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Use and value of music as a didactic tool in Primary School Education

Ignacio Nieto-Miguel[1], Francisco José Álvarez García[2], José D. Urchaga[2], Raquel M. Guevara[2]

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Abstract. Music has traditionally been considered to be a valuable didactic tool in the teaching-learning process of students. Minimal empirical studies have been carried out on the use and value of music as a transversal resource in the school environment. A total of 258 teachers (74.2% women and 25.8% men) working in Primary Education in the Community of Castilla y León (Spain) have participated in this research. 74.4% of the participants carry out their work in public schools and 67.1% have 10 or more years of experience. This is a descriptive cross-sectional study presented by means of a survey through an ad hoc questionnaire, in which the respondents had to reflect on the use and assessment of music in their classes. The results show that there are differences in the use of music depending on the areas in which they teach. It is very frequently used in subjects such as English, Arts and Crafts, Special Education/Hearing and Speech or Religion/Social and Civic Values, and infrequently used in Natural Sciences or Mathematics. 90% of the teachers surveyed and who have specialised musical training, make regular use of music in their classes, compared to 51% of those who have no training. 85% of the teachers surveyed consider that, in general, music is insufficiently valued at this stage. Finally, the data are discussed and the need to improve the musical training of teachers is justified, considering the usefulness and benefits that this brings about in the comprehensive training of children.
Keywords: Music; Primary Education; Didactics; Educational practices; Educational resources.

[es] Uso y valoración de la música como herramienta didáctica en Educación Primaria

Resumen. La música se ha considerado tradicionalmente como una herramienta didáctica valiosa en el proceso enseñanza-aprendizaje de los estudiantes. Son mínimos los estudios empíricos realizados sobre el uso y la valoración de la música como un recurso transversal en el ámbito escolar. En esta investigación han participado un total de 258 docentes (74,2% mujeres y 25,8% hombres) en activo de Educación Primaria de la Comunidad de Castilla y León (España). El 74,4% de los participantes desempeñan su trabajo en colegios públicos y un 67,1% tienen 10 o más años de experiencia. Se trata de un estudio descriptivo transversal presentado mediante encuesta a través de un cuestionario ad hoc en el que los docentes deben reflexionar sobre el uso y valoración de la música en sus clases. Los resultados muestran que existen diferencias en el uso de la música en función de las áreas en donde se imparte docencia; así, es muy frecuente su uso en Inglés, Plástica, Educación Especial/Audición y Lenguaje o en Religión/Valores Sociales y Cívicos, y poco frecuente en asignaturas como Ciencias de la Naturaleza o Matemáticas. El 90% de los maestros encuestados que cuentan con formación musical especializada hacen un uso habitual de la música en sus clases, frente al 51% de los que no la tienen. El 85% de los docentes encuestados considera que, en general, la música está insuficientemente valorada en la etapa. Por último, se discuten los datos y se justifica la necesidad de mejorar la formación musical de los maestros a la luz de la utilidad y beneficios que esta supone en la formación integral de los niños.
Palabras clave: Música; Educación Primaria; Didáctica; Prácticas educativas; Recursos educativos.

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[1] University of Burgos (Spain)
E-mail: inieto@ubu.es
ORCID: https://orcid.org/0000-0002-2066-6761
[2] Universidad Pontificia de Salamanca (Spain)
E-mail: fjalvarezga@upsa.es
ORCID: https://orcid.org/0000-0001-8102-5418
E-mail: jdurchagali@upsa.es
ORCID: https://orcid.org/0000-0001-6624-070X
E-mail: rmguevarain@upsa.es
ORCID: https://orcid.org/0000-0002-2615-8653

1. Introduction

1.1. Arts and music education

The relationship between the area of Arts Education [AE] and Primary Education in Spain during the last decades has caused a lot of controversy. After the progress brought about by the Organic Law in General Organisation of the Education System (LOGSE, 3 October 1990), which made the subject compulsory, the Organic Law 8/2013 (LOMCE, 9 December 2013) has led to a series of structural changes in the curriculum which have relegated Arts Education to a secondary role in the organisation of the formal education system. On the other hand, the recently approved Organic Law 3/2020 (LOMLOE, 29 December), which modifies the Organic Law 2/2006 (LOE), has once again given art education the compulsory character it had in the LOE. Even so, at the expense of its implementation and curricular concretion, LOMCE can continue to be considered the normative framework in which formal education is developed.

