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Perceptions and preparedness of secondary teacher trainees to foster inclusive schools for all

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Introduction: The advancement of inclusive education over the past few decades emphasizes the pivotal role of teachers in transforming the educational landscape. As schools transition toward a more inclusive approach, it is imperative to evaluate the efficacy of initial teacher training programs in preparing educators for this inclusive transition. This study aims to describe the preparedness and perceptions of students in the Master's Degree in Secondary Education, Vocational Training, and Language Teaching (MDSE) regarding inclusive education, guided by the profile developed by the European Agency for the Development of Special Needs and Inclusive Education (AEDNEEI).

Methods: Furthermore, the research analyzes how external factors, such as perceived self-efficacy, influence these perceptions and readiness for inclusive teaching. A total of 218 students enrolled in the MDSE, with an average age of 31.5 years and a standard deviation of 6, were examined. Of the participants, 33% were male and 67% were female. These students came from different Spanish universities and were either in the final stages of their studies or had already completed them. Prior to participating, they had finished the generic module and completed their practice sessions in secondary education centers. The "Teacher Training in Secondary Education: Key Elements for Teaching in an Inclusive School for All" (TTSE-IN) questionnaire was employed, which includes five validated and pertinent instruments, with four of them being employed for the study's objectives: The "Questionnaire for Future Secondary Education Teachers about Perceptions of Diversity Attention," the "Questionnaire for the Evaluation of Teacher Training for Inclusion CEFI-R," the "Revised Scale of Feelings, Attitudes, and Concerns about Inclusive Education" (SACIE-R), and the "Brief Scale of Teacher Self-Efficacy."

Results and Discussion: The results show the presence of positive attitudes in future educators along with a poor overall assessment of the training received, which raises concerns about the development of teaching functions more related to daily work in the classroom and the implementation of inclusive methodologies. At the same time, both regular and close contact with people in situations of special vulnerability, experience in training in nonformal contexts, and the level of teacher self-efficacy, in its different components, are postulated as some of the facilitators of the development of the postulates and values of inclusive education and predictors of greater capacity toward attention to diversity.

KEYWORDS

inclusive teacher, initial teacher education, secondary education, teacher self-efficacy, school for all

1 Introduction

Today's societal demands, are reflected in international documents such as "Transforming our world: the 2030 Agenda for Sustainable Development" (Armando et al., 2019). Of particular relevance to this study is the "Sustainable Development Goal" (SDG) (UNESCO, 2005) "Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all" (Duk and Murillo, 2020). Additionally, the recent regulatory changes in the educational field of our country, as seen in Organic Law of Education 3/2020 (LOMLOE) (BOE, 2020), offer us a new opportunity to reflect on the education we offer to students in our system. This education should be grounded in principles of social justice moving away from the deficit model. Instead, it should favoring the perception and experience of diversity as a challenge and opportunity to enrich the ways of teaching and learning (UNESCO, 2005). This is a chance to collaboratively design strategies and paths toward achieving an "Education for all." The initial training of teachers should equip them with the knowledge, competencies, values and attitudes that prepare them as inclusive educators capable of successfully facing the challenge of diversity in their classrooms; It is evident that the transformation of schools, stemming from their cultures and values, policies, and practices (Sandoval et al., 2013), requires the development and promotion of a new teaching role to lead this process (Herrera-Seda, 2018).

The Sixth Additional Provision of the LOMLOE addresses "Education for Sustainable Development and Global Citizenship." It establishes that the achievement of SDG 4 will be taken into account in teacher training processes and in access to the teaching profession, with the projection that by the year 2022, the knowledge, skills, and attitudes related to education for sustainable development and global citizenship (UNESCO, 2022) will have been incorporated into the system for accessing the teaching profession; Furthermore, the Seventh Additional Provision of the LOMLOE indicates that, within this timeframe, a regulatory proposal will be presented to govern, among other aspects, initial and ongoing teacher training, access to the teaching profession, and professional development. And up to this point, this maxim has not been developed, although proposals for the transformation of initial training have been put forward. This issue has also been addressed by relevant authors in our country who contributed proposals based on their background in educational research (Durán and Giné, 2017; Imbernón, 2019).

As we can see, the development of Inclusive Education has underscored the pivotal role of teachers in the transformation of the education system as a whole. As pointed out by the Profile of Competencies for Inclusive Teaching, a result of the Project "Teacher Training for Inclusion" (European Agency for Development in Special Needs Education, 2011, 2012), there are four values that articulate the main competencies to be developed in the initial training of future teachers, with their related contents (concepts, procedures, and attitudes), for their "ethical literacy" (Booth et al., 2015) in this process: "1. Valuing student diversity: differences among students are a resource and a value within education; 2. Supporting all students: teachers expect the best from all their students; 3. Working as a team: collaboration and teamwork are essential approaches for all teachers; 4. Professional and personal development: teaching is a learning activity, and teachers have the responsibility to learn throughout their lives."

This profile, and the preceding it, have formed the basis for numerous investigations and articles (González-Gil et al., 2017; Rodríguez, 2019). Furthermore, after reviewing of studies on

perceptions and training needs for the development of inclusive schools both from professional and personal competencies perspectives (Rodríguez et al., 2019; Rodríguez Fuentes et al., 2021), it is evident that the success of education and, consequently, inclusion, depends largely on the preparation of teachers to teach in contexts where diversity is the norm, enriching the teaching and learning processes for all.

In the secondary education stage, this challenge is even greater because the previous trainings before the MDSE open a wide range of positions, knowledge, and previous experiences. These elements serve as a foundation upon which to build a new perspective that gives rise to Universal Design for Learning (Alba Pastor, 2018), which implies "above all, an attitude, a predisposition to think about the learning needs of all students" (Ruiz Rodríguez, 2019); thus, the attitudes that future teachers possess regarding inclusive education and attention to diversity constitute a critical factor influencing the extent of adaptation, thereby directly impacting students' academic performance (Blotnicky-Gallant et al., 2015), and are strongly associated with the teachers' level of training (Pegalajar Palomino and Colmenero Ruiz, 2017).

