

ORIGINAL ARTICLE OPEN ACCESS

Secondary Education Students' Perception of Teaching and Its Influence on Motivation

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Received: 31 March 2025 | **Revised:** 9 October 2025 | **Accepted:** 13 October 2025

The information we are collecting is part of the project entitled: “Analysis of learning environments in secondary schools in Andalusia. Quantitative study.” (Ref: UHU-1256187), within the call for ERDF projects financed by the European Union, Junta de Andalucía and Universidad de Huelva. This project is led by Dr. María del Pilar García Rodríguez and Dr. José Manuel Coronel Llamas. Both professors of the Department of Pedagogy of the University of Huelva (Faculty of Education Sciences, Psychology and Sports Sciences).

Funding: This research is funded by the European Union's FEDER projects, the Andalusian Regional Government and the University of Huelva. Project: “Analysis of learning environments in secondary schools in Andalusia. Quantitative study.” (Ref: UHU-1256187) García-Rodríguez, M.P. principal researcher, and corresponding author.

Keywords: learner | learning environment | motivation | secondary education | teaching

ABSTRACT

We studied learning environments using the instrument “Educational learning environments for students in Compulsory Secondary Education” (García-Rodríguez et al. 2023). A sample of 4683 students from 23 secondary schools in Andalusia (Spain). We analysed secondary school pupils' perceptions of learning environments and motivation, based on a quantitative, cross-sectional survey approach. Results indicate that students perceive the influence of teaching on their motivation. Variables such as sex of the pupils, type of school and type of educational measures used to cater for diversity are conditioning factors in their responses. Thus, girls, pupils in rural schools and in non-compensatory schools, have better perceptions of teaching and their motivation. A number of potentially important findings emerged from our research that can impact classroom practice.

1 | Introduction

The importance of students' perceptions of their environments as predictors of their school performance is a fact, as corroborated by publications—among others—such as those developed by Cai et al. (2021), Fraser (2012), Harinarayanan and Pazhanivelu (2018), Sinclair and Fraser (2002) or the Report on the State System of Education Indicators by the Spanish Ministry of Education and Vocational Training (MEYFP 2021b), where data on schooling and the educational environment are used as one of the essential categories to diagnose the state of the

education system, based on OECD budgets and with reference to the European Education Area (2021–2030; UNESCO 2021).

The Spanish education system is characterised by highly centralised education policies (at state and community level) and by trying to keep the system as orderly and uniform as possible. Even so, it harbours a high percentage of young people with only basic education (14.8% in the OECD; 12.3% in the EU22—MEYFP 2021b), a secondary education graduation rate of 74.7% (MEYFP 2021a), and an early school leaving rate in 2021 of 16.7% for males and 9.7% for females (compared to

Abbreviations: ATAL, Temporary Classrooms for Linguistic Adaptation; ESO, Compulsory Secondary Education; INE, National Statistical Institute; MEYFP, Ministry of Education and Vocational Training; PMAR, Programmes for the Improvement of Learning and Performance; PROA+, Reinforcement, Guidance and Support Programme; SEN, Special Educational Needs.

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11.4% and 7.9% for men and women in the EU-27; INE 2022). Hence the need for measures to cater for diversity. For pupils with Special Educational Needs (SEN), different modalities of schooling and specific measures are developed within mainstream classrooms (similar to differentiated instruction) and/or outside. For immigrant pupils with language difficulties, temporary language adaptation (ATAL) classrooms are set up (similar to some of the measures included in Dual-Language Immersion Programmes). For pupils who are absent, disruptive, fail at school and/or are at risk of dropping out, learning and performance improvement programmes (PMAR) are created (similar to Pupil Referral Units—PRUs). In this study, we believe it is essential to include variables such as gender, school contexts (educational compensation or not) and types of school, depending on the geographical location (rural or urban).

1.1 | Teachers and Their Role in the Teaching Environment

Situations such as that described above mean that the reforms being promoted emphasise the importance of evolving towards more active and flexible teaching models (such as the Universal Design for Learning—UDL) and in which a commitment is made to providing innovative learning environments that favour the existence of multiple forms of involvement of the educational community, diversify the ways in which information is represented and present multiple forms of action and expression of learning (Sasson et al. 2022; Zhang, Jackson, et al. 2022). And in this line, the figure of the teacher is an axis around which this type of change is structured and this is reflected in the conclusions of different studies:

Dorman and Adams (2004) considered that teachers must ensure high quality environments, which entails classrooms with high levels of cooperation, harmony, teacher support, student cohesion, task orientation and equity. These elements will clearly help to improve students' confidence and, correlatively, their academic performance and effectiveness.

For León et al. (2017), quality teaching occurs when the teacher develops lessons with useful and interesting content and activities (teaching for relevance); when they understand the negative emotions that arise in class; when they encourage participation; talk to the pupil in a non-controlling language; when they take into account the pupils' levels when assigning activities (optimal challenge); when they value the class work; prepare and structure the lessons well; provide positive and specific feedback; and when they care for and pay attention to the pupils.

For Adler (2002), the teacher's behaviour in the classroom is of vital importance in terms of providing instructions on how to complete tasks, answering questions, addressing gaps and reinforcing students' skills, reflecting genuine informational support. In addition, as mentioned above, the literature emphasises the duty of “care” on the part of the teacher. Schussler and Collins (2006) identified the following indicators of this: providing opportunities for success; being flexible; respect for pupils; creating a family atmosphere and sense of belonging. They conclude that students want to receive and give that support, which

Guess and Bowling (2014) identified as a significant predictor of well-being.

Doll et al. (2004) reinforced the importance of positive pupil-teacher relationships. They can facilitate learners' learning, participation and adaptability, persistence in performing complex tasks and overall motivation. Schwab et al. (2018) round off this idea, stating that the quality of student/teacher relationships is linked to students' social behaviour and emphasising the relevance of meeting social needs for all students, in particular SEN pupils, to improve their well-being (Hascher 2017; cit. in Schwab et al. 2018), sense of belonging and, ultimately, educational inclusion.

