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Teaching difficulties and personal variables: a study with students of the Master's Degree in Teaching in Valencia and Sevilla

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Teachers are a key element in teaching and require adequate training. To update it, it is proposed to analyse the difficulties that students foresee they will have in their professional future. These represent the training deficiencies of the Master's Degree in Teaching. The objective is to analyse the main concerns of the Master's Degree students regarding possible difficulties for their future teaching, taking as a reference the sociodemographic variables: sex and age, as well as the university of origin and geographical location. To carry out this analysis, the difficulties were grouped into academic, organizational, social and material-technological, and were measured by passing a questionnaire. The questionnaire used was the Teaching Problems Inventory. The sample consisted of 992 students from six specialties, from different universities of origin in the Valencian Community and Andalusia. The effect of age and sex on difficulties and the predictive role of these variables on Material and Organizational Difficulties, mediated by Academic and Social Difficulties, were also analysed. A greater concern for material and organizational aspects is evident. Fear of rejection of their potential pedagogical innovations stood out. Concerns about teaching increased with age. Males show greater concerns in Academic and Organizational Difficulties and females in Material ones. Although the sample is high, it would be positive to compare the results with other universities with large student populations.

KEYWORDS

teachers, teaching difficulties, predictive models, teacher's master, teacher training

1 Introduction

Currently, there is concern about teacher training (Sarceda et al., 2020; Fernández et al., 2015). This training, which is far from reaching its ideal (Martínez, 2016; Reimers, 2018), is one of the critical points of the quality of the education system (Paudel and Subasi, 2020; Imbernón, 2017) and of students' academic results (Prats, 2016). Moreover, it is the worst problem and the best solution in education (Fullan, 2002). In this sense, some studies suggest the need to redefine the role of universities in teacher education. In contrast to positions that criticise the work of the university—'discourse of derision' (Furlong, 2019), in countries such as England, the United States or Australia, there should be a commitment to collaborative and planned policies between university and school, as is the case in Wales or Singapore, with their Teacher Education Model for the 21st Century.

This collaborative relationship and immersion in the educational practice of the students of the Master's Degree in Teacher Training in secondary schools would make it

possible to learn about the difficulties that future teachers expect to encounter (Toom et al., 2019). It would also be possible to experience the new professional competences that are or will be required (Ivanova, 2020) and the challenges of 21st century society for schools—the real incorporation of technologies into education, artificial intelligence, fake news, armed conflicts in different parts of the world, new demands in the workplace, soft skills, socio-emotional problems arising from COVID-19, … (Cantón and Tardif, 2018; Milner and Scholkmann, 2023), among others. These difficulties experienced or perceived should be studied and analysed in order to adapt the training of future teachers to the curricula of the Master's Degree in Teaching and/or the planning of continuous training in educational centres (Escudero et al., 2018; Ministerio de Educación y Formación Profesional, 2022; UNESCO, 2021), with the aim of developing competent professionals, capable of facing the diverse and complex school reality (Hinojosa et al., 2020; Arnaiz et al., 2021).

1.1 Difficulties for teaching and students of the Master's Degree in teacher training

This research is based on the premise that, if we want to train a quality teaching staff, we must analyse the knowledge, habits, attitudes, behaviour, etc., that they develop in their professional life. This knowledge of their performance makes it possible to adapt to teacher training. Likewise, knowledge of the possible difficulties that future teachers foresee in their future work helps to outline a more precise training itinerary. In this sense, the disciplinary and pedagogical knowledge acquired during the initial training period is complemented by the experiential knowledge obtained in the practicum (Medina-Moya and Pérez-Cabrera, 2017). In these practicums, students come into contact with the reality of the classroom and reflect on their own teaching practice, discovering possible difficulties, fears or obstacles, real or perceived.

With regard to the training offered by the Master's degree, some aspects should be addressed. Firstly, its true meaning should be clarified, i.e., reflecting on the different paradigms of education: institutional, administrative, instructional and personal (Beltrán, 2013) and opting for one of them. Policies to attract talent to teaching should also be properly planned and implemented (Urkidi et al., 2020; Reimers, 2018), and we should ask ourselves which students enter the Master's programme and why, and create selection criteria prior to entering the Master's programme. Finally, the need for greater didactic-pedagogical training should be stressed. In this line, a study with 82 student teachers, which analysed their learning of action-oriented knowledge, established as the main incidents of teaching practice: the relationship with didactic issues (57%) and with pedagogical issues (39%). Concern for disciplinary content (4%) was far behind (Toom et al., 2019). Also, Cuesta and Azcárate (2005), this time with novice teachers, state that their greatest concerns revolve around discipline, i.e., the ability to solve classroom problems and maintain control; knowing how to motivate students towards learning; and attending to diversity. Both studies show that the greatest problems and/or concerns revolve around didactic-pedagogical aspects.

