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Teachers' Guidance Self-Efficacy Scale (TGSES): A Proposal for Measuring a Relevant Concept and an Overview of Its Predictors

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Teachers' Guidance Self-Efficacy Scale (TGSES): A Proposal for Measuring a Relevant Concept and an Overview of Its Predictors

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Abstract: In Italy, students' upper secondary education choices significantly impact their academic success and can perpetuate social inequalities, as access to various tracks often depends on students' backgrounds. This choice at the end of lower secondary education is relevant for their future education success, hence for the system's effectiveness. Guidance advice provided by 8th-grade teachers' plays a critical role and previous research has mainly examined its biases, with limited focus on teachers as key actors on this process and their self-efficacy in providing school guidance. We move a first step in analyzing the effectiveness of school guidance, validating the Teachers' Guidance Self-Efficacy Scale (TGSES) and examining how TGSES scores are influenced by teachers' characteristics. Based on a survey of 2.348 Italian lower secondary teachers, the study uses factor analyses to validate the TGSES and regression models to explore factors associated with guidance self-efficacy. The TGSES displayed robust psychometric properties, with a clear single-factor structure and high reliability ($\alpha = 0.928$). Teacher age, subject taught, previous training, and active guidance roles are associated with higher self-efficacy, highlighting the value of targeted teacher training in guidance. Findings underscore the need for educational policies supporting teacher training in guidance reinforcing their effectiveness. The TGSES offers a valuable tool for understanding and supporting teachers' roles in educational guidance.

Keywords: guidance, teachers' self-efficacy, educational inequalities, lower secondary schools

Introduction

Teachers play a crucial role in shaping students' educational trajectories through the significant influence they have on students' choices and those of their families, especially by means of guidance recommendations. Inequalities of access to education, selection and success, as defined by Ribolzi (2020), are flanked by mechanisms of reproduction at the level of the school system and the actors operating within it. As Ribolzi (1981) noticed, the problem for teachers is to identify their role in the academic success of students, a role that cannot be passive. Because of this reason, recently the relevance of guidance given by teachers in reproducing social inequalities has been studied (Geven at al., 2018; Batruch et al., 2023), also in the Italian context (Checchi, 2010; Bonizzoni et al., 2014; Romito, 2016; Argentin et al., 2017; Borgna et al., 2022; Carlana et al., 2022; Bonvini et al., 2023; Manzella & Argentin, 2024b). Despite this growing strand of literature, the perception that teachers themselves have of their own ability to guide and support their students' choices was not studies, differently from the more traditionally studied teachers' self-efficacy focused on instructional tasks or classroom management. *Teachers' guidance self-efficacy* has not yet been a subject of previous research, despite it may be a relevant concept to investigate both how teachers influence students' educational opportunities and how far they perceive to need professional development related to this task. More precisely, there are, no studies proposing tools for measuring this guidance-specific dimension of teachers' self-efficacy, leaving a notable gap in the literature.

The aim of this study is twofold: i. to validate a first proposal of a Teachers' Guidance Self-Efficacy Scale (in the following, TGSES); and ii. to investigate how perceived teachers' self-efficacy in guidance is influenced by individual characteristics and previous school experience.

By focusing on the Italian case and the *guidance advice* (the so-called "*Consiglio Orientativo*"), we can derive lessons applicable to other countries, especially for those with similarly decentralized guidance systems and a key role played by teachers.

The article is structured in 5 sections. We start with a theoretical framework and a brief overview of previous literature (par. 1), focusing on tracking within the educational system and its role in reproducing social inequalities. More precisely, in this section, we explore how school guidance influences educational choices, highlighting the crucial role teachers play through their recommendations. Afterwards, we review previous studies on teacher self-efficacy, with particular attention to the gap in the literature concerning studies that explore the school guidance dimension and/or provide related measurement scales.

Before moving to our research, we then describe the Italian context (par. 2), focusing on the 'consiglio orientativo' and examining its impact on students' educational trajectories, being our investigation nested within this institutional setting.

In the following section (par 3), we present the data and sample used, assessing its representativeness in comparison to the reference population. We also present the methods (par 4) used in the validation process of the TGSES, describing in detail the procedure of reliability assessments. We conclude this section illustrating the regression models used to investigate the influence of individual teacher characteristics on their TGSES scores.

In the following section (par 5), we present both results regarding the scale validation and the influence on TGSES scores of several teachers' features - such as gender, age, subject taught, and additional academic qualifications.

We conclude, drawing the implications of this paper, its limitations, and suggesting future research developments in this promising field of study.

1. Theoretical framework and Literature Review

1.1 Guidance and Tracking: an issue of effectiveness and equity

In this paper we focused on the Italian upper secondary school choice and the guidance process conducted by school and teachers at lower secondary level, as a national case studies of early highly stratified tracking system, with weak choices reversibility (Giancola, 2010; Eurydice, 2023).

Guidance vary towards educational system, reflecting their differences about structure and stratification. There are more inclusive systems, like Scandinavian or northern ones, that pursue equality of opportunity through comprehensive systems that delay the selection of students (Blossfeld et al., 2016). Conversely, more stratified systems, like the ones in Germany or Luxemburg, are characterized by early tracking based on school performance and seem to display higher inequalities reproduction (*ibidem;* Eurydice, 2023). At the European level, various attempts have been made to define a common school guidance system, at least in terms of shared principles. Since the Recommendations on Guidance from the UNESCO Congress in Bratislava (1970), it has been clear that guidance should be a practice that supports students throughout their personal and professional development. The subsequent guidelines and recommendations led to an integrated vision of the process as continuous and accessible to all, aligning with the Agenda 2030 goal of ensuring educational equity by reducing inequalities and promoting a more inclusive and informed education systems.

