

Teaching motivation, learning approaches, and academic success among prospective teachers in Catalonia (Spain)

Marta Camarero-Figuerola

Pedagogy Department, Universitat Rovira i Virgili (URV), Tarragona, Spain.

Ctra de Valls, s/n, CP 43007, Tarragona, Spain, Spain, marta.camarero@urv.cat

Marta Camarero Figuerola is post-doctorate research fellow. She holds a PhD in Education from Universitat Rovira i Virgili. Her main research focuses on higher education teaching and educational leadership. She is a member of the Research Network on Leadership and Education Improvement (RILME).

Ana Inés Renta-Davids*

Pedagogy Department, Rovira I Virgili University (URV), Tarragona, Spain.

Ctra de Valls, s/n, CP 43007, Tarragona, Spain, anaines.renta@urv.cat

(*) corresponding author

Ana Inés Renta Davids is a Serra Hunter tenure-eligible lecturer. She holds a PhD in Education from Universitat Rovira i Virgili and belongs to the research group MEDIS (Research in Education with Social Impact). Her research activities are mainly focused on learning strategies both in formal and informal contexts.

Juana-María Tierno-García

Pedagogy Department, Universitat Rovira i Virgili (URV), Tarragona, Spain.

Ctra de Valls, s/n, CP 43007, Tarragona, Spain, juanamaria.tierno@urv.cat

Juana María Tierno García is a tenured professor. She holds a PhD in Education. She is a member of the Research Network on Leadership and Education Improvement (RILME). Her main research interests are educational research and assessment, teaching in higher education, school improvement, and school leadership.

Sandra Gilabert-Medina

Pedagogy Department, Universitat Rovira i Virgili, Tarragona, Spain.

Ctra de Valls, s/n, CP 43007, Tarragona, Spain, sandra.gilabert@urv.cat

Sandra Gilabert Medina is a tenured professor. She holds a PhD in Educational Psychology. She is a member of the research group on development, interaction, and communication in educational contexts. Her main research focuses on psychomotor and learning, argumentation in the classroom, and teaching/learning of mathematics and natural science.

Teaching motivation, learning approaches, and academic success among prospective teachers in Catalonia (Spain)

Recent approaches to initial teacher education programmes consider non-academic qualities when selecting prospective teachers. The motivation to become a teacher is crucial in the admission to, progression in, and graduation from initial teacher education programmes. Previous research has highlighted the association between motivational factors and educational outcomes but not the underlying mechanisms. This study aimed to identify how the motivation to enter the teaching profession influenced prospective teachers' approaches to learning and their academic outcomes. We used the Factors Influencing Teaching-Choice, and Revised Approaches to Study Inventory scales with a sample of 217 first-year prospective teachers enrolled in initial teacher education programmes at a Catalan university (Spain). The findings indicated that social utility values, intrinsic career values, and social antecedent components were linked to deep and strategic approaches to learning, leading to a positive impact on prospective teachers' academic success. Moreover, social antecedent components were linked to a surface approach to learning and negatively impacted prospective teachers' academic outcomes. These results suggested that approaches to learning could be a pathway by which motivation to become a teacher affects academic outcomes. Practical implications are discussed in terms of pedagogical strategies that may help improve prospective teachers' learning.

Keywords: teaching motivation; career choice; learning approaches; prospective teachers, RASI, Fit-Choice

Introduction

Approaches to initial teacher education have recently shifted to considering certain non-academic qualities when selecting prospective teachers (Ametller & Codina, 2017; Roberts-Hull et al., 2015) because research has shown that both academic and non-academic qualities contribute to initial teacher education success and teacher effectiveness (Klassen & Kim, 2019). Among the non-academic qualities, motivation is

the single most important dimension of teacher competence (König & Rothland, 2017) that helps teachers sustain everyday work in increasingly complex educational contexts (Kitching et al., 2009).

Traditionally, motivation and approaches to learning have been related to academic outcomes. Previous studies have linked motivational factors to academic success in initial teacher education programmes (Van Rooij et al., 2018), but little is known about whether this outcome expresses motivation for the profession. However, a prior study has shown that motivation for the profession is associated with the way students engage with their learning process during initial teacher education (Jungert et al., 2014), which eventually impacts their learning outcomes. Similarly, distinct types of motivation for the profession may affect students' approaches to learning, and therefore, learning outcomes.

Accordingly, this study aimed to examine the relationships between career choice motivational factors, approaches to learning, and academic success among prospective first-year teachers in initial teacher education programmes in Catalonia, Spain. Prospective teachers may have different motivations for enrolling in initial teacher education programmes, and they may adopt different learning approaches towards their academic tasks according to their motives and interests. Depending on their unique dispositions, certain prospective teachers may put effort into fully understanding the course content, while others may simply try to meet the academic requirements. These individual differences may account for different capacities to solve learning tasks, eventually impacting their academic success. The present study engaged with the following research questions:

- Are career choice motivational factors associated with academic success?

- Do approaches to learning serve as mediator mechanisms between career choice motivational factors and academic success?

Motivation to become a teacher, approaches to learning, and academic outcomes

Motivation energises behaviour (Elliot & Dweck, 2007), influencing different aspects of behaviour and behavioural outcomes. The research on motivation to become a teacher based on the expectancy-value framework (Richardson & Watt, 2005; Watt et al., 2017; Watt & Richardson, 2007) has provided sound empirical information about people's motives for choosing teaching as a profession. The expectancy-value model asserts that expectancies for success (i.e. if a person expects to succeed at a task) and task value (i.e. if a person perceives the task to be valuable or worthwhile) determine the person's motivation for their choices and behaviours. Since the model was formulated, perception of a task's value has emerged as the most powerful predictor of individuals' choices and performance (Eccles, et al., 1983).

