ($\alpha = 0.89$ and $\alpha = 0.93$, respectively).

2.3 Data analysis

Preliminary database analyses were performed with the Statistical Package for the Social Sciences (IBM SPSS), version 27.0 for Mac. First, we checked for missing responses. Seven (1.3%) participants did not respond to the academic achievement question. Therefore, Little's (1988) missing completely at random (MCAR) test was run, and a significant value was found ($\chi^2 = 0$, $p < 0.001$), indicating that the pattern of missingness was not at random. These participants were eliminated leaving the final sample of 523 students for analysis (Little and Rubin, 2002). After, structural equation modeling (SEM) was conducted using the Analysis of Moment Structures (AMOS) version 27.0 for Windows. As evidence of multivariate non-normality of sampling distribution, found through Mardia's coefficient, the Maximum Likelihood estimation method with bootstrapping was used (Gilson et al., 2013). Using the Mahalanobis' Distance Analyses, four outliers were identified in the non-working student group. To control for possible bias, analyses were run with and without these extreme observations (Pinto et al., 2013). As there were differences in the findings, results without outliers were preferred. Regarding the linearity assumption, violations were found for academic achievement and dependents covariable. As recommended by

Levers-Landis et al. (2011) these variables were removed from the structural model test.

Having SEM assumptions verified two steps were taken. First, confirmatory factor analyses (CFA) were conducted to test measurement models fit, in tandem with multigroup CFA to test measures' metric invariance across groups. Measures' good fit and invariance are prerequisites for the next step of the structural model test (e.g., Jiang et al., 2017). Having these conditions verified, path analyses (PA) were carried out to test the career adaptation model fit. Two structural models were tested in alignment with the literature review (e.g., Lent and Brown, 2008; Savickas, 2021; Figure 2). Model 1 relied on the hypothesized paths, withdrawing those variables for which the linearity assumption was not met (i.e., dependents, academic achievement). Model 2, an alternative model inspired in the satisfaction SCCT (Lent and Brown, 2008) introduced some changes. It separates domain-specific (i.e., career certainty, academic wellbeing) from general (i.e., life satisfaction) adaptation results, with the former predicting the latter. Also, a relation from protean orientation to support is introduced, and the relations from support and adaptability to life satisfaction are eliminated.

To evaluate measurement and structural models fit, the comparative fit index (CFI), the root mean square error of approximation (RMSEA) with 90% confidence interval (CI), and the standardized root mean square residual (SRMR) were considered. Values of CFI above 0.90, SRMR below 0.10, and RMSEA between 0.05 and 0.08 indicate an acceptable model fit. Values of CFI above 0.95, SRMR below 0.05, and RMSEA below 0.05 indicate a good model fit (Hu and Bentler, 1999; Cangur and Ercan, 2015). Given the CFI and SRMR lower sensitivity to model complexity (i.e., increasing the number of variables yields a higher RMSEA value), these indicators were privileged in the decision whenever incongruencies emerged. Invariance was evaluated through Δ CFI index, which represents the difference (Δ) from the unconstrained to the metric parameters in multigroup CFA and structural weight parameters in multigroup PA. Metric and structural weight invariance were considered when values of Δ CFI lower than 0.01 were observed (Chen, 2007). Structural models' indirect paths were accessed by running 5000 bias-corrected bootstrap samples at a 95% confidence interval (Lent et al., 2018).

For academic wellbeing, preliminary analyses were performed to ascertain the feasibility of joining the cognitive and affective measures. The sample was randomly divided into two. The exploratory factor analysis was run in one-half of the sample ($N = 272$) to determine the number of factors and their items. Kaiser-Meyer-Olkin index (KMO > 0.70) and Bartlett's sphericity test ($p < 0.05$) indicated the sample's adequacy for further analyses (Field, 2009). Considering the lack of previous studies joining these measures, the principal axis-factoring method was used (Field, 2009). The selection criteria for the factorial solution included the consistency with measures' theoretical framework; Cattell's test; Kaiser criteria for factor retention (i.e., eigenvalues $\geq$ 1); and retention of factor loadings $\geq$ 0.45 (Field, 2009; Tabachnick and Fidell, 2013). Two factors explaining 54% of the variance were found: factor one included the 14 items of the emotional balance measure, and factor two included the seven items of the academic satisfaction measure. After, CFA was run in the other half of the sample ($N = 251$), supporting the two-factor hierarchical structure (CFI = 0.909,

RMSEA = 0.076, SRMR = 0.069). Nevertheless, along with the other measures, CFA and metric invariance were applied to the total sample, as a prerequisite for testing the structural model (e.g., Jiang et al., 2017).

3 Results

3.1 Descriptive analysis and relationship between variables

Table 1 presents descriptive statistics and Pearson's correlation matrix for the full sample and groups.

On average, results indicate a reasonable level of environmental, career, and wellbeing resources across groups. Pearson analyses indicate positive and statistically significant correlations, except between support and certainty in the working student group. Nevertheless, this exception is insufficient to violate the SEM linearity assumption (Levers-Landis et al., 2011). Correlations' magnitude ranged mainly from moderate ($0.30 \leq r \leq 0.50$) to large ($r \geq 0.50$) (Cohen, 1988). Large correlations are noticed, namely between life satisfaction to social support and academic wellbeing ($0.53 \leq r \leq 0.60$). Weak correlations ($r < 0.30$) are more apparent in the working student group, namely between social support to protean orientation, adaptability, and adaptation. Also, weak correlations are found between adaptability to academic wellbeing and life satisfaction.

