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Educational guidance in secondary education from the perspective of students, tutors and counsellors. Validation of three scales.

La orientación educativa en Educación Secundaria desde la perspectiva del alumnado, tutores y orientadores. Validación de tres escalas

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Abstract

Educational guidance is a quality factor of the educational system which has been recognised for years in the regulations, supported by the main authors who have dealt with the subject. In recent years, several proposals have been made to measure the construct; however, none of them have been based on an integral vision that brings together the three main protagonists: students, tutors and counsellors. In the present work we propose the design and validation of three theoretically based instruments for the assessment of educational guidance in Secondary Education, with psychometric characteristics of reliability, item homogeneity and validity. The study sample was made up of 5,685 secondary school students, 541 tutors and 1,187 counsellors randomly taken from the Autonomous Communities of Andalusia, Castile and Leon and Catalonia, selected for having representative populations of the national context. Three scales with six dimensions each were built and analysed for overall reliability (Cronbach's alpha: students .969, tutors .947 and counsellors .908) and by dimensions. An Exploratory Factor Analysis and the corresponding Confirmatory Factor Analysis were carried out (Students: CFI= .881; RMSEA: .0079; TLI=.875; Tutors: CFI= .987; RMSEA: .0069; TLI=.987; Counsellors: CFI= .850; RMSEA: .0068; TLI=.842). The results were highly satisfactory and confirm that the three instruments contribute to a better understanding of guidance activity in secondary schools, making them useful tools for the improvement of tutoring and educational guidance.

Keywords: guidance; tutoring; reliability; validity.

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Resumen

La orientación educativa constituye un factor de calidad del sistema educativo consagrado desde hace años en la normativa, apoyado por las y los principales autores que han tratado el tema. En los últimos años se han llevado a cabo diversas propuestas para medir el constructo; sin embargo, ninguna desde una visión integral que aúne al mismo tiempo los tres grandes protagonistas de esta: alumnado, personas tutoras y orientadoras. En el presente trabajo se plantea el diseño y validación de tres instrumentos de valoración de la orientación educativa en Educación Secundaria, fundamentados teóricamente y con unas características psicométricas de fiabilidad, homogeneidad de los ítems y validez. La muestra del estudio estuvo compuesta por 5685 estudiantes de Educación Secundaria, 541 tutores/as y 1187 orientadores/as tomados de manera aleatoria de las Comunidades Autónomas de Andalucía, Castilla y León y Cataluña, seleccionadas por tener poblaciones representativas del contexto nacional. Se construyeron tres escalas con seis dimensiones cada una de ellas en las que se analizó la fiabilidad global (Alfa de Cronbach: alumnado .969, tutores .947 y orientadores .908) y por dimensiones. Se llevó a cabo un Análisis Factorial Exploratorio y el correspondiente Confirmatorio (Alumnado: CFI= .881; RMSEA: .0079; TLI=.875; Tutores: CFI= .987; RMSEA: .0069; TLI=.987; Orientadores: CFI= .850; RMSEA: .0068; TLI=.842). Los resultados fueron altamente satisfactorios y confirman que los tres instrumentos contribuyen a un mejor conocimiento de la actividad orientadora en los centros de Educación Secundaria, por lo que se convierten en herramientas útiles para la mejora de las tutorías y la orientación educativa.

Palabras clave: orientación; tutoría; fiabilidad; validez.

Introduction

The tutoring work of teachers in secondary education provides a quality factor to the educational system, as well as added value aimed at the comprehensive development of our students, both personally, academically, socially, emotionally and/or professionally. A quality tutoring model must be comprehensive, ensuring the development of skills at different levels: multidisciplinary, interdisciplinary, time and space for tutoring, institutional support, training in tutoring and the incorporation of ICT (Castellano and Pantoja, 2017).

A review of the literature on the development of guidance and tutoring in compulsory secondary education shows a real interest in how it is implemented in schools, as well as its reinforcement to adapt it to the numerous needs expressed by students. We must not overlook how the current guidance model must respond to the new demands of society, which includes an increasingly diverse and changing student body (López Díez-Caballero and Manzano-Soto, 2019).

We must recognise the importance of educational guidance, and therefore tutoring, in advising and guiding our students as a relevant indicator in supporting them throughout their educational stage, ensuring comprehensive development in all key areas such as academic, social, personal and professional (González-Benito and Vélaz de Mendrano, 2014). Tutoring becomes a tool available to educational centres and teaching staff to substantially improve the quality of educational processes. However, greater importance is given to academic work than to training, i.e. to programming and planning its development, rather than its continuous implementation (Rodríguez Fernández and Romero, 2015). Educational guidance is a continuous and systematic intervention process whose purpose is the comprehensive and personal development of students (Cid-Romero et al., 2025; González-Cisneros, 2020). It faces multiple cultural, social and ecological challenges, i.e. a complex, uncertain and ambiguous society. That is why it guides students so that they can build their life and professional project from a systemic perspective, requiring guidance professionals to have a critical and constructive attitude (Echeverría Samanes and Martínez-Clares, 2024). In this sense, both tutoring and guidance complement each other as they reflect joint planning of intervention strategies and personalised advice from a preventive approach. From this perspective, the guidance counsellor and the tutor must work collaboratively, addressing both individual and structural needs that may influence the student's trajectory (Cid-Romero et al., 2025).

There is a clear lack of tools for evaluating tutoring and guidance in relation to the functions and activities of the educational process of our secondary school students (De la Cruz and Abreu-Hernández, 2017). Likewise, there are few studies focused on identifying profiles that reveal the dedication of tutoring teachers and allow for an analysis of the characteristics of each one when performing their work (León-Carrascosa and Fernández-Diaz, 2021).

On the contrary, we find more instruments focused on assessing the training needs of guidance counsellors (Anaya et al., 2011), evaluating the importance given by tutors to certain tutorial tasks in secondary education (López Gómez, 2013), the development of the tutorial function as key to the comprehensive training of secondary school students (León-Carrascosa and Fernández-Díaz, 2019), the guidance role of tutors (Arza et al., 2014), satisfaction with tutoring (Pérez Cusó et al., 2015), analysing the perception of families and tutors about who takes the initiative to promote individual tutoring (Rodríguez-Ruiz et al., 2019), tutors' perceptions of their level of performance in tutoring in secondary education (Vélaz de Medrano et al., 2018), and the main weaknesses of our guidance system according to secondary school tutors (Mudarra et al., 2020).