Therefore, knowing the attitudes of MDSE students toward attention to diversity and inclusive education is crucial. Equally important is discerning, their perceived level of competencies, skills, and abilities for their professional development as inclusive teachers. Together, these insights, are important step toward improving the education system and achieving maximum results; furthermore, identifying their strengths and weaknesses will help to enhance the resources that universities, and among them, their different levels and areas of impact on society, can promote and develop to support them in their work from the necessary perspective of the Ecology of Equity (Ainscow et al., 2012, 2013).

In addition, several authors (Holdheide and Reschly, 2008) indicate that if teachers do not feel prepared to work with all students, the challenge is to promote and improve the training processes, based on their teaching needs, increasing the sense of teacher self-efficacy. If this feeling is positive, it will certainly generate negative attitudes toward inclusive schools and attention to diversity, along with higher levels of concern and stress that may result in failure to implement educational practices (Sucaticona, 2016). We cannot ignore that according to research (Prieto Navarro, 2002; Collado-Sanchis et al., 2020), these beliefs of teacher self-efficacy are a key element that influences the development of educational strategies that teachers consciously or unconsciously carry out in their classrooms.

Therefore, it seems that both the perception of attention to diversity and inclusive schools, the acquired competencies and attitudes of future teachers toward these, as well as the level and sign of perceived self-efficacy for their work are key aspects to make inclusion effective as a reality in current education.

Now, we must ask ourselves if the initial training through the MDSE program impacts these aspects through the transmission and exemplification of associated conceptual, attitudinal, and procedural knowledge; if this training is related to a more positive attitude toward diversity, and if it influences a higher perception of self-efficacy, a lower level of concerns, and a greater capacity to deploy strategies in the classroom that are adapted to the reality and diversity of each student. Thus, in the conclusions, as the UNESCO report on "Education for All" (ONU, 2014) and the 2020 Education Monitoring Report (UNESCO, 2020) show, proposals will be collected that can help in the development of one of the key strategies for improving the

school institution: the improvement of teacher training so that they obtain the necessary training that promotes positive attitudes toward diversity, questioning of educational reality, and the search for alternatives that overcome inequalities (Sales Ciges, 2006; Collado-Sanchis et al., 2020).

The aim, therefore, is twofold: to describe attitudes and perceptions toward diversity and the level of acquisition of competencies and knowledge required to become inclusive teachers, and to identify the initial relationship of the results with other variables relevant to this study that may act as facilitators or barriers to the professional and personal development of future educators in 21st-century education. Achieving these goals will allow us to provide data that can contribute to the development of new curricula in our country.

2 Materials and methods

2.1 Study design

This is a cross-sectional research that uses a questionnaire as an instrument to collect information. In addition, a correlational study was carried out on the perceptions of MDSE students related to their attitude, concerns, and training toward attention to diversity in inclusive schools, assessing the influence and interaction of the perception of teacher self-efficacy and other relevant variables related to the study object.

The Bioethics Committee of the University of Burgos approved the research (Reference UBU 032/2021), respecting all the requirements established in the Declaration of Helsinki of 1975.

2.2 Participants

The equations should be inserted in editable format from the equation editor. A total of 72 male and 146 female students enrolled in Master's Degree in Secondary Education (MDSE) participated in the study. The study included students from 44 universities in Spain, which consisted of 31 public universities and 13 private institutions. After identifying both public and private universities offering the MDSE, contact was made via email with the MDSE coordinators and faculty members. They were requested for their collaboration in the study and for the distribution of the questionnaire among their students. Out of the 67 identified universities, 44 agreed to participate.

The participants were individuals who had completed their MDSE studies in any specialization during the academic year 2021–2022 or who had finished the Generic Module of the MDSE and finalized their hand-on training at secondary education schools during the academic year 2022–2023. The only requirement for their inclusion in the study was meeting these criteria. The average age of the sample was 31.5 years, with a standard deviation of 6. Specifically, the mean age for women was 31.2 years, while for men, it was 32.3 years.

2.3 Instruments

To gather the necessary data, a comprehensive questionnaire called “Teacher training in secondary education: key elements for

teaching in an inclusive school for all (TTSE-IN)” was developed, consisting of 99 items. This questionnaire incorporated five validated questionnaires based on Spanish samples. For the specific study discussed in this article, which is part of a larger research project, the following instruments from the overall questionnaire were utilized. On the one hand, to measure student attitudes toward diversity and inclusive education, and the perceived level of competencies, skills, and abilities for professional development, three questionnaires were included, with statements rated on a 4 point Likert scale from 1 (totally disagree) to 4 (totally agree). These are:

“Questionnaire for Future Secondary Education Teachers about Perceptions of Diversity (CFDPAD)” (Colmenero Ruiz and Pegalajar Palomino, 2015). This questionnaire collects information using 43 items that exhibit high reliability across all their factors. Factor 1: *Conditioning elements of the diversity attention process in the classroom* ($\alpha=0.959$); Factor 2: *Curricular and organizational response to diversity in the classroom* ($\alpha=0.915$); Factor 3: *Teacher training toward diversity* ($\alpha=0.870$); Factor 4: *Formative teaching practice in diversity attention* ($\alpha=0.906$); Factor 5: *Teacher perception toward students with specific educational support needs* ($\alpha=0.916$).

“Questionnaire for the Evaluation of Teacher Training for Inclusion (CEFI-R)” (González-Gil et al., 2017). It is a multidimensional instrument composed of 16 items that measure the attitudes, competencies, skills, and abilities of teachers and students in different branches of education, including MUPES. The four dimensions are: *Conception of Diversity*, *Methodology*, *Support*, and *Community Participation*. This instrument complements the previous questionnaire and enriches it by providing a perspective on support and community participation in the development of inclusive education.

“Revised Scale of Feelings, Attitudes, and Concerns about Inclusive Education (SACIE-R)” (Forlin et al., 2011). It is designed for practicing and preservice teachers and consists of 12 items that measure the perception of inclusive education and the concept of students who belong to it, feelings toward people with disabilities, and concerns about having different students in the classroom. In the Spanish adaptation (Rodríguez et al., 2019), the reliability for students was deemed acceptable, with a Cronbach's alpha value of $\alpha=0.67$, closely mirroring the original version ($\alpha=0.74$).