Indeed, tracking in upper secondary school is a crucial moment for the reproduction of inequalities, because significantly impacting students' subsequent university careers and labor market outcomes (Brunello & Checchi, 2007; Blossfeld et al., 2016; Terrin & Triventi, 2022). Access to different tracks varies accordingly to students' ascriptives characteristics, meaning that school choice is influenced by socioeconomic and cultural factors (Checchi & Flabbi, 2006; Triventi et al., 2016; Batruch et al., 2023). This phenomenon reinforces low social mobility, thereby contributing to the persistence of social inequality and diminishing overall system effectiveness.

At the same time, guidance seems relevant not only because of its impact on education inequalities, but also due to its connection with the effectiveness of the school system. Actors within the school context can also influence students' and their parents' educational choices (Ribolzi, 1981), contributing to their following success or failure, influencing, in example, school dropout. Moreover, teachers' attitudes, expectations, and behaviors vary towards students of different social origins, for instance, in biased grading standards (Ribolzi, 1981; Triventi, 2020; Carlana et al., 2022; Alesina et al., 2024). Furthermore, teachers may hold lower expectations for students from disadvantaged backgrounds, often recommending more vocational tracks, which leads families to make choices aligned with these recommendations (Romito, 2016; Barone at al., 2017; Batruch et al., 2023). Hence, a biased and not effective guidance process may miss the opportunity to both increase effectiveness and equity in access to higher education, undermining conscious educational choices. Experimental evidence shows that these may be supported by targeted information (Barone et al., 2017), but an effective school guidance may be crucial for ensuring equity across the entire educational system, fostering informed choices and students' academic success.

Regarding the Italian case, several scholars examined the influence of teachers' advice on students' actual choices for italian upper secondary school, highlighting how more disadvantaged pupils are more likely to follow teachers' recommendations compared to their peers from higher socioeconomic backgrounds or migrants towards native pupils (Checchi, 2010; Bonizzoni et al., 2014; Romito, 2016; Argentin et al., 2017; Bonvini et al., 2023).

In light of the existing evidence, it is important to focus on the effectiveness of guidance and on the key actors in the process, namely teachers. Their efficacy in guiding students in their choice of upper secondary school plays a crucial role, but we do not know how far teachers themselves feel apt to face this task. This is the reason why this paper focus on teachers' guidance self-efficacy, up to now a neglected dimension of their skills.

1.2. Teachers' self-efficacy (TSE) and school guidance

Building on Bandura's theory[1] (1977), an extensive stream of research has analyzed the mechanisms underlying Teacher Self-Efficacy (TSE), namely perceptions of one's ability to successfully perform specific educational tasks (Bandura, 1997; Zee & Koomen 2016). Several efforts have been dedicated to synthesizing findings from existing international studies on the topic. We have identified four scoping literature reviews published in the past decade that address various as aspects of teachers' roles in guidance, providing a summary of their main findings.

The work done by Zee and Koomen (2016) of this enduring tradition of studies highlights how self-efficacy influences teachers' behaviors and actions, but also thoughts and feelings, with effects on students in terms of learning and achievement. They classify studies from 1976 to 2014 with an attention to TSE and quality of classroom processes, students' academic adjustment, and teachers' psychological well-being. The reported evidence shows that teachers with higher self-efficacy and more experience are better able to cope with classroom management tasks, through new or supportive instructional practices, or through cooperative and/or proactive strategies aim at resolving problematic and conflict behaviors. As students' age increases, it appears that TSE has less influence on their achievement. Moreover, teachers with higher self-efficacy suffer less psychologically, accusing less frequently of burnout syndrome or stress and perceiving themselves as more satisfied and accomplished (i.e. Skaalvik & Skaalvik, 2007).

A second review of Ramakrishnan and Salleh (2018) analyzed 30 papers publish in subsequent years (2014/2018), emphasizing the importance of the topic for the literature in the field. Considering further development of self-efficacy theory by Tschannen-Moran and colleagues (1998), previous studies showed that higher self-esteem is correlated with higher levels of TSE, with positive consequences on professional development and relationships with students. In addition, job satisfaction is also positively associated with higher self-efficacy, leading to positive effects on teachers' instructional practices and student achievement.

The literature review by Hussain and Khan (2022) confirms what has been highlighted so far, adding some insights: more self-efficacious teachers proactively manage the classroom (Zee & Koomen, 2016), while those who

[1] Bandura (1977) defines four factors that influence self-efficacy: (i.) *mastery experiences* , or direct experiences of success or failure, such as student successes that will enhance teachers' perceptions of self-efficacy; (ii.) *vicarious experiences*, or times when one observes the work of others similar to oneself, such as more experienced colleagues; (iii.) *social persuasion*, i.e., receiving feedback or support, such as opinions from students or colleagues that increase confidence toward one's performance; (iv.) and *physiological and emotional states,* such as stress or anxiety conditions, which can affect one's performance negatively or one's perceptions of performance.

show less self-efficacy tend to adopt a more authoritarian style, especially in cases of student with problem behaviors. A correlation is found also between high self-efficacy and tendency to experiment innovative teaching methods. These authors also highlight how some studies have experienced positive effects in increasing TSE, outlining practical implications about future possible interventions by taking up the factors underlying the construct of self-efficacy presented by Bandura (1977).