1.2 Teaching difficulties and socio-demographic variables

Some of the research analysing the influence of socio-demographic variables on teachers' teaching difficulties (Cañón, 2012) showed that men were more concerned about not knowing how to motivate students, apply discipline and use the various teaching aids. In contrast, almost half of the women were concerned about organising daily work, determining the level of content to be taught and tackling discipline problems. Thus, men were more concerned with aspects related to the academic, social and material dimensions, while women were more concerned with the organisational and social dimensions. In both cases, they agreed that it was difficult to know how to apply discipline. Recent studies (Sanz et al., 2022) did not observe differences associated with gender as a group, although when analysing the items independently, men were more concerned with attention to diversity and personalised education, daily programming and the use of different methodologies. Women, on the other hand, were more concerned about professional and personal relationships with parents and colleagues. They also mentioned the difficulty of managing the reaction of families and classmates when applying new methodologies and other types of disagreements. Likewise, the differences by year and age were also analysed, showing no significant differences. However, taking age alone, significant differences did appear in all factors, except in Material and Technological Difficulties, especially in those over 30 years of age.

Fourth-year undergraduates, who are closest to their professional practice, are the most concerned about fostering motivation, implementing more personalised teaching, being creative, knowing how to measure the effectiveness of their intervention, pleasing students, dealing with school conflicts and relating to parents. Among all these difficulties, concern for problems linked to interpersonal relations and pedagogical innovation stand out. All indications are that the material-technological difficulties are less for students in an advanced year. However, this difficulty is greater for older students. It should be noted that age was a significant indicator of academic and organisational difficulties, but the course was not. According to Moliner and Ortí (2015), novice teachers are most concerned about meeting the objectives set for each course. For those with between 5- and 10-years professional experience, the relationship with families. And, finally, for most veteran teachers, the individualisation of teaching, ratios and working time. In contrast, other research with novice teachers (Cañón et al., 2017) concludes that age and experience are not associated with any type of difficulty. Only insecurity in dealing with families, the management team and other external agents is observed in novice teachers.

The aim of this research is to analyse the main concerns of Master's Degree students regarding possible difficulties for their future teaching, taking as a reference the socio-demographic variables: gender and age, as well as their university of origin and geographical location.

2 Materials and methods

2.1 Participants

992 university students participated. The majority were women (63%), and the most frequent age group was 24–30 years old (37%),

followed by the 21–23 age group (28%). The most frequent Master's specialisations were natural sciences (22% approximately), which included biology and geology; geography and history, followed by specific didactics (19.78%) and technical specialisations (19.37%), which included technology and mathematics. Most students came from the autonomous community of Andalusia (56%), followed by the Valencian Community (36.77%). For both cases, the universities with the highest representation were the University of Seville (49.56%), the University of Valencia and the Catholic University of Valencia (16.8 and 15% respectively).

2.2 Instruments

The Teaching Problems Inventory (Jordell, 1985) for novice teachers, translated and adapted by Marcelo (1993), was used to analyse teaching difficulties. In this adaptation, the number of items was reduced to adapt it to the Spanish context, dividing it into eight factors: teaching, planning, evaluation, resources, environment, time, relationships and staff. Subsequently, Cañón (2012) carried out a new revision and established four factors: academic, organisational, social and material-technological difficulties. This research follows the classification of Cañón (2012), with five levels of response: 1 'No difficulty', 2 'Little difficulty', 3 'Medium difficulty', 4 'Quite difficult' and 5 'Great difficulty,' adapted and validated for Teacher Training and Master's Degree students (Sanz et al., 2022). The internal consistency of the scores was analysed for the present research and showed adequate values, with a remarkable internal consistency. Ordinal Alpha was calculated due to the ordinal nature of the data. Removal of any item did not improve the values on any factor or on the total scale. The ordinal α values were 0.95 for the total scale and the factors ranged from 0.86 to 0.90, except for factor 4 on material difficulties which had a value of 0.70 due to the small number of items.

TABLE 1 Description of the sample.