3.2 Measurement models

Confirmatory factor analyses results for the total sample indicated adequate measurement model fit to data for the four-factor hierarchical scales of adaptability [CFI = 0.970, SRMR = 0.032, RMSEA = 0.053 (90% CI, 0.042–0.065)] and adapting [CFI = 0.953, SRMR = 0.052, RMSEA = 0.065 (90% CI, 0.058–0.073)], as well as, for the one-factor order scale of certainty [CFI = 0.977, SRMR = 0.025, RMSEA = 0.173 (90% CI, 0.124–0.228)] and life satisfaction [CFI = 0.998, SRMR = 0.015, RMSEA = 0.031 (90% CI, 0.000–0.073)]. The remaining scales did not present adequate fit indices. Inspection of the modification indices indicated improvements when allowing residuals from the same scale to correlate. Models were re-run and better indices were found for: one-factor order scales of social support [CFI = 0.916, SRMR = 0.066, RMSEA = 0.101 (90% CI, 0.086–0.117)] and protean orientation [CFI = 0.982, SRMR = 0.029, RMSEA = 0.061 (90% CI, 0.033–0.090)], and for the two-factor hierarchical academic wellbeing scale [CFI = 0.912, SRMR = 0.068, RMSEA = 0.077 (90% CI, 0.071–0.083)]. The multigroup CFA indicated metric invariance across groups (Δ CFI < 0.01), except for the protean orientation scale. Specifically, two-factor loadings varied. A partial invariance model where these parameters were freely estimated across groups was, therefore, tested and supported. Although partial invariance, this result was adequate to proceed with PA (e.g., Putnick and Bornstein, 2016). Each dimension of the structural model was represented by measurement models' second-order factors, calculated by the respective scale average sum of the items.
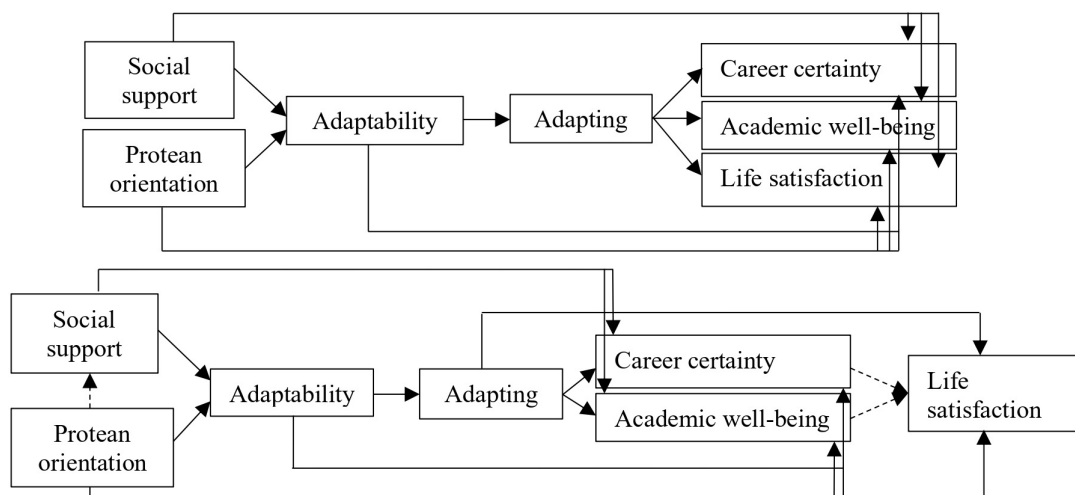
FIGURE 2
Structural models of career adaptation in higher education. Model 1 is represented at the top and Model 2 at the bottom. Dashed lines in Model 2 represent the additional paths considered in comparison to Model 1.

TABLE 1 Descriptive statistics and correlations among variables for the full sample and groups.

	Mean	SD	1	2	3	4	5	6	7
Full sample									
1. Ss	3.71	0.62	–						
2. Po	3.82	0.60	0.31***	–					
3. Adapt	4.26	0.50	0.33***	0.48***	–				
4. Adapting	3.76	0.73	0.30***	0.35***	0.49***	–			
5. Certainty	3.96	0.90	0.19***	0.29***	0.36***	0.46***	–		
6. Acad WB	3.30	0.69	0.43***	0.29***	0.28***	0.26***	0.36***	–	
7. Ls	3.61	0.87	0.47***	0.39***	0.32***	0.31***	0.34***	0.59***	–
Groups									
	NWS	WS	NWS	WS					
1. Ss	3.76	3.62	0.61	0.64	–	0.22**	0.23**	0.21**	0.09	0.46***	0.38***
2. Po	3.81	3.84	0.56	0.66	0.39***	–	0.44***	0.35***	0.28***	0.25**	0.37***
3. Adapt	4.21	4.32	0.52	0.47	0.40***	0.52***	–	0.45***	0.38***	0.21**	0.21**
4. Adapting	3.70	3.88	0.75	0.69	0.37***	0.35***	0.51***	–	0.47***	0.26***	0.41***
5. Certainty	3.88	4.11	0.90	0.89	0.27***	0.30***	0.34***	0.45***	–	0.34***	0.37***
6. Acad WB	3.25	3.38	0.69	0.67	0.43***	0.32***	0.31***	0.25***	0.36***	–	0.57***
7. Ls	3.60	3.62	0.87	0.87	0.53***	0.41***	0.38***	0.25***	0.33***	0.60***	–

Coefficients below diagonal are for non-working student group ($N = 335$) and above for working student ($N = 188$). Full sample ($N = 523$). NWS, non-working student group; WS, working student group; Ss, social support; Po, protean orientation; Adapt, adaptability; Acad WB, academic wellbeing; Ls, life satisfaction. ***$p < 0.001$; **$p < 0.01$.

3.3 Structural models

Path analyses results for the total sample and groups indicated poor fit of model 1 and adequate fit of model 2 (Table 2). Therefore, only model 2 was considered for multigroup PA.

Results indicate regression weights invariance across groups (Δ CFI unconstrained—constrained models = 0.917–0.910 = 0.007 < 0.010, Chen, 2007). In other words, the relations among constructs are reasonably similar across working and non-working students. For the non-working student group,

the model explained 16.1% of social support variance, 32.4% of adaptability variance, 30.7% of adapting variance, 21.6% of academic wellbeing variance, 25.8% of certainty variance, and 39.8% of life satisfaction variance. Among working students, the model explained 5% of social support variance, 21.2% of adaptability variance, 20.1% of adapting variance, 23.4% of academic wellbeing variance, 26.1% of certainty variance, and 40% of life satisfaction variance.