These same factors are the basis of the classification presented by Täschner and colleagues (2024), taking up the self-efficacy sources proposed by Bandura (1977) namely mastery or vicarious experiences, social persuasion or physiological reactions. Their meta-analysis shows which interventions seems to be most effective in order to increase TSE, despite this factor is usually not combined with the others (mastery or vicarious experiences or social persuasion) within the experiments, remaining generally less explored in the research. Interventions based on vicarious experiences are the most numerous, showing positive effects but with high heterogeneity among these studies. Interventions centered of mastery experiences have no greater effect than the other factors in increasing self-efficacy. Social persuasion is the factor that has less impact than the other two.

As suggested by Hussain and Khan (2022), previous studies mostly use the self-efficacy scale proposed by Bandura (1997) or the development proposed by Tschannen-Moran and colleagues (1998; 2001), with much attention from the field to study increasingly reliable and up-to-date instruments.

To our knowledge, there has been no specific focus on teachers' perception of their ability to support students during the school guidance process, although teachers' self-efficacy has been widely studied in relation to other teaching tasks. None of these previous studies have specifically addressed the specific topic of teachers' self-efficacy in the task of school guidance of students and none offered a validated scale to investigate this complex skill. The most similar research is the one of studies which have introduced validated instruments assessing students perceived support from their teachers within the educational context (Marciniak et al., 2021; Wong et al., 2022). Parola and colleagues (2023) validated a scale measuring teachers' self-efficacy in supporting students' professional development (Teacher Career-Related Support Self-Efficacy - TCSSE), examining aspects such as positive expectations, motivational support, and informational support, all of which contribute to fostering a favorable environment for students' educational and career ambitions. However, all these tools do not specifically address teachers' self-efficacy in advising on particular educational pathways or actively guiding students' academic choices. Hence, to date and at the best of our knowledge, no previous studies have validated scales specifically designed to measure teachers' guidance self-efficacy. Nonetheless, this seems to be a

relevant field of study, for both future educational research and especially for sociological studies, due to teachers' crucial impact on students' choices and the related inequalities.

With this paper, we take a step further in teachers' self-efficacy literature, proposing a new tool that measures teachers' self-efficacy in the specific task of guiding students in their educational paths.

2. The Italian Case

In Italy, such as in many European countries, research detects persistent educational inequalities, despite attempts, reforms and policies aimed at reducing them and despite the expansion of the educational system (Triventi et al., 2014; Checchi & Peragine, 2010; Barone & Ruggiera, 2015; Giancola & Salmieri, 2020). In the Italian case, school tracking formally[2] begins with upper secondary school and represents a crucial turning point for the reproduction of inequalities (Gasperoni, 1997; Brunello & Checchi, 2007; Triventi, 2020).

The access in different tracks varies according to students' ascriptives characteristics, especially social origin. Pupils from higher social classes are more frequently enrolled in lyceum track, compared to their more disadvantaged peers, despite having the same school performance (Panichella & Triventi, 2014). Recently, the new differentiation of lyceum tracks[3], take a further stratification within the lyceum with a different consideration in term of higher prestigious for gymnasium or scientific track than the other subtracks.

In Italy, the main national guidance policy is a guidance advice (the so-called "*consiglio orientativo*") is formulated by lower secondary school teachers at the 8th grade and provided to students and their families, when they are faced with the choice among different upper secondary school tracks. Through this advice, teachers may play a crucial role in influencing educational choices and could reduce related inequalities (Ribolzi, 1981).

The effectiveness and equity of the guidance intervention is dubious for two main reasons. Firstly, this policy is implemented in heterogeneous ways, when even not in personalized manners, based on criteria independently determined by each school. This creates a gap in the guidance system, which is still far from being a well-established and nationally coordinated process (Manzella & Argentin, 2024b). Second, according both to qualitative and quantitative research, teachers' guidance seems biased. Hence, this interven-

[2] At lower secondary school there are some unformal and local differentiations among and within schools, limited to minor changes in the class time schedule.

[3] As stipulated by the D.P.R. n. 89/2010 "*Regolamento recante revisione dell'assetto ordinamentale, organizzativo e didattico dei licei*".

tion may contribute to the reproduction of educational inequalities (Checchi, 2010; Bonizzoni et al., 2014; Romito, 2016; Argentin et al., 2017; Carlana et al., 2022; Bonvini et al., 2023; Manzella & Argentin, 2024b). Indeed, in the advice formulation process, teachers may also consider their expectation or may anticipate successful or failure based on extracurricular elements (Romito, 2016), that are only partially related to school performance and more strictly associated to students' social origins. For instance, when formulating their advice, teachers take into account future parental cultural or economic support to students, as well as the investment in terms of time and financial costs. Moreover, Carlana et al. (2022) recently correlated teachers' bias in track recommendations also with their implicit stereotypes (measured through the IAT), though limited to stereotypes concerning students with a migrant background. Bonvini and colleagues (2023), although using a small convenience sample of pre-service teachers, and Manzella and Argentin (2024b), on a larger sample of lower secondary school in-service teachers, estimated the extent of guidance bias on students' social origins and other ascriptive characteristics. Both contributions used vignette studies to causally confirm the biases observed in previous studies through robust associations.

On the other hand, it must be underlined those Italian teachers, up to now, did not receive specific training or professional development on their guidance role, raising doubts about their effectiveness in facing this task. This issue is the key element investigate in this paper.