The literature on motivation for choosing teaching as a profession has identified three main reasons why a person wants to become a teacher: extrinsic, intrinsic, and altruistic (Jungert et al., 2014; Roness & Smith, 2010; Watt & Richardson, 2007). *Extrinsic* reasons relate to aspects that are not inherent to the teaching profession; instead, they pertain to the job's working conditions (e.g. job stability, holidays, salary, and rewards). *Intrinsic* motivations relate directly to the teacher's professional activity, such as finding pleasure in teaching and interest in knowledge. Finally, *altruistic* motives pertain to an interest in contributing to the improvement of society through education and the desire to help children and adolescents develop their capacities and potentials as human beings. Furthermore, research has shown that past experiences,

social antecedents, and self-perception also influence a person's choice in selecting this career (Watt & Richardson, 2007).

Motivation to become a teacher has been investigated extensively worldwide. Several related empirical studies highlight the differences and similarities across countries and provide a nuanced understanding of *why* individuals choose to become teachers (e.g. Gratacós & Lopez-Jurado, 2016; Struyven et al., 2013; Watt et al., 2017). Research shows that despite apparent social and cultural differences across countries and educational settings, individuals tend to choose teaching for similar reasons and have similar perceptions of the profession. In general, prospective teachers are inclined to choose teaching because they want to contribute to society, and they perceive teaching to be a highly demanding job that requires expert knowledge (Butler, 2017). According to the OECD (2019), for every two out of three teachers, teaching was their first career choice. This result indicates that despite common stereotypes, teaching is not a fall-back career. Teachers are usually satisfied with their jobs, although they do feel their job is not given due recognition (OECD, 2019). Moreover, as teachers advance in their careers, their motivations seem to remain stable over time (Butler, 2017; Roness & Smith, 2010).

While previous research has shown that the motivation to become a teacher impacts professional outcomes such as commitment (Fokkens-Bruinsma & Canrinus, 2014) and teacher effectiveness (Klassen & Kim, 2019), little is known about *how* these motivational factors affect educational outcomes during their initial preparation. Researchers have argued that motivation to become a teacher has significant consequences for prospective teachers' educational outcomes, although the evidence is not consistent. Past research has found limited empirical evidence that motivation directly affects the level of pedagogical knowledge that prospective teachers gain in

initial teacher education programmes (König & Rothland, 2017). However, one study identified that academic engagement acts as a significant mediator between altruistic motivations and prospective teachers' dropout rates (Jungert et al., 2014). König and Rothland (2017) suggested that intermediary mechanisms may exist, which explain the impact of the motivation to become a teacher on educational outcomes. Accordingly, several conceptual mediators could act as intermediary mechanisms, including academic engagement (Jungert et al., 2014), motivation for learning (Kyndt et al., 2011), and approaches to learning (Entwistle, 1988). In this study, we explored the mediating effects of approaches to learning.

Approaches to learning have been a major research topic for the past four decades. The topic derives from Marton and Säljö's (1976) seminal work on deep and surface learning approaches and was later combined with Entwistle and Ramsden's (2015) conceptualisation of strategic approach. In brief, the approach to learning implies that students' motivations and intentions towards a task are consistent with their level of comprehension about the task. Moreover, different forms of motivation are associated with contrasting learning processes and different learning outcomes (Entwistle, 1988). The *deep approach* implies an active and meaningful study of the content by relating it to experiences and ideas. Students who use the deep approach are critically minded and intrinsically interested in understanding the content, and enjoy learning. Using this critical approach promotes understanding and long-term retention. Conversely, the *surface approach* is based on rote learning and is isolated from any internalisation and reflection of the content. Students who adopt this approach perceive learning as an external imposition, are extrinsically motivated (usually to pass an exam), and do not internalise the knowledge because they focus on memorisation and not reflection (Duff, 2004). In addition, they seek to accomplish tasks with minimal effort (Entwistle &

Ramsden, 2015). The *strategic* approach is based on the desire to become qualified while intentionally, consciously, and exclusively focusing on fulfilling the specific goal's requirements (to receive a good grade, to pass the subject/course, etc.).

A reciprocal relationship exists between the type of motivation (intrinsic, altruistic, or extrinsic) and the approaches to learning that students manifest when faced with a given task (Entwistle & McCune, 2004). Previous research on medical education has shown that motivational factors for studying medicine influence medical students' approaches to learning (Piumatti et al., 2019). This research has provided evidence that internal motivational factors (e.g. mission, altruism, caring for patients, treating illness, and saving lives) are significantly associated with a deep approach to learning, whereas external motivational factors (e.g. reward, prestige, academic activity, and private practice) are associated with a surface approach to learning (Piumatti et al., 2019). Similarly, in studying motivation to become a teacher and academic engagement, Jungert et al. (2014) found that altruistically motivated prospective teachers tended to study literature more systematically and become more prepared for classes. Conversely, students who wished to become teachers because they were more concerned with job aspects that are not inherent in the work did not set goals to learn course content deeply. Moreover, Kyndt et al. (2011) found that the more a student is motivated to study the course material for autonomous reasons (e.g. they find it a pleasant and valued activity), the more they will be inclined to use a deep approach to learning, and the less they will adopt a surface approach.

Based on these theoretical approaches, we argued that approaches to learning could serve as a conceptual bridge between motivation for the teaching profession and academic outcomes. To the best of our knowledge, no prior research has focused on the potential effects of learning approaches as mediators in the relationship between career

choice motivational factors and academic outcomes. Determining how the motivation for the teaching profession is associated with academic outcomes can shed light on strategies to support professional development actions in initial teacher programmes by focusing on personal motivation. Moreover, assessing the role of learning approaches in relation to motivation for the profession and academic outcomes can further improve pedagogical strategies used to help students improve their learning.

This study aimed to determine if the reasons to take up the teaching profession and approaches to learning are associated with academic success in initial teacher education programmes. In addition, the study aimed to test the mediating effect of the prospective teachers' approaches to learning on the association between motivation for the teaching profession and academic success.