	N	%		*N*	%
Speciality			**CCAA**		
Natural Sciences	161	22.12	C. Valenciana	246	42.71
Techniques	141	19.37	Andalucía	323	56.08
Humanities and Business Administration	42	5.77	Cataluña	2	0.35
Letters	87	11.95	Madrid	2	0.35
Health	116	15.93	C. la Mancha	2	0.35
Education	144	19.78	C. León	1	0.17
Others	37	5.08	Missing	416	41.94
Missing	264	26.61	Total	992	100
Total	992	100	**University**		
Age			UCV	86	15.06
18–20	169	17.18	UV	96	16.81
21–23	276	28.05	UPV	29	5.08
24–30	365	37.09	U. Sevilla	283	49.56
More of 30	174	17.68	Otras*	77	13.49
Missing	8	0.81	Missing	421	42.44
Total	992	100	Total	992	100
Sex					
Man	364	36.77			
Woman	626	63.23			
Missing	2	0.10			
Total	992	100			

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2.3 Data analysis

Descriptive, correlational analyses were employed using JASP v.0.16.4 software (JASP Team, 2022). We also performed analyses of variance (ANOVA) and t-tests to analyse differences in scores between universities and gender, respectively. When any assumption of homogeneity of variances was violated, non-parametric Kruskal-Wallis analyses were performed on some of the dimensions. Effect sizes were calculated to assess the magnitude of the effects, in addition to probability values. Also, partial eta squared and Cohen's d were calculated. Values of 0.1, 0.25 and 0.37 for the former, and 0.20, 0.50 and 0.80 for the latter are considered small, medium or large, respectively (Goss-Sampson, 2020). Additionally, effect sizes for the Kruskal-Wallis test were calculated via Epsilon squared (ε^2), whose interpretation is equivalent to eta partial square. In addition, Jamovi v.2.3 software (The Jamovi Project, 2022) was used to calculate the ordinal alpha of the teaching difficulties scale scores, as these were ordinal in nature. This allowed the internal consistency of the scores to be assessed. Furthermore, to assess the fit of the theoretical model to the data, a multiple mediation analysis was performed with age as the predictor variable, academic and social difficulties as mediators, and material and organisational difficulties as explanatory variables. For the mediation analysis, standardised parameter estimates were analysed using a robust estimation method. Direct and indirect effects through the indicated mediators were calculated. Finally, the joint effect of the mediators was calculated using the total indirect effect. In addition, the effect of the sex variable in the model is intended to be controlled for, given its relevance in previous studies. Figure 1 shows the theoretical relationship between the variables. Finally, statistical power, given alpha values of 0.05, a mean effect size, and an $N = 992$, was calculated by post-hoc multiple regression analysis using G*Power Version 3.1.9.3 software (Faul et al., 2009). The values obtained for a model with 7 variables and 10 regressions were ($\lambda = 148.8$, $1 - \beta = 1.00$, $F(10, 981) = 1.840$, $p = 0.05$, $f2 = 0.15$). These values indicated a very high statistical power for the analytical requirements.

3 Results

The overall results of teaching difficulties showed mean values close to 3 on the scale of 1–5. In its overall score, the scale showed mean scores of 2.72 (SD = 0.56). Specifically, the highest scoring factor was Material Difficulties, with a mean value of 2.86 (SD = 0.64), followed by Organisational Difficulties with a mean score of 2.77 (SD = 0.63). The lowest scoring factor was Academic Difficulties 2.56 (SD = 0.66), followed by Social Difficulties with a mean score of 2.74 (SD = 0.63). These values indicate that students perceive greater

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material and organisational difficulties, and less academic and social difficulties (Figure 2 and Tables 1–6).

As for differences in social difficulties according to speciality, analyses of variance (ANOVA) were performed. The results showed statistically significant differences in all scale dimensions and in the total, with moderate to large effect sizes, indicated by the eta squared value (η^2).

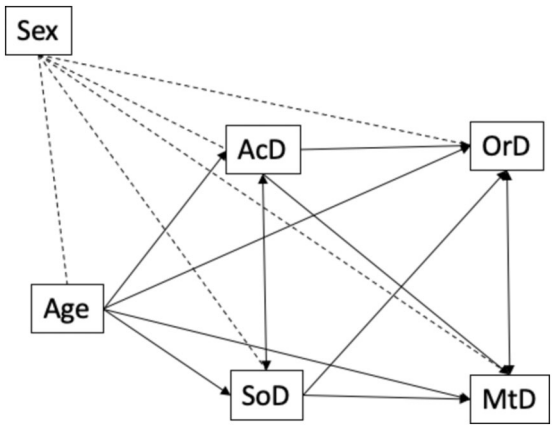

FIGURE 1
Theoretical model of influence between variables. OrD, Organizational Difficulties; AcD, Academic Difficulties; MtD, Material Difficulties; SoD, Social Difficulties.