In the past two years, attention to school guidance and the "*consiglio orientativo*" has become predominant through the issuance of new guidelines and laws. The new legislation introduces dedicated guidance modules for lower and upper secondary schools, the implementation of a digital E-Portfolio to document students' acquired skills, the establishment of the "*tutor teacher"* role to support students and families in educational choices, as well as training campuses. With regard to the crucial choice taken at the end of lower secondary school, the "Unica" platform was instituted, displaying detailed information about educational and vocational offer (M.D. No. 328/2022). Finally, with Ministerial Decree No. 229/2024, a further step is taken by introducing a standardized model for the guidance advice, aiming to standardize the guidance provided to students and their families, facilitating more informed choices for subsequent educational or training paths.

3. Data

Our analyses are based on a survey conducted through an online survey administered to a self-selected sample of 211 lower secondary school teach-

ers, distributed throughout Italy, and involved in a research project broader project *Orientare alla Scelta*[4].

This project was presented to the entire population of Italian lower secondary schools in the spring of 2021, involving 8-grade teachers and other guidance specialists working in their school. All these participants received an invitation to complete an online survey.

The survey aimed to investigate the ways in which teachers formulate guidance advice. Among the questions administered[5] we focus in this paper on the ones aimed at assessing teachers' self-efficacy in facing guidance tasks (see below).

The analytic sample of respondents considered in this article consists of 2.348 teachers from 211 self-selected schools who completed an online survey at the beginning of the 2021/2022 academic year. Our sample of 211 lower secondary schools overrepresents northern schools (64% of the sample). About 30% of the schools are located in a provincial capital and are predominantly large in terms of students' dimension, with 71% having more than four classes at grade 8. Although the sample of schools and teachers is not representative of the Italian teachers' population, it displays characteristics similar to the latter, allowing us to draw inferences from data analysis (as shown in Table 1). The sample appears less representative in terms of the geographical distribution of teachers, as there is a higher representation from the North compared to the South and the Islands. There is a greater presence of female teachers, although they are already predominant in the reference population. The age group between 45 and 55 years is overrepresented, at the expense of elder colleagues. When estimating the associations among teachers' characteristics on one side and TSGES score on the other, all these variables are controlled in the models, in order to neutralize their potential distortion on the estimated model results (see paragraph 4.3).

[4] The project offered a free light-touch online professional development program targeted at 8-grade teachers and/or other specific guidance specialist working within schools. The aim is to measure the bias in guidance advice and to estimate the effect of the proposed program in reducing the extent of this observed distortion, as well as, more broadly, the tertiary effects of inequality reproduction. For further information on the entire phases of the evaluation project *Orientare alla Scelta*, see Manzella and Argentin (2024b).

[5] The broader project included a factorial survey experiment module in the survey, that combined to an RCT aimed to causally estimate the existence of biases in these recommendations and their intensity within a simulated context.

Table 1. Percentage Distribution of Teachers' Characteristics for The Analytical Sample and The Reference Population (%, n=2.348)

Teachers' characteristics		**Analytic sample**	**Reference population**	
Gender	*Female*	83,6	*Female*	76,9
Age class	*<36*	16,1	*<36*	13,1
	36-45	25,2	*35-44*	25,1
	45-55	38,2	*45-54*	32,8
	>55	20,5	*>55*	29,1
Geographical area	*North*	64,5	*North*	41,1
	Center	15,0	*Center*	19,3
	Sud and Islands	20,5	*Sud and Islands*	39,6

Source: Data of reference population by Ministry of Education (2024)

4. Methods

4.1. Measure validation

In the questionnaire, respondents were presented with a set of 11 items concerning their perceived ability to perform each of the specific of the school guidance process. Perceived self-efficacy was measured for each item on a scale from 1, meaning "not at all," to 10, meaning "perfectly" (see table 2). The 11 items were developed based on existing Teachers' Self-Efficacy Scale (such as Tschannen-Moran et al., 1998; Skaalvik & Skaalvik, 2007; Biasi et al., 2014) and were specifically constructed by consulting experts in the field and secondary school teachers. Building upon aspects that represent the essential steps in guidance tasks, these items have been developed to include the knowledge of the student, the implementation of informative practices, addressing specific guidance needs of students with special educational needs (SEN) or those facing socio-economic disadvantage, and collaborating with colleagues in guidance activities or advice formulation.

Table 2 Item of Teachers' Guidance Self-Efficacy Scale (TGSES) in English Translation (In Italics) and the related Concise Label used in the following and relative theoretical guidance task

	Item	*label*	*theoretical guidance task*
1	*Understanding the student and identifying their preferences* Conoscere lo studente/ssa e capire le sue preferenze	Identify preferences	Knowing student
2	*Understanding if the student has a clear idea about their educational future* Capire se lo studente/ssa ha le idee chiare rispetto al suo futuro scolastico	Assess educational plan	Knowing student
3	*Identify the most suitable school for the student* Individuare la scuola più adatta per lo studente/ssa	Identify suitable school	Knowing student
4	*Guiding a student with special educational needs (SEN)* Orientare uno studente/ssa BES	Guide SEN student	Specific guidance need
5	*Predicting the student's development in the next academic cycle* Prevedere il cambiamento dello studente/ssa nel prossimo ciclo	Predict future development	Specific guidance need
6	*Engaging effectively with the student's family* Interagire in modo fruttuoso con la famiglia dello studente/ssa	Engage with family	Informative practices
7	*Collaborating within the class council to find the best guidance advice* Collaborare nel consiglio di classe trovando il consiglio orientativo migliore	Collaborate in class council	Professional collaboration
8	*Providing recommendation that is not affected by biases towards the student* Esprimere un consiglio che non risenta di suoi preconcetti verso lo studente/ssa	Provide unbiased advice	Specific guidance need
9	*Seeking useful information about local educational options* Cercare informazioni utili sull'offerta formativa nel territorio	Seek local track options	Informative practices
10	*Properly informing the student and family about the available school tracks* Informare adeguatamente lo studente/ssa e la famiglia sugli indirizzi scolastici tra cui scegliere	Inform on school tracks	Informative practices
11	*Guiding a student with a migration background* Orientare uno studente con background migratorio	Guide immigrant student	Specific guidance need