Overall, the standardized regression weights were statistically significant (Table 3).

TABLE 2 Structural models fit (sample without outliers).

Structural model	SRMR	RMSEA (90% CI)	CFI
Full sample (N = 519)			
Model 1	0.191	0.305 (0.286–0.325)	0.343
Model 2	0.065	0.168 (0.136–0.202)	0.927
Non-working student group (N = 331)			
Model 1	0.149	0.283 (0.246–0.321)	0.776
Model 2	0.068	0.190 (0.150–0.233)	0.916
Working-student group (N = 188)			
Model 1	0.191	0.446 (0.402–0.493)	0.184
Model 2	0.068	0.165 (0.112–0.224)	0.920

Nevertheless, some aspects are analyzed. For the non-working student group, the relationship between support and certainty only occurs through adaptability and adapting as mediators. Meanwhile, the relationship between this predictor and academic wellbeing occurs through a direct path. Adaptability relates to certainty through adapting. However, no significant paths were found between adaptability and academic wellbeing. Also, no significant direct paths were found between adapting to academic wellbeing and life satisfaction, nor from certainty to life satisfaction. For the working student group, the same relational pattern from social support to domain-specific outcomes was found. Meanwhile, adaptability relates to academic wellbeing when mediated by adapting. As for the latter, when compared to the non-worker group, only the direct path to academic wellbeing was not significant. Among working students, protean orientation also has no direct path to domain-specific outcomes but presents an indirect path through adaptability and adapting.

4 Discussion

Our study adds to the career development literature by proposing and testing a model of career adaptation in higher education inspired by CCT and SCCT. Specifically, we focus on a sample of Portuguese working and non-working students, two groups with unique career self-management needs (e.g., Tetteh and Attiogbe, 2019; Chiang et al., 2020). Although commonalities between these career theories may be found, for example, in CCT adapting and SCCT actions constructs (Lent and Brown, 2013), the influence of contextual factors, or the importance of one's agency toward a career (Lent, 2021; Savickas, 2021), this is the first study combining both approaches to explain the career adaptation process in higher education. This new perspective on adaptation to students' careers, in general, and to the experience of working students, in particular, is relevant considering the increase of the latter group in educational institutions (Hauschildt et al., 2021). Few studies have been found so far that focus on understanding and testing which variables facilitate a better adaptation, particularly from a holistic perspective, combining personal and contextual factors. The studies on working students tend to focus on the perspective of conflict and/or facilitation between roles rather than on the resources we may develop or provide them to deal with that

multitude of roles (e.g., Creed et al., 2015, 2022). In response, we sought to present an inclusive perspective targeting both traditional and non-traditional students, namely working students.

Results indicate structural model good fit after performing some modifications, which seems to support the positioning and relationship between variables as proposed by the satisfaction SCCT (Lent and Brown, 2008). First, the relevance of differentiating domain-specific (i.e., certainty, academic wellbeing) from general (i.e., life satisfaction) adaptation outcomes, with the former predicting the latter. Consistent with our results, previous studies demonstrate positive relations between students' academic wellbeing and overall life satisfaction (e.g., Garriott et al., 2015; Lent et al., 2018). However, the path from certainty to life satisfaction was not significant in our sample. Perhaps this result indicates that career certainty precedes academic wellbeing. In other words, students with a clear image of the desired career path may present greater identification with their chosen major, perceiving it as more enjoyable and, as a result, evaluate life more positively (Araújo, 2017).

Second, the imposition of a direct path from social support and adaptability to domain-specific outcomes, excluding the direct path from these predictors to life satisfaction. Studies focused on students' perceived social support concerning their academic progress, indicate that the relations from this predictor to overall life satisfaction occurs through mediators as adapting or domain-specific outcome of academic satisfaction (e.g., Lent et al., 2018). The results found in the present study follow the same direction. For both groups, an indirect relation between social support to life satisfaction, through adaptability, adapting, certainty, and academic wellbeing was found. Parola and Marcionetti (2021) found a direct relationship between support and life satisfaction, but the definition assigned to support was different. Social support was included from the standpoint of parental help in students' career choices. Likewise, the conceptualization chosen for this variable may account for the absence of a direct path from social support to career certainty. In our study, a direct path was only observed from social support to academic wellbeing, while an indirect path was observed to certainty. Regarding adaptability, among working students, we found a direct and significant path to career certainty and an indirect path to academic wellbeing and life satisfaction through adapting. In the other group, we only verified significant relations between adaptability and career certainty mediated by adapting. These results might be explained by adaptability multidimensionality. For example, Park et al. (2021) found that students career concern is the most discriminant variable for career decisional status. Likewise, Magnano et al. (2021) reported that only career concern predicted students satisfaction with life. Hence, accounting only the total value of adaptability may justify these variations.

Third, the addition of a relation between protean orientation and social support is supported. Protean orientation is conceived as a self-directed attitude toward one's career, inspired by values of freedom and growth (Hall et al., 2018). In other words, career management is under one's control rather than the organization. This definition may justify empirical studies reporting significant relationships between this career orientation and proactive personality traits (conscientiousness, extroversion, and openness to experience, Wiernik and Kostal, 2019), commonly

TABLE 3 Direct and indirect paths between variables of structural model 2 (sample without outliers).