On the basis of this review and taking into account the wide variability of factors that condition teaching, we start from the teacher as a facilitator or mediator in the learning process. The teacher is primarily responsible for designing the curriculum for his or her students, for building positive relationships, trust, motivation, They are a key element. Boulton-Lewis et al. (2001) stated that it is essential for teachers to adopt a learner-oriented rather than a content-focused approach to instructional design. In this sense, it is essential that teachers seek interaction with students. Hence, in our study, and in order to assess teaching, we used the WIHIC scales (Aldridge et al. 1999; widely used and validated for different contexts), to select several items from two of its dimensions: teacher support (relating to how helpful, approachable, trusting and interested in pupils they are) and equality (relating to how students are treated by the teacher). Along with the scales, the instrument designed by León et al. (2017) was used to select several items related to the dimension of class structure.

1.2 | Motivation as a Determining Factor in Learning

The vast and diverse body of literature that addresses motivation as a factor to be considered in the learning process coincides in identifying it as a determinant of students' success in many areas of their lives (task persistence, academic performance and university choices, among others) (Wigfield and Eccles 2000).

Taking the self-determination theory (SDT) approach as a reference, it is established that the social conditions that support individual experiences of autonomy, competence and social relations promote higher levels of quality in the types of involvement in the development of activities (Núñez and León 2019). Motivation has different levels and orientations that do not act as watertight compartments, but form a continuum (Deci and Ryan 1985) (Figure 1).

According to Ryan and Deci (2000), *intrinsic motivation* is defined as engagement in an activity fully and freely, while *extrinsic motivation* would consist of varying degrees of involvement in an activity in order to receive an external incentive. In turn, *involvement* refers to the pupil's active commitment to learning activities (Christenson et al. 2012). According to Reeve and Tseng (2011), involvement is a multidimensional construct composed of four mutually dependent components: behaviour, emotion, cognition and agency. *Behavioural involvement* refers to the learner's attention, effort and persistence when engaged

in a learning activity (Skinner et al. 2009). *Emotional involvement* refers to the presence of positive emotions and the absence of negative emotions during engagement with the task (Skinner et al. 2009). *Cognitive involvement* refers to the use of in-depth learning strategies rather than superficial learning when the student is trying to learn (Walker et al. 2006). Finally, *agentic involvement* refers to the degree to which students contribute to the flow of teaching, asking questions, expressing preferences and demanding what they need (Reeve 2013).

For this work, we set out from the study by Jang et al. (2012), who constructed an instrument to assess types of involvement (translated and validated in Spanish by Núñez and León 2019). Six items from this scale are used to help assess agentic, behavioural and emotional involvement (García-Rodríguez et al. 2023).

As we can deduce, teaching and motivation are interconnected and feed back into each other. Studies with secondary pupils such as those by Green et al. (2012), Haerens et al. (2015), Jang et al. (2016), Kunter et al. (2013), Moliner et al. (2012), Núñez and León (2019), Pino-Juste et al. (2021), Pitzer and Skinner (2017), Ruzek et al. (2016) or Van Ryzin (2011), for example, show how teacher support influences student participation, engagement and involvement. Similarly, Ahn et al. (2021), stated that teachers' motivation influences students' motivation through their teaching practices. It is therefore crucial to know our pupils' perceptions with regard to teaching, as it will facilitate decision

making to introduce improvements in the teaching and learning processes that are considered relevant.

2 | Objectives

The approach of this research leads us to set out three objectives:

1. To analyse students' perceptions of teaching and motivation as variables associated with educational learning environments.
2. Determine the influence of students' perceptions about teaching on motivation.
3. Highlight the moderating effect of certain variables (pupil gender, type of school by geographical location, type of measures by differential criterion of the student body and school classification based on the social environment it serves) on the influence of the relationship between teaching and motivation.

3 | Method

A cross-sectional survey study was carried out to investigate the influence that students' perceptions of teaching and motivation in compulsory secondary education (seventh to tenth grade) have on their motivation.

3.1 | Population and Sample

We start from a population of 291,696 students enrolled in the 866 state-run Compulsory Secondary Education schools (1st, 2nd, 3rd and 4th year) in the autonomous community of Andalusia (a stage that covers approximately 12 to 16 years of age). The sample was selected at random in a multistage design using the following steps (Figure 2):

1. First, a stratified sampling was designed in an attempt to achieve a proportional allocation of subjects based on two

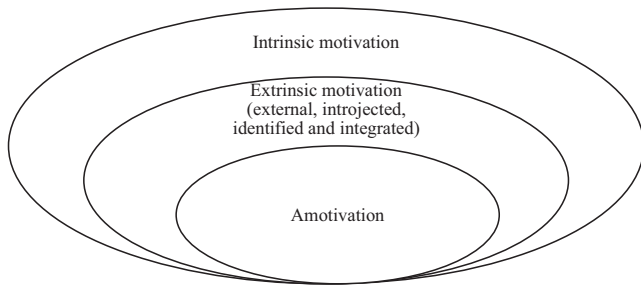


FIGURE 1 | Levels of motivation from the lowest to the highest degree of self-determination. Source: own creation, based on Ryan and Deci (2000).