Methods

Context: initial teacher education in Catalonia (Spain)

Our data draw from first-year prospective teachers enrolled at three initial teacher education (ITE) programmes at a Catalan university: degree in preschool education, degree in primary education, and double degree in preschool and primary education. In Spain, to become a schoolteacher, one of the above degrees is required (at least 240 European Credit Transfer System (ECTS) in 4 years).

There are several access paths to ITE programmes. Most students access ITE programmes through a Baccalaureate and the national examination to gain admission to university studies. Another access path is through a tertiary vocational education degree in preschool education, although this option is less common.

The ITE programmes last four or five years. The first year consists of four compulsory subjects in education, sociology, psychology, and communication. The

second to fourth/fifth years allow for a deepening of general pedagogical knowledge and teaching skills. In this stage, the programmes include compulsory specific teaching subjects (maths, science, literacy, and school organisation) and a non-compulsory specific teaching subject (foreign language, music, and diversity). These subjects are mainly theoretical, wherein prospective teachers attend traditional theory classes at universities, though teaching methods may also include hands-on activities and project assignments. In the final year, prospective teachers take a compulsory non-paid internship in schools and conduct a research study. During the internship, they work at schools full-time, and after the period, complete a final research study and submit a proposal on educational improvement based on their internship experience or other professional interests.

Sample and data collection

We conducted a study at a Catalan university in 2018 involving first-year prospective teachers pursuing their preschool education, primary education, or double preschool and primary education degrees. A self-reported paper-and-pencil questionnaire was administered to the complete 2018-2019 cohort. The questionnaire was administered during classes after receiving permission from both the dean of the faculty and the relevant lecturers. The prospective teachers received information about voluntary participant commitment. A signed consent form was obtained from the prospective teachers to access their first-year academic records. We received 218 questionnaires, yielding a response rate of 67%. One questionnaire was excluded due to incomplete data (more than two-thirds of the items in the questionnaire were missing), resulting in a sample size of $n=217$ valid registers. An analysis of the missing data indicated that the individual items had less than 0.5% of missing values and that 0.12% of the overall data

was missing. Moreover, we analyzed the pattern of the missing data and determined it was completely random (Little's MCAR test: Chi-Square=289.81, df=267, p=0.16). Therefore, we replaced the missing values using the series' mean. Three prospective teachers (1.38%) did not give us permission to access their academic records; hence, they were not included in the mediation analysis.

Of the sample, 81% were female, the average age was 20.64 years, and 38% received scholarships. Regarding enrolment rates, 53.3% of the sample was enrolled in the preschool education degree program, 31.8% in the primary education degree program, and 12.9% in the double preschool and primary degree program. Concerning participants' access to the teacher education programme, 66.4% of the sample had joined through the national examination for university admission, 28.6% had accessed it during their previous education in a tertiary vocational education programme, and the remaining 6.1% had accessed it via alternative admission processes. Regarding having relatives in the teaching profession, 46% had family members working as teachers, of whom 16% were nuclear family members, and 30% were extended family members. With regard to experience, 58% of the participants had professionally cared for children, 49% had worked as leisure monitors in summer schools, 44% had delivered private lessons, 31% had worked as sports trainers, and 27% had worked as volunteers with children and adolescents. More than half (64.5%) of the participants had previously held more than two professionally related jobs. Only 4.1% of the sample reported having no related work experience in the past.

Instruments and measurements

For this research, we relied on two widely used measurement instruments. We applied the Factors Influencing Teaching Choice (FIT-Choice) scale (Watt & Richardson, 2007)

to measure prospective teachers' motivations to become teachers, and the Revised Approaches to Studying Inventory (RASI) (Duff, 2004) to measure prospective teachers' learning approaches.

Factors Influencing Teaching-Choice Scale

To measure teaching motivation, we relied on the Spanish version of the FIT-Choice scale (Gratacós & Lopez-Jurado, 2016), which uses a seven-point Likert scale for responses ranging from 1 (completely disagree) to 7 (completely agree). It includes three major components—self, value, and task perceptions—as well as a prior socialisation component and a fall-back subscale (Watt & Richardson, 2007). The self-component is a single construct that maps self-perceptions of ability and is measured via items that ask about the participants' perceptions of their teaching abilities. The value component includes three main value classes.

- Intrinsic value: individuals' interest in and desire for a teaching career.
- Personal utility value: extent to which individuals consider teaching to be a career that meets their personal goals (extrinsic motivation).
- Social utility value: a strong desire to make a social contribution or provide a service to society (altruistic motivation).

The task perception component includes two dimensions:

- Task demand: the extent to which individuals perceive teaching to be a highly qualified, knowledge-specialised career, as well as a highly demanding career in terms of workload, emotional engagement, and pressure.
- Task return: the extent to which teaching is perceived as a high-status occupation that is socially recognised, respected, and economically rewarding.

The model also includes underlying socialisation influences on career choices, such as individuals' prior experiences and familial influences. This part also includes maladaptive motivation, wherein one selects teaching as a fall-back career.

Revised Approach to Studying Inventory

For the students' approaches to learning construct, we relied on a shortened version of the Revised Approach to Studying Inventory (RASI) (Duff, 2004), which uses a five-point Likert scale that ranges from 1 (completely disagree) to 5 (completely agree). It comprises 30 items that measure the three defining approaches to learning: the deep approach (e.g. 'think about the ideas for myself', 'try to relate ideas', and 'reach my own conclusion'); the surface approach (e.g. 'spend time copying things down to remember' and 'reading without trying to understand'); and the strategic approach (e.g. 'being determined to be successful in the course' and 'being systematic and organised in the way I study').

We translated the RASI items from their original English version to Spanish. Subsequently, a professional translator back-translated the items. We compared the original items with the back-translated items, and after discussing the translations, administered the questionnaire to 15 students to assess the items' relevance and the quality of the translation. All items appeared relevant for the Spanish students.

