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The role of evidence in teaching practice from the point of view of the main actors

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ABSTRACT

The relationship between research and educational practice exerts a great deal of influence on the development of the teaching-learning process. Knowing the role played by evidence in teaching practice is essential in understanding education today and being able to design scenarios of improvement fostered by scientific evidence. With the goal of further examining the relationship between scientific evidence and educational practices on the one hand and teachers' perception of the use of evidence on the other, a quantitative study was conducted via surveys administered to 462 teachers at schools in Barcelona and the Community of Madrid. The results show the importance that teachers attach to evidence and the characteristics that scientific evidence should have in order to have direct repercussions on teaching practice: relevance, approachability, accessibility, and practicality. What stands out is the value that teachers attach to the experiences of their own or others' educational practices more than to theoretical knowledge. Furthermore, we can see how the variables of age, gender, educational level, educational level in which they teach, and ownership of the school condition the teachers' perceptions of the relationship between scientific evidence and their educational practice. We conclude that these results enable key advances in the roadmap towards a culture of evidence-based practices in education and promote in-depth reflection on how research and its evidence effectively reach teachers.

KEYWORDS: Evidence-based practice; Teaching practice; Teachers; Educational practices; Evidence.

El papel de las evidencias en la práctica docente desde el punto de vista de sus protagonistas

RESUMEN

La relación entre la investigación y la práctica educativa ejerce una gran influencia en el desarrollo del proceso de enseñanza-aprendizaje. Conocer el papel que juega la evidencia en la práctica docente es fundamental para entender la educación actual y poder diseñar escenarios de mejora propiciados por la evidencia científica. Con el objetivo de profundizar en la relación entre la evidencia científica y las prácticas educativas, por un lado, y la percepción del profesorado sobre el uso de la evidencia, por otro, se realizó un estudio cuantitativo mediante encuestas administradas a 462 profesores de colegios de Barcelona y de la Comunidad de Madrid. Los resultados muestran la importancia que los docentes otorgan a la evidencia y las características que debe tener la evidencia científica para tener una repercusión directa en la práctica docente: relevancia, asequibilidad, accesibilidad y practicidad. Destaca el valor que los docentes otorgan a las experiencias de las prácticas educativas propias o ajenas más que a los conocimientos teóricos. Además, podemos ver cómo las variables de edad, género, nivel educativo, etapa educativa en la que enseñan y la titularidad de la escuela condicionan la percepción de los docentes sobre la relación entre la evidencia científica y su práctica educativa. Concluimos que estos resultados posibilitan avances clave en la hoja de ruta hacia una cultura de prácticas basadas en la evidencia en educación, y promueven una profunda reflexión acerca de la forma en que la investigación y sus evidencias llegan efectivamente a los docentes.

PALABRAS CLAVE: Práctica basada en la evidencia; Práctica docente; Profesorado; Prácticas educativas; Evidencia.

Introduction

Research and practice are two areas that influence each other in the practice of education. On the one hand, research yields data and sheds light on a reality which is often concealed in educational practice. On the other, practice enables methods, activities, or paradigms to be implemented from a position of knowledge and experience coming from research. Thus, research and practice are destined to be intertwined and feed each other in a constant path towards educational improvement.

One of the most frequent problems in this regard is ensuring that research's capacity and approach renders it suitable to be disseminated throughout the entire educational community. For this reason, it is important to bear in mind the concepts that illustrate the relationship between evidence and practice.

Within this study, we shall focus on evidence-based practice, where scientific evidence underpins real, practical applications. That is, we view evidence-based practice as the activities that join teachers' everyday educational practices with the latest and most recent external systemic studies. Data, and their interpretation, shape scientific evidence, which sets the roadmap that educational activities should follow in

order to reach specific objectives of efficacy and success, as well as the process of taking decisions (Fresneda, Muñoz, Mendonza, & Carballo, 2012).