On the other hand, to measure perceived teacher self-efficacy, the following scale has been used in different studies, among others, with the population under investigation (Mérida-López and Extremera, 2020):

“Brief Scale of Teacher Self-Efficacy” (Mérida-López et al., 2018). The Spanish adapted version of the “Teachers' Sense of Efficacy Scale” by Tschannen-Moran and Hoy (2001) was used to evaluate teacher self-efficacy. This scale measures the perception of teacher self-efficacy in three dimensions: perceived efficacy for optimizing one's own instruction, perceived efficacy for managing the classroom, and efficacy for engaging students in learning. This scale has been shown to be very reliable and to have excellent validity (Klassen et al., 2009). The instrument proves adequate psychometric properties in Spanish samples.

The questionnaire was designed to be completed online, ensuring anonymity and voluntary participation. It included a section where participants could freely contribute additional comments. To facilitate its administration, the questionnaire was implemented using the Google Forms platform. To reach a wide range of participants from

Spanish universities, emails containing the questionnaire link were sent to the MDSE units, and letters were sent directly to students. After collecting the data, a matrix was created to evaluate the responses using IBM SPSS (Statistical Package for the Social Sciences) version 25, a statistical software program.

2.4 Statistical analysis

In addition to examining the collected responses in detail, the data were analyzed using the following methods (Blanca et al., 2017). Initially, a bivariate analysis was conducted, employing the Student's *T*-test to assess variances in central tendencies between questionnaire responses when comparing two groups. This test was utilized for variables such as gender (female vs. male) and the presence or absence of close and regular interaction with individuals in situations of special vulnerability (yes vs. no), teaching experience with people in situations of special vulnerability in non-formal contexts (yes vs. no), and type of institution where the MDSE is studied (public vs. private). Second, ANOVAs were employed to assess variances in central tendencies when the comparative criteria involved more than two groups, and subsequent post-hoc DMS analysis was conducted to elucidate the character of statistically significant distinctions between groups as they were identified.

It should be noted that to manage the results of the Brief Scale of Teacher Self-Efficacy, we used the total score as a more appropriate indicator for future teachers (Tschannen-Moran and Hoy, 2001), while also analyzing the results of its components. For cases in which the significance of the variable for the object of study was identified, we chose to classify the scores of each subject into the categories of "low," "medium," or "high" by calculating the 33rd and 66th percentiles for this sample. We established that the "low" level would range from the lowest score to the score corresponding to the 33rd percentile, the "medium" level would range from the score following the 33rd percentile to the score corresponding to the 66th percentile, and the "high" level would range from the score immediately above the 66th percentile to the maximum score obtained.

3 Results

The sample included 218 individuals (146 women and 72 men) over the age of 31 who participated in the study, representing approximately half of the sample. A total of 43.1% of the sample entered the MDSE program out of vocation, and 43.6% did so for the possibility of accessing a stable job, while the remaining participants did so because they had no better option after finishing their undergraduate degree (4.1%), due to the influence of a professor who marked their training (4.6%), or because of the influence of a family member who is or has been a teacher (4.6%).

A total of 29.4% have completed higher education in the area of Social and Legal Sciences, 31.2% in Arts and Humanities, 2 1.6% Engineering and Architecture, 14.7% in Sciences and 3.2% in Health Sciences. 43.6% of the sample took the MDSE for the possibility of accessing a stable job and 43.1% for vocation. A total of 34.4% had regular contact with vulnerable people under diverse parameters and 29.4% had experience in non-formal teaching. Regarding the universities, 70.5% were publicly owned and 29.5% were private.

The following section presents the results regarding the perception of MDSE students on both diversity attention and the level of acquired competencies and knowledge for inclusive teaching. Additionally, the relationship of the data with the main analyzed grouping variables will be shown, including, among others, the feeling of teacher self-efficacy, to answer the posed questions and open new ones.

3.1 Questionnaire for future secondary education teachers on perceptions of diversity attention CFDPAD

In Factor 1, *Conditioning Elements of the Diversity Attention Process in the Classroom* ($M=3.6743$; $SD=0.2661$), the sample presents a very high level of agreement on the elements that should be present in the teaching and learning process for the development of a quality diversity attention process in the classroom.

Regarding the primary grouping variables examined, significant statistical differences were observed between groups, with higher levels of agreement and positive attitudes among female participants ($t=3.265$; $p=0.001$) and those who had regular contact with people in situations of special vulnerability ($t=2.397$; $p=0.017$).

Regarding the perception of teaching self-efficacy (Tables 1–3), statistically significant differences were found between groups in all three components that make up the total score. Greater agreement on key elements for quality teaching is associated with a greater sense of teaching self-efficacy in the areas of efficacy in engaging students in learning "commitment to students" ($F=2.837$; $p<0.001$), with statistically significant differences between high versus low ($p<0.001$) and medium ($p=0.010$) level groups; perceived efficacy in optimizing one's own instruction "instructional strategies" ($F=2.248$; $p=0.003$), with differences between high and low perceived self-efficacy levels with a significance of $p<0.001$; and perceived efficacy in managing the classroom "classroom management" ($F=1.896$; $p=0.011$).

In Factor 2 ($M=2.289$; $SD=0.773$), *Curricular and Organizational Response to Diversity in the Classroom*, the results show ratings with means that indicate a predominantly negative level, and in all aspects evaluated, regarding the level of training acquired as future teachers to respond to the educational needs of students in the classroom, both through the organization of the classroom, time management, types of grouping management, methodological strategies, measures and programs for attention to diversity, selection and adaptation of objectives, competences and contents, tasks and activities, and the evaluation of the teaching and learning process. The percentage of the sample that does not feel they have received adequate training in the different aspects related to attention to diversity is 75.2% cumulatively, taking into account the different levels of disagreement with the statements. Only 14.8% of the sample perceived their training as adequate or very adequate.

Statistically significant differences have been obtained between the sample studying at a public university versus a private university, with the former presenting a worse evaluation of the training received ($t=-3.972$; $p<0.001$). Statistically significant differences also appear in the variable of maintain close and regular contact with people in situations of special vulnerability ($t=2.484$; $p=0.014$) and in the group of people who had experience in teaching people in situations of special vulnerability in non-formal contexts ($t=2.009$; $p=0.046$).