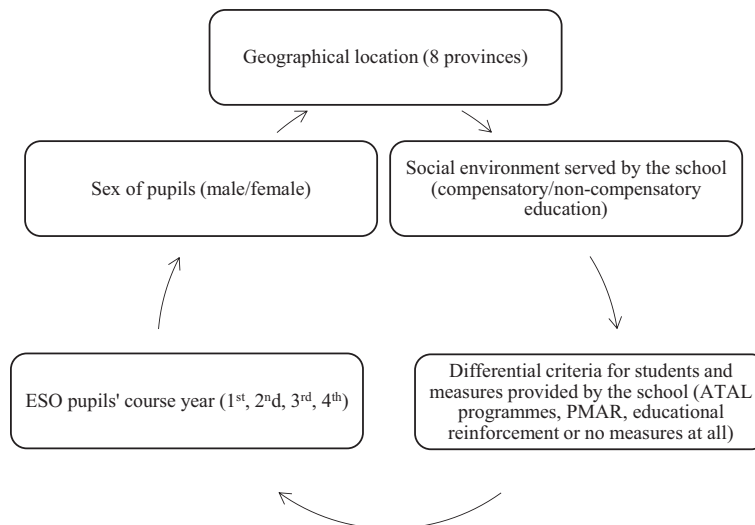


FIGURE 2 | Strata for random sampling.

specific strata (an effort was made to establish a proportional percentage of students per province based on the number of enrolments). On the one hand, for each of the provinces that make up the region under study and, on the other, according to the classification of the schools based on the social environment they serve (educational compensation). This type of sampling ensured geographical and socio-economic representativeness, while also addressing the diversity of educational contexts in the region under analysis, which is essential for the generalisation of the results.

- Second, random sampling by clusters was considered in view of the population size and the advantages of this type of sampling due to the heterogeneity and accessibility it provides to the sample (bearing in mind, as a limitation, that there may be a certain bias in the results). As clusters, we used the properties that defined the organisation of the teaching provided in the schools, such as the types of measures used to cater for diversity and the year in which the pupils are enrolled.
- Third, individuals in each cluster were systematically randomly selected to ensure gender parity. From each cluster, among the groups of men and women in each course listed alphabetically, students were selected alternately by gender to ensure 50% representation ($\pm 5\%$ margin of error).

As a result of the application of these phases, the questionnaire was administered in a total of 23 schools in Andalusia (each province achieved a representation of 12% of the population) and the participation of a total of 4683 students was obtained.

The main characteristics of this sample are, first of all, gender parity (Table 1).

The mean age of the participants was 13.9 years (SD = 1.32; median and mode = 14), ranging from 12 to 18 years. They were asked about the number of repeated courses, which ranged from none to three (mean = 0.18; SD = 0.45; median = 0; mode = 0). As for the number of subjects failed, the mean was 1.64 (SD = 2.26; median = 1; mode = 0).

Regarding the type of school, 658 pupils (14.1%) belonged to urban schools and 4024 (85.9%) belonged to rural schools. 72.2% of the respondents were from non-compensatory schools (3381 pupils) and 27.8% from compensatory schools (1302 pupils). In terms of the course year, the pupils were evenly distributed among the 4 years: 1st year, 25.9% (1205 pupils); 2nd, 28.7% (1332 pupils); 3rd, 22.1% (1025 pupils); 4th, 23.4% (1086 pupils).

Finally, students were asked about the type of measures to attend to diversity that they received, through which they developed their learning, finding that 82% (3840 pupils) did not receive measures, being in the ordinary classroom full time. Some 3.5% (156 pupils) attended ATAL programmes, while 3.5% (159 pupils) were in PMAR programmes and 7.3% (327 pupils) were attending educational reinforcement programmes.

3.2 | Instrument

The approach of this paper is part of a research project in which a questionnaire was designed to assess learning environments (physical environment, learning, teaching and motivational environment) (García-Rodríguez et al. 2023) at secondary school level. It has been validated a new questionnaire (García-Rodríguez et al. 2023). It has been used for the scale focused on *learning and teaching scale*, the WIHIC (Aldridge et al. 1999), adding to this last scale, some items from the instrument designed by León et al. (2017); the motivation scale, is based on Jang et al. (2012); Núñez and León (2019); and for the *physical environment* scale, the Physical Environment subscale of the School Climate Survey by Zullig et al. (2015) After this procedure, the Cronbach's alpha obtained for the 63 items proposed was 0.95. On this occasion, the *learning environment* and *emotional environment* scales were used as objects of analysis, both with items arranged in a Likert format with a range of 1 to 5 (1 = never; 5 = almost always).

In this study, both measurement scales were used to validly collect data on students' perceptions of teaching and motivation as variables associated with educational learning environments.

Content validity was assessed by experts specialising in quantitative methodology, questionnaire validation and secondary school teachers, and the criteria of clarity and relevance were used to approve the suggested modifications. The homogeneity of each item was also studied using corrected item-total correlation, allowing the least consistent items in each of the scales to be identified.

Some psychometric properties of the instrument were studied through internal consistency, factor structure and confirmatory factor analysis.

The *learning environment scale* (Table 2) consists of two factors: "attention to diversity" (items: 23, 24, 25; ALFA = 0.7) and "active learning" (items: 27, 28, 26; ALFA = 0.75). The scale showed indicators of goodness of fit within acceptable parameters: CMIN/DF = 1.47, CFI = 0.98, IFI = 0.99, RMSEA = 0.04 and HOELTER = 271. ALFA = 0.8 for 6 elements.

TABLE 1 | Percentages of men and women distributed by provinces.

Variables		Province							
		Almeria	Cádiz	Córdoba	Granada	Huelva	Jaen	Malaga	Seville
Sex	Men	52.5%	53.7%	51.7%	51.4%	51.6%	49.4%	52.4%	51.7%
	Women	47.5%	46.3%	48.3%	48.6%	48.4%	50.6%	47.6%	48.3%
Total		12%	19.4%	6.2%	7.9%	14.5%	8.2%	18.3%	13.4%

TABLE 2 | Learning scale.