This evidence sought to generate structures covering different aspects of tutoring practice in secondary education classrooms, such as the roles of the tutor/ r tutor with students and families, or the development of tutoring and its evaluation (León-Carrascosa and Fernández-Díaz, 2019). Instruments were designed and validated for the assessment of tutoring by secondary school students. The results conclude that schools need to establish quality mechanisms to ensure the proper functioning of tutoring through knowledge of the particular realities and interests of its protagonists (León-Carrascosa and Fernández-Díaz, 2021).

If we shift the focus of the study to the level of performance of the functions associated with tutoring, from the opinion of secondary school teachers/tutors themselves, there is evidence of poor performance of the tutoring functions they perceive as desirable. Furthermore, their perception of poor performance is more pressing in three functions considered central to guidance and tutoring: getting to know the students (personally, socially, academically and professionally); offering an individualised response to the students' needs; and informing and/or collaborating with other professionals to contribute to their better guidance (Vélaz de Medrano et al., 2018).

In relation to vocational training, few studies have been found, one of the main reasons being its adaptation to the numerous transformations of the information society and its continuous educational reforms aimed not only at promoting quality training for students, but also at improving teacher training. The study conducted by Santana-Vega et al. (2018) states that if we want to promote quality educational and socio-occupational guidance, we must strengthen the role of tutoring and, from a cross-cutting approach, implement professional content that stimulates the formation of more solid educational and professional trajectories.

As we indicated at the beginning, guidance and tutoring cannot ignore the motivational potential of ICTs due to their contribution to improving guidance for secondary school students. Investigating the usefulness and evaluating the impact of the use of ICTs in guidance processes and practices has also been widely demonstrated. Some studies focused on the current situation of ICT use in different guidance departments in secondary education (Romero Oliva and Montilla Coronado, 2015); deepening knowledge of the process of ICT integration in educational centres (Méndez Garrido and Delgado García, 2016); and the analysis of the implementation and use of websites for educational guidance in secondary schools (Sánchez-Martín et al., 2017). Practical guides for educational guidance using ICT and online resources are also being developed (Del Mazo, 2017), as are basic digital tools for educational guidance, specifically the one designed by De Soroa et al. (2019) called "Maletín OrienTIC" (OrienTIC Briefcase).

A few years ago, Recommendation Systems (RS) began to emerge, mainly in the world of commerce, and gradually spread to the fields of education and guidance, with experiences such as Timonel (Pantoja et al., 2023). Currently, these consist of artificial intelligence-based tools that suggest products, content, or services to users based on their preferences and previous behaviour, leading to improvements in decision-making. There are various contributions relating to different fields (Bron and Mar, 2022; He et al., 2024; Maldonado-Mahauad et al., 2024; Urdaneta-Ponte et al., 2021). Lampropoulos (2023) provides a report with the results obtained in his review of studies, with updated findings on the importance given to RS and their potential in the field of education, concluding that they are an effective educational tool that promotes and improves adaptive and personalised learning. In short, it can be said that no study shows how these systems can help the development of guidance and tutoring in secondary education.

That is why the dimensions that make up the scales designed for this research reflect the main areas for improvement identified in the literature: student knowledge, coordination between professionals, their training in guidance and tutoring to respond to student needs, and the integration of ICT tools in the guidance process, allowing the identification of the needs and points of view of the work carried out by the tutor and the guidance counsellor from the perspective of the students, tutors, and guidance counsellors. In this way, we can show how tutorial action and educational guidance complement each other, from a collaborative and planned approach.

This structure will allow us to analyse the performance of each function, as well as the relationships between them, in addition to how an SR can improve the results of guidance and tutoring.

The current state of affairs regarding guidance and tutoring in secondary education, and the evidence from the studies reviewed in this regard, have formed the starting point for the TIMONELA project[2] , which aims to create an SR for the educational guidance of secondary school students, as well as to support the work of tutors and guidance counsellors. The first objective of this project has been to design and validate different scales that would allow us to obtain the most relevant results and conclusions perceived from the guidance and tutoring action by its main protagonists: students, tutors and counsellors, without forgetting the motivational potential of ICT in their professional performance.

Method

Participants

The study population consisted of secondary school students (compulsory secondary education, sixth form and vocational training), compulsory secondary education tutors and professional educational counsellors in Spain. First, a sample study was carried out, seeking representativeness by Autonomous Community (CCAA) to allow easier access to the sample. Andalusia, Catalonia and Castile and León were chosen. Next, the classic formula for finite populations by Bugeda (1974) was applied, adopting a 5% sampling error, and a selection was made using a stratified random model in the case of students and tutors, and a simple random model in the case of counsellors. The reason for this is that it was not possible to establish a verified population based on the actual number of these professionals, despite numerous consultations. Participation was voluntary, and the values shown in Table 1 were obtained.

Table 1

Research participants

Variable		NEPROT-A22	NEPROT-T22	NEPROT-O22
Gender	Male	2,888 (50.8%)	217 (40.1%)	216 (18.2%)
	Female	2,797 (49.2%)	324 (59.9)	971 (81.8%)
Autonomous	Andalusia	2,144 (37.7%)	231 (42.7%)	525 (44.2%)
Community	Catalonia	1,626 (28.6%)	151 (27.9%)	310 (26.1%)
	Castile and León	1915 (33.7%)	159 (29.9%)	352 (29.7%)
Type	Public	4,366 (76.7%)	470 (86.9%)	1003 (84.5%)
	Private	1,322 (23.3%)	71 (13.1%)	184 (15.5%)
Total		5,685	541	1,187

Note: NEPROT-A22 (students), (tutors), NEPROT-O22 (counsellors).