Paths	NWS group (N = 331)		WS group (N = 188)	
	β	p-value	β	p-value
Direct paths				
Po⟶Ss	0.401	0.007	0.224	0.020
Po⟶Adapt	0.432	0.005	0.407	0.005
Po⟶Certainty	0.147	0.007	0.079	0.296
Po⟶Acad WB	0.138	0.016	0.109	0.180
Po⟶Ls	0.230	0.004	0.171	0.013
Ss⟶Adapt	0.237	0.004	0.143	0.026
Ss⟶Certainty	−0.024	0.632	−0.052	0.427
Ss⟶Acad WB	0.314	0.004	0.406	0.004
Adapt⟶Adapting	0.554	0.006	0.448	0.005
Adapt⟶Certainty	0.088	0.196	0.198	0.021
Adapt⟶Acad WB	0.089	0.260	0.012	0.808
Adapting⟶Certainty	0.390	0.005	0.366	0.005
Adapting⟶Acad WB	0.055	0.378	0.128	0.109
Adapting⟶Ls	0.044	0.351	0.201	0.011
Certainty⟶Ls	0.041	0.483	0.075	0.287
Acad WB⟶Ls	0.489	0.003	0.459	0.007
Indirect paths				
Adapt⟶Adapting⟶Certainty	0.216	0.006	0.164	0.096
Adapt⟶Adapting⟶Acad WB	0.031	0.372	0.057	0.005
Adapt⟶Adapting⟶Certainty/Acad WB⟶LS	0.096	0.053	0.149	0.005
Ss⟶Adapt⟶Adapting⟶Certainty	0.072	0.001	0.052	0.019
Ss⟶Adapt⟶Adapting⟶Acad WB	0.028	0.074	0.010	0.158
Ss⟶Adapt⟶Adapting⟶Certainty/Acad WB⟶LS	0.175	0.004	0.204	0.003
Po⟶Adapt⟶Adapting⟶Certainty	0.151	0.005	0.147	0.003
Po⟶Adapt⟶Adapting⟶Acad WB	0.189	0.004	0.121	0.018
Po⟶Adapt⟶Adapting⟶Certainty/Acad WB⟶Ls	0.185	0.005	0.162	0.008

NWS group, non-working student group; WS group, working student group; Ss, social support; Po, protean orientation; Adapt, adaptability; Acad WB, academic wellbeing; Ls, life satisfaction.

assessed in SCCT as antecedents of perceived support. Thus, although no studies linking protean orientation with social support were found, it is possible to compare our findings with previous evidence indicating the predictive role of personality traits in perceived social support (e.g., Sheu et al., 2016; Lent et al., 2018). Regarding the relationship between protean orientation and models' outcome variables, significant results were found with adaptability and life satisfaction, in line with previous studies (e.g., Baruch, 2014; Chui et al., 2020). However, for working students, no direct path was found to domain-specific outcomes. This relationship only occurs when mediated by adaptability and adapting. Protean career orientation, by itself, might be insufficient to explain domain-specific outcomes among this group.

Regarding the model's invariance, a reasonable similar pattern of relations is identified across groups. As hypothesized, university students are more likely to express career adaptation outcomes to the extent that they engage in adapting, which are motivated by adaptability, acquired through one's protean orientation and

perceived social support. The exception across groups is the non-significant relationship between adapting and academic wellbeing. While the present study included wellbeing's cognitive and affective dimensions into a single total, previous studies only included the cognitive dimension (i.e., academic satisfaction). This conceptual difference may explain why no significant results were found in the present study, contrasting with previous research (e.g., Yıldız-Akyol and Öztemel, 2021). Moreover, adapting multidimensionally nature may also be affecting these results (Savickas et al., 2018). Likely, only a few dimensions (e.g., crystallizing) will affect one's academic wellbeing. In addition to the direct path from adapting to adaptation, other direct and/or indirect paths were found from predictors of perceived social support, protean orientation, and adaptability. Overall, these findings are consistent with theoretical postulations (e.g., Lent and Brown, 2008; Savickas, 2021) and empirical findings (e.g., Lent et al., 2018; Yıldız-Akyol and Öztemel, 2021), supporting model's validity as a tenable depiction of career adaptation in higher education.

4.1 Practical and theoretical implications

Given consistent findings of protean orientation, social support, and adaptability effect on adapting and adaptation outcomes, future interventions should focus on helping university students develop these resources. For example, career counselors may encourage network extension, useful for sharing difficulties on the course, or participation in peer study groups. At the higher education level, access to professors' feedback, mentoring programs, or the provision of student organizations contacts will be relevant. For the protean career orientation, counselors may help students to formulate specific career goals, and actions aligned with those goals (Hall et al., 2018). According to Baruch (2014), students with high protean orientation tend to self-setting training needs and take initiative. This supports the idea of students' idiosyncrasies and, therefore, the need to adjust teaching and supervision strategies. In other words, students with lower levels of self-direction toward a career will likely need more support from their teachers because they are more reliant on external cues to progress (Hall et al., 2018). Finally, career adaptability might be enhanced by promoting students' self-regulatory skills (Savickas and Porfeli, 2012). Counselors might help students set time for study and anticipate distracting stimuli (control) or, in the face of course dissatisfaction, guide a reflection on the course chosen (curiosity). For higher education institutions, we recommend including adaptability-friendly teaching methods as role-playing exercises that allow self-exploration in a professional role and the anticipation of future possibilities (concern).

At the theoretical level, our study supports the value of integrating individual and contextual predictors to explain students' adaptation to higher education. This systemic approach is advantageous as it considers the bidirectional and dynamic relationships between person-environment and how this can influence one's career narrative (Savickas, 2021). As stated by Gazo and Romero-Rodriguez (2019), p. 158 one cannot understand or respond to transition processes by ignoring contextual influences that may constitute barriers to one's actions. The inclusion of the protean career orientation allowed extending its study to contexts other than work. Specifically, our findings support its pivotal role in the career adaptation processes of university students, as it presented significant and positive relations with career certainty, academic wellbeing, and life satisfaction. The inclusion of academic wellbeing measures allowed the expansion of this theoretical field as well. Although theories such as SCCT (Lent, 2021) consider the cognitive and affective dimensions of this construct for domain-specific outcomes, there seems to be a tendency to only assess the cognitive dimension (e.g., Lent et al., 2018; Yıldız-Akyol and Öztemel, 2021). Thus, our results on the wellbeing measurement model good fit support this construct multidimensionality (Diener et al., 2018).