Outcome variable

This study aimed to observe how students' motivations to become teachers, and their learning approaches influenced their academic outcomes; therefore, we used the students' academic records from their first year in the degree programmes as an outcome variable. The academic record is the students' average score (GPA) on four subjects in their first year. Typically, the score in each subject is a combination of

exams results (45%), project-based learning activities (35%), and individual participation in classroom-related activities (20%). The academic record is measured from 1 to 10 points.

Data analysis procedures

We conducted a confirmatory factor analysis (CFA) to assess the instruments' construct validity and determine whether the data fit with the proposed theoretical models (Brown, 2006). We conducted four CFAs to determine the structure of the data for the FIT-Choice scale: two for self and value components and two for task perception components. We also conducted one CFA analysis for the RASI scale. We used the statistical software R (R Team Core, 2018) with the Lavaan package (Rosseel, 2012) to conduct the CFA analysis. We applied the maximum likelihood parameter (MLM), utilising the Satorra-Bentler scaling-correction for small samples ($n < 250$) (Hu & Bentler, 1999).

[Insert Table 1 here]

Following Gratacós & Lopez-Jurado's (2016) construct validation of the Fit-choice scale, a twelve first-order factor and two second-order factor model was specified, in which first-factor 'work with children', 'enhance social equity', 'shape future of children/adolescent' and 'make a social contribution' loaded onto the second-order factor *social utility values*, and 'intrinsic career value', 'perceived teaching ability', 'prior teaching experiences', 'social influences', 'fall-back career', 'job security', 'job transferability' and 'time for family' loaded onto the second-order factor *personal utility values*. However, this model solution failed to reach the cut-off criteria suggested by the literature ($\chi^2/df \leq 3$, $RMSEA \leq 0.06$, $SRMR \leq 0.08$, $CFI \geq 0.90-0.95$, $TLI \geq 0.90-0.95$, Bryant & Yarnold, 2000; Hu & Bentler, 1999). We checked the parameter estimates and

observed that the ‘fall-back career’ factor had a negative estimate loading on *personal utility values* and was nonsignificant (Estimate=-0.361, Standard Error=0.234, $z=-1.545$, $p=0.122$). Moreover, we checked the correlation matrix for this first model solution and observed that specific first-order factors (‘intrinsic career value’, ‘perceived teaching ability’, ‘prior teaching experiences’ and ‘social influences’) had moderate correlation coefficients with other first-order factors loaded onto the second-order factor *personal utility values*.

We conducted a second CFA analysis considering Watt and Richardson’s (2007) construct validation. A second model structure was specified in which ‘work with children’, ‘enhance social equity’, ‘shape future of children/adolescents’ and ‘make a social contribution’ loaded onto the second-order factor *social utility values*, ‘job security’, ‘job transferability’ and ‘time for family’ loaded onto *personal utility values*, and ‘intrinsic career value’, ‘perceived teaching ability’, ‘prior teaching experience’, and ‘social influence’ remained first-order factors. The ‘Fall-back career’ first-order factor was eliminated from the model. The CFA analysis confirmed this second model solution for the self and value components with fair fit indices (Table 1).

For the task perception components, the CFA failed to confirm the four first-order factor solutions (‘expert career’, ‘high demand’, ‘salary’, and ‘social status’) and two second-order factor solutions (‘task demand’, and ‘task return’) (Gratacós & Lopez-Jurado, 2016; Watt & Richardson, 2007). Hence, we accepted the four first-order factor solution because it yielded good fit indices (Table 1).

Regarding the RASI scale, the CFA results showed a poor fit model based on three components (Table 1). However, we retained the three-component structure of the deep, surface, and strategic approaches, which is widely used and understood by practitioners

and researchers.

Appendix 1 shows the descriptive statistics of the factor loadings for the self, value, and task perception components of the Fit-Choice scale, and the components of the RASI scale.

[Insert Table 2 here]

We also obtained the internal consistency reliability scores for the subscales of both instruments. For the FIT-Choice scale, we obtained internal consistency coefficients that ranged from 0.60 to 0.90. For the RASI scale, we obtained internal consistency coefficients that ranged from 0.77 to 0.86, which is similar to the original version (Duff, 2004). Subsequently, we predicted the latent variables based on the estimates obtained in the CFA using the ML method. Table 2 displays the descriptive statistics of the latent variables, correlations coefficients, and internal consistency reliability scores of each subscale.

Next, we conducted a simple mediation analysis (Hayes, 2013) to identify the influence of learning approaches on the relation between motivation to become a teacher and academic outcomes (Figure 1). We had theoretical and practical reasons for using a multiple regression approach. Theoretically, the regression analysis approach allowed us to examine the relations among specific motivational variables and learning approaches variables in an exploratory manner, as we did not have previous assumptions of what these relations might be. Using other similar approaches, such as structural equation modelling, would have required prior knowledge of the potential relationships among variables (Tabachnick & Fidell, 2007). Practically, structural equation modelling is a large sample technique, and the sample of our study did not

reach the recommended ratio of observations to estimated parameters 20:1 (Kline, 2015).

[Insert Figure 1 here]

A simple mediation analysis model is a ‘system where an antecedent variable X is proposed as influencing an outcome variable Y through a single intervening variable M’ (Hayes, 2013, p. 86). A mediation analysis comprises three regression tests to examine the association between $X \rightarrow Y$, $X \rightarrow M$, and $X + M \rightarrow Y$. However, following Hayes (2013), the mediation analysis technique does not impose evidence of a simple association between X and Y as a precondition; hence, it can be completed with two regression tests.

First, we performed a diagnostic analysis to ensure the data were suitable for a mediation analysis. By analysing box plots, we identified nine outliers that we deleted from the data set, resulting in a sample of $n=206$. We checked normality by examining the asymmetry and kurtosis index and considered a threshold of ± 1.5 as an indication of a slight variation from the normal distribution. We observed that all the scales were within the normal distribution range. Second, we conducted regression tests for each mediator variable based on the model in Figure 1. We used the latent variables in testing the mediating models. Third, we used a bootstrapping method (Hayes, 2013) to observe if the mediation effect was statistically significant. Unstandardized indirect effects were computed for each of 100 bootstrapped samples, and the 95% confidence interval was computed by determining the indirect effects. We computed these analyses using the mediation package in R (Tingley et al., 2014).