Instruments

Three assessment scales (Appendix A) were constructed and validated *ad hoc* to meet the research objectives. A research team was formed consisting of 10 university professors (UJA=7, UCO=1, UGR=2) and 3 active professional counsellors, and extensive criteria were taken into consideration in the design of the questionnaires (e.g. Morales et al., 2000), such as: analysis of similar instruments, creation of a database of questions based on the objectives, preparation of the instrument, collection of data from a sample, and analysis. After an exhaustive review of the literature, the team evaluated various instruments with similar characteristics and grouped the items into six dimensions. In consecutive working sessions, the three main profiles of subjects (students, tutors, and counsellors) and the characteristics that define the dimensions, which vary according to the type of subject, were defined. The items are arranged on the three scales so that their clarity, consistency, and relevance can be assessed.

[2] R&D&I Project "Timonela: Recommendation System (SR) for the educational guidance of secondary school students" (Ref. PID2020-114336GB-I00), approved by the Ministry of Science and Innovation within the framework of the State Programme for Knowledge Generation and Scientific and Technological Strengthening of the R&D&I system in the 2020 call for proposals.

With these characteristics, the first version of the scale was designed, entitled: "Needs and practice of guidance and tutoring in Secondary Education and Vocational Training" Students (NEPROT-A22), Tutors (NEPROT-T22) and Counsellors (NEPROT-O22), with a total of 62 items. The only scale based on another already validated scale was that for students, based on León-Carrascosa and Fernández-Díaz (2019).

In the next phase, a group of expert judges assessed the relevance of each item for the three indicators mentioned above on a scale of four response options (1 = poor; 4 = excellent). These versions of the instruments were completed by 12 tutors and 12 counsellors, with gender parity and a minimum of six years' experience. Once the scales had been collected, a basic descriptive analysis was carried out and any items that did not obtain at least 75% unanimity and that corresponded to averages close to or below 2 in the three indicators were eliminated.

The research team meets again to refine the final scales based on the experts' assessments, eliminating the lowest-rated items or improving the wording and adapting them to the target subject. At the same time, five response options are defined (1 = strongly disagree; 5 = strongly agree). Finally, the initial versions of 62 items are made up of the following items and dimensions (Table 2).

Table 2

Final versions of the three scales

Scale/Dimensions	NEPROT-A22	NEPROT-T22	NEPROT-O22
Tutorial action		10	12
Academic and professional guidance		12	7
Attention to diversity		9	7
Planning		8	12
Resources	12	12	12
Rating	6	8	4
Functions of the tutor	12		
Development of tutoring	11		
Tutor-family relationship	7		
Guidance counsellor/Guidance counsellor's work	5		
Total	53	59	54

Note: NEPROT-A22 (Students), NEPROT-T22 (Tutors), NEPROT-O22 (Counsellors).

As can be seen, the scales for tutors and counsellors have a similar structure, while the scale for students has some distinctive features. In the case of the resources dimension, the items are the same for tutors, counsellors and students. In the assessment dimension, however, the items are more specific, depending on their role. The content covered by each dimension of the scales is shown below (Table 3):

Table 3

Information on the dimensions of the scales

Dimension	Students (NEPROT-A22)	Tutors (NEPROT-T22)	Counsellors (NEPROT-O22)
Tutorial action	Students' perception of the tutor's role: problem solving, personal attention, motivation.	Actions carried out by tutors with students during tutoring: attention to their needs, motivation, PAT design.	Actions carried out by counsellors with students, with the advice of tutors, on the design of the POAT.
Tutorial development (students) / Academic and professional guidance (tutors-guidance counsellors)	Activities and content covered in tutoring.	Actions carried out by tutors to work with students on academic issues and career opportunities.	Actions carried out by counsellors to work with students on academic issues and career opportunities. Informing families.

Tutor-family relationships (students) / Attention to diversity (Tutors-Counsellors)	What is the relationship between the tutor and the family like, and how does the family participate in tutoring?	Measures used by the tutor to address diversity.	Measures used by the counsellor to address diversity.
Resources	Perception of the resources used in tutoring sessions.	Resources available and used for tutoring sessions.	Resources available and used to carry out their work.
Assessment	Students' perception of the usefulness of tutoring.	How they feel their work is valued.	How they feel their work is valued.
Guidance counsellor (students)/ Planning (Tutors-Counsellors)	Students' perception of the work done by the counsellor.	What is their role in the design of the POAT-PAT, coordination, family?	Assessment, counselling, coordination.

Procedure

In accordance with the objectives defined in the research, an in-depth review of the literature was carried out, on which several team meetings were structured in order to produce a first version of the three scales. From there, successive rounds of analysis were carried out and strategies were outlined to define the validity and reliability that would allow us to consider that the instruments possessed the necessary quality to be considered definitive. All the teaching staff from the research and working teams of the R&D&I Project, belonging to the universities of Jaén, Córdoba, Granada and Valladolid, participated in these preliminary phases, ensuring the confidentiality of the data at all times.

Data analysis

The process of validating the construct of each of the scales was carried out in two stages. First, we performed an Exploratory Factor Analysis (EFA) to identify the underlying factor structure. Although this analysis helps to understand the dimensionality of the instrument, it only provides evidence of a theoretical factor structure. Therefore, in the next phase, our objective was to use Confirmatory Factor Analysis (CFA) to confirm this structure and provide further evidence of construct validity. To carry out these analyses, we used the statistical packages SPSS v. 24 for Mac and R *Project for Statistical Computing and Lavaan from R.*

Results

The results are presented below, first analysing the evidence of construct validity of the items of the three instruments, using exploratory factor analysis, together with reliability. Secondly, confirmatory factor analysis is carried out.

Exploratory factor analysis (EFA) and reliability

An exploratory factor analysis was performed using the principal component extraction method and Varimax rotation. The purpose was to establish the main components of the scales and determine the variance they explain, in order to verify consistency with the factors proposed by the reviewers in the content validation. The degree of significance of the coefficients is significant in all cases p<.000. The Kaiser-Meyer-Olkin (KMO) sample adequacy measure is close to unity, making factor analysis an appropriate procedure. This value in the three scales (Table 4) allows factor analysis to be performed.