4.2 Limitations and directions for future research

Despite the promising findings, some limitations need to be addressed for future research. First, the numerical asymmetry between groups is highlighted. Although the lower number of working students reflects the reality of Portuguese higher education institutions (Hauschildt et al., 2021), we acknowledge the impact this asymmetry may have on results (Tabachnick and Fidell, 2013). Hence, we recommend fairer groups in future studies.

Second, the non-compliance of linearity assumption for dependents and academic achievement variables justified its exclusion from the final model assessed. Nevertheless, as pointed out by the literature these variables are relevant for the career adaptation process to higher education. Academic achievement is an objective measure of adaptation, that paired with subjective measures as academic wellbeing provides a broad understanding of the adaptation process (York et al., 2015). On the other hand, the presence of dependents may negatively affect time distribution between roles and, in turn, the adaptation process (Burston, 2017). Therefore, we recommend the inclusion of these variables in future research protocols and, when SEM assumptions were met, its inclusion in the model test.

Third, the accessed structural models included the mean score per measure, for parsimony. Although preliminary CFA analyses support measures' hierarchical structure, we acknowledge the multidimensionality nature of adaptability (e.g., concern dimension) and adapting (e.g., preparing dimension). When considered alone, these dimensions may relate differently to the other measures in the model. As noted above, Park et al. (2021) found that concern is the most discriminant variable in career decisional status. Therefore, future studies computing the mean score per dimension are needed.

Fourth, given the insufficient number of participants they were not separated by age. Literature states that young students in the exploration phase tend to struggle with identity issues which may affect career-related decisions (e.g., course selection), whereas mature students in the establishment or maintenance phase often present a clear idea of the desired career and might be studying to respond to work requirement (Savickas, 2005; Lent and Brown, 2013). Some mature students may even be returning to academia after a period in the labor market for upskilling. Considering the variety of experiences lived by these groups, different levels of career resources might be expected, influencing the adaptation process (Savickas and Porfeli, 2012). Therefore, we suggest future studies focused on comparing model fit between young and mature working and non-working students.

In sum, our findings suggest that after modifications the model proposed is useful in explaining Portuguese university students' career adaptation to higher education. Specifically, among those who are entirely dedicated to studying, and those who combine study and work. We may, therefore, state that our study provides useful preliminary data to advance both career theory and practice in this regard. Nevertheless, additional studies are needed to explore the range and limits of the model's validity across time, cultures and other student populations (e.g., high school students).

Data availability statement

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

Ethics statement

The studies involving humans were approved by the Committee for Research in Social Sciences and Humanities, Ethics Council of the University of Minho (CEICSH 093/2021). The studies were conducted in accordance with the local legislation and institutional requirements. The participants provided their written informed consent to participate in this study.

Author contributions

JS: Conceptualization, Formal analysis, Funding acquisition, Investigation, Methodology, Writing – original draft, Writing – review & editing. MT: Conceptualization, Funding acquisition, Investigation, Supervision, Writing – review & editing.

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Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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References

Almeida, L. S. (1998). Questionário de vivências académicas para jovens universitários: Estudos de construção e de validação [Academic experiences questionnaire for college students: Construction and validation studies. *Rev. Galego Portuguesa Psicol. Educ.* 3, 113–130.

Araújo, A. M. (2017). Sucesso no ensino superior: Uma revisão e conceptualização [Success in higher sducation: A review and conceptualization]. *Rev. Estud. Invest. Psicol. Educ.* 4, 132–141. doi: 10.17979/reipe.2017.4.2.3207

Araújo, A., Almeida, L., Ferreira, J., Santos, A., Noronha, A. P., and Zanon, C. (2014). Questionário de adaptação ao ensino superior (QAES): Construção e validação de um novo questionário [Questionnaire of adaptation to higher education (QAES): Construction and validation of a new questionnaire]. *Psicol. Educ. Cult.* 78, 131–145.

Ataç, L. O., Dirik, D., and Tetik, H. T. (2018). Predicting career adaptability through self-esteem and social support: A research on young adults. *Int. J. Educ. Vocat. Guidance* 18, 45–61. doi: 10.1007/s10775-017-9346-1

Barroso, P. C. F. (2016). *Gestão pessoal de carreira: Um estudo com adultos Portugueses [Career self-management: A study with Portuguese adults].* Braga: University of Minho.

Baruch, Y. (2014). The development and validation of a measure for protean career orientation. *Int. J. Hum. Resour. Manag.* 25, 2702–2723. doi: 10.1080/09585192.2014. 896389

Brown, S. D., and Lent, R. W. (2019). Social cognitive career theory at 25: Progress in studying the domain satisfaction and career self-management models. *J. Career Assess.* 27, 563–578. doi: 10.1177/1069072719852736

Burston, M. A. (2017). I work and don't have time for that theory stuff: Time poverty and higher education. *J. Further High. Educ.* 41, 516–529. doi: 10.1080/0309877X.2015. 1135885

Byl, E. (2019). *Non-traditional students' perceptions of the role of peers and peer-based support for the enhancement of social and academic integration.* Amsterdam: Vrije University.

Cangur, S., and Ercan, I. (2015). Comparison of model fit indices used in structural equation modeling under multivariate normality. *J. Modern Appl. Stat. Methods* 14, 152–167. doi: 10.22237/jmasm/1430453580

Carreira, P., and Lopes, A. S. (2020). Mature vs young working students: Similarities, differences, and drivers of graduation and dropout. *Stud. Paedagog.* 25:73. doi: 10. 5817/sp2020-4-4

Chen, F. F. (2007). Sensitivity of goodness of fit indexes to lack of measurement invariance. *Struct. Eq. Model.* 14, 464–504. doi: 10.1080/10705510701301834

Chiang, Y. C., Arendt, S., and Sapp, S. (2020). Academic performance, employment, and sleep health: A comparison between working and nonworking students. *Int. J. High. Educ.* 9, 202–213. doi: 10.5430/ijhe.v9n3p202

Chu, M. L., Creed, P. A., and Conlon, E. G. (2021). Work–study boundary congruence, contextual supports, and proactivity in university students who work: A moderated-mediation model. *J. Career Dev.* 48, 166–181. doi: 10.1177/ 0894845319830253

Chui, H., Li, H., and Ngo, H. Y. (2020). Linking protean career orientation with career optimism: Career adaptability and career decision self-efficacy as mediators. *J. Career Dev.* 85, 1–13. doi: 10.1177/08948453209 12526

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences.* New York, NY: Lawrence Erlbaum Associates.