All 2.348 teachers considered in this analysis responded to all 11 items. As a preliminary step, the suitability for the factor analysis was assessed through examination of the items correlation matrix, the Kaiser-Meyer-Olkin

(KMO) index, and the Likelihood Ratio (LR) test. The analysis of the correlation matrix shows a range between 0.4 and 0.7 for most items, indicating a moderate correlation, which suggests a coherent latent structure, potentially consisting of distinct factors. The overall KMO index value is extremely high (0.9573), as are those for each individual item, indicating a strong correlation among them and optimal data for factor analysis.

Afterwards, exploratory factor analysis, using the Principal Component Analysis (PCA) method, was applied to identify the latent structure underlying the construct, with the aim of validating an initial proposal of the Teachers' Guidance Self-Efficacy Scale (TGSES). By identifying the unidimensionality of the construct, internal consistency was examined using Cronbach's Alpha to assess the internal reliability of the TGSES scale. Finally, the evaluation of the factorial structure and latent validity of the constructs was then carried out through Confirmatory Factor Analysis (CFA).

4.2. Criterion validity

Additional analyses on the validity of the TGSES scale were conducted through two approaches: i. correlating the scale with another theoretically related construct; ii. analyzing the scale values on known groups that should score higher in terms of TSGES. The *validation through correlation with another construct* was assess by associating TSGES with teachers' knowledge about educational system (an index based on 7 items, where teachers were called to express their level of information regarding different school tracks). The expectation here is that teachers with better knowledge of the educational offering should report higher TGSES scores. The *known groups validation* was conducted comparing TSGES among teachers in specific guidance roles or those who have received prior training in guidance issue with teachers not in these conditions, using OLS regression models to control for relevant antecedents.

4.3. Models to investigate the TGSES score distribution among teachers

Once the scale was validated and scores computed, data were analyzed through regression models to assess the robust associations of individual teachers' features with their guidance self-efficacy. Teachers' characteristics considered in the analysis are *gender*, age expressed in groups (hence hereafter referred to as *age group*), any *qualifications obtained after their graduation* and the *subject taught in class*. For each estimated model, controls are applied for the other characteristics and for the geographical area of their school, in order to neutralize their potential distortion on the results due to the biases of the sample compared to the reference population (as seen in paragraph 3). We wonder whether teacher characteristics may affect their TSGES scores.

5. Results

5.1. Preliminary analysis in order to validate TGSES

The TGSES consists of 11 items (as shown in Table 2) that pertain to actions performed by teachers in the guidance process. Respondents are asked to rate their ability to perform each of these actions on a scale from 1 to 10.

The descriptive analysis of the guidance actions shows that teachers associate a barely sufficient score with their efficacy to face each task (as shown in table 3), with averages ranging from 5.7 to 7.5, primarily clustering around scores of 6.5/7. Teachers consider themselves most effective in collaborating with the class council to formulate a guidance recommendation (7.5) and in providing unbiased advice (7.3). The most critical guidance actions identified concern predicting potential future development in students (5.7) and guiding immigrant students (5.7). There is also variability in responses, with a standard deviation between 1.59 and 1.99 points, and a distribution skewed slightly toward higher scores (negative skewness across all items indicating slight leftward asymmetry), with a higher frequency of scores near the averages (kurtosis values greater than 3).

Table 3 Descriptive Statistics for Each Item of TGSES (Mean, Standard Deviation (SD), Skewness, Kurtosis, N=2.348)

item	*mean*	*SD*	*Skewness*	*Kurtosis*
Identify preferences	7,4	1,590	-0,82	3,96
Assess educational plan	7,1	1,660	-0,71	3,58
Identify suitable school	6,6	1,720	-0,55	3,32
Guide SEN student	6,3	1,930	-0,50	2,95
Predict future development	5,7	1,960	-0,41	2,74
Engage with family	6,9	1,810	-0,66	3,41
Collaborate in class council	7,5	1,760	-0,88	3,77
Provide unbiased advice	7,3	1,940	-0,82	3,62
Seek local track options	7,0	1,870	-0,69	3,30
Inform on school tracks	6,8	1,920	-0,60	3,13
Guide immigrant student	5,7	1,990	-0,38	2,75

After describing each item of the scale, we move now to its first form of statistical validation, namely consistency assessment and factor analysis.