Table 4

KMO and Bartlett's sphericity tests for the three scales

KMO and Bartlett's sphericity	NEPROT-A22	NEPROT-T22	NEPROT-O22
Kaiser-Meyer-Olkin sample adequacy measure	.975	.926	.900
Bartlett's sphericity test - Chi-square	194,998.141	17289.626	2695.112
Degrees of freedom (df)	1378	1711	1431
Significance	.000	.000	.000

Table 4 shows that Bartlett's test is significant in all cases p<.000 on the three scales, and KMO's sample adequacy measure is close to unity, so exploratory factor analysis can be used as an appropriate procedure. This was carried out using the principal component extraction method (MCP), with Varimax normalisation as the rotation method, as it is one of the most widely used and accepted techniques in socio-educational research (Gaviria, 2000).

Scale 1 is aimed at the needs and practice of guidance and tutoring by secondary school and vocational training students (NEPROF-A22). As explained in Table 2, it consists of 53 items. The corresponding exploratory factor analysis presents a structure of 6 factors that explain 59.64% of the variance, with the groupings shown in Table 5.

Table 5

Exploratory factor analysis of the NEPROF-A22 scale

	Factor loadings					
Items	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6
V6	.616					
V1	.607					
V5	.607					
V2	.530					
V9	.513					
V7	.463					
V11	.453					
V12	.444					
V3	.433					
V4	.381					
V10	.369					
V8	.355					
V13		.455				
V14		.531				
V15		.557				
V16		.714				
V17		.753				
V18		.735				
V19		.483				
V20		.545				
V21		.454				
V22		.458				
V23		.463				
V24					.707	
V25					.719	
V26					.651	
V27					.737	
V28					.697	
V29					.696	
V30					.662	
V31				.690		
V32				.677		
V33				.646		
V34				.711		
V35				.559		
V36				.704		
V37				.687		
V38				.495		
V39				.612		
V40				.636		
V41				.586		
V42				.588		
V43			.719			
V44			.657			
V45			.684			
V46			.708			
V47			.670			
V48			.424			
V49						.791
V50						.745
V51						.838

V52	.824
V53	.757

Scale 2 measures the same as the previous scale, but in this case in tutors (NEPROFT-T22). As shown in Table 2, it consists of 59 items. The corresponding exploratory factor analysis presents a structure of 6 factors that explain 50.38% of the variance, with the groupings shown in Table 6.

Table 6

Exploratory factor analysis of the NEPROF-T22 scale

	Factor loadings					
Items	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6
V4	.789					
V8	.771					
V7	.750					
V10	.712					
V2	.711					
V1	.666					
V5	.627					
V9	.561					
V6	.402					
V3	.353					
V12				.777		
V11				.706		
V22				.661		
V17				.620		
V13				.607		
V21				.515		
V20				.508		
V15				.418		
V16				.413		
V14				.412		
V19				.393		
V18				.360		
V27			.684			
V26			.655			
V31			.644			
V23			.640			
V28			.579			
V25			.532			
V30			.428			
V24			.344			
V29			.314			
V32		.614				
V36		.516				
V39		.516				
V33		.511				
V34		.492				
V37		.492				
V35		.446				
V38		.446				
V49					.676	
V46					.658	
V43					.655	
V45					.632	

V42	.525	
V44	.516	
V40	.499	
V50	.443	
V51	.400	
V41	.306	
V47	<.300	
V48	<.300	
V53		.769
V54		.763
V55		.633
V57		.570
V52		.548
V56		.537
V58		.459
V59		.441

Finally, scale 3 deals with educational counsellors who work in educational centres (NEPROFT-O22) and consists of 54 items. The corresponding exploratory factor analysis presents a structure of 6 factors that explain 45.76% of the variance, with the groupings shown in Table 7.

Table 7

Exploratory factor analysis of the NEPROF-O22 scale

	Factor loadings					
Items	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6
V7		.785				
V8		.750				
V6		.733				
V5		.654				
V9		.588				
V12		.558				
V2		.418				
V4		.402				
V10		.397				
V3		.354				
V11		.332				
V1		.312				
V18			.785			
V15			.649			
V16			.641			
V14			.561			
V13			.514			
V17			.475			
V19			-,670			
V26				.728		
V23				.649		
V20				.403		
V22				.389		
V24				.315		
V21				.310		
V25				<.300		
V27					.808	
V28					.807	
V32					.587	
V38					.521	

V29		.475	
V36		.454	
V34		.437	
V37		.426	
V35		.389	
V33		.380	
V30		.325	
V31		-.308	
V47			.722
V44			.615
V40			.614
V39			.587
V45			.586
V50			.564
V43			.558
V48			.505
V42			.496
V46			.381
V41			.373
V49			.316
V52	.502		
V53	.447		
V51	.430		
V54	<.300		

Reliability was estimated using Cronbach's alpha coefficient (α), which is commonly used as a measure of internal consistency for a scale, with acceptable values for this coefficient ranging from a minimum of 0.7 to a maximum of 0.95 (Tavakol and Dennick, 2011). Given that the use of this coefficient is not un ly free from criticism (Cronbach and Shavelson, 2004; Dunn et al., 2014; Sijtsma, 2009), we also calculated the omega (ω) coefficient (McDonald, 1999), which has been proposed as an alternative that allows us to overcome some of the disadvantages inherent in Cronbach's alpha coefficient (Dunn et al., 2014). To calculate these coefficients (ω; α), we used the R Statistical Package (R Core Team, 2023) and the "userfriendlyscience" library (Peters and Jorn, 2018).

With regard to the α coefficient, very high overall results were obtained for the three instruments (NEPROT-A22 α= .969, NEPROT-T22 α= .947, NEPROT-O22 α= .908). Tables 8, 9 and 10 show the α and ω coefficients for each of the dimensions, demonstrating very high internal consistency.