In recent years, the use of evidence is beginning to be promoted in teaching practice. Therefore, given the importance of the subject and continuing lack of progress in this knowledge area, the current work seeks to fill this gap. It serves as a part of a broader study, the general goal of which is to delineate the processes by which scientific evidence can be used to improve schools. Altogether, it seeks to deepen understanding in the following research areas. First, what is the relationship between scientific evidence and educational practices from the teacher's point of view? Additionally, what is our teachers' perception of the use of evidence? The latter question may be posed with a focus on issues relating to (a) the specific evidence our teachers use to implement/enhance their educational practice (i.e., how often they use this evidence and how they rate the usefulness of sources of information) and (b) whether the information stemming from research can underpin teachers' pedagogical practice (and, in that case, what use they make of this information).

Likewise, it is important to delineate our teachers' attitudes toward using scientific evidence. To do so, one can analyse whether, and the degree to which, their perception of using evidence to various subjects is determined by variables such as age, gender, educational, ownership of the school and educational level taught; which could give us the intuition of a profile of our teachers who are more likely to incorporate scientific evidence in their educational practice.

Theoretical referents

By evidence-based practices we mean activities that connect teachers' everyday educational practices with the latest and most recent external scientific studies (Gairín, Ion, & Díaz-Vicario, 2021).

In a world in which educational fads are constantly appearing and disappearing, it is intrinsically necessary to have a quantified, real underpinning which educational professionals can trust in their everyday teaching practice. The majority of teachers base their teaching experience primarily on knowledge acquired from practice, not academic knowledge (Nelson & Campbell, 2017; Van Schaik, Volman, Admiraal, & Schenke, 2018; Williams & Coles, 2007). For this reason, we can state that the data provided by research can help teachers understand the connections among the different teaching activities and their results. These considerations do not mean that teaching practices should be solely guided by empirically derived evidence. Rather, such input should be filtered through teachers' personal experience (Hedges, 2012); it also should be critically discussed and evaluated with other professionals (Philpott, 2017).

When barriers, such as far research from the teachers' everyday reality, useless research topics, little training of the teachers in research, not specific research results, or more technical language used in research (Perinés, 2018), are overcome and teachers use scientific evidence to shape the teaching-learning processes in their classrooms, evidence helps in curricular planning and classes, in both the pedagogy used by the teacher and in practice (Ovenden-Hope & la Velle, 2015).

However, it is true that the accessibility of research data should be improved so that the evidence reaches teacher planning (Coldwell et al., 2017; Judkins, Stacey, McCrone, & Inniss, 2014; Williams & Coles, 2007), since the majority of evidence-based practices are currently adopted due to teachers' own professional experience or contact with the practices of other teachers (Nelson & Campbell, 2017; Williams & Coles, 2007). By doing so, teachers' low consideration of research can be reversed (Miretzky, 2007).

Numerous teachers base their educational practice on what they subjectively believe works for them as teachers. Although those elements contribute to making decision in evidence-based practice, but these impressions do not follow a scientific process (Fresneda et al., 2012) and can easily be biased by the teacher's predisposition, attitude, or way of thinking. Hence the importance of introducing a scientific methodology in research into educational practice and results within the learning process (Van Schaik et al., 2018).

As Brown, Malin, and Flood (2019) explain, effective research allows teachers to link formal knowledge with what they know about their specific educational context and what they experience in their day-to-day jobs that truly works. In some cases, research can be used to scientifically prove that what a teacher believes is effective truly is within their context. In other cases, research may highlight the lack of connection between what the teacher thinks is the best for their students and the reality of the scientific data which provide evidence of the incongruence of the teacher's thinking.

Following Brown and Rogers (2015), it is important to acknowledge the difficulty of getting scientifically pure data from teaching practices due to the interaction and convergence of numerous factors within the teaching-learning process. However, when we make evidence-based decisions, we are bearing in mind the entire context and all the factors that influence the data obtained, yielding an application that is as scientific and objective as possible.

In Spain we find great pressure from the Administration on schools to generate innovation projects that enhance and improve the academic results of students (Sáez, Robles, & Vázquez, 2020). However, funding for research in education is scarce (Sánchez, 2018) and this is directed almost entirely to research directed from universities where there is a centralization of educational research, while in schools there is very little research that is not directed by the Academy (De la Orden, 2014). In this way, on the one hand the research, and, on the other hand, school teachers, are separated by latent barriers that produce a minimum active participation between both groups (Perinés, 2018). In this way, it is important to reflect on the guidelines that should be followed by institutions and by the Administration for a true transmission of knowledge and a strengthening of educational evidence-based practices (Pattier & Olmos, 2021).