Consistency (Cronbach's alpha)

The first validation results of the TGSES demonstrate robust psychometric properties, confirming both its reliability and construct validity (see Table 4). The internal consistency of the index, measured by Cronbach's alpha, was extremely high (α = 0.928). This result means that the items of the scale are highly correlated with each other, reliably measuring the same theoretical construct and suggesting a good tool for our purpose. Furthermore, the correlation analysis for each item with the overall scale, both including and excluding the item itself (item-test and item-rest correlation), shows strong correlations with high values (0.6–0.8). The α values for each items remain elevated (ranging from 0.918 to 0.927), indicating that no specific item reduces internal consistency. The item "*Predict future development*" has the highest α value, indicating a weaker correlation; however, its exclusion has a minimal effect on the overall value and maintaining it seems relevant both from a theoretical perspective and considering its low scores among respondents. Additionally, the consistently high average covariance between items indicates good internal coherence.

Table 4 Internal Consistency and Correlation Analysis (Item-Test correlation; Item-Rest correlation; Average interitem covariance; Cronbach's alpha (α), N=2.348)

item	*Item-Test correlation*	*Item-Rest correlation*	*Average interitem covariance*	*α*
Identify preferences	0,790	0,746	1,860	0,921
Assess educational plan	0,783	0,735	1,850	0,921
Identify suitable school	0,830	0,789	1,812	0,918
Guide SEN student	0,803	0,751	1,786	0,920
Predict future development	0,687	0,610	1,859	0,927
Engage with family	0,787	0,736	1,819	0,921
Collaborate in class council	0,772	0,719	1,840	0,921
Provide unbiased advice	0,696	0,622	1,856	0,926
Seek local track options	0,746	0,684	1,834	0,923
Inform on school tracks	0,803	0,752	1,789	0,920
Guide immigrant student	0,740	0,672	1,818	0,924
Test scale	-	-	1,829	0,928

Principal Component Analysis (PCA)

Through exploratory factor analysis, using the principal component method (PCA) we assessed whether the scale may be considered as unidimensional and its correlations were leading to an acceptable level of explained variance. PCA resulted in a single factor extracted with an eigenvalue of 6.498, explaining 59.1% of the total variance. The remaining factors displayed much lower values, all below 1, accounting for considerably smaller proportions of variance. This suggests a unidimensional construct, where the variance of the items is almost entirely attributable to a single underlying factor. The Likelihood Ratio test shows a high chi-square value (15000) with 55 degrees of freedom ($\chi^2(55)=15000$), and a statistically highly significant p-value ($p < 0.001$). All items show high factor loadings on the factor (see Table 5), ranging from 0.672 to 0.836, suggesting that each variable contributes significantly to the factor. "*Identify suitable school*" (0.836) and "*Inform on school tracks*" (0.804) items are particularly representative of the factor. Meanwhile, "*Predict future development*" (0.672) and "*Provide unbiased advice*" (0.687) have slightly lower but still acceptable loadings, demonstrating a solid contribution. The "*Identify suitable school*" item has the lowest uniqueness value (0.302), indicating that a large portion of its variance (70%) is explained by the factor. In contrast, "*Predict future developmen*t" (0.548) and "*Provide unbiased advice*" (0.528) items are the least explained by the factor, suggesting that a large part of their variability is not captured by it. This is unsurprising, as they also have the lowest loadings, being the most problematic tasks for teachers.

Table 5 PCF analysis (Factor Loading, Uniqueness, n=2.348)

item	*Factor loading*	*Uniqueness*
Identify preferences	0,802	0,357
Assess educational plan	0,792	0,372
Identify suitable school	0,836	0,302
Guide SEN student	0,802	0,357
Predict future development	0,672	0,548
Engage with family	0,792	0,373
Collaborate in class council	0,779	0,394
Provide unbiased advice	0,687	0,528
Seek local track options	0,743	0,448
Inform on school tracks	0,804	0,354
Guide immigrant student	0,728	0,470

Overall, the PCA revealed a clear single-factor structure, indicating that the items effectively capture a single underlying construct of guidance self-efficacy among teachers, reinforcing previous considerations regarding the scale's high internal consistency and reliability.

Confirmatory Factor Analysis (CFA)

To further assess the validity of the TGSES scale and to complete this series of statistical validatory analyses, a Confirmatory Factor Analysis (CFA) was conducted. The CFA tested the hypothesis that the scale is unidimensional by evaluating the fit of the data to a single factor model. Overall, the results showed satisfactory values for the fit indices: more precisely, excellently high values for the Tucker-Lewis Index (TLI = 0.951) and the Comparative Fit Index (CFI = 0.961); and acceptable values del Root Mean Square Error of Approximation (RMSEA= 0.076,)[6]. The CFA also supports the measuratory validity of the TGSES tool assessed in this article.