Table 8

Reliability of the NEPROT-A22 scale

	D 1	**D 2**	**D 3**	**D 4**	**D 5**	**D6**
α (>0.7)	0.924	0.902	0.882	0.894	0.914	0.908
ω (>0.7)	0.924	0.904	0.882	0.896	0.917	0.909

Table 9

Reliability of the NEPROT-T22 scale

	D 1	**D 2**	**D 3**	**D 4**	**D 5**	**D6**
α (>0.7)	0.855	0.879	0.887	0.827	0.794	0.834
ω (>0.7)	0.880	0.855	0.890	0.835	0.799	0.841

Table 10

Reliability of the NEPROT-O22 scale

	D 1	D 2	D 3	D 4	D 5	D6
α (>0.7)	0.870	0.702	0.728	0.835	0.746	0.720
ω (>0.7)	0.874	0.741	0.785	0.840	0.754	0.735

Confirmatory factor analysis (CFA)

The next step in the validation process was to confirm the existence of the factors provided in the AFE for each of the scales presented (NEPROT-A22, NEPROT-T22, NEPROT-O22) using Confirmatory Factor Analysis (CFA). In this case, the required analyses were performed using Mplus software (Muthén and Muthén 2017) with the Lavaan statistical package from R. We chose to use the robust WLSMV estimation method, recommended in cases of non-normality, as has been the case for each of the scales (NEPROT-A22, NEPROT-T22, NEPROT-O22) (Gana and Broc, 2019). This extraction method (WLSMV) allows for a more objective interpretation of the items that saturate each factor, as it provides the typical estimation errors for each saturation, thus giving an idea of those that deviate from the hypothetical value of 0 (Lloret et al., 2017). In each of the scales (NEPROT-A22, NEPROT-T22, NEPROT-O22), once the model was estimated, we obtained goodness-of-fit indicators that, taken together, fit correctly (Table 11). As a measure of the overall fit of the model, the chi-square statistic (χ^2) is calculated, which, being significant in each case (students χ^2=21794.971; 1310 df; p=.001); (tutors χ^2=3562.541; 1637 df; p=.000); (counsellors χ^2=3678.614; 1310df; p=.000), it only serves to gauge the approximation between different adjustment models. Therefore, other indices are needed to verify whether the model fit is adequate. One of the most appropriate indices is the RMSEA (Root Mean Square Error of Approximation), as it is modulated by the degrees of freedom of the sample. However, other fit indices have also been used, as shown in Table 11. This table shows that some indicators are outside the standard value but very close to it, so they are assumed to be adequate (Hair et al., 2014; Steiger and Lind, 1980; Wang and Wang, 2012).

Table 11

Model fit measures

Indicators	Scale value			Standard value
	NEPROT-A22	NEPROT-T22	NEPROT-O22	
RMSEA	0.079	0.069	0.068	< .08
CFI	0.881	0.987	0.850	≥ .95
TLI	0.875	0.987	0.842	≥ .95
SRMR (Standardised Residual Mean Square Root)	0.061	0.110	0.101	< .06 (Close to 0)

The information that allows us to analyse the validity and reliability of each of the scales is shown in Appendices B, C, and D. To do this, it is important to take into account the size of the factor loading. In each of the scales, most of the indicators have standardised factors that exceed the minimum value of .55 proposed by Hair et al. (2014). In addition, all factor loadings were statistically significant (t value > 2.58).

Finally, the Chi-square test was used to measure the stability of the scales by comparing each of their dimensions. Given the nature of the study, it was impossible to administer the tests a second time, so the large samples obtained were divided into two, with similar characteristics . Due to the amount of data provided, a summary of the comparison of the variables related to Assessment is shown below:

- Students: X^2 = 9.126; Sig: .33
- Tutors: X^2 = 21.026; Sig: .12
- Guidance counsellors: X^2= 32.273; Sig: .27

In all cases, the stability of the items is demonstrated, as they present a degree of significance p>.05.

Discussion and Conclusions

The results have allowed us to demonstrate the design and validation of three scales for evaluating guidance and tutoring in secondary education and vocational training students, tutors, and counsellors, thus contributing to providing resources from which to enhance guidance intervention and meet the demands and needs of these groups and the entire educational community.

These scales, entitled "Needs and practice of guidance and tutoring in Secondary Education and Vocational Training" (NEPROT-A22; NEPROT-T22; NEPROT-O22), were formed in different dimensions with a similar structure for tutors and counsellors and different scales for students. All of them are supported by a theoretical approach that underpins the operational specificity of the items that comprise them and gives consistency to the three scales as a whole.

To ensure validity, the expert judgement procedure (content-based validity evidence) was used, and satisfactory ratings were obtained from the rigour of the judgements made on the relevance, clarity and adequacy of the items that made up the initial questionnaire. Based on these assessments, the initial scales were transformed and the instrument was refined. These improvements referred to both the wording of the items and the reduction of some of them. Subsequently, psychometric studies carried out on the three scales show a solid and robust configuration of the dimensions that comprise them.

Firstly, the validation of the theoretical construct of the NEPROT-A22 scale, aimed at students, shows a high KMO index (.975), which allows us to conclude that factor analysis is appropriate. The result is a factorial model composed of six factors that contribute to detecting the different types of needs that exist with regard to guidance and tutoring in secondary education and vocational training, which should be taken into account when guiding and tutoring these students. These dimensions cover both the functions of the tutor, the development of their tutorials, the tutor's relationships with families, the resources necessary to successfully carry out the tutoring functions and the assessment of their performance, as well as the guidance work carried out by the guidance counsellor. These dimensions or structures coincide with other similar experiences (León-Carrascosa and Fernández-Díaz, 2019). However, we also find similarities with the developed in university contexts (Delgado-García et al., 2021; Pantoja-Vallejo et al., 2020; Pérez Cusó et al., 2015).

The confirmatory factor analysis performed on the NEPROT-A22 scale results in a multifunctional model structure where the dimensions that constitute the basis of the research are identified. The conclusion is that the model has adequate metric quality and a satisfactory fit, as indicated by the population discrepancy indices, such as RMSEA and SRMR, with values of .079 and .061 respectively, which clearly show a good fit to the model.