TABLE 2 Means, standard deviations, minima and maxima of the teaching difficulties scores.

	N	M	SD	Min	Max
AcDif	992	2.581	0.659	1.000	5.000
OrDif	992	2.773	0.625	1.000	5.000
SoDif	992	2.736	0.628	1.000	5.000
MatDif	992	2.858	0.635	1.000	5.000
TOTAL	992	2.724	0.565	1.000	5.000

Specifically, post-hoc comparisons revealed that it was the 'Other', Natural Sciences and Arts groups that scored higher than the other specialisations, showing statistically significant differences in all factors and in the total scale after Bonferroni correction, always scoring higher than the Health and Teaching specialisations. The sizes of these significant comparisons showed the following ranges:

- For Academic difficulties: between $d = 0.434$ ($p = 0.03$) between Letters and Teachings (Teachings being the lowest scoring), and $d = 0.756$ ($p < 0.001$) between Other and Health (Health being the lowest scoring).
- For Organisational difficulties: between $d = 0.43$. ($p = 0.034$) between Letters and Teaching (Teaching being the lowest scoring), and $d = 1.176$ ($p < 0.001$) between Other and Health (Health being the lowest scoring).
- For Social difficulties: between $d = 0.448$. ($p = 0.002$) between Natural C. and Techniques (with Techniques being the lowest scoring), and $d = 1.014$ ($p < 0.001$) between Other and Health (with Health being the lowest scoring).
- For Material difficulties: between $d = 0.564$ ($p = 0.049$) between Other and Technical (Technical being the lowest), and $d = 0.893$ ($p < 0.001$) between Other and Health (Health being the lowest).
- In total scale: between $d = 0.480$ ($p = 0.003$) between Health and Technical (Technical being the lowest scoring), and $d = 1.104$ ($p < 0.001$) between Other and Health (Health being the lowest scoring).

Subsequently, differences were analysed according to age. The results revealed statistically significant differences in academic, organisational and social difficulties. These differences occurred in all factors between the older and younger age groups in all dimensions and in the total ($p < 0.001$, effect size range from $\eta^2 = 0.013$ in Social Difficulties to $\eta^2 = 0.065$ in Organisational Difficulties), except in the Material Difficulties dimension, which showed no statistically significant differences. About the Social Difficulties factor, it should be noted that the assumption of homogeneity of variances was violated (Levene's t-tests <0.05), so the data reported corresponds to Kruskal-Wallis analyses. Likewise, there

TABLE 3 Differences in scores according to speciality.

		SoDif	AcDif	OrDif	MatDif	Total score
		F(df) = 10.619 (6, 721); $p(\eta^2) < 0.001$ (0.081)	F(df) = 7.385 (6, 721); $p(\eta^2) < 0.001$ (0.058)	F(df) = 11.159 (6, 721); $p(\eta^2) < 0.001$ (0.085)	F(df) = 6.881 (6, 721); $p(\eta^2) < 0.001$ (0.054)	F(df) = 11.258 (6, 721); $p(\eta^2) < 0.001$ (0.086)
	N	M (SD)	M (SD)	M (SD)	M (SD)	M (SD)
Natural Sciences	161	2.998 (0.549)	2.793 (0.620)	2.985 (0.525)	3.007 (0.565)	2.946 (0.485)
Education	144	2.718 (0.653)	2.489 (0.691)	2.760 (0.619)	2.696 (0.590)	2.885 (0.650)
Humanities and Business Administration	42	2.683 (0.450)	2.786 (0.524)	2.867 (0.446)	2.769 (0.406)	2.781 (0.521)
Arts	87	2.900 (0.519)	2.764 (0.533)	3.010 (0.589)	2.903 (0.462)	2.954 (0.647)
Others	37	3.116 (0.580)	2.892 (0.728)	3.225 (0.680)	3.095 (0.566)	3.154 (0.680)
Health	116	2.518 (0.644)	2.413 (0.653)	2.540 (0.602)	2.510 (0.573)	2.609 (0.635)
Techniques	141	2.733 (0.603)	2.684 (0.627)	2.860 (0.596)	2.810 (0.580)	2.810 (0.580)

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TABLE 4 Differences in perceptions of teaching difficulties among age groups of university students.