5.2. Statistical analysis to validate TGSES: criterion validity

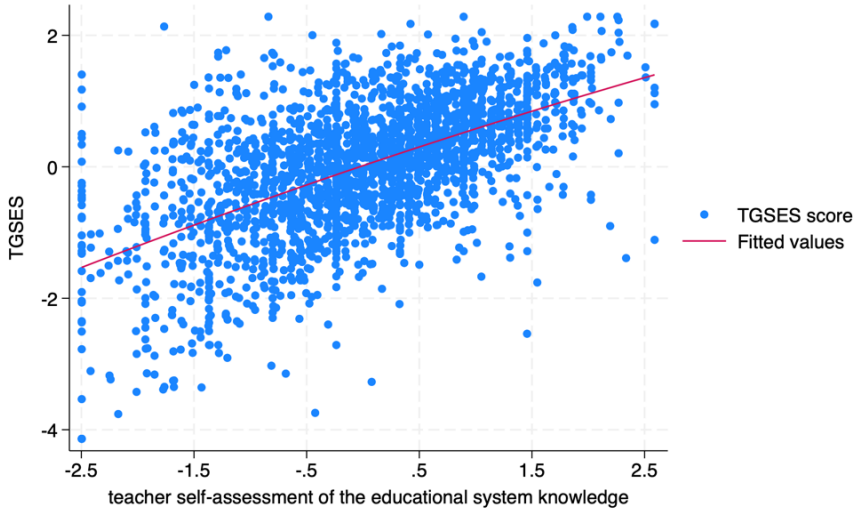
While the scale validation is repeatly confirmed by statistical analyses, previous results cannot by themselves support the idea that the TGSES scale is really measuring teachers' efficacy in providing school guidance advice (content validity). In order to reach these results, we should assess each teacher's contribution to his/her students correct choice when enrolling in an upper secondary school and correlate the mean of this positive/negative net contributions to each teacher's self-assessment as measured by the TSGES scores. Being this option not feasible, we rely here on two usual strategies implemented in social research to assess a measure's content validity: i. we correlate the TSGES with another measure on a similar concept, collected on the same respondents; ii. we test whether groups of respondents that should display higher scores on the TSGES scale, because of their specific social position, perform coherently or not.

Following the first strategy, we correlate TGSES with another construct, namely teachers' self-assessment of their knowledge of the educational system and, more precisely, of different upper secondary tracks. This knowledge self-assessment scale shows a positive correlation (0.58), indicating that those with higher TGSES scores tend to have greater knowledge of the educational offerings. As suggested by the scatterplot (Figure 1), there is a clear trend of an increasing linear relationship, but also heteroscedasticity, which means that among those with less knowledge of school tracks we observe higher variability in the TGSES scores, while those on the right side of the plot tend to display more coherently higher scores in both scales.

[6] The Chi-square ($\chi^2(44) = 638.10$, $p < 0.000$) is ignored as it is sensitive to the large size of our sample.

This result is easily interpretable: higher levels of TSGES implies also higher knowledge of the school system. At the same time, knowledge can vary widely among those with low self-efficacy, reflecting the difference between being a guidance advisor and merely an informant. This is a significant finding because, in line with experimental evidence (Barone et al.; 2017), specific knowledge of educational opportunities shows to be relevant for an effective guidance process.

Figure 1. Scatter plot of teacher self-assessment of the educational system knowledge and TGSES score (observed values and fitted trend, n=2.348)

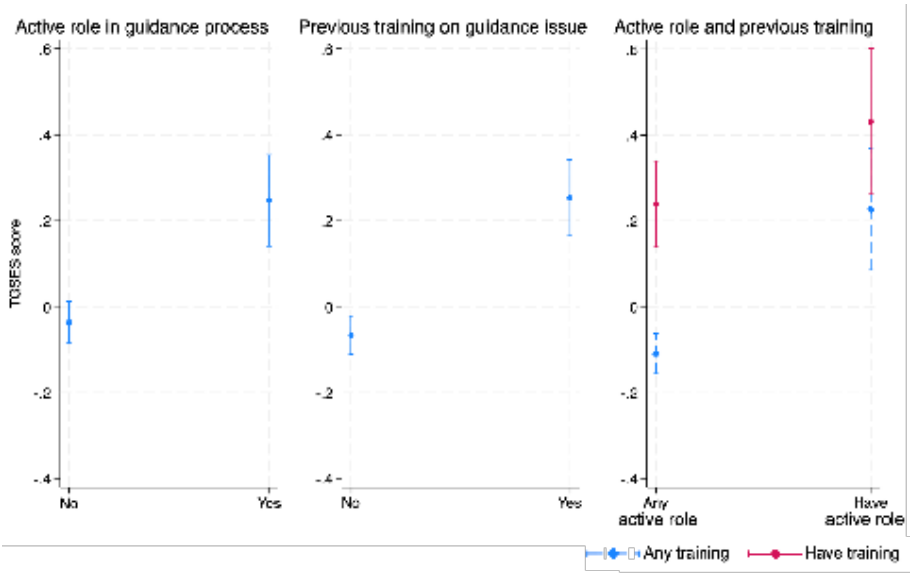


Following the second strategy, we assessed how TGSES scores are distributed among teachers who, by definition are more involved in school guidance, namely the ones actively participating in the guidance process within each school ("referenti o figure specifiche dell'orientamento") and those having had previous training on guidance issues. Figure 2 shows the TSGES estimated mean scores of these two groups of teachers, when compared to their colleagues, after controlling for several potential confounders throughout OLS regression models.

As expected, our results confirm previous studies evidence (Bandura, 1997; Zee & Koomen 2016; Ramakrishnan & Salleh, 2018; Hussain & Khan, 2022; Täschner et al.; 2024). Previous experiences, especially the mastery one, as greater involvement in the guidance process, taking on a specific role in the field, leads to significantly and substantially higher TGSES scores (+0.28 compared to those without a role). Similarly, those who have com-

pleted dedicated training on guidance perceive themselves as more effective (+0.32) compared to their colleagues.