The second of the scales, NEPROT-T22, is aimed at secondary school teachers/tutors and its objective was to assess the functioning of their tutorials. The results have shown a theoretically grounded and operationally defined instrument, taking into account six dimensions, and its internal consistency was excellent, .947. Other studies agree with the theoretical model, although with different nomenclature (León-Carrascosa and Fernández-Díaz, 2019, 2021) or in other educational contexts, such as primary school (Alegre et al., 2017; Urosa and Lázaro, 2017) or university (De la Cruz and Abreu-Hernández, 2017), but including coinciding aspects in the functions of the tutor with students and families, in addition to the development and evaluation of their tutorials. The validation of the AFC has allowed us to demonstrate a solid scale in its multidimensional configuration and a satisfactory fit of the model.

The results obtained on this scale also coincide with the importance that other studies attach to the assessment or importance given to tutoring (López Gómez, 2013), or the development of the tutoring function as the key to comprehensive student training (León-Carrascosa and Fernández-Díaz, 2019). Our aim was not to focus on the

weaknesses of the guidance system (Mudarra et al., 2020) but to improve the practice of tutoring and guidance through the detection of needs.

Finally, the validation of the NEPROT-O22 instrument, aimed at secondary school counsellors, like the rest of the scales, has undergone a rigorous process that endorses both its content and construct validity and reliability, meeting the proposed objectives. This scale contributes to a deeper understanding of the construct of counselling practice and allows for proposals for improvement to be made. The result is a factorial model composed of six factors that contribute to detecting existing needs in their role as counsellors, addressing both tutorial activities, academic and professional guidance, response to diversity, planning and resources that aid the counselling function and, finally, their assessment of the counselling task. The CFA supports these results with values below .08 (.068), complying with the recommended values (Cho et al., 2020; Lai, 2021). Other experiences allude to the importance of counsellors' participation throughout the instrument construction process, encouraging reflection on practice (Velaz de Medrano et al., 2013). These results also agree with other studies that address the training needs of counsellors (Anaya et al., 2011) or the importance of certain aspects of the educational reality, which constitute one of our dimensions, "attention to diversity," contributing to the improvement of their professional competencies in this area (Miranda Morais et al., 2019).

In summary, we can conclude that the results obtained in the different validation and reliability processes, in the three scales designed, offer empirical evidence that contributes to the study of guidance practice and tutorial action in secondary education and vocational training. The internal consistency of these scales was adequate (above .9 in each of them), which leads us to affirm their usefulness, both for researchers and for secondary school tutors and guidance counsellors, in order to substantiate their guidance intervention programmes and adapt them to the real and current needs of their students.

In light of our results and the background information showing the diversity of studies reviewed to reveal the guidance and tutoring needs at this educational stage, future studies could focus on improving and advancing their actual implementation in the classroom, using recommendation systems that assist tutors and guidance counsellors in their daily work. In accordance with the proposals of Azorín (2017), which we share, it is essential to devote efforts and resources to designing assessment tools that allow us to gather the views of the different groups that form part of educational practice: students, teachers-tutors and counsellors, enabling quality and comprehensive guidance to be provided. These groups are part of the educational reality and enable us to advance and build knowledge collaboratively.

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Appendices

Appendix A

- Needs and practice of guidance and tutoring in Secondary Education and Vocational Training - Students (NEPROT-A22): https://drive.google.com/file/d/1oxN2tTpE1BOgNMGvtD1bl0tqpO9avKDf/view?usp=sharing
- Needs and practices of guidance and tutoring in Secondary Education and Vocational Training - Tutors (NEPROT-T22): https://drive.google.com/file/d/1omWjaKNlMFYxr-vLaEa5lxX7z-EF3qZI/view?usp=sharing
- Needs and practice of guidance and tutoring in Secondary Education and Vocational Training - Guidance Counsellors (NEPROT-O22): https://drive.google.com/file/d/1on_C32zG8AehRXi54Qctr2eirEbxLsBE/view?usp=sharing

Appendix B

Estimates using the WLSMV estimation method, NEPROT-A22 scale

Dimensions /Factors	Estimated	Standard Error	t-value	P(>|z|)	95% Confidence Interval		Standardised Value
					Lower	Upper	
FACTOR 1. TUTOR FUNCTIONS							
FT1	0.760	0.013	58.449	0.001	0.735	0.786	0.782
FT2	0.731	0.013	55.881	0.001	0.705	0.756	0.739
FT3	0.718	0.013	55.258	0.001	0.693	0.744	0.744
FT4	0.750	0.012	60.653	0.001	0.726	0.775	0.763
FT5	0.789	0.012	64.565	0.001	0.765	0.813	0.817
FT6	0.797	0.011	70.044	0.001	0.775	0.819	0.813
FT7	0.708	0.014	49.318	0.001	0.680	0.736	0.717
FT8	0.691	0.014	48.912	0.001	0.663	0.718	0.691
FT9	0.810	0.010	80.299	0.001	0.790	0.830	0.818
FT10	0.798	0.010	76.271	0.001	0.777	0.818	0.805
FT11	0.775	0.012	67.046	0.001	0.753	0.798	0.768
FT12	0.865	0.008	105.925	0.001	0.849	0.881	0.862
FACTOR 2. DEVELOPMENT OF TUTORING							
DT1	0.771	0.012	66.268	0.001	0.748	0.794	0.824
DT2	0.809	0.010	81.145	0.001	0.789	0.828	0.731
DT3	0.687	0.014	49.770	0.001	0.660	0.714	0.743
DT4	0.708	0.013	54.299	0.001	0.682	0.733	0.807
DT5	0.798	0.009	84.401	0.001	0.779	0.816	0.776
DT6	0.764	0.011	67.707	0.001	0.742	0.786	0.725
DT7	0.756	0.012	64.222	0.001	0.733	0.779	0.661
DT8	0.674	0.016	43.067	0.001	0.644	0.705	0.864
DT9	0.843	0.009	94.528	0.001	0.825	0.860	0.794
DT10	0.874	0.007	131.220	0.001	0.861	0.887	0.806
DT11	0.885	0.006	138.110	0.001	0.872	0.897	0.852
FACTOR 3. TUTOR-FAMILY RELATIONSHIPS							
RTF1	0.802	0.012	65.863	0.001	0.778	0.826	0.794
RTF2	0.858	0.011	80.654	0.001	0.837	0.879	0.834
RTF3	0.690	0.017	39.426	0.001	0.656	0.724	0.906
RTF4	0.774	0.013	57.469	0.001	0.748	0.801	0.711
RTF5	0.840	0.012	69.409	0.001	0.817	0.864	0.781
RTF6	0.899	0.010	87.361	0.001	0.879	0.919	0.774
RTF7	0.747	0.016	47.284	0.001	0.716	0.778	0.733
FACTOR 4. RESOURCES							
R1a	0.771	0.013	57.491	0.001	0.745	0.798	0.616
R1b	0.776	0.013	61.307	0.001	0.751	0.801	0.811