Regarding teacher self-efficacy (Tables 2, 4), those with a higher level of self-efficacy rated the training more positively as a total score ($F=1.649$; $p=0.012$), with significant differences between high and low levels ($p=0.016$). Similarly, perceived self-efficacy to optimize their own instruction “instructional strategies” shows significance ($F=2.084$; $p=0.006$), with statistically significant differences between the group with high self-efficacy level compared to those with low ($p=0.002$) and medium level ($p=0.041$), the former feeling more capable of responding to diversity in the classroom.

Regarding the assessment of future teachers regarding the training received in the MDSE and their preparation in the field of diversity, the perceived level is generally low. In Factor 3, *Teacher Training for Diversity* ($M=2.312$; $DT=0.727$), the results show significant differences between the students who take the MDSE in a public or private university, with public university students feeling less prepared in the field of diversity ($t=-3.040$; $p=0.003$). There were also statistically significant differences between groups in terms of the feeling of “self-efficacy” as a total score ($F=1.444$; $p=0.049$), with a

higher level of self-efficacy associated with greater preparation (Table 4).

It is noteworthy that despite the overall results, the best ratings in this factor refer to items on the usefulness of MDSE for “affirming my personal choice toward teaching” ($M=2.98$; $SD=1.097$), “strengthening my interest toward a greater awareness of diversity” ($M=2.75$; $SD=1.149$), and “having a greater awareness of diversity” ($M=2.75$; $SD=1.149$).

The results in Factor 4 ($M=2.333$; $DT=0.530$), *Teaching Practice for Diversity*, which analyzes how the training received in the Master’s Degree allows future teachers to respond to the interests and concerns detected in students with special educational needs in the school context, show a perception of the poor impact of the training received on future inclusive teaching practice, with activities or practical examples developed in classes not improving their knowledge of diversity in general, and not considering themselves sufficiently qualified to face the challenge in the classroom. The item with the highest level of agreement was “A quality diversity care process

TABLE 1 Differences between CFDPAD factors and self-efficacy “Commitment to students” using ANOVA.

CFDPAD factors	Self-efficacy <i>Commitment to students</i>	N	Mean	SD	F	p
F1. Conditioning elements of the diversity attention Process in the classroom	Low	74	3.607	0.299	2.837	<0.001
	Medium	81	3.659	0.264		
	High	63	3.772	0.191		
	Total	218	3.674	0.266		

TABLE 2 Differences between CFDPAD factors and self-efficacy “Instructional strategies” using ANOVA.

CFDPAD factors	Self-efficacy <i>Instructional strategies</i>	N	Mean	SD	F	p
F1. Conditioning elements of the diversity attention process in the classroom	Low	92	3.599	0.307	2.248	0.003
	Medium	55	3.678	0.268		
	High	71	3.768	0.156		
	Total	218	3.674	0.266		
F2. Curricular and organizational response to diversity in the classroom	Low	92	2.144	0.751	2.084	0.006
	Medium	55	2.236	0.666		
	High	71	2.517	0.834		
	Total	218	2.289	0.773		
F4. Teaching practice for diversity.	Low	92	2.284	0.507	2.083	0.006
	Medium	55	2.214	0.469		
	High	71	2.487	0.574		
	Total	218	2.333	0.530		

TABLE 3 Differences between CFDPAD factors and self-efficacy “Classroom management” using ANOVA.

CFDPAD factors	Self-efficacy <i>Classroom management</i>	N	Mean	SD	F	p
F1. Conditioning elements of the diversity attention process in the classroom	Low	76	3.652	0.284	1.896	0.011
	Medium	77	3.650	0.263		
	High	65	3.728	0.242		
	Total	218	3.674	0.266		

TABLE 4 Differences between CFDPAD factors and self-efficacy "Total score" using ANOVA.

CFDPAD factors	Self-efficacy Total score	N	Mean	SD	F	p
F2. Curricular and organizational response to diversity in the classroom	Low	74	3.593	0.317	1.649	0.012
	Medium	71	3.676	0.252		
	High	73	3.754	0.189		
	Total	218	3.674	0.266		
F3. Teacher training for diversity	Low	74	2.255	0.686	1.444	0.049
	Medium	71	2.264	0.639		
	High	73	2.417	0.837		
	Total	218	2.312	0.727		

requires previous experience with students with educational needs" ($M=3.17$; $SD=0.750$).

Again, there are statistically significant differences between students who take the Master's Degree in a public university and those who take it in a private university ($t=-2.743$; $p=0.007$), with the latter having a more positive rating on the impact of the training on their future teaching practice. There were also significant differences between groups regarding the feeling of self-efficacy "instructional strategies" ($F=2.083$; $p=0.006$) (Table 2), with a higher perceived positive impact of the training received for students with a high level of self-efficacy in terms of their ability to improve their teaching skills compared to those with low ($p=0.015$) or medium levels ($p=0.004$).

In Factor 5 ($M=2.695$; $DT=0.539$), *Teacher Perception of Students with Specific Educational Support Needs in the School Context*, which assesses the attitudes of future teachers toward diversity and responding to educational needs in the classroom in general, the results show relatively positive attitudes resulting from the agreement on inclusive approaches with the perception of added workload. A total of 64.1% of the sample disagrees with the approach of schooling in special education centers, and 81% agrees that "having students with educational needs in the classroom is an added."

3.2 Teacher training evaluation questionnaire for inclusion CEFI-R

The results in Dimension 1 *Conception of Diversity* (Table 5) show the assessment of the sample regarding the concept of diversity, the place and way in which the schooling of students is considered, the educational policy that forms the basis for these choices, and, in the end, the personal interpretation of inclusive education (European Agency for Development in Special Needs Education, 2011). Nearly half of the sample (48.6%) feels concern again about the increase in workload when having students with specific educational support needs in the classroom, although 78.4% do not consider that a student with these needs interrupts the routine of the classroom or harms the learning of others.