	Age	*N*	*M*	*SD*	*F*	*df*	*p*	η^2
AcDif	18–20	169	2.387	0.627	15.534	3	< 0.001	0.040
	21–23	276	2.487	0.662				
	24–30	365	2.670	0.668				
	más de 30	174	2.753	0.573				
OrDif	18–20	169	2.510	0.604	22.659	3	< 0.001	0.065
	21–23	276	2.710	0.643				
	24–30	365	2.837	0.604				
	más de 30	174	3.019	0.530				
SoDif	18–20	169	2.630	0.653	4.372	3	0.005	0.013
	21–23	276	2.692	0.643				
	24–30	365	2.790	0.634				
	más de 30	174	2.831	0.511				
MatDif	18–20	169	2.788	0.629	1.286	3	0.278	0.004
	21–23	276	2.855	0.648				
	24–30	365	2.880	0.639				
	más de 30	174	2.914	0.591				
TOTAL	18–20	169	2.561	0.557	11.384	3	< 0.001	0.034
	21–23	276	2.669	0.585				
	24–30	365	2.785	0.568				
	más de 30	174	2.872	0.456				

were also differences between the older age group and students aged 21–23 years in the Academic ($p < 0.001$, $d = 0.569$), Organisational ($p < 0.001$, $d = 0.843$), Social ($p = 0.017$, $d = 0.324$), and Total scale ($p < 0.001$, $d = 0.562$) dimensions. This pattern can be seen in the observable trend in the values and mean scores in each of the scale factors and in the total, showing an average upward trend in each age group.

Continuing with the analysis of variance, differences in the perfections of teaching difficulties were analysed as a function of the university of origin. To analysis, universities with a low representation ($N < 3$) in the 'Other' category were unified. The differences found were statistically significant in the total scale ($F(4, 566) = 14.571$; $p < 0.001$, $\eta^2 = 0.093$), in the Social Difficulties factor ($F(4, 566) = 11.585$; $p < 0.001$, $\eta^2 = 0.076$), in Academic Difficulties ($F(4, 566) = 10.930$; $p < 0.001$, $\eta^2 = 0.026$), in Organisational Difficulties ($F(4, 566) = 13.124$; $p < 0.001$, $\eta^2 = 0.085$) and in Material Difficulties ($F(4, 566) = 8.030$; $p < 0.001$, $\eta^2 = 0054$). These differences occurred between the University of Seville and the rest of the universities, with the University of Seville showing the greatest concerns with respect to the rest ($p < 0.001$ in all post-hoc tests, after Bonferroni correction). These post-hoc tests revealed that there were no statistically significant differences between the other universities.

Finally, gender differences in perceptions of teaching difficulties were analysed. The results revealed that there were statistically

TABLE 5 Pearson correlations between age and the dimensions and the total teaching difficulties scale.

Variable	1	2	3	4	5	6
1. Edad	—					
2. AcDif	0.196***	—				
3. OrDif	0.253***	0.698***	—			
4. SoDif	0.113***	0.683***	0.781***	—		
5. MatDif	0.061	0.605***	0.713***	0.722***	—	
6. Total	0.183***	0.849***	0.907***	0.931***	0.817***	—

***$p < 0.001$; SoDif, Dificultades Sociales; AcDif, Dificultades Académicas; OrDif, Dificultades Organizacionales; MAtDif, Dificultades Materiales.

significant differences with small and moderate effect sizes in academic and organisational difficulties. These differences occurred with higher scores for males, i.e., males were more concerned about academic ($t = 3.49$; df = 988; $p < 0.001$; $d = 0.23$) and organisational difficulties ($t = 3.33$; df = 988; $p < 0.001$; $d = 0.22$). Moreover, these differences had an impact on the overall scale, in which men seem to perceive greater academic difficulties than women ($t = 2.24$; df = 988; $p = 0.025$, $d = 0.15$). However, it should be noted that the effect size study revealed that these differences, although statistically significant, had a small effect size, according to Cohen's *d* value.

Next, to analyse the age variable and its relationship with students' anticipated teaching difficulties, Pearson correlation analyses were carried out. The results showed direct and statistically significant relationships with all dimensions and in the total scale ($p > 0.001$ in all cases), except with the dimension of material difficulties, with which there was no significant relationship.

Finally, the theoretical model was tested through a multiple mediation analysis with age predicting material and organisational difficulties through academic and social difficulties, controlling for the effect of gender. The results showed that age was statistically significant and directly predictive of organisational difficulties ($z = 6.786$, $p < 0.001$), indicating that the older the age, the greater the perceived organizational difficulties. However, age did not significantly predict material difficulties ($z = -1.461$, $p > 0.05$).