	Mean	SD	Cr-iT
23. I have the same opportunities to participate as my classmates.	4.10	1.08	0.546
25. I feel included in my class.	4.03	1.17	0.567
24. My work receives the same praise as everyone else's.	3.83	1.16	0.417
26. My teachers have well-organised classes.	3.80	1.05	0.583
27. The classes are very interactive and they constantly make us participate.	3.39	1.15	0.612
28. They use many different strategies to work in class, which makes them very interesting/entertaining.	3.12	1.25	0.520

Abbreviations: Cr-IT, item correlation—corrected total; SD, standard deviation.

TABLE 3 | Motivational scale.

	Mean	SD	Cr-iT
34. I like learning new things.	4.07	1.04	0.573
29. I make a lot of effort to do things properly.	3.97	1.03	0.458
32. I make as much effort as I can.	3.94	1.12	0.524
30. I feel comfortable.	3.85	1.11	0.582
31. I ask questions that help me understand.	3.55	1.19	0.557
35. I express my preferences and opinions.	3.52	1.29	0.530
33. I tell the teachers what I am interested in.	3.29	1.28	0.462

Abbreviations: Cr-IT, item correlation—corrected total; SD, standard deviation.

The *motivational scale* (Table 3) consists of two factors: “academic effort” (items: 29, 32, 30; ALFA=0.7) and “interest” (items: 33, 35, 34, 31; ALFA=0.7). The fit assessment for this scale showed acceptable indices: CMIN/DF=3.40, CFI=0.92, IFI=0.92, RMSEA=0.1 and HOELTER=104. ALFA=0.8 for 7 elements.

The original instrument also incorporates items to find out data on socio-demographic variables of the pupils, such as age (continuous quantitative) and sex (male/female), but also of the schools, such as their typology by geographical criteria (rural/urban), types of measures they have according to the differential criterion of the students and educational programmes they develop (No measure/ATAL/PMAR/Reinforcement), or classification by the social environment they attend (non-compensatory education/compensatory education—programmes that promote and support the students), or the classification by the social environment they attend (non-compensatory education/compensatory education—support programmes and PROA+)(Ruiz-Bernardo 2021).

3.3 | Data Gathering and Analysis Procedure

Prior contact was established with the schools through the provincial education delegations. Different documents were submitted for approval by the schools (explanation/summary of the project, informed consent for families and questionnaire for students) and, at the same time, to establish the timing of the fieldwork. Data gathering was face-to-face (20 min were allocated in each classroom for students to answer the questionnaire) and lasted 3 months.

The data were analysed using the SPSSv25 statistical software. An exploratory Kolmogorov–Smirnov test was performed to observe the normal distribution of the data in the sample. The results obtained ($p < 0.05$) indicated the need to use non-parametric techniques for the study of group comparisons. To analyse the causal relationships, the AMOSv24 statistical package was applied, using a structural equation model analysis to study the influence that the perception of teaching has on student motivation. The moderating effect of the described respondent and school characteristics on teaching and motivation was also studied by applying a multi-group analysis in structural equation modelling. To this end, configurational invariance was analysed using Amos v23, with the aim of studying whether the proposed model differed according to the following student variables: gender (male/female); type of centre (urban/rural); type of measure (no support/ATAL/PMAR/reinforcement); and compensation (compensatory/non-compensatory). To adjust the models obtained, the χ^2 , CFI, RFI, IFI and RMSEA indices were taken into account, adopting as a reference the criteria set by Byrne (2010) and Kline (2010) (CMIN/DF between 2 and 5, CFI, RFI and IFI > 0.9, RMSEA < 0.06).

4 | Results

4.1 | Analysis of Student Perceptions of Teaching and Perceived Motivation

First, Table 2 shows the results concerning the students' perceptions of teaching and learning. The highest scores were concentrated around the items associated with attention to diversity

(items: 23, 25 and 24), showing that the pupils had rated these aspects positively. Meanwhile, moderate scores were obtained for the items associated with strategies that promote active learning (items: 26, 27 and 28). As for the quality of the items, all obtained high correlations, with no problematic items identified. All achieved the minimum and maximum scores available, thus guaranteeing their variability.

In a second step, the results relating to the motivational scale are presented (Table 3). Pupils' perceptions of their motivation refer to interest in learning new things (items 34, 31 and 35) and putting a lot of effort into academic matters (items: 29, 32 and 30). As with the previous scale, no problematic items were identified and all items reached the minimum and maximum scores available, thus ensuring item variability.

After these initial analyses, the total scores of the two scales and the associated subtypes were calculated (Table 4), finding that the type of teaching associated with attention to diversity (Mean = 3.99; SD = 0.89) and the motivation supported by academic effort (Mean = 3.92; SD = 0.86), respectively, achieved the highest scores.

We also analysed the differences in student perceptions of teaching and motivation in relation to the variables: gender, type of school, type of measure to cater for diversity and identification of the school on the basis of educational compensation. First, the Mann-Whitney *U* test for independent samples was applied to the *sex*, *type of school* and *educational compensation* variables, with the following results:

TABLE 4 | Total scale scores.

	Minimum	Maximum	Mean	SD
Teaching	1.00	5.00	3.71	0.79
Attention to diversity	1.00	5.00	3.99	0.89
Active learning	1.00	5.00	3.44	0.94
Motivation	1.00	5.00	3.74	0.77
Academic effort	1.00	5.00	3.92	0.86
Interest	1.00	5.00	3.61	0.89

TABLE 5 | Differences between boys and girls in teaching and motivation.

Group comparisons	Sex		Sig.
	Men	Women	
Teaching			
Attention to diversity	2256.21	2338.26	0.034
Active learning	2281.84	2315.58	0.38
Motivation			
Academic effort	2138.64	2496.78	0.00
Interest	2266.18	2342.05	0.052

Regarding *sex* (Table 5), statistically significant differences emerged in the dimensions of attention to diversity ($p < 0.05$) and academic effort ($p < 0.00$). Specifically, girls achieved a higher mid-range (2338.26) than boys (2256.21) in terms of their assessment of the school's attention to diversity and of their academic effort.