This all make us to consider, in line with La Velle (2015), the need to rethink the academic backgrounds of future teachers: optimally, they would be able to adopt a teaching practice based on scientific evidence.

Methodological framework

As part of a broader research project that uses a mixed methodological approach including elements of quantitative and qualitative focuses, this work uses a quantitative perspective using questionnaires. First, we perform a descriptive analysis of the variables that define the profile of the teachers who comprise the sample in this study and of their assessment of the specific evidence our teachers use to implement/enhance their educational practice focus on: its frequency and usefulness of sources of information; use of the information from scientific research in teaching practice; the role it plays in underpinning the teachers' own teaching practice. After this initial descriptive analysis, we analyse whether variables that define the profile of the teachers (age, gender, their educational level, the ownership of the school, or the educational level taught) condition the use of the information from scientific research in teaching practice and the role it plays in underpinning the teachers' own teaching practice.

Sample

A convenience sampling of 462 teachers participated in the study, from 197 educational centres in Barcelona (235 teachers from 88 centres) and Madrid (227 teachers from 109 centres); see distribution in Table 1. These centres included publicly owned and state assisted private schools at the early years and primary levels. The participants responded (online) the questionnaire between June 2018 and January 2019.

Table 1

Sample distribution

City	Teachers		Educational Centres	
	n	%		n
Barcelona	235	50.9	Barcelona	235
Community of Madrid	227	49.1	Community of Madrid	227
Total	462	100	Total	462

Source. Own elaboration.

Instrument

As the instrument administered, the questionnaire was designed based on the dimensions used in instruments designed to analyse the use of research in teaching practice, such as Research Use Survey (RUS) (Nelson, Metha, Sharples, & Davey, 2017), it was complemented with factors associated with the teachers' commitment to educational research (Brown, Daly, & Liou, 2016; Cherney et al., 2012; Vanderlinde & Van Braak, 2010).

The questionnaire on evidence-based educational practices contains a total of 16 items — being only four items based on four analysis variables the scope of this paper —, which do the following: (1) Record and identify the sociodemographic data of the study sample; (2) Analyse the sources of information used in teaching practice and educational practices implemented in the classroom and school from the standpoint of the frequency of use, evaluation of their usefulness, and assessment of the sources consulted; (3) Analyse the use of information from scientific research in teaching practice and the opinion about scientific research and the role of leadership in schools.

The questionnaire was subjected to external validation on the basis of several rounds of revisions and validations by a group of experts.

Procedure and analysis

Once the questionnaire was validated, it was administered to the participants. Ethical protocol ensures compliance with the ethical principles of respect for human dignity, confidentiality, non-discrimination and proportionality between the risks and the expected benefits.

As stated above, within the study presented here, there were four analysis variables: (1) Factors used when considering the practice implemented in the class/school and its frequency (scale *never* - *always*); (2) Assessment of the usefulness of different information sources on the educational practice implemented (scale *not at all important* - *very important*); (3) Assessment of the sources consulted from the standpoint of their characteristics (scale *not at all important* - *very important*); (4) Use of the information from scientific research in teaching practice and the role it plays in underpinning the teachers' own teaching practice (scale *totally disagree* - *totally agree*).

The data collected were statistically examined — based on the SPSS 22.0 program — by applying descriptive analysis (means and frequencies) to describe the sample and the main analysis variables, along with inferential analyses, namely the T-test for independent samples and Pearson's chi-squared for the analysis variables and variables of age *(<=40*; *> 40*), gender (*male*; *female*), educational level (*university education or bachelor's*; *tertiary education* or *master's / doctorate*), ownership of the school (*public*; *publicly-subsidised private*), and educational level taught (*preschool*; *elementary*), to check whether or not there are statistically significant differences.