In terms of indirect effects, it is worth noting that both academic and social difficulties were statistically significant mediators of both the relationship between age and the Material and Organisational Difficulties factors ($p < 0.001$ in all cases). In all cases, the pattern of influence showed direct relationships, both with the mediators and with the dependent variables, indicating that the higher the age, the greater the academic and social difficulties, and the higher the values of the latter, the greater the material and organisational difficulties.

Total effects, controlling the effect of mediators, indicated that age significantly and directly predicted both material ($z = 2.239$, $p < 0.05$) and organisational ($z = 7.667$, $p < 0.001$) difficulties. Finally, the total indirect effects, considering the joint effect of both mediators, also showed that higher age predicted higher scores of organisational difficulties, and these are mediated by the joint effect of perceiving greater academic and social difficulties.

The fact that age was a statistically significant predictor of material difficulties in its total effect, in the absence of a direct effect, is indicative of a total mediation of academic and social difficulties.

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When adding the effect of gender as a control variable within the model, as shown in Table 7, the relationships between the scale factors were all statistically significant. With regard to the effect of age, it should be noted that it was a significant predictor of organisational ($z = 6.786$, $p < 0.001$), academic ($z = 5.621$, $p < 0.001$) and social ($z = 3.460$, $p < 0.001$) difficulties, but showed no significant relationship with material difficulties ($z = -1.461$, $p > 0.05$).

With regard to gender, a statistically significant and direct relationship was observed with material difficulties ($z = 2.580$, $p = 0.010$), and an inverse relationship with academic difficulties ($z = -1.962$, $p = 0.050$). The variable was coded as 1 = Male and 2 = Female. Results indicated that males were more concerned academically and females were more concerned with material issues. Gender showed no effect on the factors of organisational and social difficulties.

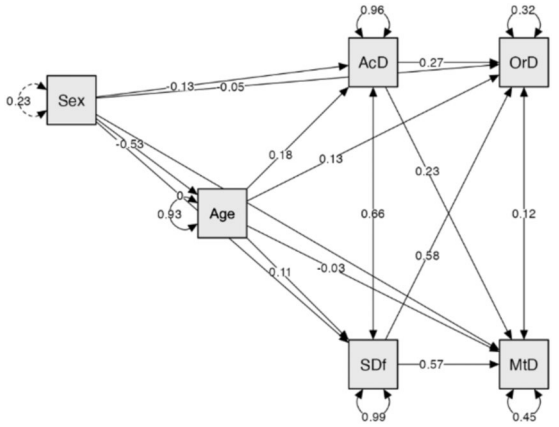

FIGURE 2
Trajectory plot with standardised model estimates. SoDif, Dificultades Sociales; AcDif, Dificultades Académicas; OrDif, Dificultades Organizacionales; MAtDif, Dificultades Materiales.

The variance explained was 67.9% for Organisational Difficulties and 55% for Material Difficulties. As for the mediators, the model explained 4.3 and 1.3% of the Academic and Social Difficulties, respectively. Finally, age accounted for 6.7%.

4 Discussion

The first block of discussion is based on the factors that present the greatest difficulties for future teachers in teaching. In this respect, the results show that the greatest difficulties are perceived to be material, followed by organisational aspects. Material difficulties are divided, on the one hand, into pedagogical issues (choosing a textbook or the use of teaching materials)—which do not usually represent a concern—and, on the other hand, material difficulties include the concern of future teachers in relation to the possible resistance or rejection of pupils, families, colleagues or management teams when implementing new teaching methods. This aspect is supported in other research (Hernández-Amorós and Carrasco, 2012; Benarroch et al., 2013; Serrano and Pontes, 2015), also with Master's Degree students, where they emphasise the difficulties and/or concerns about introducing new teaching-learning activities and being creative.

Organisational difficulties, which are also a relative concern for future teachers, refer to the organisation of the classroom, class activities, daily work and the time allocated to each task and/or knowledge of pupils, as well as ratio management. This last aspect, together with time management, is also highlighted by Marcelo (2009) and Moliner and Ortí (2015). On the other hand, academic and social issues are not perceived with concern, despite being the essence of teaching (motivation, explaining content, creativity, knowledge of students, defining your role as a teacher, managing relationships with students, families and colleagues, etc.). This aspect is curious, with a greater concern for more secondary issues in the teaching-learning

TABLE 6 Model parameter estimates.