Table 6 shows the differences between the *types of school*, in terms of their perception of teaching and motivation. The differences are found in the motivation. In this respect, students belonging to rural centres seem to be more motivated than students from urban schools (academic effort: midrange = 2351.35, $p < 0.00$; interest: midrange = 2345.55, $p < 0.00$).

On the other hand, in the analysis focused on the *educational compensation* variable, differences were found between “non-compensatory” and “compensatory” schools with respect to attention to diversity ($p < 0.00$), academic effort ($p < 0.00$) and interest ($p < 0.00$). In all cases, the differences were in favour of students from schools identified as “non-compensatory” who obtained the highest midrange (Table 7).

Finally, to test for statistically significant differences between groups on the independent variable “type of measure to cater for diversity” (measured at more than two levels), the Kruskal-Wallis test for independent samples was applied. Table 8 shows a summary of the hypothesis tests carried out.

Following the analysis, the decision was taken to reject null hypotheses 1 and 2, as the students' perception of active learning and attention to diversity (both dimensions belonging to

TABLE 6 | Rural/urban differences in teaching and motivation.

Group comparisons	Centre type		
	Rural	Urban	Sig.
Teaching			
Attention to diversity	2312.72	2307.53	0.92
Active learning	2309.62	2305.18	0.93
Motivation			
Academic effort	2351.35	2159.37	0.001
Interest	2345.55	2134.69	0.000

TABLE 7 | Differences between the educational compensation variable and teaching and motivation.

Group comparisons	Educational compensation		
	No	Yes	Sig.
Teaching			
Attention to diversity	2340.40	2227.39	0.009
Active learning	2321.03	2288.45	0.45
Motivation			
Academic effort	2228.07	2211.13	0.000
Interest	2349.84	2134.69	0.005

the teaching environment) is not the same depending on the type of educational measure they receive (ATAL, PMAR, Reinforcement or no measure).

In this sense, the comparisons of groups that were found to have these significant differences according to the two dimensions studied are shown. Figure 3 plots the samples of *measurement type* in terms of active learning scores. Each node shows the average range of measurement type.

The most significant differences were found between the *receives no reinforcement measures* group [$N=3840$ (85.7%)] and the *PMAR* group [$N=159$ (3.5%)]. PMAR group pupils (midrange=2560.17) considered that their teachers apply more active learning strategies than the *receives no measures* group (midrange=2182.67). The next difference between groups was found between the *receives no measures* group and the

reinforcement group [$N=327$ (7.3%)], with the *reinforcement* group members having a higher average rank on active learning (2439.25). The last pairwise comparison that showed a different distribution in terms of active learning is the one referring to the *ATAL* group [$N=156$ (3.5%)] and the *PMAR* group [$N=159$ (3.5%)], with the *PMAR* members reaching the higher midrange (ATAL midrange = 2132.11).

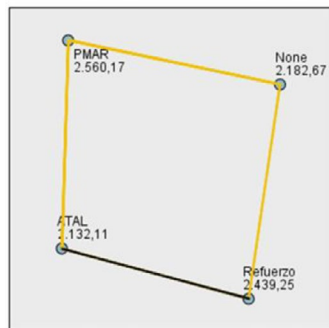
Figure 4 depicts the interactions between the *types of measures* in relation to attention to diversity.

On this occasion, we observe how those who attend *ATAL* programmes show differences from the three remaining types of measures: *reinforcement*, *PMAR* and *no measure*. The *ATAL* group achieved the lowest midrange (1776.64) regarding their perception of attention to diversity. In this sense, the rest of the types of measures have a more positive view

TABLE 8 | Summary of hypothesis testing.

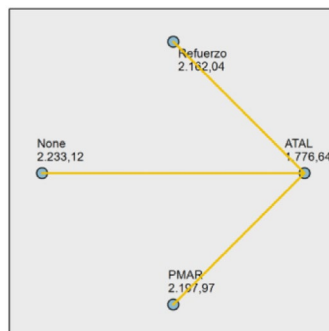
	Null hypothesis	Test	Sig.
1	The ACTIVE LEARNING distribution is the same across the categories of Type of measure to cater for diversity.	Kruskal-Wallis test for independent samples	0.000
2	The ATTENTION TO DIVERSITY distribution is the same across the categories of Type of measure to cater for diversity.	Kruskal-Wallis test for independent samples	0.000
3	The ACADEMIC EFFORT distribution is the same across the categories of Type of measure to cater for diversity.	Kruskal-Wallis test for independent samples	0.146
4	The INTEREST distribution is the same across the categories of Type of measure to cater for diversity.	Kruskal-Wallis test for independent samples	0.252

Note: Asymptotic significances are shown. The significance level is 0.05.



1. No measures received (Contrast test = -377.503; Sig.= .002)
2. No measures received-reinforcement (Contrast test = -256.582; Sig.= .003)
3. ATAL-PMAR (Contrast test= -428.057; Sig.= .019)

FIGURE 3 | Pairwise comparisons (type of measure to cater for diversity) concerning active learning. Source: graph generated in SPSSv25.



1. Reinforcement (Contrast test = -385.395; Sig.= .012)
2. ATAL-PMAR (Contrast test = -421.329; Sig.= .022)
3. No measure received (Contrast test = -456.475; Sig.= .000)

FIGURE 4 | Pairwise comparisons (type of measure) concerning attention to diversity. Source: graph generated in SPSSv25.

of the measures for attention to diversity (*reinforcement*, midrange = 2162.04; *receives no measures*, midrange = 2233.12; *PMAR*, midrange = 2197.97).

4.2 | Analysis of the Influence of Students' Perceptions of Teaching and Their Impact on Motivation

The proposed model aims to estimate the relationships between students' conceptions of teaching and motivation.