Creed, P. A., French, J., and Hood, M. (2015). Working while studying at university: The relationship between work benefits and demands and engagement and well-being. *J. Vocat. Behav.* 86, 48–57. doi: 10.1016/j.jvb.2014.11.002

Creed, P. A., Hood, M., Brough, P., Bialocerkowski, A., Machin, M. A., Winterbotham, S., et al. (2022). Student work-study boundary flexibility and relationships with burnout and study engagement. *J. Educ. Work* 35, 256–271. doi: 10.1080/13639080.2022.2048250

DGEEC (2023). *Working student status.* Lisbon: DGEEC.

Diener, E., Oishi, S., and Tay, L. (2018). Advances in subjective well-being research. *Nat. Hum. Behav.* 2, 253–260. doi: 10.1038/s41562-018-0307-6

Elphinstone, B., Whitehead, R., Tinker, S. P., and Bates, G. (2019). The academic benefits of 'letting go': The contribution of mindfulness and nonattachment to adaptability, engagement, and grades. *Educ. Psychol.* 39, 784–796. doi: 10.1080/ 01443410.2019.1588228

European Commission (2017). *ECTS users' guide 2015.* Brussels: European Commission.

European Commission (2018). *The European higher education area in 2018: Bologna process implementation report.* Brussels: European Commission.

Field, A. (2009). *Discovering statistics using SPSS.* Thousand Oaks, CA: SAGE Publications.

Garriott, P. O., Hudyma, A., Keene, C., and Santiago, D. (2015). Social cognitive predictors of first- and non-first-generation college students' academic and life satisfaction. *J. Couns. Psychol.* 62, 253–263. doi: 10.1037/cou0000066

Gazo, P. F., and Romero-Rodriguez, S. (2019). "La experiencia de transitar por la universidad. Análisis de trayectorias desde uma prespectiva sistemico-narrativa [The experience of going through university. Analysis of trajectories from a systemic-narrative perspective.]," in *Trayectorias, transiciones y resultados de los estudiantes en la universidad*, ed. P. F. Gazo (LAERTES Educación), 153–187.

Ghosh, A., and Fouad, N. A. (2017). Career adaptability and social support among graduating college seniors. *Career Dev. Q.* 65, 278–283. doi: 10.1002/cdq.12098

Gilson, K., Bryant, C., Bei, B., Komiti, A., Jackson, H., and Judd, F. (2013). Validation ofthe drinking motives questionnaire (DMQ) in older adults. *Addict. Behav.* 38, 2196–2202. doi: 10.1016/j.addbeh.2013.01.021

Hall, D. T., Yip, J., and Doiron, K. (2018). Protean careers at work: Self-direction and values orientation in psychological success. *Annu. Rev. Organ. Psychol. Organ. Behav.* 5, 129–156. doi: 10.1146/annurev- orgpsych-032117-104631

Hartung, P. J. (2021). "Life-span, life-space career theory and counseling," in *Career development and counseling: Putting theory and research to work*, eds S. D. Brown and R. W. Lent (Hoboken, NJ: John Wiley & Sons, Inc), 299–390.

Hauschildt, K., Gwosć, C., Schirmer, H., and Wartenbergh-Cras, F. (2021). *Social and economic conditions of student life in Europe: EUROSTUDENT VII synopsis of indicators 2018–2021*. Bielefeld: wbv Media GmbH & Co.

Herrmann, A., Hirschi, A., and Baruch, Y. (2015). The protean career orientation as predictor of career outcomes: Evaluation of incremental validity and mediation effects. *J. Vocat. Behav.* 88, 205–214. doi: 10.1016/j.jvb.2015.03.008

Hirschi, A., and Koen, J. (2021). Contemporary career orientations and career self-management: A review and integration. *J. Vocat. Behav.* 53, 1689–1699. doi: 10.1016/j.jvb.2020.103505

Hirschi, A., Herrmann, A., and Keller, A. C. (2015). Career adaptivity, adaptability, and adapting: A conceptual and empirical investigation. *J. Vocat. Behav.* 87, 1–10. doi: 10.1016/j.jvb.2014.11.008

Hirschi, A., Jaensch, V. K., and Herrmann, A. (2017). Protean career orientation, vocational identity, and self-efficacy: An empirical clarification of their relationship. *Eur. J. Work Organ. Psychol.* 26, 208–220. doi: 10.1080/1359432X.2016.1242481

Hovdhaugen, E. (2015). Working while studying: The impact of term-time employment on dropout rates. *J. Educ. Work* 28:6. doi: 10.1080/13639080.2013.869311

Hu, L., and Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Struct. Eq. Model. A Multidiscip. J.* 6, 1–55. doi: 10.1080/10705519909540118

Ireland, G. W., and Lent, R. W. (2018). Career exploration and decision-making learning experiences: A test of the career self-management model. *J. Vocat. Behav.* 106, 37–47. doi: 10.1016/j.jvb.2017.11.004

Jiang, G., Mai, Y., and Yuan, K. H. (2017). Advances in measurement invariance and mean comparison of latent variables: Equivalence testing and a projection-based approach. *Front. Psychol.* 8:1823. doi: 10.3389/fpsyg.2017.01823

Kaur, J., and Kaushik, S. (2020). Protean career orientation and perceived employability: The mediating role of career self-management. *Raman. Int. J. Bus. Res.* 5, 1–16. doi: 10.51245/rijbr.v5i1.2020.212

Lent, R. W. (2005). "A social cognitive view of career development and counseling," in *Career development and counseling putting theory and research to work*, eds S. D. Brown and R. W. Lent (Hoboken, NJ: John Wiley & Sons, Inc), 101–129.