In Dimension 2 *Methodology* (Table 5), regarding the preparation of future teachers for the development of methodological strategies, resources, materials, communication techniques, and evaluation from an inclusive framework, the sample appears polarized, with approximately half of the participants trained and educated in this regard. The use of communication techniques as a tool for inclusion

is the competence in which participants feel most capable ($M=2.73$; $SD=0.797$), with 69.3% of the total agreeing with this situation. On the other hand, "adapting my way of evaluating to the individual needs of each of my students" ($M=2.39$; $SD=0.868$) and "teaching each of my students differently based on their individual characteristics" ($M=2.44$; $SD=0.818$) are the weak points presented by future teachers.

This *Methodology* dimension shows a positive relationship with the variables of having close and regular contact with individuals facing special vulnerability ($t=2.454$; $p=0.015$), studying the MDSE at a private university ($t=-3.375$; $p=0.001$), and having experience in non-formal education for people in situations of vulnerability ($t=2.609$; $p=0.010$). Significant statistical differences between groups in the variable of total perceived teacher "self-efficacy" ($F=2.248$; $p<0.001$) are also noteworthy, both at this overall level and in each of the components that make it up (Tables 6–9), showing a positive relationship in *post hoc* analysis at its high levels. This group presents a more accurate view of inclusive education and its processes, as well as a feeling of greater preparation for its development through the different elements of inclusive teaching practice. Perceived self-efficacy to optimize one's own instruction: "Instructional strategies" $F=2.992$; $p<0.001$; Perceived self-efficacy to manage the classroom: "Classroom management" $F=3.058$; $p<0.001$; Perceived self-efficacy to involve students in learning: "Student engagement" $F=3.504$; $p<0.001$.

In Dimension 3 *Supports* (Table 5), which addresses the definition of support, the expected role of support teachers, the possible beneficiaries of this support and where it is provided, the sample shows a greater tendency to position themselves in agreement with the presented inclusive approaches. The highest agreement is given in the items "Joint planning between the support teacher and classroom teacher would facilitate support provision within the classroom," with 88.2% of the sample in favor of the approach, and "I consider that the place of the support teacher is within the regular classroom with each of the teachers," with 85.3% in favor. In addition, statistically significant differences are found between groups, studying the MDSE at a public university ($t=2.187$; $p=0.003$), with close and regular contact with people in situations of special vulnerability ($t=2.538$; $p=0.012$), and with experience in teaching people in situations of special vulnerability in non-formal contexts ($t=2.420$; $p=0.017$) positively influencing greater agreement. There are also statistically significant differences between groups in the variable of total teacher "self-efficacy" perception (Table 6), showing a positive relationship in *post-hoc* analysis at high levels compared to low levels ($p=0.011$), and

TABLE 5 Descriptive statistics CEFI-R dimensions.

CEFI-R dimensions	Range	Min	Max	Mean	SD
D1 Conception of diversity	3.00	1.00	4.00	2.176	0.734
D2 Methodology	3.00	1.00	4.00	2.545	0.665
D3 Supports	3.00	1.00	4.00	3.166	0.584
D4 Community participation	2.67	1.33	4.00	3.623	0.488

TABLE 6 Differences between CEFI-R dimensions and self-efficacy "Total score" using ANOVA.

CEFI-R dimensions	Self-efficacy Total score	N	Mean	SD	F	p
D2. Methodology	Low	74	2.216	0.539	2.248	<0.001
	Medium	71	2.543	0.515		
	High	73	2.879	0.746		
	Total	218	2.545	0.665		
D3. Supports	Low	74	3.060	0.586	3.439	0.034
	Medium	71	3.133	0.571		
	High	73	3.304	0.576		
	Total	218	3.166	0.584		
D4. Community participation	Low	74	3.531	0.570	3.150	0.045
	Medium	71	3.610	0.457		
	High	73	3.730	0.406		
	Total	218	3.623	0.488		

in the perceived self-efficacy for "classroom management" (Table 9) with significant differences between high self-efficacy levels and low ($p=0.03$) and medium ($p=0.016$) levels.

In Dimension 4 (Table 5), *Community Participation*, which collects approaches to collaborative work between the educational center and other community agents, as well as the use of the resources offered by the environment, the results of the sample indicate a high tendency toward agreement on the importance of participation as a key element in the process of attention to diversity in inclusive schools. It is observed how these ideas are more positively shared by the group of women in the sample ($t=2.562$; $p=0.011$) and by those with a greater sense of total teacher "self-efficacy" ($F=3.150$; $p=0.045$); within self-efficacy, it is also positively related to "instructional strategies" ($F=2.101$; $p=0.005$) and for involving students in learning "commitment to students" ($F=2.173$; $p=0.005$) with significant differences in post-hoc analysis between high self-efficacy and low ($p=0.002$) groups.

3.3 Revised scale of feelings, attitudes, and concerns about inclusive education (SACIE-R)

General data about these dimensions were already provided in a previous study in a more comprehensive manner (Arias Pastor et al., 2023). In Factor 1 *Attitudes* ($M=3.1578$; $SD=0.61115$), the sample presents a positive perception of inclusive education and the concept of students who belong to it, showing agreement with the inclusion of students with disabilities and other personal conditions. In addition,

students with difficulties expressing themselves orally and those with attention problems are perceived more positively.

Concerning the examined grouping variables, there are statistically significant differences between the groups in terms of the sex variable, showing a more positive attitude in the female group ($t=2.757$; $p=0.006$).

In Factor 2 ($M=1.4098$; $SD=0.55820$), *Feelings* toward people with disabilities, the results show appropriate feelings with disagreement ratings for the presented approaches related to negative perceptions and emotions between 88.9 and 95.4% of participants. The perceived self-efficacy variable appears to significantly influence optimizing one's own instruction in "instructional strategies" (Table 10) and in "classroom management" (Table 11) with statistically significant differences between groups, showing more positive feelings in individuals with high levels in these variables.

Last, in Factor 3 ($M=2.9140$; $SD=0.68417$), *Concerns* about having diverse students in the classroom, the findings indicate elevated levels of concern in items associated with teacher preparation to face the challenge of diversity in the classroom, while presenting a lower level of concern in approaches that are more linked to the effects of diversity on teachers themselves. The items that most reflect the level of concern for future teachers are those referring to "I consider it difficult to provide adequate attention to all students in a classroom" ($M=3.43$; $SD=0.732$) and "I am worried about not having the necessary knowledge and skills to teach students with disabilities" ($M=3.30$; $SD=0.867$).