The model fit indices were all greater than 0.9, demonstrating that the model fits the empirical data well, adopting as a reference the criteria set by Byrne (2010) and Kline (2010) (CMIN/DF between 2 and 5, NFI, RFI, IFI, TLI and CFI > 0.9, RMSEA < 0.06 and HOELTER > 200).

The estimation results are shown in Figure 5, with the standardised coefficients. All regressions were significant ($p < 0.00$). This outcome suggests that the proposed model responds to the research objective by demonstrating that perceptions of teaching have a positive and significant influence on motivation ($\beta = 0.75$, $p < 0.00$). On the other hand, each of the estimators contributes significantly to the dimensions studied: teaching vs. active learning ($\beta = 0.71$, $p < 0.00$); teaching vs. attention to diversity ($\beta = 0.71$, $p < 0.001$); motivation vs. academic effort ($\beta = 0.78$, $p < 0.00$); motivation vs. interest ($\beta = 0.70$, $p < 0.00$).

In view of these results, we can say that the motivation perceived by students depends on their conceptions of teaching.

4.3 | Analysis of the Moderating Effect of the Sex, School Type, Measure Type and Educational Compensation Variables

To study the moderating effect of some characteristics of pupils and schools on the model proposed above, the model is tested in the different groups formed in order to study whether the influence of teaching on motivation is different according to gender, type of school, type of measure and the existence of educational compensation. The variables to be studied are shown in the Figure 6:

The following table shows the estimates obtained for the causal relationship according to the different groups under study. In addition, some indicators for assessing the fit of the resulting models are presented.

As shown in Table 9, all estimates were significant, which indicates that the influence of teaching on motivation has a different effect depending on the group to which one belongs. The results

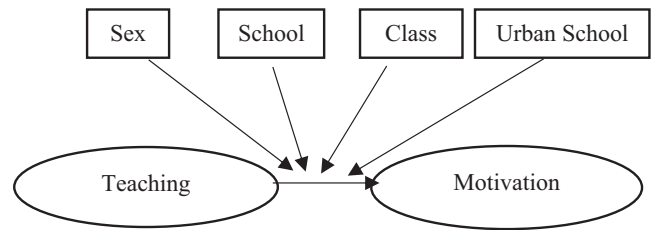


FIGURE 6 | Moderating effect of some characteristics. Theoretical model to be studied. Source: own creations.

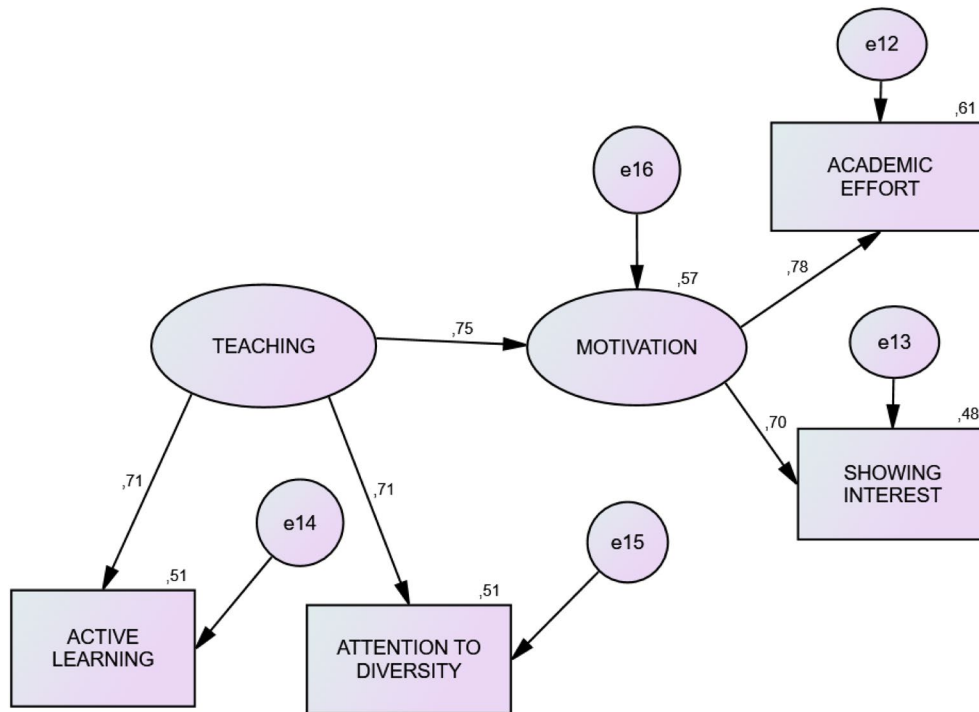


FIGURE 5 | Structural equation modelling. Source: chart extracted from AMOSv24. CMIN/DF = 4.2; NFI = 0.99; RFI = 0.99; IFI = 0.99; TLI = 0.99; CFI = 0.99; RMSEA = 0.02; HOELTER = 4197.

TABLE 9 | Estimators and adjustments to the multi-group model.

Groups	Causal relations		Adjustment evaluation
	Teaching, motivation		CMIN/DF between 2 and 5. RFI and IFI > 0.9. RMSEA < 0.06
	Estimates (* $p < 0.05$)		
Sex	Men	0.72*	CMIN/DF = 2.37 CFI = 0.99. RFI = 0.98. IFI = 0.99. RMSEA = 0.01
	Women	0.80*	
Type	Urban	0.81*	CMIN/DF = 2.25 CFI = 0.99. RFI = 0.99. IFI = 0.1. RMSEA = 0.01
	Rural	0.75*	
Type of measure	None received	0.77*	CMIN/DF = 1.01 CFI = 0.99. RFI = 0.99. IFI = 0.99. RMSEA = 0.002
	ATAL	0.60*	
	PMAR	0.75*	
	Reinforcement	0.74*	
Compensation	Compensatory	0.74*	CMIN/DF = 2.21 CFI = 0.1. RFI = 0.99. IFI = 0.99. RMSEA = 0.01
	Non-compensatory	0.76*	

show that the characteristics studied significantly moderate the causal relationships between teaching and motivation and seem to be stronger in females, in urban schools, in students who do not receive measures for attention to diversity and in centres classified as non-compensatory education.