Lent, R. W. (2021). "Career development and counseling: A social cognitive framework," in *Career development and counseling putting theory and research to work*, eds S. D. Brown and R. W. Lent (Hoboken, NJ: John Wiley & Sons, Inc), 390–474.

Lent, R. W., and Brown, S. D. (2008). Social cognitive career theory and subjective well-being in the context of work. *J. Career Assess.* 16, 6–21. doi: 10.1177/1069072707305769

Lent, R. W., and Brown, S. D. (2013). Social cognitive model of career self-management: Toward a unifying view of adaptive career behavior across the life span. *J. Couns. Psychol.* 60, 557–568. doi: 10.1037/a0033446

Lent, R. W., and Brown, S. D. (2019). Social cognitive career theory at 25: Empirical status of the interest, choice, and performance models. *J. Vocat. Behav.* 115, 103316. doi: 10.1016/j.jvb.2019.06.004

Lent, R., Brown, S. D., and Hackett, G. (1994). Toward a unifying SCCT and academic interest, choice and performance. *J. Vocat. Behav.* 45, 79–122.

Lent, R. W., Taveira, M. C., Sheu, H. B., and Singley, D. (2009). Social cognitive predictors of academic adjustment and life satisfaction in Portuguese college students: A longitudinal analysis. *J. Vocat. Behav.* 74, 190–198. doi: 10.1016/j.jvb.2008.12.006

Lent, R. W., Taveira, M. C., and Lobo, C. (2012). Two tests of the social cognitive model of well-being in Portuguese college students. *J. Vocat. Behav.* 80, 362–371. doi: 10.1016/j.jvb.2011.08.009

Lent, R. W., Taveira, M. C., Cristiane, V., Sheu, H. B., and Pinto, J. (2018). Test of the social cognitive model of well-being in Portuguese and Brazilian college students. *J. Vocat. Behav.* 109, 78–86. doi: 10.1016/j.jvb.2018.09.009

Levers-Landis, C. E., Burant, C. J., and Hazen, R. (2011). The concept of bootstrapping of structural equation models with smaller samples: An illustration using mealtime rituals in diabetes management. *J. Dev. Behav. Pediatr.* 32, 619–626. doi: 10.1097/DBP.0b013e31822bc74f

Levin, N., and Lipshits-Braziler, Y. (2021). Facets of adaptability in career decision-making. *Int. J. Educ. Vocat. Guidance* 22, 535–556. doi: 10.1007/s10775-021-09489-w

Little, R. J. A. (1988). A test of missing completely at random for multivariate data with missing values. *J. Am. Stat. Assoc.* 83, 1198–1202. doi: 10.1080/01621459.1988.10478722

Little, R. J. A., and Rubin, D. B. (2002). *Statistical analysis with missing data*. Hoboken, NJ: John Wiley & Sons.

Lopes, A. S. P. P., and Carreira, P. M. R. (2018). Adult workers in higher education: Enhancing social mobility. *Educ. Train.* 62, 1101–1117. doi: 10.1108/ET-03-2018-0056

Magnano, P., Lodi, E., Zammitti, A., and Patrizi, P. (2021). Courage, career adaptability and readiness as resources to improve well-being during the university-to-work transition in Italy. *Int. J. Environ. Res. Public Health* 18, 1–16. doi: 10.3390/ijerph18062919

Merino-Tejedor, E., Hontangas, P. M., and Boada-Grau, J. (2016). Career adaptability and its relation to self-regulation, career construction, and academic engagement among Spanish university students. *J. Vocat. Behav.* 93, 92–102. doi: 10.1016/j.jvb.2016.01.005

OECD (2022). *Education at a glance 2022: OECD indicators*. Paris: OECD, doi: 10.1787/3197152b- en

Öncel, L. (2014). Career adapt-abilities scale: Convergent validity of subscale scores. *J. Vocat. Behav.* 85, 13–17. doi: 10.1016/j.jvb.2014.03.006

Park, S. Y., Cha, S. B., Joo, M. H., and Na, H. (2021). A multivariate discriminant analysis of university students' career decisions based on career adaptability, social support, academic major relevance, and university life satisfaction. *Int. J. Educ. Vocat. Guidance* 22, 191–206. doi: 10.1007/s10775-021-09480-5

Parola, A., and Marcionetti, J. (2021). Career decision-making difficulties and life satisfaction: The role of career-related parental behaviors and career adaptability. *J. Career Dev.* 49, 831–845. doi: 10.1177/0894845321995571

Perera, H. N., and McIlveen, P. (2017). Profiles of career adaptivity and their relations with adaptability, adapting, and adaptation. *J. Vocat. Behav.* 98, 70–84. doi: 10.1016/j.jvb.2016.10.001

Pinto, J. C., Taveira, M. C., Candeias, A., and Araújo, A. (2013). Análise factorial confirmatória da prova de avaliação de competência social face à carreira [Confirmatory factorial analysis of the test for assessing social competence in relation to careers]. *Psicol. Reflex. Crit.* 26, 469–478. doi: 10.1590/s0102-79722013000300006

Putnick, D. L., and Bornstein, M. H. (2016). Measurement invariance conventions and reporting: The state of the art and future directions for psychological research. *Dev. Rev.* 41, 71–90. doi: 10.1016/j.dr.2016.06.004.Measurement

Rudolph, C. W., Lavigne, K. N., and Zacher, H. (2017). Career adaptability: A meta-analysis of relationships with measures of adaptivity, adapting responses, and adaptation results. *J. Vocat. Behav.* 98, 17–34. doi: 10.1016/j.jvb.2016.09.002

Sánchez-Gelabert, A., and Andreu, M. E. (2017). Los estudiantes universitarios no tradicionales y el abandono de los estudios [Nontraditional college students and dropout]. *Estud. Sobre Educ.* 32, 27–48. doi: 10.15581/004.32.27- 48

Santana, L. V. B., and Salcedo, C. S. V. (2013). Perfil socioepidemiológico de jóvenes que trabajan y estudian de las facultades de odontología y sociología, universidad nacional de Colombia sede Bogotá [Socio-epidemiologic profile of young adult than work and study at sociology and dental colleges at universidad national de Colombia (Bogotá)]. *Acta Odontol. Colomb.* 3, 39–49.