The variables of experience in training in non-formal contexts for people in situations of special vulnerability ($t=-2.080$; $p=0.039$), the area of knowledge of previous studies ($F=2.486$; $p=0.045$), and

TABLE 7 Differences between CEFI-R dimensions and self-efficacy "Instructional strategies" using ANOVA.

CEFI-R dimensions	Self-efficacy <i>Instructional strategies</i>	<i>N</i>	Mean	SD	<i>F</i>	<i>p</i>
D2. Methodology	Low	92	2.308	0.601	2.992	<0.001
	Medium	55	2.494	0.519		
	High	71	2.890	0.706		
	Total	218	2.545	0.665		
D4. Community participation	Low	92	3.568	0.547	2.101	0.005
	Medium	55	3.612	0.452		
	High	71	3.704	0.427		
	Total	218	3.623	0.488		

TABLE 8 Differences between CEFI-R dimensions and self-efficacy "Student engagement" using ANOVA.

CEFI-R dimensions	Self-efficacy <i>Student engagement</i>	<i>N</i>	Mean	SD	<i>F</i>	<i>p</i>
D2. Methodology	Low	74	2.264	0.561	3.504	<0.001
	Medium	81	2.516	0.543		
	High	63	2.911	0.752		
	Total	218	2.545	0.665		
D4. Community participation	Low	74	3.504	0.566	2.173	0.045
	Medium	81	3.625	0.448		
	High	63	3.761	0.403		
	Total	218	3.623	0.488		

motivation to pursue the MDSE ($F=2.958$; $p=0.021$) appear as the variables that directly influence the level of concerns, presenting statistically significant differences between groups. Particularly striking are the differences between groups pursuing the MDSE for "not having a better study option" and for "vocation" ($p=0.035$), and between "the possibility of having a stable job" and "vocation" ($p=0.002$), with individuals pursuing the studies out of vocational interest showing a lower level of concerns and thus lower scores in this factor.

4 Discussion

The main objective of the study is to understand the perception and attitude of future high school teachers toward diversity and their level of acquisition of competences and knowledge in inclusive teacher training, with the Profile of Competences of Inclusive Teaching (European Agency for Development in Special Needs Education, 2012) and its four main values as our reference.

The entire sample showed a favorable attitude toward diversity, recognizing the right to inclusive education for all secondary education students. The future teachers understand that it is the duty of the educational center to attend to all students and, for the most part, they believe that the participation and attitude of the families of students with specific educational support needs, as well as the

support of the school administration, are crucial factors in achieving quality diversity processes.

These data are relevant because the positive attitudes of future teachers are a pivotal factor in the achievement of inclusive education for students with educational needs (Saloviita, 2020). This is related to the effect that attitudes and teacher self-efficacy have on teachers' intention toward inclusive education practices (Opoku et al., 2021; Diaz-Asto et al., 2022). Furthermore, when examining the model for the establishment of the inclusive teaching profile according to AEDENEEI (Donnelly and Watkins, 2011; European Agency for Development in Special Needs Education, 2012), it becomes evident that, in spite of the importance of knowledge and skills, attitudes are essential; without the right attitudes, inclusion cannot be achieved.

According to the data collected on the perception of inclusive education and the concept of students who fit into it, the majority of the sample agrees with inclusive approaches. However, 23% of the sample disagrees with the mainstreaming of students who use alternative and/or augmentative communication systems. This last finding is, for us, an area for improvement to be included in the MDSE training plans, given that on the one hand, the increasing number of students who benefit from these supports is a reality (for example, the number of students with Autism Spectrum Disorder increased by 8.07% in the 2020–2021 academic year according to the Confederation Autism Spain), and on the other hand, it has been demonstrated that negative attitudes can be transformed into positive attitudes (Garzón

TABLE 9 Differences between CEFIR-R dimensions and self-efficacy "Classroom management" using ANOVA.

CEFIR-R dimensions	Self-efficacy Classroom management	N	Mean	SD	F	p
D2. Methodology	Low	76	2.226	0.514	3.058	<0.001
	Medium	77	2.516	0.564		
	High	65	2.950	0.724		
	Total	218	2.545	0.665		
D3. Supports	Low	76	3.111	0.616	1.860	0.013
	Medium	77	3.087	0.543		
	High	65	3.323	0.570		
	Total	218	3.166	0.584		

TABLE 10 Differences between SACIE-R factors and self-efficacy "Instructional strategies" using ANOVA.

SACIE-R factors	Self-efficacy Instructional strategies	N	Mean	SD	F	p
F2. Feelings	Low	92	1.471	0.557	2.490	0.001
	Medium	55	1.375	0.480		
	High	71	1.356	0.612		
	Total	218	1.409	0.558		

TABLE 11 Differences between SACIE-R factors and self-efficacy "Classroom management" using ANOVA.

SACIE-R factors	Self-efficacy Classroom management	N	Mean	SD	F	p
F2. Feelings	Low	76	1.521	0.579	1.766	0.021
	Medium	77	1.389	0.450		
	High	65	1.302	0.628		
	Total	218	1.409	0.558		

Castro et al., 2016), a process that can be designed and implemented during initial teacher training; attitudes can be educated.

These results, which are ambivalent in certain areas, remind us that teachers face the daily conflict between inclusive values and their beliefs and abilities to implement them (Chiner, 2011), and are also related to the fact that, as Albulhamail et al. (2014) point out, teachers' attitudes are highly correlated with their level of training. In terms of training for inclusive teaching, less than 10% of the sample feels fully prepared for curricular and organizational responses in the classroom, with the lowest ratings related to daily teaching in the classroom: selecting and customizing objectives, competencies, and content, as well as developing measures and programs for diversity support.