Description of the sample

The sample in this study is mostly female (81%; 19% male), is aged 20 to 60 (19.3% are aged 20-30, 58.7% aged 31-50, 24.6% aged 51-60), and teaches at publicly owned (61.6%) and publicly-subsidised private schools (38.4%) in preschool and primary school (22.8% compared to 63.1%, respectively, and 14.1% in both).

Of these, 62% are teachers, while the remaining 38% occupy intermediate roles (20.6%; secretaries, heads of studies, coordinators) and managerial positions (17.4%; principals). The most common educational level is a bachelor's degree: 80.8% have bachelor's degrees in Preschool or Elementary Education, while 19.2% have tertiary degrees (master's, post-graduate degree, or doctorate).

With regard to the sample's teaching experience, 67.1% have more than 10 years of experience, 31.9% have 11 to 20 years, and 35.2% have more than 21 years. The remaining 32.9% have less than 10 years of experience. Part of this teaching experience has been at the school involved in the study: 31.4% have been at that school less than five years, 21.7% 6-10 years, 27.6% 11-20 years, and 19.3% more than 20 years.

Results

In this section, we present the results of the descriptive and inferential analysis of sources linked to the specific evidence our teachers use to implement/enhance their educational practice and its frequency, the usefulness of sources of information, the assessment of the sources consulted based on their characteristics, the use of the information from scientific research in teaching practice and the role it plays in underpinning the teachers' own teaching practice.

Data from descriptive analysis

In relation to the aspects the study sample has used when planning the practice implemented in their class/school (see these aspects in Table 2) and their frequency, the results show that the most frequent ones (sometimes or always) refer to *previous experiences in my class/school* (32.9% and 32.9% respectively), *ideas generated by my school colleagues* (40.2% and 24.5%), *ideas and other activities carried out by colleagues in other schools* (42.9% and 24%), and *ideas and other activities gotten from other training* (38.1% and 25.8). Conversely, the aspects which they used less frequently (never or almost never) refer to *ideas promoted by public administrations in the field of education* (43.4% and 31.9% respectively) and *ideas promoted by professional associations to which I belong* (46.7% and 21.8%).

Table 2

Aspects teachers use when planning the practice implemented

	M	SD
Previous experiences in my class/school	2.85	1.034
Ideas generated by my school colleagues	2.73	1.003
Ideas and other activities carried out by colleagues in other schools	2.79	.949
Ideas promoted by other local organizations (city governments, educational resource centres, etc.)	2.16	1.007
Ideas or activities obtained during university education	2.46	1.053
Ideas promoted by public administrations in the field of education	1.88	.929
Ideas promoted by professional associations to which I belong	1.93	1.012

Ideas and other activities gotten from other training	2.72	1.037

Source. Own elaboration.

Regarding the sample's evaluation of the usefulness of different information sources (see them in Table 3) in the educational practice implemented, the results show that the ones rated the most highly on their usefulness (very important and somewhat important) are *websites related to the field of education* (42.4% and 41.5% respectively), *books* (23.9% and 39.9%), and *scientific articles* (14.9% and 33.5%). The sources valued the least (not at all important or not very important) were *reports*, both *international reports* (51.9% and 27.1% respectively) and *reports written for local or national organizations* (44.7% and 31.4%).

Table 3

Assessment of the usefulness of information sources

	M	SD
Scientific articles	2.41	1.003
Articles from popular magazines or newspapers	2.19	.918
Books (paper or digital)	2.76	.949
Reports written for local or national organizations	1.86	.941
International reports	1.75	.926
Websites related to the field of education (education blogs)	3.21	.840
Professional networks (Twitter, Facebook, etc.)	2.31	1.039
Portals of educational administrations	2.22	1.004

Source. Own elaboration.

The results regarding the sample's assessment of the sources consulted based on their characteristics (see them in Table 4), those that are *relevant to the teaching context* (29.8% and 49.7% respectively), *approachable* (29.1% and 51.6%), and *contain practical examples* (36.6% and 43%) are considered very important and somewhat important. Sources that *offer some kind of help (personal, economic, recognition)* are assessed as not very important (29.1%) or not at all important (42.3%).

