

Uncovering Teachers' Needs in the Quest for Quality Bilingual Education

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Abstract—This article identifies the training needs of primary school teachers within the area of bilingual education related to their daily work, viewed through the lens of effective professional practice. Using a mixed methods research design, a self-assessment questionnaire was constructed based on comparative document analysis, a discussion group, and expert opinion. The purpose of this questionnaire was to determine the existing discrepancy between what is perceived as the reality of classroom performance and how it should be in order to ensure the delivery of quality bilingual education, supported by the parameters of school effectiveness. The questionnaire was completed by teachers from the Spanish region of Andalusia. The priority training demands detected pertain to the creation and maintenance of a local and external network of contacts for the purposes of collaboration, the promotion of intercultural communication, and the evaluation, selection, adaptation, and use of existing CLIL materials. On the basis of such demands, several considerations are proposed in the development of ongoing training that will enable bilingual education teachers to carry out their work effectively.

Index Terms—bilingual education, effective teaching, needs analysis, teacher training, quality education

I. INTRODUCTION

The goal of preserving and promoting a multilingual and multicultural society, pursued through a series of language policies developed by the European Commission and the Council of Europe in the early 1990s, led to the emergence of bilingual education within schools (Garc ía & Lin, 2017). Due to the nature of this type of educational setting, teachers who deliver school subjects in two languages require a number of specific professional skills to do their job effectively.

Just as there are profiles defined for teachers within Primary Education, Physical Education, Music, or Languages (Order ECI/3857/2007), the profile of a bilingual education teacher, requiring a compendium of competencies spanning several specialities in addition to certain characteristics derived from this specific pedagogical challenge, should have its own structuring and segmentation in terms of the knowledge, skills, and attitudes required to carry out this work in the best possible way (Melara-Guti érez & Gonz ález-L ópez, 2016).

Defining the profile of teachers has been a key topic within educational research for years. Some studies have focused on characteristic traits or components of this profile, others on the skills required, on the actions developed in the classroom, on the development of tasks, on expected results, or on criteria of professionalism (Rodr íguez-Espinar, 2003). This area of research into teacher training and professional development has largely been dominated by two different, somewhat opposing positions: a competency-based approach and a reflexive approach (Cremers et al., 2013). In Europe, the broad consensus defines teaching profiles based on professional competencies, since these are the ones that improve teaching performance (S ánchez-Tarazaga, 2016).

Garc ía et al. (2017) clearly express the fundamental role teachers play in education, pointing out that, without educators, schools cannot be transformed, and the academic world acknowledges that educating bilingual teachers so that they truly understand multilingualism is paramount if efforts to improve bilingual education are to be successful. As noted by Kirss et al. (2021), research on school effectiveness and research on bilingual education have largely developed as separate research paradigms. Therefore, current studies on effective education do not provide clear evidence or conclusions about bilingual education and its effectiveness, lacking a systematic approach.

The aim of this paper is to contribute to reducing this research gap by systematically reviewing existing evidence and providing new knowledge in the field of effective teaching in bilingual education, specifically around the figure of the teacher and their training.

II. OBJECTIVE

The research presented here pursued a dual objective. Firstly, to develop a tool that identifies the educational needs perceived by teachers within bilingual primary schools in relation to their daily work, in order to understand their teaching performance as effective professional practice. This paper addresses the concept of need based on the definition of Kaufman (2006), who sees it as a discrepancy between current and desired results. Compiling all these

gaps will provide the necessary information and the order of priority required to achieve the second objective: the experimental identification of training needs that will provide a foundation to design training plans focusing on the areas required to achieve the teaching goal designed: effective bilingual teaching. This led to the launch of an exploratory sequential two-phase study consisting of the two empirical moments described below.

III. PHASE 1: DESIGN A TOOL TO DETECT THE TRAINING NEEDS OF BILINGUAL EDUCATION TEACHERS FROM THE PERSPECTIVE OF EFFECTIVE TEACHING

This phase entailed constructing and finding scientific guarantees for a tool capable of analysing the educational needs of bilingual teachers, considering this work from the paradigm of school effectiveness.