Santos, P. J. (2007). *Dificuldades de escolha vocacional [Vocational choice difficulties]*. Coimbra: Almedina.

Savickas, M. L. (2005). "The theory and practice of career construction," in *Career development and counseling: Putting theory and research to work*, eds S. D. Brown and R. W. Lent (Hoboken, NJ: John Wiley & Sons, Inc), 42–70.

Savickas, M. L. (2021). "Career construction theory and counseling model," in *Career development and counseling: Putting theory and research to work*, eds S. D. Brown and R. W. Lent (Hoboken, NJ: John Wiley & Sons, Inc), 165–200.

Savickas, M. L., and Porfeli, E. J. (2012). Career adapt-abilities scale: Construction, reliability, and measurement equivalence across 13 countries. *J. Vocat. Behav.* 80, 661–673. doi: 10.1016/j.jvb.2012.01.011

Savickas, M. L., Porfeli, E. J., Hilton, T. L., and Savickas, S. (2018). The student career construction inventory. *J. Vocat. Behav.* 106, 138–152. doi: 10.1016/j.jvb.2018.01.009

Sheu, H. B., Mejia, A., Rigali-Oiler, M., Primé, D. R., and Chong, S. S. (2016). Social cognitive predictors of academic and life satisfaction: Measurement and structural equivalence across three racial/ethnic groups. *J. Couns. Psychol.* 63, 460–474. doi: 10.1037/cou0000158

Simões, A. (1992). Ulterior validação de uma escala de satisfação com a vida (SWLS) [Validation of a life satisfaction scale (SWLS)]. *Rev. Portuguesa Pedagog.* 3, 503–515.

Soares, J., Taveira, M. C., Oliveira, M. C., Oliveira, I. M., and Melo-Silva, L. L. (2021a). Factors influencing adaptation from university to employment in Portugal and Brazil. *Int. J. Educ. Vocat. Guid* 1–13. doi: 10.1007/s10775-020-09450-3

Soares, J., Taveira, M. C., and Silva, A. D. (2021b). *Protean Career Orientation Scale: A validation study with Portuguese university students [manuscript submitted for publication]*. School of Psychology, University of Minho.

Soares, J., Taveira, M. C., Cardoso, P., and Silva, A. D. (2022a). The student career construction inventory: Validation with Portuguese university students. *Int. J. Educ. Vocat. Guid.* 24, 223–239. doi: 10.1007/s10775-022-09553-z

Soares, J., Taveira, M. C., Barroso, P., and Silva, A. D. (2022b). Career adapt-abilities scale-short form: Validation among Portuguese university students and workers. *J. Career Asses.* 31, 571–587. doi: 10.1177/10690727221129281

Šverko, I., and Babarović, T. (2019). Applying career construction model of adaptation to career transition in adolescence: A two-study paper. *J. Vocat. Behav.* 111, 59–73. doi: 10.1016/j.jvb.2018.10.011

Tabachnick, B. G., and Fidell, L. S. (2013). *Using multivariate statistics*. Upper Saddle River, NJ: Pearson Education, Inc.

Takao, M., and Ishiyama, N. (2021). Effect of career adaptability on subjective well-being of middle-aged and older employees. *Sustainability* 13, 1–15. doi: 10.3390/su13052570

Taveira, M. C. (2019). "Transitar y persistir en la universidad desde la globalidad [Transiting and persisting in the university from a global perspective]," in *Trayectorias, transiciones y resultados de los estudiantes en la universidad*, ed. P. F. Gazo (LAERTES Educación), 13–21.

Tessema, M. T., Ready, K. J., and Astani, M. (2014). Does part-time job affect college students' satisfaction and academic performance (GPA)? The case of a mid-sized public university. *Int. J. Bus. Admin.* 5, 1–10. doi: 10.5430/ijba.v5n2p50

Tetteh, E. N., and Attiogbe, E. J. K. (2019). Work–life balance among working university students in Ghana. *High. Educ. Skills Work Based Learn.* 9, 525–537. doi: 10.1108/HESWBL-08-2018-0079

Tinajero, C., Martínez-López, Z., Rodríguez, M. S., and Páramo, M. F. (2020). Perceived social support as a predictor of academic success in Spanish university students. *Anal. Psicol.* 36, 134–142. doi: 10.6018/analesps.344141

UNESCO (2015). *International standard classification of education (ISCED): Fields of education and training 2013*. Montreal, QC: UNESCO Institute for Statistics, doi: 10.15220/978-92-9189-179-5-en

Wiernik, B., and Kostal, J. (2019). Protean and boundaryless career orientations: A critical review and meta-analysis. *J. Couns. Psychol.* 66, 280–307. doi: 10.1037/cou0000324

Wilkins-Yel, K. G., Roach, C. M. L., Tracey, T. J. G., and Yel, N. (2018). The effects of career adaptability on intended academic persistence: The mediating role of academic satisfaction. *J. Vocat. Behav.* 108, 67–77. doi: 10.1016/j.jvb.2018.06.006

World Economic Forum (2020). *The future of jobs report 2020*. Geneva: World Economic Forum.

Yıldız-Akyol, E., and Öztemel, K. (2021). Implementation of career construction model of adaptation with Turkish university students: A two-study paper. *Curr. Psychol.* 41, 8333–8344. doi: 10.1007/s12144-021-01482-4

York, T. T., Gibson, C., and Rankin, S. (2015). Defining and measuring academic success. *Pract. Assess. Res. Eval.* 20, 1–20.