Table 4

Assessment of the sources consulted according to their characteristics

	M	SD
Relevant to my context	3.06	3.00
Produced by a prestigious author or organization	2.62	3.00

Rigorous, high-quality content	2.97	3.00
Presented in an approachable way (in terms of language, style, etc.)	3.08	3.00
Includes guides to support its application/implementation	2.67	3.00
Includes some kind of training that helps in implementing it	2.56	3.00
Contains practical examples	3.11	3.00
Provides materials that can be used at school	2.97	3.00
Stimulates discussion at school	2.85	3.00
Offers some kind of support (personal, economic, recognition)	1.94	2.00

Source. Own elaboration.

With regard to the use of the information from scientific research in teaching practice and the role it plays in underpinning the teachers' practice (see them in Table 5), the sample agrees or totally agrees that this information plays a very important (40.2% and 27.6% respectively) role and that this information is used to underpin the innovations they plan in their classrooms (47.5% and 21.4%). Likewise, they diverge in whether they do not support any intervention in school/class unless it is based on research evidence (31.1% disagree and 54.5% totally agree).

Table 5

Use of information from scientific research in teaching practice and the role it plays

	M	SD
The information from research plays a very important role in underpinning my teaching practice	2.92	3.00
I use information from research to underpin innovations I plan my classes	2.86	3.00
I don't support any innovation in school/class unless it is based on evidence from research	1.63	1.00

Source. Own elaboration.

Data from inferential analysis

Some of these analysis variables show statistically significant differences according to the variables of age, gender, educational level, ownership of the school, and educational level in which they teach.

The analysis variable *aspects they use when planning the practice implemented in the class/school* and their frequency shows statistically significant differences in some of the aspects according to age, educational level in which they teach, educational level,

and ownership of the school.

Age shows a statistically significant difference ($p < .05$) with the aspect *ideas promoted by public administrations in the field of education and the frequency* with which the sample has used these ideas when planning their practice. In this case, the teachers over the age of 40 show a higher frequency compared to their counterparts under 40.

The *educational level in which the sample teaches* shows a statistically significant association between this variable and the *ideas generated by my school colleagues* ($p < .05$), with the preschool teachers identifying a higher mean ($M = 2.96$; $SD = .85$) than primary school teachers ($M = 2.64$; $SD = 1.04$), and *ideas promoted by other local organizations (city governments, educational resource centres, etc.)* ($p < .05$), with primary school teachers showing a higher mean ($M = 2.18$; $SD = 1.05$) than preschool teachers ($M = 2.07$; $SD = .85$).

In terms of *educational level*, a statistically significant association ($p < .05$) was found between this variable and the aspect *ideas or activities obtained during university education.* Teachers with tertiary education (master's, post-graduate degree, and doctorate) show a higher mean ($M = 2.76$; $SD = 1.03$) than those with a university education (bachelor's) ($M = 2.39$; $SD = 1.04$).

The *ownership of the school* showed a statistically significant association between this variable and the aspects *previous experiences in my class/school* ($p < .05$), *ideas and other activities gotten from other training* ($p < .05$), and *other* ($p < .05$), as shown in Table 6, being the teachers at publicly-subsidised private schools the ones that have most frequently relied on these aspects when considering the practice implemented in class / school (except for the '*other*' category).

Table 6

T-test for ownership of the school

		Sig.	M	SD
Previous experiences in my class/school	Public	.008	2.76	1.070
	Publicly-subsidised private		2.97	.973
Ideas and other activities gotten from other training	Public	.003	2.66	1.080
	Publicly-subsidised private		2.78	.966
Others (assessment)	Public	.024	2.35	1.356
	Publicly-subsidised private		1.95	1.253

Source. Own elaboration.

The ownership of the school also showed a statistically significant association between this variable and the aspects *ideas or activities obtained during university education* ($p < .05$), being also teachers at publicly-subsidised private schools used this education the most often when planning the teaching practice they implement in

class/school.

The analysis variable assessment *of the usefulness that different information sources had in the educational practice implemented* showed significant differences in the aspects according to age, educational level, and ownership of the school.