These data, along with others presented, are related to the ideas of Boix (2008) who points out that future secondary teachers have a lack of knowledge about classroom diversity and the factors related to their success, such as methodological competences. Developing inclusive practices through instructional methods is, in this and other studies (Rodríguez Macayo et al., 2020; Pérez-Gutiérrez et al., 2021), the weak point of future teachers; they do not feel methodologically competent to work from an inclusive perspective and to respond to the needs of all students. Training deficiencies focus, as previously noted, on daily educational practice with a lack of knowledge and/or competencies on

how to develop learning situations, adapt teaching materials and evaluate students, among others; we must prioritize addressing these needs.

Regarding the conception of specialized support, the majority of the sample considers it important that this support teaching staff be incorporated into the regular classroom with each teacher understanding the need for joint planning between support teacher and regular teacher. These results seem to be related to the desired perception of support as a tool to increase the capacity to respond to diversity (Booth and Ainscow, 2011; Echeita et al., 2013) through joint planning that takes into account all students in the classroom. Additionally, these data are related to the profile of effective teaching and one of the educational practices with the greatest impact on student learning according to Visible Learning. Hattie (2017) concludes that collaborative work and collective efficacy of the teaching staff in a classroom has an effect size of 1.57 on student learning, which is considered a highly influential factor.

Finally, it should be noted that the feelings of the sample toward people with disabilities are positive, but the concerns of future teachers about having different students in the classroom are high. As previously mentioned, these concerns stem from a general sense of inadequacy in training to instruct students with disabilities and

provide proper attention to all students in a classroom. These findings are crucial to consider because, as noted by [Yada and Savolainen \(2017\)](#) and [Yada et al. \(2022\)](#), having positive and appropriate sentiments alone often is not sufficient to establish a firm commitment to implementing inclusive policies. These concerns frequently hinder the ability to manage challenging behaviors in the classroom and effectively teach. Addressing these concerns through initial training, equipping future teachers with the skills they require, can help foster a more positive attitude, higher self-efficacy, and a greater intention to implement inclusive practices in their teaching ([Miesera et al., 2019](#)).

Regarding training and preparation for inclusive teaching and attention to diversity, as mentioned earlier, we find in this research that a high percentage of the sample does not feel sufficiently trained. These data are added to the negative assessment made by the sample about the usefulness of training to respond in the classroom to the interests and concerns of students with educational support needs, also showing the perception of low impact of the training they have received on their future inclusive teaching practice. These data are consistent with others ([Boix, 2008](#)), such as those found by [Cachón Zagalaz et al. \(2015\)](#) who report that teachers have a negative perspective regarding the quality of education received within the MUPES.

It is worth noting that four out of five people surveyed in this study understand that a prerequisite for conducting a high-quality process of diversity attention is previous experience working with students who have educational needs. Perhaps this aspect should be considered in the development of competencies and the design of practices for future secondary school teachers, a process that is qualitatively and quantitatively different from that of teacher training in the stages of Primary and Infant Education. As various studies in our country have pointed out ([García Rodríguez et al., 2011](#)), it is necessary to understand the needs of teachers and provide training through the practicum period for the real context in which they will exercise their role. Additionally, as noted by [Rodríguez Marcos and Esteban Moreno \(2020\)](#), it is important to consider aspects such as carefully selecting schools that have innovative and inclusive teaching, organizational, and guidance practices that do not socialize future teachers in denigrated aspects of traditional teaching, among other proposals. Therefore, it is necessary to review the training systems and the keys of the teaching profession according to new social and cultural scenarios ([Vezub, 2007](#)).

However, what distinguishes the individuals in the sample who exhibit a greater sense of readiness for inclusive teaching in all its facets and who present a more favorable attitude toward 21st century education and diversity care in classrooms? What is the answer to the questions raised initially?

The first data that catches our attention is the fact that the group of women is the one that presents the best attitude, with significant results, toward diversity and inclusive schooling in the different instruments used. Additionally, they demonstrate greater awareness and openness about the significance of the involvement from the educational community and collaborative work among the different agents as a key element in the process of attending to diversity in inclusive schools.

Other notable results are found in the variable of habitual and close contact with persons in situations of vulnerability, which influences both being aware of and showing agreement on the elements that condition a quality education in the process of attending

to diversity in classrooms, as well as the perception of knowledge and capacity for development from the inclusive perspective of methodologies, resources, communication techniques, and evaluation that support said process. Furthermore, this variable presents a direct relationship with greater agreement on approaches aligned with the inclusive concept of supports. This contact with individuals with disabilities is a critical factor, as demonstrated in other studies ([Vera Noriega et al., 2002](#)), in terms of its impact on attitudes and perceptions of inclusion. However, we should also consider Allport's Intergroup Contact Theory, outlined in his work "The Nature of Prejudice" ([Allport, 1977](#)), which suggests that not all contact leads to changes in attitudes. Instead, the nature of the interaction between two groups influences whether the vulnerable group is socially accepted or rejected. Attitudes develop gradually through experiences, so it might be important for future teachers to not only expand their interactions with individuals with various educational needs, but also to be trained to perform their duties with everyone to generate positive experiences in relation to attending to diversity.

It is also worth mentioning the variable "experience in non-formal teaching to people in special vulnerable situations." This variable has the greatest positive impact on the inclusive conception of support, its definition and role in the classroom, as well as on the importance of collaborative work between the specialist teacher and the rest of the faculty. In addition, it is significantly related to the perception of being better prepared to respond to diversity in the classroom, with greater capacity for the development of methodologies, resources, and evaluation and teaching strategies, and with a lower level of concerns about participating in the education of different students in the classroom.

Regarding the impact of teacher self-efficacy on attitudes and training for diversity, the results have shown that it is a decisive factor to consider, and its arbitration is necessary for achieving tasks and goals in teachers, guiding the judgment that each teacher makes about their abilities and competencies to carry out the task of teaching in the current inclusive school. In the sample, teacher self-efficacy has a clear and positive impact on both attitudes and feelings toward people with educational needs; those who feel more self-efficacious in the development of "instructional strategies" to optimize their own instruction and in "classroom management" are those who have more positive feelings toward people with disabilities.