Results

The prospective teachers in our sample reported a greater endorsement of social utility and intrinsic career values regarding choosing teaching as a profession in contrast to personal utility values. They also perceived teaching to be a highly demanding job that requires expert knowledge but only has a moderate level of social and economic recognition. Moreover, the prospective teachers reported that they used the deep and strategic learning approaches more intensely than the surface approach (Table 2). In addition, the first-order factor intrinsic career value and the second-order factor social utility value were positively correlated with academic records ($r=0.18^{**}$, and $r=0.17^{**}$, respectively) (Table 2). Deep and strategic approaches to learning also positively correlated with academic records ($r=0.23^{***}$, and $r=0.27^{***}$ respectively), while the superficial approach to learning negatively correlated with this variable ($r=-0.15^*$) (Table 2).

The findings showed the indirect effects of learning approaches on the relationship between motivation to become a teacher and academic records. Our data showed that deep and strategic approaches to learning, as mediator variables, influenced academic records in terms of teaching value and task perception components of motivation to become a teacher. The deep and strategic approaches to learning fully mediated the association between the social utility values, intrinsic career values, perceived teaching ability, prior teaching experience, social influences, expert career, highly demanding career, and the academic record outcome variable (Tables 3 and 4). The estimates from the second regression analysis, for the deep learning approach, ranged from $B=0.26$ to $B=0.34$, whereas the regression estimates for the strategic approach ranged from $B=1.61$ to $B=1.89$. The regression estimates for these mediators were all positive.

The estimates indicated that the deep learning approach had the most significant indirect effect on intrinsic career value (ACME=0.19*), perceived teaching ability (ACME=0.15***), social utility value (ACME=0.14***), high demand (ACME=0.14***), and expert career (ACME=0.10*) (Table 3). In addition, the estimates indicated that the deep learning approach had the smallest indirect effect on prior teaching experience and social influences (ACME=0.06*** and ACME=0.04***, respectively). The simple mediation models that include the teaching motivational factors with deep learning approach as a mediator variable accounted for 4% to 5% of the variance in academic records.

[Insert Table 3 here]

Similarly, the estimates for the strategic learning approach showed that it had the most significant indirect effect on intrinsic career value (ACME=0.27***), perceived teaching ability (ACME=0.20***), social utility value (ACME=0.15***), high demand (ACME=0.12***), and expert career (ACME=0.10***) (Table 3). Furthermore, the strategic approach had the smallest indirect effect on prior teaching experience and social influences (ACME=0.06*** and ACME=0.05***, respectively) (Table 4). The simple mediation models that included teaching motivational factors with the strategic approach as a mediator variable accounted for 6–7% of the variance in academic records.

[Insert Table 4 here]

The regression estimates for the surface learning approach in the second regression analysis ranged from $B=-0.45$ to $B=-0.35$. The surface learning approach had a significant indirect effect on the association between the socialisation antecedent factors, perceived teaching ability, prior teaching experience, and social influences, and the academic record outcome variable (Table 5). The estimates for the indirect effect of

surface learning approach between prior learning experiences and academic records accounted for a full mediation (ACME=-0.03***), whereas there was only a partial indirect effect between perceived teaching ability (ACME=-0.04*) and social influences (ACME=-0.03*). The simple mediation models, including motivational factors with surface learning approach as a mediator variable, accounted for 1% to 4% of the variance in academic records.

In summary, these results indicated that prospective teachers' approaches to learning are relevant mediator variables between the motivational factors to become a teacher and academic records.

[Insert Table 5 here]

Discussion and conclusions

This study aimed to test the relationship between prospective teachers' motivational factors for studying teaching as a professional career and their academic outcomes, while also testing how approaches to learning mediate this relationship. First, our results showed that only intrinsic career values and social utility values are associated with academic success. Although the association is weak, further analysis showed that some components of career choice motivation are associated with academic success through approaches to learning. Second, our results revealed that intrinsic career values, social utility values, antecedent socialisation, and task demands factors are all associated with higher academic records via deep and strategic approaches to learning. Conversely, antecedent socialisation factors are associated with a lower academic record via a surface approach to learning. Thus, deep and strategic learning approaches completely mediated these relationships, while the surface learning approach had both a complete and partial mediator role. This result explained how motivation to choose teaching as a

profession and academic outcomes can be connected.

Numerous factors can influence academic outcomes—motivation to become a teacher and approaches to learning are two significant factors. Past research has shown that altruistically and intrinsically motivated prospective teachers invest more time and energy into learning, are more inclined to study the content carefully, and tend to be more prepared for academic tasks compared to extrinsically motivated students (Jungert et al., 2014). Moreover, previous studies revealed that deep and strategic approaches to learning have a positive impact on students' learning outcomes (Rodriguez, 2009; Zeegers, 2004). Our study can expand the existing literature by highlighting how different aspects of the motivation to become a teacher may affect academic outcomes differently depending on the way students approach their learning. Prospective teachers enter the profession with different predispositions and motives, which can subsequently lead students to approach learning in different ways; these varying learning approaches can then affect their study results. Our findings showed that the prospective teachers who choose teaching for reasons based on intrinsic and social utility value (e.g. they enjoy working with children, want to contribute to society, or perceive teaching to be a demanding job that requires expert knowledge) are more likely to apply a deep approach to learning by trying to understand and relate the theoretical and practical content rather than simply reproducing it. Eventually, these prospective teachers tend to obtain better academic records.

Interestingly, antecedent socialisation has an ambivalent effect on students' approaches to learning and their academic outcomes. Our results suggested that for these prospective teachers, previous teaching experience, social influences, and perceived teaching ability all relate to both higher and lower academic records through a deep/strategic approach to learning or a surface approach to learning, respectively. In

the first situation, no negative consequences exist as prospective teachers who apply a deep/strategic approach to learning would obtain high marks. However, the second situation, in which prospective teachers apply a surface approach to learning, may raise some concerns because of its relation to lower academic records.