In terms of *age*, a statistically significant association ($p < .05$) was found between this variable and the evaluation of the usefulness of *professional networks (Twitter, Facebook, etc.)*. In this case, the teachers over the age of 40 assign this information low importance (between not at all important and not important) compared to teachers under the age of 40, who assign it high importance (between somewhat and very important).

The usefulness of the *professional networks (Twitter, Facebook, etc.)* also showed a statistically significant association ($p < .05$) with the variable *educational level*. The teachers with a university education (bachelor's) show a higher mean ($M = 3.26$; $SD = .794$) than those with tertiary education (master's, post-graduate program, doctorate) ($M = 2.99$; $SD = 1.01$).

The *ownership of the school* showed a statistically significant association between this variable and the assessment of the usefulness of *international information sources* ($p < .05$), *professional networks (Twitter, Facebook, etc.)* ($p < .05$), and *other sources (assessment)* ($p < .05$), as shown in Table 7.

Table 7

T-test for ownership of the school

		Sig.	M	SD
International reports	Public	.049	1.69	.868
	publicly-subsidised private		1.82	.987
Professional networks (Twitter, Facebook, etc.)	Public	.012	2.14	1.072
	publicly-subsidised private		2.54	.924
Other sources (assessment)	Public	.007	2.27	1.294
	publicly-subsidised private		1.84	1.092

Source. Own elaboration

The analysis variable *assessment of the sources consulted according to their characteristics* showed significant differences according to educational level, gender, and ownership of the school.

The *educational level* showed a statistically significant association ($p < .05$) with the characteristic stimulates *discussion in school.* Specifically, teachers with university education (bachelor's) show a higher mean ($M = 2.89$; $SD = .91$) than those with tertiary

education (master's, post-graduate program, doctorate) (M = 2.65; SD = .87).

In terms of *gender*, a statistically significant association was found between this variable and the importance attached to *the information sources consulted to implement educational* practice *are presented in an approachable way in terms of language, style, etc*. This is an aspect that men (M = 2.91, SD = .85) consider less important than women (M = 3.12; SD = .69).

The variable *ownership of the school* showed a statistically significant association with the importance attached to *the information sources consulted to implement educational practice are presented in an approachable way* in terms of language, style, etc. (p < .05) and that they *offer some kind of help (personal, economic, recognition)* (p < .05). In this case, the assessment of the variables is inverted. While the former is more important for teachers at public schools, the latter is for teachers at publicly-subsidised private schools.

The analysis variable *use of information from scientific research in teaching practice and its role in underpinning* their *own teaching practice* showed significant differences according to educational level and gender.

In terms of *educational level*, a statistically significant association (p < .05) was identified between this variable and *the importance of the role that information from research plays in underpinning my teaching practice* and the *use of information from research to underpin innovations attempted in class* (p < .05). In both cases, teachers with a bachelor's degree show a higher mean (M = 2.98; SD = .81 and M = 2.88; SD = .761, respectively) than those with tertiary education (master's, post-graduate program, doctorate) (M = 2.71; SD = .92 and M = 2.79; SD = .87, respectively).

Finally, there is a medium-to-low statistically significant interaction between *gender* and degree of *agreement* with the statement that *I don't support any innovation in school / class unless it is based on evidence from research* (p < .05). Very few respondents agreed with this statement; however, there was a tendency for men to agree with it more than women.

Discussion and Conclusions

Various studies have suggested that research does indeed influence teaching practice as long as it actively and effectively involves teachers and enables them to share information that is useful for improving their practice (Cain & Allan, 2017; Judkins et al., 2014; Mincu, 2015; Ovenden-Hope & la Velle, 2015).

In light of this premise, the current work aimed to delve deeper into the relationship between scientific evidence and educational practices from the standpoint of teachers in a given context of action. More specifically, we aimed to analyse teachers' initial perceptions of research and the application of such content in their practice. However, other important concerns revolve around this issue. In this regard, it is important to inquire into the specific evidence that serves as an underpinning for our teachers' educational practice, how often they use this evidence, how they assess its utility and how they integrate scientifically derived information in their teaching practice. Likewise, it is important to determine if such perceptions by teachers are determined by variables such as age, gender, educational level, ownership of the

school, and the educational level taught. Whilst it is true that there are many studies focusing on these work-related and demographic factors, fewer investigations have considered the influence these variables may have on teachers' perceptions regarding the use of evidence.