A. Data Collection and Analysis Method

To design the structure of the tool, we used the scale format present in Kaufman (2006) and validated in Melara-Gutiérrez and González-López (2021), which allows us to obtain data to identify the distances or gaps (need) between current perceived reality and the expected reality for the achievement of a given objective. The structure involves placing the elements of analysis in a central space and subjecting them to a dual process of opinion expressed by teachers on a five-point scale, in relation to how that reality is (“describe how you see yourself currently operating in your teaching role”) and should be (“describe how you think you should be operating in your teaching role), where 1 means rarely, 2 occasionally, 3 at times, 4 often, and 5 consistently. The instrument is made up of 41 elements that define the figure of the effective bilingual education teacher (Melara-Gutiérrez, 2022).

The target population encompassed primary education teachers from bilingual school settings in the city of Córdoba (Spain). Intentional sampling recruited 50 professionals, a number valid for the purposes intended at this stage, as stated by McMillan and Schumacher (2006). The majority of the participants were women (74% women, 26% men) with a mean age of 43 (SD=8.441). Their average teaching experience in primary education is 16 years (SD=8.144), falling to 7 years for teaching experience within bilingual education (SD=4.918). It was interesting to see the level of foreign language proficiency, which is essential to access these teaching roles. The data showed that 50% had a B2 level, 36% had a C1 level, 12% had a B1 level and only 2% had a C2 level.

B. Results

The accuracy of the data obtained with the questionnaire applied to this teaching group and the stability of the measurement given in different applications of the questionnaire is one of the basic elements that must be fulfilled by the instrument designed (Lincoln & Guba, 1985). This is why the information collected must take account of a number of factors that guarantee its scientific veracity and do not compromise the study (Nunnally & Bernstein, 1994). In other words, it must be reliable and valid, consistent over time, and make contributions relating to the construct measured.

The procedure used to determine reliability is Cronbach’s alpha coefficient. Upon initial evaluation of the results obtained (see Table 1), we see that the values corresponding to each of the scales described (alpha values above .9) indicate that the relationships between the different elements of the tool are very high (Jisu et al., 2006). For its part, the total Alpha value (.976), considering the two constituent scales as a single unit, indicates high guarantee of reliability.

TABLE 1
ALPHA COEFFICIENTS FOR THE SCALES

Scale	Alpha Coefficient	N
What I do	.969	41
What I should do	.979	41
Total	.976	82

On the other hand, the behaviour of each of the instrument items reveals homogeneity indices all with values greater than .50 and a positive sign, so each item measures a portion of the trait studied, and therefore the instrument is reliable (Henson, 2001). This is confirmed by the Alpha coefficient. If we eliminate all the elements, reliability decreases or is maintained, except for element six in the subscale “What I should do”, where element 6 (*I use the cultural patterns of the country/countries where the foreign language is spoken in the teaching of non-language subjects*) presents values for homogeneity (-.073) and the alpha coefficient (.982) that give the impression of inadequate statistical behaviour. However, due to its relevance for the objectives of the study, this characteristic is maintained in its original format.

Subsequently, the validity of the content of the elements that make up the instrument was estimated by finding the discriminatory power of the elements included in the scales. To carry out this task, the items from the two subscales were recoded into three groups (1: Low, 2: Medium and 3: High). Applying Student’s t test (n.s.=.05) between the low and high groups indicates that all the elements, except number 6 in the subscale “What I should do” (t=-0.303, p=.764), meet the objectives set for each of the questions, reflecting the existence of an internal structure in the questionnaire capable of responding to the demands raised. In conclusion, the tool designed meets the scientific guarantees required for application.

IV. PHASE 2: ANALYSIS OF THE TRAINING NEEDS OF BILINGUAL EDUCATION TEACHERS FROM THE PERSPECTIVE OF EFFECTIVE TEACHING

The tool for detecting the training needs of bilingual teachers was constructed under the parameters of school effectiveness. The information gathered from the 50 participating teachers was analysed to detect the aforementioned needs and put them in order of priority so that they provide the empirical foundation to design training actions for primary education teachers in bilingual settings, grounded in the principles of effective teaching.

A. Data Collection and Analysis Method

The data collected from the participating teaching group have been analysed using different statistical procedures of central tendency and dispersion for each of the two subscales considered. Furthermore, the effect size has been calculated in each element (Cohen's *d*) to identify, from an empirical point of view, the specific weight and order of priority of each of the demands detected.