Several reasons may account for this finding. For some prospective teachers, previous positive learning/teaching experiences or a perceived teaching ability may drive them to adopt a surface approach to learning, which would subsequently have a negative impact on their academic records. Trigwell & Prosser (2004) argued that previous limited and trivial learning experiences might lead students to adopt a surface approach to learning and thus obtain poor academic results even if the learning environment promotes a deep approach. In a previous study, Gratacós et al. (2017) showed that prospective teachers in Spain usually have previous informal work experience as baby-sitters, leisure organisers, and private tutors. Therefore, these types of work experiences may lead some prospective teachers to believe they already have the skills and knowledge to teach, and, consequently, adopt a surface approach to learning. Another possible explanation is that some first-year prospective teachers are not yet accustomed to the university environment and its workload demands. Consequently, first-year students may avoid engaging deeply with their learning tasks and accordingly invest minimal effort to meet the requirements to pass. In a similar vein, Marušić et al. (2017) found that prospective teachers in the first year of initial teacher education programmes tend to use more rehearsal strategies, indicating a more surface approach to learning. Other factors also affect students' learning approaches, such as students' perceptions of whether the specific content is relevant to the professional practice (Entwistle & Ramsden, 2015). It is possible that these prospective teachers feel that the first-year course content is too generic and not compelling enough

to grab their interest and attention. For these prospective teachers, the first-year course is introductory and broad, and they may find it too theoretical and disconnected from the actual practice. Scholars focused on teacher attrition/retention studies argue that teacher educators should support the study of relevant theoretical concepts while creating opportunities to allow prospective teachers to experience and practice ‘this theoretical reading on specific situations in schools’ (Kelchtermans, 2017, p. 16).

While it does seem difficult to change the motivational factors for studying teaching because they depend on the social context (Watt et al., 2017), and they seem to remain stable across initial education teacher programmes in a variety of contexts (Butler, 2017; Roness & Smith, 2010), learning approaches vary depending on the course and the lecturer (Entwistle & McCune, 2004). Accordingly, students’ approaches to learning can be modified by changing the educational programme’s design and pedagogical intervention (Baeten et al. 2010). Previous research showed that lecturers’ attitudes and commitment to their students’ learning play an important role in students’ study habits. If lecturers adopt a student-centred orientation, and their teaching focuses on changing students’ conceptions, students are more likely to use a deep approach to learning (Trigwell & Prosser, 2004). Moreover, Entwistle & Ramsden (2015) suggest that teaching styles that demonstrate enthusiasm, empathy and give real-life illustrations may also promote a deep learning approach among students. This aspect is particularly important for prospective teachers because teaching is a practice-oriented profession, and prospective teachers may need support to connect theory with practice. Further studies should focus on the impact that pedagogical strategies can have on reinforcing deep learning approaches among prospective teachers. Existing studies about prospective teachers’ sense of professional agency show promising results outlining

ways to promote prospective teachers' engagement in classroom activities and improve the quality of their learning outcomes (Soini et al., 2015).

However, our study is not without limitations. First, the analyses were cross-sectional; therefore, we were unable to assess the causal relationships among the observed variables. Future studies can adopt a longitudinal approach to further analyse how learning approaches mediate in the relationship between motivation to become a teacher and academic outcomes from the beginning to the end of the initial teacher education programme. Second, our study drew on a sample of first-year prospective teachers from a single university. In the future, similar studies can be conducted at different universities, in later study programme years, and/or with a larger sample size. Such research will allow the data to be more representative and for the conclusions to be generalised. Third, our data did not support a three-factor model of approaches to learning scale, affecting the construct validity of the measure. We obtained high modification indices, indicating cross-loading items among the three scales of approaches of learning, because of which these features could not be clearly measured. Moreover, we observed a nonsignificant factor loading of one item, indicating that it was not related to its purported latent dimension, in this case, the deep approach to learning. This problem could have affected the result of the study. We must be cautious in interpreting the findings, especially in distinguishing between the deep and the strategic approach of learning. To the best of our knowledge, there have not been any previous studies using the RASI in the Spanish context, though we did find studies from other contexts. The RASI was used in multiple contexts, and for the most part, previous studies yielded consistent results on the emergence of the three dimensions of deep, surface and strategic approaches (Faranda et al., 2021; Valadas et al., 2010; Zamor et al., 2017). However, one study found concerns, as some items were not associated with

any of the three approaches, and the deep and strategic approaches were positively correlated (Richardson, 2010). Further studies could use other scales of approaches to learning, such as the Study Process Questionnaire (Biggs, 2001), which seems more reliable in a Spanish context (De la Fuente et al., 2016). Fourth, our study relied on a simple mediation model. Studies in the future can test multiple-variable models to assess the influence of motivation to become a teacher on other educational and professional outcomes such as final grades, pedagogical knowledge acquisition, teacher effectiveness, or professional identity. Fifth, we did not use any control variables in the mediation model in this study which could influence the results. Future studies could include control variables such as students' prior performance (before entering the programme) when examining the effects of teaching motivation and learning approaches on students' academic outcomes. The inclusion of this variable would allow the identification of whether teaching motivation influences students' learning approaches or whether students have a consistent learning approach pattern across educational levels that might have influenced their academic outcomes, regardless of their teaching motivation.

Nevertheless, our results may have practical implications for initial teaching education programmes. Prospective teachers' motivations do matter, as they relate to student academic outcomes via approaches to learning. However, while it is difficult to change a person's motivation, the specific learning environment and programme design can influence the student to study in a way that promotes a deeper approach to learning. Teacher educators and course designers must reflect on whether the initial teacher education programme's first-year courses are relevant for prospective teachers who have chosen teaching based on prior teaching experience and social influences. For such students, these experiences and influences might actually prevent them from adopting a

deep approach to learning. Future research can be conducted to explore strategies to combat this issue.