Furthermore, people in the sample with a higher sense of teacher self-efficacy show greater agreement with the elements that are necessary for the development of the diversity attention process in the classroom and also have higher scores in the dimension of knowledge and feeling of capacity for educational response to diversity. Additionally, people with higher levels of self-efficacy are more prepared for the development of methodologies, resources, materials, communication, and evaluation techniques in their day-to-day work in the classroom and show greater openness to participation and collaboration with all educational agents. Self-efficacy to optimize one's own academic instruction, "instructional strategies" and "commitment to students" appear to have the greatest impact on this assessment of community participation and collaborative work, positive attitudes and conception of diversity, and better perception of capacity for curricular and organizational response.

It seems relevant that future teachers perceive themselves as having greater mastery of instructional strategies than classroom management and interpersonal relationships. [Bandura \(1997\)](#) established that the sources of self-efficacy are vicarious experience,

previous experience, physiological and emotional states and verbal persuasion. The complex situations that may arise in the development of the inclusive education process, especially in relational aspects, will require previous experience, which the sample already identifies as relevant and whose importance is evidenced by the results of those who possess it, and for trainee teachers to have inclusive quality references and models in practice as a necessary step in developing higher levels of self-efficacy and personal and job satisfaction.

The results found are consistent with other studies and lead us to think that these future teachers who present high levels of self-efficacy, as noted by [Tschannen-Moran and Hoy \(2001\)](#), will present a higher level of effort in teaching, in achieving their own objectives and the highest expectations for all their students. In addition, they will be open to new approaches and practices and more motivated to experiment and meet the educational needs of all their students ([Gibson and Dembo, 1984](#)).

To highlight a final aspect, which requires further analysis with a biggest sample, related to whether students pursued the MDSE program in a public or private university. In terms of assessing the quality and effectiveness of the education received in inclusive curriculum and organizational response, diversity, methodology and resources, communication skills, and evaluation, as well as the anticipated impact of their training on their development as inclusive educators, it's the students who have graduated from a private university's who tend to perceive the training they received as more fitting, valid, and valuable.

Certain limitations identified during the execution of this study, as well as proposals for future research, include considering social desirability as a factor to be taken into account in the interpretation of the data. To address this, it would be beneficial to extend this research by expanding the sample and integrating open-ended questions or topics that can elucidate the perspectives of future teachers, thus yielding more insightful findings to craft practical and more accurate recommendations. Additionally, the sample size represents a limitation, and the objective is to augment it in at the service of a more comprehensive understanding of the subject under investigation. It is deemed essential to raise awareness and engage MDSE students in recognizing the significance of their participation in advancing of the educational system.

5 Conclusion

This research shows that although attitudes toward inclusive education and the students who create it are positive, they are not enough. The concerns that future teachers present and the training gaps to express the value they give to diversity and school in skills and abilities that empower them as inclusive teachers are important.

This situation is partly due to the perception of a limited influence of the training on their forthcoming progress as inclusive teachers, despite their interest in learning about diversity in all its facets. Most of them understand that the MDSE has not adequately trained them in these terms, feeling particularly concerned about issues related to day-to-day teaching, basic aspects of curriculum development and the teaching-learning and evaluation process in a school for all. However, those who perceive better training also have more positive attitudes toward diversity, and feel more competent as future inclusive teachers.

In this study, the importance of variables such as teacher self-efficacy, regular contact with individuals in situations of special vulnerability, and previous experience in non-formal education with them is evident. All of these have demonstrated their power in fostering more positive attitudes and achieving a higher level of training in addressing diversity in general, as well as in the development of methods and inclusive approaches in the classroom. This impact is not only on beliefs but also on the emotional and behavioral aspects of their attitude.

Therefore, programming and facilitating this positive contact, under the guidance of experienced teachers and individuals, seems necessary and key to progress, as inevitably the relationship in the educational act will occur sooner or later in their teaching development. Similarly, it is considered essential to promote formative experiences in non-formal settings and the sense of self-efficacy that always accompanies the foundation of inclusive values.

The practical implications of this study provide valuable insights for decision-making concerning future initiatives within the MDSE. These may include (1) promoting regular channels of communication and evaluation of training requisites, while concurrently addressing the evaluation of in-service teachers' needs for on-going enhancement of initial training; (2) appraising the integration of training requirements related to attention to diversity awareness in the specified domains is crucial, not only in this particular study but also in other relevant research. By addressing training needs in this area, the MSDE can ensure that future educators are equipped with the knowledge, skills, and attitudes necessary to effectively support attention to diversity in the classrooms; (3) providing strategies and guidelines for reducing disruptive behaviors, conflict resolution and improved coexistence from initial training; (4) considering the practice component of the MDSE program, it is important to take into account the selection of schools following criteria suggested by research in the field. This approach guarantees the promotion of inclusion principles and educational innovation; (5) In addition, promoting self-efficacy in practice centers by fostering collaboration and a positive climate that facilitates coordination and mutual aid, and promotes the observation and reflection on the teaching practice; and (6) facilitating future teachers' contact with the students facing the greatest vulnerabilities, is crucial for their development as inclusive educators. This can be achieved through collaborative engagement of Service-Learning Projects (SLPs) in the MDSE subjects, as well as in prior degrees. These actions can provide a way for students to engage in meaningful community experiences that foster both personal growth and the dissemination of knowledge as catalysts for social transformation. The University Network Association for Service-Learning (ApS) offers a valuable and representative platform to facilitate this process, given its extensive experience and established reputation within the university community.

Data availability statement

The original contributions presented in the study are included in the article/supplementary material, further inquiries can be directed to the corresponding authors.

Ethics statement

The Bioethics Committee of the University of Burgos approved the research (Reference UBU 032/2021), respecting all the requirements established in the Declaration of Helsinki of 1975. The studies were conducted in accordance with the local legislation and institutional requirements. Written informed consent for participation in this study was provided by the participants' legal guardians/next of kin. Written informed consent was obtained from the minor(s)' legal guardian/next of kin for the publication of any potentially identifiable images or data included in this article.

Author contributions

MA-P, SV, JF-S, and JG-B participated in the conception, design of the study, acquiring the data, performing the statistical analysis, writing the manuscript, and revising it. All authors have made a substantial, direct and intellectual contribution to the work, and have approved it for publication.

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Conflict of interest

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