5 | Conclusion

In response to the objectives set for this study, in relation to the first one, we found that the perception of ESO students about teaching and motivation was positive (on the one hand, relating teaching and the aspects that deal with diversity and, on the other hand, associating motivation with academic effort), something that is corroborated in the study by Pino-Juste et al. (2021) in which intermediate levels of motivation and satisfaction with teaching are stipulated.

Moreover, in light of the results, students' perception of teaching influences motivation, but the effect of the influence differs according to gender, type of school, type of educational measure and whether or not the school is classified as a compensatory school (second objective).

First of all, again in agreement with Pino-Juste et al. (2021), this relationship is stronger in the female gender and in pupils with better academic records (in our work it is noted that the female gender has better perceptions than boys in terms of attention to diversity and academic effort). In the same line, Schwab et al. (2018) attributed to the female gender a more positive perception of the inclusive climate in the teaching processes developed by teachers. Van Ryzin (2011) concluded that the female gender was more affected by results-oriented teaching, while Rogers and Fraser (2022) attributed a more positive perception of their learning environment to the female gender. These results, which coincide with the work of King (2016), Lesperance et al. (2022), and Guo and Zhou (2021), highlight the need to work with children to mitigate gender gaps in motivation.

Secondly, if we look at the geographical variable (habitat), pupils belonging to rural schools seem to be more motivated than students from urban centres. This statement is difficult to discuss, as there are very few published works on the subject, and those that do exist show that contextual conditions vary considerably from one region to another and the opportunities available to learners can differ greatly. Thus, there are studies that have focused on this variable in relation to others and obtained results along the same lines; this is the case of the work of Alejo and Piquer-Píriz (2016), where rural students are more anxious but at the same time are more willing to make an effort (in learning a second language) and of Back et al. (2016), who noted that the school climate and motivation in the urban context presented many more complications than in rural settings. However, in contrast to them, others such as Lamb (2012) found students in urban contexts to be more motivated towards second language learning (they tend to be influenced by more cosmopolitan contexts) or Chao-Fernández et al. (2015), who cited significant differences in academic performance (higher grades among students in urban areas). A multitude of recent studies (Cao and Huo 2025; Drescher et al. 2022; Johnson et al. 2021; Wang et al. 2025; Zahl-Thanem and Rye 2024, among others) show that students in rural schools are less motivated and have lower aspirations than those in urban schools, mediated by pedagogical factors such as opportunities, access to resources and quality of teaching. This makes it clear that relational advantages do not compensate for the structural deficiencies and challenges of this type of context. The most pronounced gaps have been identified in international contexts such as the United States, China and Europe. This opens up a line of necessary interventions to increase motivation in rural schools. On the other hand, Hardré et al. (2007) studied the motivation of secondary pupils in depth and found no significant differences between the groups associated with this variable.

Thirdly, students in compensatory education schools have the least positive ideas towards attention to diversity, academic effort and interest, as reflected in the divided opinions expressed in the study by Moliner et al. (2012), when asking these pupils about their perception of different aspects of teaching, such as

the teaching role in the regular classroom. Students stated that “the teacher does not treat them equally, they feel discriminated against and consider that their classmates make them feel a bit stupid and inferior” (p. 209); they do not feel motivated, they recognise that the level of demand is lower or they tend to relate to students in other educational compensation programmes. However, they acknowledge their interest and appreciate the effort (Amer and Pascual 2015). The results of our study do not coincide with others from Europe, Australia or Latin America, where intentional pedagogical interventions (inclusive teaching and an emphasis on equity) generate more positive perceptions and attitudes and greater effort and interest among compensatory education students (Ainscow 2020; Bakoč et al. 2025; Deroncela-Acosta and Ellis 2024; Elias and Mansouri 2023; Heiskala et al. 2021). We therefore believe that further research is needed into the type of pedagogical interventions and social policies developed in the context of the Andalusian community in order to identify the factors that are determining these poorer perceptions and attitudes.

Focusing on SEN students, who may be enrolled in compensatory centres or not, Schwab et al. (2018) stated that students with SEN had similar perceptions to those without SEN about the climate of inclusion in their schools, which is different from what is found in this paper and which suggests the need to further strengthen attention to diversity and inclusive education at the secondary education stage, as suggested by Smale-Jacobse et al. (2019). This idea is further bolstered when looking at the variable types of measures, where: (a) the PMAR group considers that their teachers apply more active learning strategies than the group that does not receive any type of measure. This statement is shared in the work by Amer and Mir (2017), or that of Jalali and Morgan (2018) that assessed the PMAR students’ perceptions of their teachers and indicated greater attention and also their desire not to return to the regular classroom once the programme ends; the work by Mainwaring and Hallam (2010), with pupils assigned to Pupil Referral Units (PRUs) where they point out the lower future expectations of these students; or that of Michael and Frederickson (2013) with the same student typology, where teacher support is seen as a key to intrinsic motivation for these students. In the same vein, (b) the reinforcement group also has a higher midrange on active learning than the no measure group. Given the characteristics of this type of students, the reinforcement group has a higher midrange on active learning than the no measure group—low qualifications in different subjects—where we find a clear parallel to the work of Pitzer and Skinner (2017), who claimed that students who are at high risk for catastrophic grades are more motivated by teacher support. And, (c) the ATAL group shows differences in terms of the three previous types of measures (reinforcement, PMAR and no measure); in particular, they show a more negative perception, something that differs from the conclusions of the work by Porras et al. (2009), which expresses, from the teachers’ standpoint, the presence of a high degree of satisfaction with the teaching and motivation received among secondary school pupils, describing “the ATAL classroom as an island for them, where they work at ease and relaxed” (p. 17). In the same line, Steele et al. (2017) stated that the fact that educational activities are provided in other classrooms can also be a determining factor in the motivation of these pupils.