R1c	0.732	0.013	55.844	0.001	0.706	0.758	0.816
R1d	0.724	0.013	54.842	0.001	0.698	0.750	0.748
R1e	0.629	0.017	38.017	0.001	0.597	0.662	0.701
R1f	0.799	0.011	74.742	0.001	0.778	0.820	0.785
R1g	0.811	0.010	79.948	0.001	0.791	0.831	0.731
R2a	0.755	0.013	60.192	0.001	0.731	0.780	0.682
R2b	0.708	0.015	47.432	0.001	0.679	0.737	0.839
R2c	0.770	0.012	62.810	0.001	0.746	0.794	0.863
R2d	0.704	0.015	45.695	0.001	0.674	0.734	0.901
R2e	0.673	0.017	40.283	0.001	0.640	0.705	0.901
			FACTOR 5. EVALUATION OF TUTORING				
VT1	0.842	0.009	96.768	0.001	0.825	0.859	0.854
VT2	0.863	0.008	107,066	0.001	0.848	0.879	0.831
VT3	0.897	0.007	130,264	0.001	0.883	0.910	0.842
VT4	0.907	0.006	139,563	0.001	0.894	0.920	0.859
VT5	0.872	0.008	115,018	0.001	0.858	0.887	0.871
VT6	0.843	0.011	74.578	0.001	0.821	0.865	0.851
			FACTOR 6. GUIDANCE COUNSELLOR/GUIDANCE WORK				
OLO1	0.834	0.011	77,639	0.001	0.813	0.855	0.739
OLO2	0.854	0.010	83.637	0.001	0.834	0.874	0.744
OLO3	0.880	0.009	102.397	0.001	0.863	0.897	0.763
OLO4	0.887	0.008	104.311	0.001	0.870	0.903	0.817
OLO5	0.840	0.011	78.214	0.001	0.819	0.861	0.813

Appendix C

Estimates using the WLSMV estimation method, NEPROT-T22 scale

Dimensions /Factors	Estimated	Standard Error	t-value	P(>|z|)	95% Confidence Interval		Standardised Value
					Lower	Upper	
FACTOR 1. TUTORIAL ACTION							
ATI	1,000				1,000	1,000	0.749
AT2	1,325	0.082	16,192	0.000	1,165	1,486	0.993
AT3	1,340	0.082	16,429	0.000	1,180	1,500	1,004
AT4	1,112	0.076	14,706	0.000	0.964	1,260	0.833
AT5	1,102	0.071	15,483	0.000	0.963	1,242	0.826
AT6	0.958	0.084	11,462	0.000	0.794	1.122	0.718
AT7	0.919	0.077	11,890	0.000	0.767	1.070	0.688
AT8	1,089	0.083	13,052	0.000	0.926	1,253	0.816
AT9	0.823	0.077	10.706	0.000	0.672	0.974	0.617
AT10	1.007	0.077	13.145	0.000	0.857	1,158	0.755
FACTOR 2. ACADEMIC-PROFESSIONAL GUIDANCE							
OAP1	1,000				1,000	1,000	0.861
OAP2	1,009	0.045	22,427	0.000	0.920	1,097	0.868
OAP3	0.649	0.057	11,404	0.000	0.538	0.761	0.559
OAP4	0.936	0.049	19.037	0.000	0.840	1,032	0.805
OAP5	0.860	0.053	16,149	0.000	0.756	0.965	0.740
OAP6	0.869	0.050	17.273	0.000	0.770	0.967	0.748
OAP7	0.807	0.052	15.407	0.000	0.705	0.910	0.695
OAP8	0.816	0.049	16.623	0.000	0.720	0.913	0.703
OAP9	0.915	0.046	20.030	0.000	0.826	1.005	0.788
OAP10	0.791	0.051	15.363	0.000	0.690	0.892	0.681
OAP11	0.699	0.061	11.490	0.000	0.580	0.818	0.602
OAP12	0.880	0.040	21.783	0.000	0.801	0.959	0.757
FACTOR 3. ATTENTION TO DIVERSITY							
AD1	1,000				1,000	1,000	0.771
AD2	1,067	0.059	17,993	0.000	0.951	1,183	0.823
AD3	0.920	0.061	15.192	0.000	0.801	1.039	0.709
AD4	1,128	0.064	17,593	0.000	1,003	1,254	0.870
AD5	1,107	0.061	18,053	0.000	0.987	1,227	0.854
AD6	0.955	0.064	14,835	0.000	0.829	1.082	0.737
AD7	1.015	0.065	15.704	0.000	0.889	1,142	0.783
AD8	0.983	0.063	15.542	0.000	0.859	1.107	0.758
AD9	1.100	0.065	16,880	0.000	0.972	1,228	0.848
FACTOR 4. PLANNING							
P1	1,000				1,000	1,000	0.592
P2	1,065	0.108	9,844	0.000	0.853	1,277	0.631
P3	1,088	0.109	10,013	0.000	0.875	1,301	0.645
P4	1.131	0.112	10,098	0.000	0.912	1,351	0.670
P5	1,211	0.113	10,729	0.000	0.990	1,433	0.717
P6	0.935	0.112	8.329	0.000	0.715	1,155	0.554
P7	1.417	0.128	11,033	0.000	1,165	1,669	0.839
P8	1,368	0.132	10,376	0.000	1,110	1,627	0.810
FACTOR 5. RESOURCES							
R1a	1,000				1,000	1,000	0.851
R1b	1,022	0.060	17,070	0.000	0.905	1,139	0.869
R1c	0.678	0.072	9.444	0.000	0.537	0.819	0.577
R1d	0.631	0.078	8.049	0.000	0.477	0.785	0.537
R1e	0.495	0.078	6.373	0.000	0.343	0.647	0.551
R1f	0.911	0.060	15.230	0.000	0.793	1.028	0.775
R1g	0.843	0.069	12.143	0.000	0.707	0.979	0.717
R2a	0.623	0.079	7.906	0.000	0.469	0.778	0.550
R2b	0.386	0.086	4.468	0.000	0.217	0.555	0.578
R2c	0.492	0.085	5.771	0.000	0.325	0.659	0.559