Ametller, J., & Codina, F. (2017). Millora de la Formació Inicial per a la Docència. Reflexions i propostes. In *Programa de Millora i Innovación en la Formació Inicial de Mestres. Colección Documentos MIF* (Issue 4).

Baeten, M., Kyndt, E., Struyven, K., & Dochy, F. (2010). Using student-centred learning environments to stimulate deep approaches to learning: Factors encouraging or discouraging their effectiveness. *Educational Research Review*, 5(3), 243–260. <https://doi.org/10.1016/j.edurev.2010.06.001>

Biggs, J. (2001). The revised two-factor study process questionnaire: R-SPQ-F. *British Journal of Educational Psychology*, 133–149.

<http://onlinelibrary.wiley.com/doi/10.1348/000709901158433/abstract>

Brown, T. A. (2006). *Confirmatory factor analysis for applied research*. The Guilford Press.

Bryant, F. B., & Yarnold, P. R. (2000). Principal components analysis and exploratory and confirmatory factor analysis. In L. G. Grimm & P. R. Yarnold (Eds.), *Reading and understanding MORE multivariate statistics* (pp. 99-136). American Psychological Association.

Butler, R. (2017). Why Choose Teaching, and Does it Matter? In H. M. G. Watt, P. W. Richardson, & K. Smith (Eds.), *Global Perspectives on Teacher Motivation* (pp. 377–388). Cambridge University Press.

De la Fuente, J., Martínez-Vicente, J. M., Salmerón, J. L., Vera, M. M., & Cardelle-Elawar, M. (2016). Action-Emotion Style, Learning Approach and Coping Strategies, in Undergraduate University Students. *Anales de Psicología*, 32(2),

457. <https://doi.org/10.6018/analesps.32.2.197991>
- Duff, A. (2004). The Revised Approaches to Studying Inventory (RASI) and its Use in Management Education. *Active Learning in Higher Education*, 5(1), 56–72.
<https://doi.org/10.1177/1469787404040461>
- Eccles, J., Adler, T. F., Futterman, R., Goff, S. ., Kaczala, C. M., Meece, J., & Midgley, C. (1983). Expectancy, values, and academic behaviors. In J. T. Spence (Ed.), *Achievement and achievement motives* (pp. 75–146). Freeman.
- Elliot, A. J., & Dweck, C. S. (2007). Competences and Motivation. Competence as the Core of Achievement Motivation. In A. J. Elliot & C. S. Dweck (Eds.), *Handbook of competence and motivation* (pp. 3–12). The Guilford Press.
- Entwistle, N. (1988). Motivational Factors in Students' Approaches to Learning. In R. R. Schmeck (Ed.), *Learning Strategies and Learning Styles* (pp. 21–51). Plenum Press.
- Entwistle, N., & McCune, V. (2004). The conceptual bases of study strategy inventories. *Educational Psychology Review*, 16(4), 325–345.
<https://doi.org/10.1007/s10648-004-0003-0>
- Entwistle, N., & Ramsden, P. (2015). *Understanding Student Learning (Routledge Revivals)*. Routledge. <https://doi.org/10.4324/9781315718637>
- Faranda, W. T., Clarke, T. B., & Clarke, I. (2021). Marketing Student Perceptions of Academic Program Quality and Relationships to Surface, Deep, and Strategic Learning Approaches. *Journal of Marketing Education*, 43(1), 9–24.
<https://doi.org/10.1177/0273475320939261>
- Fokkens-B Bruinsma, M., & Canrinus, E. T. (2014). Motivation for becoming a teacher and engagement with the profession: Evidence from different contexts. *International Journal of Educational Research*, 65, 65–74.

<https://doi.org/10.1016/j.ijer.2013.09.012>

- Gratacós, G., López-Gómez, E., Nocito, G., & Sastre, S. (2017). Why teach? Antecedences and Consequences in Spain. In H. M. G. Watt, P. W. Richardson, & K. Smith (Eds.), *Global Perspectives on Teacher Motivation* (pp. 55–94). Cambridge University Press.
- Gratacós, G., & Lopez-Jurado Puig, M. (2016). Validation of the Spanish version of the Factors Influencing Teaching (FIT)-Choice scale. *Revista de Educación*, 372, 87–110. <https://doi.org/10.4438/1988-592X-RE-2015-372-316>
- Hayes, A. F. (2013). *Introduction to Mediation, Moderation, and Conditional Process Analysis: A Regression-Based Approach*. The Guilford Press.
- Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling: A Multidisciplinary Journal*, 6(1), 1–55. <https://doi.org/10.1080/10705519909540118>
- Jungert, T., Alm, F., & Thornberg, R. (2014). Motives for becoming a teacher and their relations to academic engagement and dropout among student teachers. *Journal of Education for Teaching*, 40(2), 173–185. <https://doi.org/10.1080/02607476.2013.869971>
- Kelchtermans, G. (2017). ‘Should I stay or should I go?’: unpacking teacher attrition/retention as an educational issue. *Teachers and Teaching: Theory and Practice*, 23(8), 961–977. <https://doi.org/10.1080/13540602.2017.1379793>
- Kitching, K., Morgan, M., & O’Leary, M. (2009). It’s the little things: exploring the importance of commonplace events for early-career teachers’ motivation. *Teachers and Teaching: Theory and Practice*, 15(1), 43–58. <https://doi.org/10.1080/13540600802661311>