Figure 2. Probability of TGSES Score for Teachers Who Actively Participate in The Guidance Process and/or Have Previous Training on Guidance Issues (%, Predicted Probabilities from OLS Models with 95% Confidence Intervals; n=2.348)

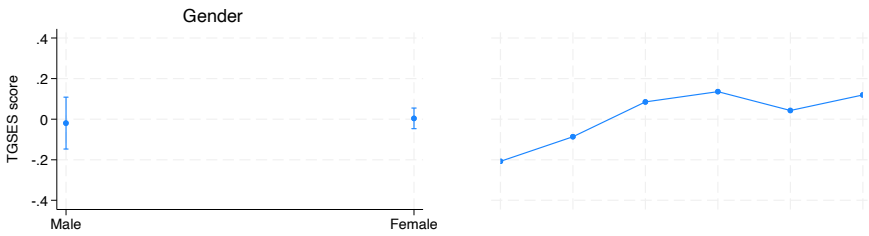


Nonetheless, it must be underlined that, even among these teachers, the level of the guidance self-efficacy remains moderate (around 7 out of 10). A step further was examining the combined robust association of active involvement in guidance *and* previous training with TGSES scores (see Figure 2). We observe that those who neither play an active role in guidance nor have received training show significantly lower TGSES scores (-0.35) compared to those with training. As expected, the difference in scores is even more pronounced when we consider teachers who have both training and an active role (-0.54). These results highlight not only the content validity of our construct but also the importance of training and dedicated roles in enhancing teachers' guidance self-efficacy.

5.3. What makes teachers effective in guidance task? The TGSES score distribution among teachers

As observed in the previous paragraph, both a role in guidance within schools and previous training on the issue are predictors of TGSES. We now examine the association between certain teachers' characteristics and their TGSES scores, specifically: gender, age, post-graduation further degrees or qualifications, and the subject taught in class (see Figure 3).

Figure 3. Probability of TGSES Score for Teachers gender, age class, post-graduate qualification and subject taught in class (%, Predicted Probabilities from OLS Models with 95% Confidence Intervals; n=2.348)



Teachers' guidance self-efficacy does not appear to be significantly influenced by teachers' gender. Similarly to what was reported in the Hussain and Khan (2022) or in Täschner and colleagues (2024) reviews on general teachers' self-efficacy, the difference between the TGSES scores of female teachers and their male colleagues is minimal (0.02) and not statistically significant.

Teacher age, instead, a proxy of their experience in the education system, as also reported in Zee & Koomen (2016), appears to have a significant influence on TGSES scores: as age increases, so does the perception of guidance self-efficacy. Older teachers tend to show higher scores (+0.33) compared to younger teachers, suggesting that greater seniority and, therefore, more experience, contribute to feeling more confident in guiding students. These findings are consistent with results reported by Wray and colleagues (2022) in their review of general self-efficacy studies, confirming also a faster growth in the first staged of teachers' career.

Not surprisingly, obtaining a postgraduate degree/qualification does not appear to significantly influence self-efficacy, with a negligible difference compared to those without additional qualifications (-0.05). This is in line with the heterogeneity of contents that teachers may have, even far away from guidance.

Finally, the subject taught in class by teachers displays a significant association with guidance self-efficacy. Humanities teachers (such as literature, history, and geography) show higher scores compared to those who teach foreign languages (+0.36), technical subjects (+0.37), or scientific subjects (+0.33). This difference may reflect at least three factors enhancing their knowledge of students, a crucial component in the guidance process: i. the greater number of classroom hours for humanities; ii. their opportunities to get more information on students through reading/writing assignments and oral discussion; iii. their more frequent role as class coordinators.

Conclusions and further developments

This article faces a new topic, namely teachers' guidance self-efficacy, taking advantage from bran new data coming from a recent ad hoc survey. The validity and reliability of the proposed scale, Teachers' Guidance Self-Efficacy Scale (TGSES), have been confirmed. This tool, if validated in the future by other scholars, may fill a notable gap in the literature on teachers' self-efficacy, specifically the one related to the school guidance process. Unlike pre-existing self-efficacy scales (Zee & Koomen 2016; Ramakrishnan & Salleh, 2018; Hussain & Khan, 2022; Täschner et al., 2024), the TGSES is designed to capture teachers' perceptions of their ability to guide and support students in making educational choices. This is an essential and underexplored set of teachers' skills, necessary to promote informed decision-making, hence increasing education effectiveness, reducing dropout and social inequalities. This scale represents a step forward by providing the research community with a reliable tool for investigating teachers' effectiveness in guidance. Furthermore, this paper offers policymakers and educators a valuable indicator for developing targeted interventions and training policies that enhance the role of teachers as guides and mentors in students' educational paths[7].

Looking at what increases teachers GSES scores, our findings indicate that four factors play a relevant role: i. teachers' age, as a proxy of their experience; ii. the subject taught in class is a significant factor, with humanities teachers scoring higher; iii. prior training in guidance; iv. being actively involved in the guidance process. All these elements, in looked upside down, also indicates the profile of teachers more in need of training on the guidance tasks, namely the youngest teaching subject of the field of humanities.

Despite the large sample size, replication on a larger and representative sample of lower secondary school teachers is recommended. Future studies would also benefit from correlating the TGSES with other tools measuring similar constructs and with teachers' actual behaviors in guidance process. To further enhance the TGSES's validity, also replicating this study in various national contexts would be highly valuable.

As Ribolzi (1981) noticed, the problem for teachers is to identify their role in the academic success of students, a role that cannot be passive and goes far beyond teaching their subject in the class.

[7] Following this direction, the *Orientare alla Scelta* project went beyond what is presented in this paper, developing teachers' training in guidance (Manzella & Argentin, 2024a) and assessing - through a randomized controlled trial - its impact on reducing educational inequalities (Manzella & Argentin, 2024b).

In conclusion, the results highlight the need for educational policies to invest in the ongoing training of teachers, not assuming that guidance may be an easy task for them.

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