Based on the above, and in response to the third objective, a moderating effect of the variables sex, type of centre, type of measure and educational compensation on motivation is demonstrated. The results show that the influence of teaching on motivation has different effects depending on the group to which one belongs. That is, the perception of female students, of pupils who do not receive measures to cater for diversity, of those enrolled in schools located in urban contexts and who follow curricular programmes of non-compensatory education, has a greater impact on motivation; results consistent with Wang, Chen, and Li (2024); Wang, Han, et al. (2024) and Zhang, Sun, et al. (2022), among others. This predictive nature of the variables studied is evident, but we note the existence of other factors that also help explain it. This is shown in other research, such as that of Moliner et al. (2008), Moliner et al. (2012), from which the need to focus attention on the role of teachers as agents that dynamise or condition the teaching process and, therefore, the learning process, is derived; Carbonero et al. (2009), who considered different contextual and social variables (family environment, peer group, type of school) as moderators of student motivation; Ruzek et al. (2016), who explored the moderating factor of peers in the classroom; or Reeve (2016), who highlighted the importance of classroom structures as a determinant of motivation in secondary school pupils.

6 | Limitations and Foresight

We are aware of some limitations of this work. Firstly, given the quantitative approach of our study, we must take into account the social desirability bias (there may be some response bias, but given the size and variability of the sample we think that students were not systematic) and the limitations associated with this approach (the literature notes the importance of students’ voices and the use of qualitative methodologies. However, in our case, it was not possible to include them due to the pandemic). To strengthen this aspect, we hope to be able to continue to study this line in depth in the future, in order to complete this radiography of learning environments in our context.

Secondly, we understand that by relying on different scales of an instrument adapted and constructed for our context, the content/factors of the original scales are lost. For example, in the validation process we have lost the cognitive motivation included in the scale of Jang et al. (2012) or some items of the WIHIC and attention to diversity, or the class structuring of Núñez and León (2019). However, there is literature highlighting some weaknesses of the original instruments and proposing to incorporate other dimensions (León et al. 2017; Mikami et al. 2017; Zullig et al. 2015), so it is considered a positive strategy and provides a new argument in these postulates.

7 | Implications for Practice

1. A number of potentially important findings emerged from our research that can impact and transfer to classroom practice: The application of these scales helps to establish teacher profiles and propose training actions that help to improve their work in the teaching process. But it is also useful for other specialists, providing them with

information on relationships or learning management when making decisions on direct intervention in the process of designing curricular itineraries or in the attention to personal development in risk situations (e.g., failure or risk of dropping out of school, etc.).

2. At school level, the results of this research invite them to analyse their realities in order to establish specific lines of work with special attention to moderating variables:
 - a. Boys, given that their perceptions are lower than those of girls (in fact, they present lower rates of early school leaving than girls). To address this gender gap in motivation and performance, intrinsic motivation and mastery should be promoted as key pedagogical approaches (Stenberg et al. 2025). Some studies even propose the use of gender-differentiated pedagogical approaches (Guo and Zhou 2021); generating strategies that promote inclusive pedagogical methods and their adaptation (Lesperance et al. 2022; Pajares and Valiante 2001). More flexible learning environments, where active participation and a sense of belonging (such as the development of collaborative workshops), individual feedback and mentoring are tools for detecting these risks at an early age, avoiding repetition of the school year and, therefore, demotivation (Ministry of Education 2020). Specifically, Spain has an Early Warning System (OECD 2023) that can contribute by sending alerts to families and through more intensive guidance work in schools and a tutoring system that incorporates these strategies.
 - b. Their educational contexts: rural rather than urban areas; and schools that are not located in areas that perform poorly in comparison to urban schools. It would be advisable to intensify the use of inclusive teaching methods in order to achieve more personalised attention (as is usually the case in rural contexts), which would also be helped by reducing the student-teacher ratio in urban classrooms. Some studies (Tan 2024; Zhang et al. 2025) recommend compensatory interventions and resources such as those provided by programmes like PROA+, together with institutional support for teachers and school administrators, which would help to counteract these discrepancies in some cases.
 - c. Their teaching interventions in the different classrooms. Teaching practices have been shown to have either a positive or negative impact on motivation depending on multiple variables (Guo and Zhou 2021), but the promotion of training policies that advocate the development of initial assessments and the creation of learning environments that integrate the potential of soft skills training are elements that can help reduce the impact of this variable on student motivation.

Therefore, we can conclude that this questionnaire is a good diagnostic tool as it helps the intervening actors to make decisions. In fact, the reports have been returned to the participating schools and some of them are already setting out specific actions in their educational programmes, depending on the results obtained.

In short, we would like to continue to further the improvement of teaching practice by studying the interactions between teachers

and students and how this affects their motivation, performance and resilience as Waxman et al. (1997) did. Hence, another future line of work is to continue working with instruments such as the student perception surveys on teaching practice, SPS, to improve learning environments, and hence teaching-learning processes and school performance. This type of work broadens the scope of our study and we find the contradictory results it yields very interesting, because, as noted by Finefter-Rosenbluh et al. (2021), students do not perceive the impact of the use of SPS on their teachers' practices.

Disclosure

This paper is approved by all authors and tacitly or explicitly by the responsible authorities where the work was carried out (administration, all the schools and their school boards, which have been part of the sample, have approved the project). We meet ethical standards, comply with regulations and protect research participants. We had Schools Boards' permissions. If our manuscript is accepted, it will not be published elsewhere in the same form, in English or in any other language, including electronically without the written consent of the copyright holder. Authors haven't used AI.

Conflicts of Interest

The authors declare no conflicts of interest.

Data Availability Statement

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

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