Results presented here show that, a priori, teachers perceive that research should play an important role in underpinning and even enhancing their teaching practice. Now, focusing on each of the analysis issues raised, we can appreciate the nuances of this perception.

Starting with research-based information, teachers participating in this study agreed that this should play a key role in developing and structuring their teaching practice. Nevertheless, they also surmised that, with respect to their immediate environment, research evidences are not always relevant to issues encountered in the classroom setting. This apparent contradiction could lead us to presuppose, in accordance with other studies such as Cain (2015), that teachers in this investigation tend to use research instrumentally and strategically, but only occasionally. This result should lead us to ask why such input is used only sporadically and, as well, what is the evidence supporting this claim.

In this regard, there are countless studies demonstrating that the main barriers against and resistance to the use of research-based content in teaching stem from multiple causes and factors. Amongst others, these include lack of time and lack of access to information (Fresneda et al., 2012), lack of confidence in one's innate ability to find and evaluate such information (Williams & Coles, 2007), lack of confidence in engaging with research (Coldwell et al., 2017; Judkins et al., 2014), useless topics, language filled with technical jargon that hinders comprehension (Perinés, 2018), and research that has little to do with everyday reality (Cain & Allan, 2017; Miretzky, 2007).

In accordance with these findings, and with reference to the other issues raised, some such barriers can be sensed in our teaching sample. Starting with the assessment our teachers make of the usefulness of the information sources and their characteristics, it can be seen how the characteristics of information sources assessed most positively by our teaching sample are that it is relevant to their context, approachable, accessible, and focused on practical examples – which, as discussed above, are the main causes for resistance. Furthermore, websites, portals, professional networks, books, and articles are the sources deemed most useful for one's teaching practice. All of these are also considered accessible sources — some are informal in nature, providing mostly 'predigested' information (Williams & Coles, 2007) — and resources based on evidence-based practice that provide ongoing professional development (Fresneda et al., 2021).

On the other hand, the characteristics and use assessed the most negatively by our teaching sample were governmental and/or political-administrative reports. This result could lead us to presuppose that these sources (and consequently, the use of evidence therefrom) are perceived as having little salience om their everyday reality and, consequently, are less useful for their practice (Pattier & Olmos, 2021). As Mincu (2015) claimed, information sources are a key factor in the way teachers assess and apply research findings. This should lead us to ask why our teachers perceive these specific sources in this way – and, from there, propose guidelines to make such content

– both practically and perceptually – more useful for pedagogical practice.

Focus on the aspects on which our teachers' based their best practices in teaching, it is often found that they base their experience more on knowledge acquired during practice (their own or someone else's) and less on theoretical knowledge (Hedges, 2012; Van Schaik et al., 2018). This can lead them to suggest that the type of evidence they most commonly employ is that which most directly reflects their own prior school experiences and, as well, the ideas and experiences of other colleagues (at both their own school and at others) (Cain & Allan, 2017; Coldwell et al., 2017; Nelson & Campbell, 2017) — these trends reveal the importance of teachers' social communication both in person and digitally. Likewise, studies such as from Fresneda and others (2012) linked the use of this kind of sources and resources to professionals who identify a predisposed attitude towards evidence-based practice. Therefore, this result could lead us to hypothesise that our teachers are aware of the important role played by evidence in their teacher practice but, at the same, they are also aware of the main barriers against and resistance to the use of evidence in their practice.