	Estimate	SE	z	p	95% CI	
					Lower	Upper
Direct effects						
Age → OrDif	0.129	0.019	6.786	<0.001	0.092	0.166
Age → MatDif	−0.033	0.022	−1.461	0.144	−0.077	0.011
Indirect effects						
Age → AcDif → OrDif	0.050	0.010	5.002	<0.001	0.030	0.070
Age → SoDif → OrDif	0.066	0.019	3.425	<0.001	0.028	0.104
Age → AcDif → MatDif	0.041	0.009	4.531	<0.001	0.024	0.059
Age → SoDif → MatDif	0.065	0.019	3.407	<0.001	0.028	0.103
Total effects						
Age → OrDif	0.245	0.032	7.667	<0.001	0.183	0.308
Age → MatDif	0.074	0.033	2.239	0.025	0.009	0.139
Total indirect effects						
Age → OrDif	0.116	0.026	4.431	<0.001	0.065	0.168
Age → MatDif	0.107	0.025	4.301	<0.001	0.058	0.156

OrDif, Organizational Difficulties; AcDif, Academic Difficulties; MatDif, Material Difficulties; SoDif, Social Difficulties: SE, Standard Error; CI, Confidence Interval.

TABLE 7 Standardised coefficients of the model.

	Estimate	SE	*z*	*p*	95% CI	
					Lower	Upper
AcDif → OrDif	0.274	0.025	10.935	<0.001	0.225	0.323
SoDif → OrDif	0.579	0.025	23.450	<0.001	0.531	0.627
Edad → OrDif	0.129	0.019	6.786	<0.001	0.092	0.166
Sexo → OrDif	−0.050	0.039	−1.303	0.193	−0.126	0.025
AcDif → MatDif	0.227	0.030	7.657	<0.001	0.169	0.286
SoDif → MatDif	0.572	0.029	19.551	<0.001	0.515	0.629
Edad → MatDif	−0.033	0.022	−1.461	0.144	−0.077	0.011
Sexo → MatDif	0.119	0.046	2.580	0.010	0.028	0.209
Edad → AcDif	0.182	0.032	5.621	<0.001	0.119	0.246
Sexo → AcDif	−0.131	0.067	−1.962	0.050	−0.262	−0.000
Edad → SoDif	0.114	0.033	3.460	<0.001	0.050	0.179
Sexo → SoDif	−0.002	0.068	−0.028	0.978	−0.135	0.131
Sexo → Edad	−0.535	0.064	−8.370	<0.001	−0.660	−0.410

OrDif, Organizational Difficulties; AcDif, Academic Difficulties; MatDif, Material Difficulties; SoDif, Social Difficulties: SE, Standard Error; CI, Confidence Interval.

process. These results contradict the studies of Marcelo (2009), where the following are highlighted as the greatest difficulties for new teachers: motivation, individualisation of teaching and knowledge of the students. Jare (2020) found the same problems for new science teachers, this time through a qualitative study carried out with MAXQDA11. The results obtained also contradict those of Solis et al. (2016), who highlight among the most important concerns of novice teachers the work and relationships with colleagues and students' families (Cañón et al., 2017; Fernández, 2017).

The second block of discussion focuses on the differences found according to the sex and age of the Master's Degree students and their main concerns for teaching. On the one hand, significant differences were detected according to age. Older students identified greater difficulties in academic, organisational and social aspects. In other recent studies (Sanz et al., 2022), this trend was confirmed in all factors except material and technological aspects. Students in the fourth year of the Bachelor's Degree in Teaching, on the other hand, also showed a greater concern for interpersonal problems and pedagogical innovation. Another difference detected (Sánchez-Cabrero and Pericacho-Gómez, 2022) is that younger students show a higher level of intrinsic motivation to teach. This is explained by another result obtained in this research: older students had chosen teaching as a second career option. If this comparison is transferred to new teachers—younger on average—different results are found. The study by Moliner and Ortí (2015) establishes different concerns according to the number of years of teaching experience. For new teachers, the greatest concern was meeting academic objectives; for those with between 5 and 10 years of experience, the relationship with families; and for the most veteran teachers, the ratio, personalised work and time management. In contrast, Cañón et al. (2017) do not identify different difficulties according to age or experience. They only observe slightly more concern among new teachers in the relationship with families and the management team.