R2d	0.523	0.083	6.308	0.000	0.360	0.685	0.595
R2e	0.385	0.098	3.940	0.000	0.193	0.577	0.568
			FACTOR 6. ASSESSMENT				
V1	1,000				1,000	1,000	0.820
V2	0.885	0.067	13,244	0.000	0.754	1,016	0.726
V3	0.711	0.068	10.447	0.000	0.578	0.845	0.583
V4	0.918	0.073	12.508	0.000	0.774	1,062	0.753
V5	0.638	0.080	7.929	0.000	0.480	0.796	0.523
V6	0.926	0.059	15.649	0.000	0.810	1.041	0.759
V7	0.853	0.064	13.270	0.000	0.727	0.979	0.699
V8	0.871	0.074	11.724	0.000	0.726	I.017	0.715

Appendix D

Estimates using the WLSMV estimation method, NEPROT-O22 scale

Dimensions /Factors	Estimated	Standard Error	t-value	P(>|z|)	95% Confidence Interval		Standardised Value
					Lower	Upper	
			FACTOR 1. TUTORIAL ACTION				
ATI	1,000				1,000	1,000	0.560
AT2	1,280	0.102	12,505	0.000	1,080	1,481	0.171
AT3	1,544	0.110	14,071	0.000	1,329	1,760	0.864
AT4	1,536	0.117	13,175	0.000	1,307	1,764	0.860
AT5	1,417	0.106	13,310	0.000	1,208	1,626	0.793
AT6	1,519	0.116	13,134	0.000	1,292	1,746	0.850
AT7	1,380	0.101	13,657	0.000	1,182	1,578	0.772
AT8	1,309	0.099	13,263	0.000	1,115	1,502	0.733
AT9	1,236	0.103	11,964	0.000	1,033	1,438	0.692
AT10	1,281	0.096	13,320	0.000	1,092	1,469	0.717
AT11	1,434	0.101	14,174	0.000	1,236	1,632	0.802
			FACTOR 2. ACADEMIC-PROFESSIONAL GUIDANCE				
OAP1	1,000				1,000	1,000	0.772
OAP2	1,088	0.106	10,232	0.000	0.880	1,297	0.786
OAP3	0.909	0.076	11,937	0.000	0.760	1.059	0.656
OAP4	1,097	0.088	12,485	0.000	0.925	1,270	0.792
OAP5	1.082	0.095	11,378	0.000	0.895	1,268	0.781
OAP6	0.806	1,005	7,664	0.000	0.600	1,013	0.582
OAP7	0.741	0.117	6.334	0.000	0.511	0.970	0.535
			FACTOR 3. ATTENTION TO DIVERSITY				
AD1	1.000				1,000	1,000	0.648
AD2	1,109	0.070	15,736	0.000	0.971	1,247	0.718
AD3	1,179	0.082	14,415	0.000	1,018	1,339	0.763
AD4	1,323	0.082	16,121	0.000	1,167	1,490	0.860
AD5	0.555	0.084	6,632	0.000	0.391	0.719	0.560
AD6	1.017	0.076	13.435	0.000	0.868	1,165	0.658
AD7	1,179	0.078	15,027	0.000	1,025	1,333	0.764
			FACTOR 4. PLANNING				
P1	1,000				1,000	1,000	0.875
P2	0.917	0.330	30,511	0.000	0.858	0.976	0.802
P3	1.020	0.033	30.922	0.000	0.956	1,085	0.893
P4	0.812	0.045	17,953	0.000	0.723	0.900	0.710
P5	0.858	0.040	21,296	0.000	0.779	0.937	0.750
P6	0.682	0.063	10.868	0.000	0.559	0.805	0.596
P7	0.508	0.055	9.227	0.000	0.400	0.616	0.544
P8	0.650	0.055	11.864	0.000	0.543	0.758	0.569
P9	0.781	0.041	18,955	0.000	0.700	0.862	0.683
P10	0.931	0.033	27.900	0.000	0.865	0.996	0.814
P11	0.983	0.030	32.362	0.000	0.923	1.042	0.860

P12	0.638	0.049	13.086	0.000	0.542	0.733	0.558
FACTOR 5. RESOURCES							
R1a	1,000				1,000	1,000	0.606
R1b	0.979	0.084	11,666	0.000	0.814	1.143	0.593
R1c	0.905	0.110	8.249	0.000	0.690	1.120	0.548
R1d	0.910	0.101	9.011	0.000	0.712	1.108	0.551
R1e	0.961	0.106	9.086	0.000	0.754	1,168	0.582
R1f	1.046	0.098	10.709	0.000	0.854	1,237	0.634
R1g	1,142	0.109	10,463	0.000	0.928	1,356	0.692
R2a	0.859	0.108	7.939	0.000	0.647	1,071	0.521
R2b	0.719	0.136	5.281	0.000	0.452	0.986	0.436
R2c	0.867	0.103	8.392	0.000	0.665	1.070	0.526
R2d	0.838	0.110	7.589	0.000	0.622	1,055	0.508
R2e	0.549	0.107	5.111	0.000	0.338	0.759	0.555
FACTOR 6. ASSESSMENT							
V1	1.000				1.000	1,000	0.838
V2	0.894	0.060	14,929	0.000	0.777	1,012	0.749
V3	0.765	0.067	11.461	0.000	0.634	0.896	0.641
V4	0.893	0.060	14.833	0.000	0.775	1.011	0.748