B. Results

Based on the concept of need defined by Kaufman (2006), these have been identified, as shown in Table 2, as the difference between what I should do and what I do. Cohen's *d* index has been used to measure the effect size of these differences, to quantify the distance between what is and what should be (Coe & Merino, 2003). Cohen (1988) established that values below .2 were understood as "null," 0.2 to 0.5 small, 0.5 to 0.8 medium, and high from 0.8 onwards. In all cases, perceived success is always higher than professional reality, with a significant effect size, which validates the previous expressions.

TABLE 2
MEAN AND STANDARD DEVIATION OF EACH ELEMENT, IDENTIFICATION OF NEEDS, AND DIFFERENCE OF MEANS BETWEEN SCALES

Characteristics of effective bilingual teaching	What I do		What I should do		Need	Cohen's d
	Mean	SD	Mean	SD		
1. I use the foreign language to convey the contents of non-language subjects.	3.52	1.054	4.16	0.850	0.64	-.660
2. I reflect on the language learning process.	3.66	0.848	4.24	0.778	0.58	-.600
3. I implement the teaching process in an organised and structured way.	4.10	0.789	4.49	0.767	0.39	-.400
4. I integrate the curriculum content of non-language subjects with language content and learning strategies.	3.40	1.107	4.14	0.979	0.74	-.760
5. I adapt the language component in the development of non-language subjects.	3.72	1.070	4.14	0.979	0.42	-.440
6. I use the cultural patterns of the country/countries where the foreign language is spoken in the teaching of non-language subjects.	3.08	1.158	3.76	1.071	0.68	-.700
7. I use strategies for the teaching of foreign languages.	3.84	0.976	4.27	0.730	0.43	-.440
8. I evaluate, select, adapt, and use existing CLIL (Content and Language Integrated Learning) materials.	3.18	1.155	3.96	1.040	0.78	-.800
9. I design communicative and interdisciplinary tasks.	3.42	1.126	4.14	0.913	0.72	-.740
10. I manage the classroom efficiently: organisation of classroom spaces and resources, efficient use of class time, and management of student behaviour.	3.96	0.925	4.27	0.953	0.31	-.320
11. I promote communication in the foreign language.	3.92	0.986	4.35	0.830	0.43	-.440
12. I generate bilingual environments.	3.44	1.013	4.20	0.841	0.76	-.780
13. I promote intercultural communication.	3.24	1.153	4.04	1.060	0.80	-.820
14. I use an active methodology.	4.22	0.840	4.49	0.711	0.27	-.280
15. I develop metacognitive strategies among students.	3.38	1.028	4.00	0.957	0.62	-.640
16. I promote creativity among students.	3.86	0.926	4.39	0.731	0.53	-.540
17. I encourage cooperative learning among students.	3.68	0.935	4.14	0.842	0.46	-.480
18. I develop critical thinking among students.	3.84	0.976	4.27	0.836	0.43	-.440
19. I have a clear understanding of teaching objectives: both those relating to non-language and language subjects.	3.84	1.149	4.39	0.909	0.55	-.560
20. I address higher- and lower-level cognitive objectives.	3.58	1.032	3.92	0.932	0.34	-.360
21. I promote independent learning among students.	3.96	0.856	4.37	0.727	0.41	-.420