- Klassen, R. M., & Kim, L. E. (2019). Selecting teachers and prospective teachers: A meta-analysis. *Educational Research Review*, 26((2019)), 32–51.
<https://doi.org/10.1016/j.edurev.2018.12.003>
- Kline, R. B. (2015). *Principles and Practice of Structural Equation Modeling*. The Guilford Press.
- König, J., & Rothland, M. (2017). Motivations That Affect Professional Knowledge in Germany and Austria. In H. M. G. Watt, P. W. Richardson, & K. Smith (Eds.), *Global Perspectives on Teacher Motivation* (pp. 162–188). Cambridge University Press. <https://doi.org/10.1017/9781316225202.006>
- Kyndt, E., Dochy, F., Struyven, K., & Cascallar, E. (2011). The direct and indirect effect of motivation for learning on students' approaches to learning through the perceptions of workload and task complexity. *Higher Education Research & Development Development*, 30(2), 135–150.
<https://doi.org/10.1080/07294360.2010.501329>
- Marton, F., & Säljö, R. (1976). On qualitative differences in learning: i-outcome and process. *British Journal of Educational Psychology*, 46(1), 4–11.
<https://doi.org/10.1111/j.2044-8279.1976.tb02980.x>
- Marušić, Iris, Jugović, I., & Lončarić, D. (2017). Approaches to learning of first-year and fifth-year student teachers: are there any differences? *European Journal of Teacher Education*, 40(1), 62–75. <https://doi.org/10.1080/02619768.2016.1251898>
- OECD. (2019). *TALIS 2018 Results: Teachers and School Leaders as Lifelong Learners*. OECD. <https://doi.org/10.1787/1d0bc92a-en>
- Piumatti, G., Abbiati, M., Baroffio, A., & Gerbase, M. W. (2019). Associations between motivational factors for studying medicine, learning approaches and empathy among medical school candidates. *Advances in Health Sciences Education*, 24(2),

- 287–300. <https://doi.org/10.1007/s10459-018-9866-6>
- R Team Core. (2018). *R: A language and environment for statistical computing*. R Foundation for Statistical Computing. <http://www.r-project.org/>.
- Richardson, J. T. E. (2010). Perceived Academic Quality and Approaches to Studying in Higher Education: Evidence from Danish Students of Occupational Therapy. *Scandinavian Journal of Educational Research*, *54*(2), 189–203.
<https://doi.org/10.1080/00313831003637972>
- Richardson, P. W., & Watt, H. M. G. (2005). ‘I’ve decided to become a teacher’: Influences on career change. *Teaching and Teacher Education*, *21*(5), 475–489.
<https://doi.org/10.1016/j.tate.2005.03.007>
- Roberts-Hull, K., Jensen, B., & Cooper, S. (2015). *A new approach : Reforming teacher education*. Learning Fist. <https://learningfirst.com/wp-content/uploads/2020/07/12.-A-new-approach-reforming-teacher-education.pdf>
- Rodríguez, C. M. (2009). The impact of academic self-concept, expectations and the choice of learning strategy on academic achievement: The case of business students. *Higher Education Research & Development*, *28*(5), 523–539.
<https://doi.org/10.1080/07294360903146841>
- Roness, D., & Smith, K. (2010). Stability in motivation during teacher education. *Journal of Education for Teaching*, *36*(2), 169–185.
<https://doi.org/10.1080/02607471003651706>
- Rosseel, Y. (2012). lavaan. An R package for Structural Equation Modeling. *Journal of Statistical Software*, *48*(2), 1–36. <http://www.jstatsoft.org/v48/i02/>.
- Soini, T., Pietarinen, J., Toom, A., & Pyhältö, K. (2015). What contributes to first-year student teachers’ sense of professional agency in the classroom? *Teachers and Teaching: Theory and Practice*, *21*(6), 641–659.

<https://doi.org/10.1080/13540602.2015.1044326>

Struyven, K., Jacobs, K., & Dochy, F. (2013). Why do they want to teach? The multiple reasons of different groups of students for undertaking teacher education.

European Journal of Psychology of Education, 28(3), 1007–1022.

<https://doi.org/10.1007/s10212-012-0151-4>

Tabachnick, B. G., & Fidell, L. S. (2007). *Using multivariate statistics* (Vol. 5th).

Pearson.

Tingley, D., Yamamoto, T., Hirose, K., Keele, L., & Imai, K. (2014). mediation: R

package for causal mediation analysis. *Journal of Statistical Software, 59*(5), 1–38.

<https://www.jstatsoft.org/article/view/v059i05>

Trigwell, K., & Prosser, M. (2004). Development and Use of the Approaches to

Teaching Inventory. *Educational Psychology Review, 16*(4), 409–424.

<https://doi.org/10.1007/s10648-004-0007-9>

Valadas, S. C., Gonçalves, F. R., & Faísca, L. M. (2010). Approaches to studying in higher education Portuguese students: A Portuguese version of the approaches and study skills inventory for students. *Higher Education, 59*(3), 259–275.

<https://doi.org/10.1007/s10734-009-9246-5>

Van Rooij, E., Brouwer, J., Fokkens-Bruinsma, M., Jansen, E., Donche, V., & Noyens,

D. (2018). A systematic review of factors related to first-year students' success in Dutch and Flemish higher education. *Pedagogische Studien, 94*(5), 360–405.

<http://hdl.handle.net/11370/05b04fb4-e003-4fbe-8d5e-efb96181419e>

Watt, H. M. G., & Richardson, P. W. (2007). Motivational Factors Influencing

Teaching as a Career Choice: Development and Validation of the FIT-Choice Scale. *The Journal of Experimental Education, 75*(3), 167–202.

<https://doi.org/10.3200/JEXE.75.3.167-202>

- Watt, H. M. G., Richardson, P. W., & Smith, K. (2017). *Global Perspectives on Teacher Motivation*. Cambridge University Press.
<https://doi.org/10.1017/9781316225202>
- Zamor, E., Chigerwe, M., Boudreaux, K. A., & Ilkiw, J. E. (2017). Approaches and study skills of veterinary medical students: Effects of a curricular revision. *Journal of Veterinary Medical Education*, 44(3), 490–501.
<https://doi.org/10.3138/jvme.1015-176R1>
- Zeegers, P. (2004). Student learning in higher education: A path analysis of academic achievement in science. *Higher Education Research & Development*, 23(1), 35–56.
<https://doi.org/10.1080/0729436032000168487>