On the other hand, about the gender variable, there are moderate differences in academic and organisational aspects. Males show greater concerns about academic and organisational difficulties. Some studies carried out with this same instrument (Cañón, 2012) identified that men were more concerned about: not knowing how to motivate students, applying discipline and using the various teaching aids. Women, however, were more concerned about organising daily work, determining the level of content to be taught and tackling discipline problems. Thus, men were more concerned with aspects related to the academic, social and material dimensions, while women were more concerned with the organisational and social dimensions. In both cases, they agreed on the difficulty of enforcing discipline in the classroom. Camacho and Padrón (2005) had already detected that the first deficiencies among the Master's students were classroom management, attention to diversity, assessment, guidance and educational innovation. And it was women who perceived the greatest need for training. In more recent studies (Sanz et al., 2022), no differences were detected by gender. However, when analysing each item separately, men were more concerned about attention to diversity and personalised education, daily programming and the use of different methodologies. On the other hand, women were more concerned about professional and personal relationships with parents and colleagues and their reaction to the application of methodological innovations. One aspect to bear in mind, according to Sánchez-Cabrero et al. (2023), is that women who take this Master's degree have a poorer memory of the teachers they had when they studied Secondary Education. According to these authors, this reflects a lack among teachers in dealing with common problems derived from the female role in adolescence (body changes, excessive social pressure towards image, eating disorders, etc.).

Finally, the third block of discussion deals with the results obtained from the analysis of the fit of our theoretical model to the data. The results of the multiple mediation model indicate that the older the age, the greater the organisational difficulties. On the other hand, age does not directly predict material difficulties in a relevant way, but it does indirectly through academic and social difficulties, the latter being complete predictors in this relationship. The total indirect effects indicate that higher age predicts higher organisational difficulties through the joint effect of perceiving greater academic and

social difficulties. Finally, the model analyses the influence of gender on these relationships, finding that there are more academic concerns for men and more material concerns for women. Gender shows no relevant effect on their influence on organisational and social difficulties.

5 Conclusion

The aim of this research was to analyse the main concerns of Master's students in relation to their future professional performance. In view of the results, it is evident that Master's students are more concerned about aspects that can be considered secondary within the teaching-learning process (material and organisational elements), instead of being concerned about academic and social aspects, which constitute the fundamental core of the educational process (Tobón, 2007; Montero, 2021). This perspective can be attributed to different factors: (a) the possibility that students have received solid training in academic content and innovative methodologies, either in university degrees or in the Master's degree itself. This may generate a positive perception of their own competences, strengthening their self-efficacy beliefs and, consequently, making them feel sufficiently qualified to carry out their teaching work successfully (González et al., 2020). In this sense, it seems that the academic training our students receive at undergraduate and postgraduate level contributes to the development of teaching competences as well as certain soft skills; (b) the existence of a trend towards rigorous implementation and compliance with the increasingly demanding requirements of education laws. This can be reinforced by the numerous changes we have seen in recent years in terms of legislation. The new education law (LOMLOE, 2020) incorporates new indicators and requirements that teachers must fulfil, in many cases without adequate training. All this generates uncertainty and confusion, causing many teachers to feel overwhelmed by the situation (Medrano and Goicuria, 2021). If we add to this the student ratio, which is still high, the teaching load and personalised attention, it is not surprising that students divert their attention and concern towards material and organisational elements (choosing the right teaching aids or scheduling lessons correctly). Finally, another aspect that sometimes leads teachers to burnout syndrome is the resistance or rejection of some students, families and management teams to new ways of teaching (Musons, 2021). This resistance to change is one of the main problems we have in schools and the cause of hindering compliance with the actions stipulated by educational law, focused on promoting active and innovative methodologies. In this scenario, it seems logical that our pupils feel great concern.

We have also observed that older students are more concerned about the difficulties they will encounter as teachers. It seems that the accumulated knowledge and experience that comes with age contributes to an awareness of the complexity of educational work. Perhaps this is the reason why, in this study, older pupils choose teaching as a second career option. Similarly, the results with regard to gender are noteworthy. Male students are more concerned with academic and organisational difficulties, while female students are more concerned with material difficulties. This finding corroborates the data obtained in numerous research studies in which female students have better grades (Soria et al., 2019; Cárcamo et al., 2020).

Finally, the multiple mediation model serves to predict the types of difficulties that prospective teachers are concerned about as a function of age and gender. This may contribute to future research that will deepen the understanding of the teaching difficulties of prospective teachers. In terms of limitations, it is worth mentioning the difficulties encountered, in some cases, in accessing the sample. On the other hand, as future lines of research, it is proposed to increase the sample with students from other Autonomous Communities, which could give an overall view of the situation of future teachers at national level.

Data availability statement

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

Author contributions

JS-P: Conceptualization, Investigation, Methodology, Writing – original draft, Writing – review & editing. JG-B: Conceptualization, Investigation, Writing – original draft, Writing – review & editing. PG-G: Conceptualization, Investigation, Methodology, Writing – original draft, Writing – review & editing. EM-F: Conceptualization, Writing – original draft, 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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