22. I promote project-based learning among students.	2.76	1.153	3.49	1.003	0.73	-.760
23. I develop significant learning among students.	4.00	0.926	4.39	0.812	0.39	-.400
24. I work as a team with other teachers.	3.70	1.129	4.22	0.985	0.52	-.540
25. I establish good relationships with students.	4.56	0.733	4.59	0.705	0.03	-.040
26. I create good relationships between students.	4.56	0.733	4.65	0.694	0.09	-.100
27. I work with families on the education of their children.	4.00	0.948	4.41	0.814	0.41	-.420
28. I collaborate with the School Management Team.	4.26	0.922	4.41	0.888	0.15	-.160
29. I create and maintain a local and external network of contacts to work with.	2.82	1.224	3.65	1.217	0.83	-.860
30. I work with specific bilingual education professionals (e.g. conversation assistants, bilingual programme coordinators, etc.).	3.74	1.175	4.29	0.913	0.55	-.560
31. I provide all students with opportunities to access the curriculum.	4.12	0.849	4.33	0.826	0.21	-.220
32. I adapt the teaching-learning process to students' needs and previous knowledge.	4.12	0.872	4.51	0.739	0.39	-.400
33. I convey cultural diversity to students, both local and global.	3.98	1.020	4.29	0.791	0.31	-.320
34. I provide regular feedback to students regarding understanding the content of non-language subjects.	3.92	1.085	4.18	0.993	0.26	-.280
35. I provide regular feedback to students on language proficiency.	3.82	1.044	4.14	0.957	0.32	-.340
36. I provide regular feedback to students on their self-assessment process.	3.32	1.077	3.86	1.061	0.54	-.560
37. I take responsibility for student outcomes, both in terms of non-language subjects and language proficiency.	4.22	0.932	4.37	0.834	0.15	-.160
38. I convey to students what is expected of them, in terms of non-language subjects and language proficiency..	3.80	1.107	4.24	0.925	0.44	-.460
39. I have high expectations of students both in terms of non-language subjects and language proficiency.	3.44	1.072	3.96	1.040	0.52	-.520
40. I maximise and optimise both academic and non-academic time devoted to the teaching-learning process.	3.88	0.961	4.29	0.842	0.41	-.420
41. I am continually training and developing professionally.	4.04	0.968	4.20	1.000	0.16	-.164

Having estimated the size of the difference, it is particularly relevant to see that, of the 41 assessment indicators, 12 of them (29.27%) do not have discriminatory power in establishing their difference (10, 14, 20, 25, 26, 28, 31, 33, 34, 35, 37 and 41). Based on the average values obtained and their gain in the need identified as ideal (what should be done), we deduce that they are deemed to be relevant to the exercise of effective teaching and that, therefore, they tend to do so in their daily work.

The effect size allows us to identify and prioritise training demands, taking as a reference Cohen's index explained previously. Therefore, in Table 3, we can see, in order of priority, the training needs detected by the participating teachers and their level of relevance, in support of understanding teaching work in bilingual education settings from the perspective of effective teaching.

TABLE 3
TRAINING NEEDS OF BILINGUAL EDUCATION TEACHERS

Characteristics of effective bilingual education teachers	Cohen's d	Priority	Size of difference
29. I create and maintain a local and external network of contacts to work with.	-.860	1	Large
13. I promote intercultural communication.	-.820	2	
8. I evaluate, select, adapt, and use existing CLIL (Content and Language Integrated Learning) materials.	-.800	3	
12. I create bilingual environments.	-.780	4	Medium
4. I integrate the curriculum content of non-language subjects with language content and learning strategies.	-.760	5	
22. I promote project-based learning among students.	-.760	6	
9. I design communicative and interdisciplinary tasks.	-.740	7	
6. I use the cultural patterns of the country/countries where the foreign language is spoken in the teaching of non-language subjects.	-.700	8	
1. I use the foreign language to convey the contents of non-language subjects.	-.660	9	
15. I develop metacognitive strategies among students.	-.640	10	
2. I reflect on the language learning process.	-.600	11	
19. I have a clear understanding of teaching objectives: both those relating to non-language and language subjects.	-.560	12	