In this regard, for example, there is the evidence associated directly with educational policies or services — i.e., content generated by or passed on from school administrators or professional associations — is the least used least by teachers in their teaching practice (Cain & Allan, 2017). Consistent with this view, there may be evidences from such sources that teachers perceive as both remote from and irrelevant to their everyday classroom reality. Therefore, enhancing communication spaces that promote collaboration, co-creation and intra- and inter-centre exchange (also with school administrations and professional associations; as Nelson and Campbell (2017) point out), could play a role in increasing teachers' confidence in the quality and efficacy of content derived from such sources (Brown, Daly, & Liou, 2016; Coldwell et al., 2017; Judkins et al., 2014).

Thus far, this study has presented results that are in line with other research findings — on the issue at hand. That literature offers important clues regarding the current application of evidence (and its information sources) with respect to practical pedagogical practice. Meanwhile, this study goes even further, taking into account the large number of teachers' conceptions and variables that could impact on the understanding of evidence-based practices (La Velle & Flores, 2018). Indeed, our findings suggest that demographic variables such as age, gender, and educational level, as well as educational level taught and school ownership condition the way teachers perceive, assess, and use research and its evidence in their own pedagogical practice.

In this regard, for example, results show differences between female and male teachers in terms of using research-based information to enhance their teaching — being women the ones whit a greater predisposition to base their practice on evidence. Age was also found to be a factor: teachers over 40 years of age were the most receptive to ideas promoted by public administrations and professional associations; in contrast, teachers under 40 years of age tended to place more value on ideas conveyed in professional social networks. Preschool teachers were found to base their teaching practice primarily on ideas generated by their school colleagues (enabling the promotion of collaboration, co-creation and intra-centre sharing), while primary education teachers based their teaching practice primarily on ideas and activities

carried out by colleagues in other schools (also enabling the promotion of collaboration, co-creation and inter-centre sharing). The fact that the initial level of teacher training — bachelor's, as opposed to tertiary education — also revealed differences underscores the need to use well-researched evidence in the initial teacher training. Lastly, the fact that teachers from publicly-subsidised private schools and teachers from public schools base their teaching practice on different aspects, use different sources to underpin their practice, or emphasise the usefulness of different sources.

Although these results have not been focused on the analysis of the impact level that these variables could have on teachers' evidence-based practices conceptions, in light of those it is possible to hypothesize that these variables could lead to draw different teachers' profile towards the use of evidence-based practice. This hypothesis must evidently be submitted to a much more analysis, but this work contributes to explore these indicators and also outlining possible patterns.

These findings underscore that, in order for research to truly be a key element in teaching practice, it must reflect designs based on practice that are more accessible to teachers. Practically, it must be designed in conjunction with teaching teams and actively involve them in the practice; it also must fit teachers' personal, contextual, and professional characteristics and needs. In this way, it is important to minimize the barriers that hinder the active participation between research and teachers. The way research-based evidence is shared determines teachers' perception of its worth and its degree of applicability to classroom settings. The analytic approach of this work and findings relative to teachers' profiles are key to understanding teachers' perceptions about that content and its utility in their teaching practice and, as well, enabling the development of guidelines for reporting of any related results.

There are several limitations to the current study. One is the convenience sampling used in recruiting participants. This was due to the high existing population of teachers available to serve as participants. As well, the surveys were conducted with teachers in Spain only, therefore, there may be a social factor in the questionnaire responses. In view of the scarcity of empirical work in this area and humbly recognising the limitations of this study, we can argue that the findings — even if cautious and provisional — provide a new perspective and an appropriate and interesting framework for future research on this issue. The consequent data and its corresponding interpretation are a starting point for configuring relevant scientific evidence. Altogether, they enable key advances in the educational roadmap that, implemented, can lead to the achievement of specific objectives of effectiveness and success.

I sum, the current findings (and the specific factors giving rise to them) are of great interest since they establish the need to rethink the ways in which research and its evidence reach our teachers and guide their instructional approaches. Furthermore, valuable data is provided to enhance the effectiveness of all types of financing, projects or training that the different institutions can promote with the aim of improving the teaching practice.

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Conflicto de intereses

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Contribuciones de los autores

La contribución al artículo por parte de los autores ha sido equitativa en todo el proceso: conceptualización, metodología, software, validación, análisis formal, investigación, recursos, análisis de datos, redacción del borrador original, redacción, revisión y edición, supervisión, etc.

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