30. I work with specific bilingual education professionals (e.g., conversation assistants, bilingual programme coordinators, etc.).	-.560	13	Small
36. I provide regular feedback to students on their self-assessment process.	-.560	14	
16. I promote creativity among students.	-.540	15	
24. I work as a team with other teachers.	-.540	16	
39. I have high expectations of students both in terms of non-language subjects and language proficiency.	-.520	17	
17. I encourage cooperative learning among students.	-.480	18	
38. I convey to students what is expected of them, in terms of non-language subjects and language proficiency.	-.460	19	
5. I adapt the language component in the development of non-language subjects.	-.440	20	
7. I use strategies for the teaching of foreign languages.	-.440	21	
11. I promote communication in the foreign language.	-.440	22	
18. I develop critical thinking among students.	-.440	23	
21. I promote independent learning among students.	-.420	24	
27. I work with families on the education of their children.	-.420	25	
40. I maximise and optimise both academic and non-academic time devoted to the teaching-learning process.	-.420	26	
3. I implement the teaching process in an organised and structured way.	-.400	27	Null
23. I develop significant learning among students.	-.400	28	
32. I adapt the teaching-learning process to students' needs and previous knowledge.	-.400	29	
20. I address higher- and lower-level cognitive objectives.	-.360	30	
35. I provide regular feedback to students on language proficiency.	-.340	31	
10. I manage the classroom efficiently: organisation of classroom spaces and resources, efficient use of class time, and management of student behaviour.	-.320	32	
33. I convey cultural diversity to students, both local and global	-.320	33	
14. I use an active methodology.	-.280	34	
34. I provide regular feedback to students regarding understanding the content of non-language subjects.	-.280	35	
31. I provide all students with opportunities to access the curriculum.	-.220	36	
41. I am continually training and developing professionally.	-.164	37	
28. I collaborate with the School Management Team.	-.160	38	
37. I take responsibility for student outcomes, both in terms of non-language subjects and language proficiency.	-.160	39	
26. I create good relationships between students.	-.100	40	
25. I establish good relationships with students.	-.040	41	

There are three priority demands. The first two allude to the element of communication with other cultures, both at the level of the teachers and the students: *I create and maintain a local and external network of contacts to work with*, and *I promote intercultural communication*. The third demand identified as being highly relevant alludes to the action of *evaluating, selecting, and adapting existing CLIL (Content and Language Integrated Learning) materials*.

Fourteen of the indicators have been categorised as a medium level of demand. Those furthest from training needs include: *encouraging creativity among students*; *working as a team with other teachers*; and *having high expectations of the students both in terms of non-language content and language proficiency*. However, there are four elements that are situated very close to those deemed to be of high need. The most important is *creating bilingual environments*, followed by *integrating the curricular content of non-language subjects and language content* and *encouraging students to learn through project-based work*. In fourth place is *designing communicative and interdisciplinary tasks*.

All training needs pertaining to the 19 indicators of effective bilingual teaching categorised as having a small size of difference lack practically any relevance for the teachers in the study group. The lowest scores were obtained for: *using an active methodology*; *providing students with regular feedback about understanding of non-language content*; and *providing all students with opportunities to access the curriculum*. The two closest to a medium size of difference are: *promoting cooperative learning among students* and *communicating to students what is expected of them, both in terms of non-language subjects and language proficiency*.

Finally, the sample shows that teachers feel that the following training requirements are already covered: *I am continually training and developing professionally*; *I collaborate with the School Management Team*; *I take responsibility for student outcomes, both in terms of non-language subjects and language proficiency*; *I create good relationships between students*; and *I establish good relationships with students*. The relevance of these indicators for the design of future training actions is, therefore, null.

Based on this information, we can infer the training actions that will guide recommendations for the development of future training plans. The main gaps detected by teachers in their daily teaching to ensure its effectiveness are framed within six dimensions that define the model of an effective bilingual teacher outlined in this paper (see table 4):

teachers' language proficiency, methodology, interaction with participants in the education process, addressing diversity, assessment, and teachers' expectations of students.

TABLE 4
TRAINING NEEDS OF BILINGUAL EDUCATION TEACHERS BY DIMENSION AND PRIORITY

Dimension	Indicator of effective teaching in bilingual education	Priority
Teachers' language proficiency	I use the foreign language to convey the contents of non-language subjects.	9
	I reflect on the language learning process.	11
Methodology	I promote intercultural communication.	2
	I evaluate, select, adapt, and use existing CLIL (Content and Language Integrated Learning) materials.	3
	I create bilingual environments.	4
	I integrate the curriculum content of non-language subjects with language content and learning strategies.	5
	I promote project-based learning among students.	6
	I design communicative and interdisciplinary tasks.	7
	I use the cultural patterns of the country/countries where the foreign language is spoken in the teaching of non-language subjects.	8
	I develop metacognitive strategies among students.	10
	I have a clear understanding of teaching objectives: both those relating to non-language and language subjects.	12
	I promote creativity among students.	15
Interaction with participants in the education process	I create and maintain a local and external network of contacts to work with.	1
	I work as a team with other teachers.	16
Addressing diversity	I work with specific bilingual education professionals (e.g., conversation assistants, bilingual programme coordinators, etc.).	13
Assessment	I provide regular feedback to students on their self-assessment process.	14
Teachers' expectations of students.	I have high expectations of students both in terms of non-language subjects and language proficiency.	17

The area of action most in demand among the participating teachers is methodology. The most requested element, however, pertains to training on *interaction with participants in the education process*, in addition to *teamwork with teachers*. As well as the level of language proficiency required to be a bilingual teacher (Resolution of 26 October 2020), the teachers involved in this research feel that they need training on the other two components of the dimension that encompasses teachers' language proficiency: *using the foreign language to convey the contents of non-language subject* and *reflecting on the language learning process*.

In relation to assessment, the participating teachers feel that the only training that will help them be more effective in their bilingual classrooms currently is related to *providing regular feedback to students about their process of self-assessment*. In terms of addressing diversity, they feel they need training in *working with specific bilingual education professionals (e.g., conversation assistants, bilingual programme coordinators, etc.)*. And finally, we see the need to work with the participants on the area of their own *expectations of their students*, in order to achieve the effectiveness pursued in bilingual learning processes.

V. DISCUSSION AND CONCLUSION

When seeking to guarantee a strong performance among all students, the quality of the teaching staff must be maintained or improved as a matter of priority. Various studies have found that well-designed systems to evaluate teaching performance, aligned with their professional development, help to improve teaching quality and students' academic performance (Looney, 2009).

Although the design of evaluation systems for teaching performance varies dramatically depending on the context, the most widely used approaches are observations and the measurement of student outcomes (Grissom & Bartanen, 2022; Whitehurst et al., 2014). However, within the context of Andalusia's education system, we believe that the conceptions of need and training developed by Gair  (1996) and Kaufman (2006) have a better fit. Training plans must be based on the needs perceived by teachers, seeking to fulfil an unmet and essential requirement that allows them to function under normal conditions and achieve their goal.

The concept of need put forward by Kaufman (2006), understood as the gap between what we perceive it is and what we perceive it should be, has helped to create a tool to provide relevant information to design bespoke training for the group of bilingual primary teachers we are working with. The high results achieved for the reliability and validity of the tool indicate that the information obtained presents sufficient levels of quality so that they can and should be taken into account when creating training to meet the needs detected in the groups of teachers taking part in this study.

Based on this needs analysis, we can conclude that, of the 41 elements measured, only three of the training needs have been identified as high priority by the participating teachers. Of these, the first two make reference to intercultural communication and the third pertains to the action of evaluating, selecting, adapting, and using existing CLIL materials. In relation to intercultural communication, as mentioned previously, we must remember that these indicators or competencies were not identified initially by the participating teachers in the discussion group, and yet, years later, teachers from the same setting perceive them to be gaps in their training. The third demand is fairly relevant, since its

identifying element is part of the model of competencies of bilingual education teachers, as well as of the characteristics that describe effective teaching. The use of existing resources by teachers gives them more time to devote to the more important task of working directly with students, instead of having to design them.

Within the needs understood to represent a medium priority, the line of action most in demand among the participating teachers was once again methodology. Furthermore, as mentioned in the results, the teachers involved in this study feel that they need training in two of the components of language proficiency: using the foreign language to convey the contents of non-language subjects and reflecting on the language learning process. Creating bilingual environments and the ability to integrate the curriculum content of non-language subjects with language content and learning strategies are still in high demand among teachers. This requires reflection on the type of training offered to teachers and its efficacy since these bilingual education programmes were first launched in the 1990s.

Clearly, the education policies and strategies developed by Andalusia provide teachers with sufficient opportunities for continued training and professional development since they do not feel that this is an unfulfilled need or gap; in other words, this is something they do regularly. What was also particularly striking was that the group of teachers taking part in this final part of the study feel they have no training needs in relation to elements such as collaborating with the management team, taking responsibility for student outcomes, or creating and maintaining good relationships with them. In these circumstances, it would be interesting to analyse the perceptions of different parties to confirm unanimity of opinion.

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