The LOMCE focuses its interest on "instrumental" content and allows the Autonomous Communities and the schools themselves the freedom to offer Arts Education, which is now considered a specific subject or one that can be freely configured. This circumstance has led to a "curricular dispersion", as far as Arts Education and Music Education are concerned (Belletich et al., 2016) and means that each Autonomous Community has arranged a very heterogeneous teaching load (Casanova & Serrano, 2018; López, 2018). This in fact may mean that there are some students who finish primary education without having had any contact with music education (López, 2015).

For the specific case of the Autonomous Community of Castilla y León (Spain), Decree 26/21 July 2016, which establishes the curriculum and regulates the implementation, evaluation and development of Primary Education in the that specific area, stipulates that two hours a week of AE should be taught in second, third, fifth and sixth years of primary education, as well as two hours and thirty minutes in the first and fourth years. Of the time allocated, at least one hour per week should be devoted to music.

The undervaluing of AE today has its origin in the demands of the current performance society, in its eagerness to seek the maximisation of production (Chul Han, 2017). This in turn is motivated by the neoliberal paradigm that has conditioned social dynamics in general and the educational coordinates of the western culture in recent decades. In this imperative of performance, emphasis on the quantitative, high-level rationalisation, standardisation of results, etc., AE has not found a definitive place, and its presence in the curriculum has even been questioned (Aróstegui, 2017).

In the present context of AE marginalisation, it is understandable that in recent decades there have been a multiplication of epistemological studies that defend the need to include the artistic dimension in education. From the classic *Educating Artistic Vision* (Eisner, 1972) to the more recent *Art Thinking* (Acaso & Megías, 2017), the unique contributions that art can make to education are clear. Eisner postulates the existence of two non-exclusive aspects regarding the reasons for including Arts Education in general education: the contextualist and the essentialist. The contextualist focuses primarily on the aims and content of arts education and the essentialist is based on the unique nature of art, on human experience and culture, and on the understanding that "the most valuable contribution that art can make to human experience is to contribute its implicit values and specific characteristics; art must offer to the education of man precisely what other fields cannot" (Eisner, 1995, p. 5). *Art Thinking* highlights that AE contains great intrinsic virtues such as the generation of divergent thinking, critical thinking, creativity, etc. "The arts must constitute the basis of education, […] the backbone to build the different architectures of the knowledge generation that shape contemporary educational processes" (Acaso & Megías, 2017, p. 172).

UNESCO, in its *Road Map for Arts Education* (2006), highlighted its importance and the vital role it plays in improving the quality of education, implemented in two ways that are not necessarily mutually exclusive. One in which the arts are a subject of study *per se* and artistic competences are developed, and the other in which they are used as a method in the teaching and learning process in general. The arts can thus contribute "to learning in areas that have traditionally been considered part of the general curriculum. […] Integrating the arts into the teaching of other subjects, especially at primary level, can serve to alleviate the curricular overload experienced by some schools" (UNESCO, 2006, p. 7). In some ways, this duality mirrors Eisner's earlier essentialist and contextualist approaches, and can be extrapolated to Read's (1943) postulates of an 'Education for music' in relation to an 'Education by music'.

Bresler (1996), observed four models of infiltration of music within the curriculum: a) as a vehicle for integration into the community, b) as an element of support and reinforcement in other subjects; c) as a tool for self-expression and d) as specific knowledge requiring study. For the specific case of this work, we have tried to go deeper into model b, that is, into the uses that teachers in Castilla y Leónmake of music as a didactic tool in the different subjects of the compulsory curriculum.

However, as Carrillo et al., (2017) have pointed out, although much has been written about the benefits of Music Education in general terms, there are very few studies based on empirical evidence that have been grounded in the reality of the classroom and in the use of music by teachers who are not specialists in Music Education.

1.2. Music as a teaching tool

UNESCO (2003) provides one of the few bibliographical references that deals in a panoramic way with the use of music as a didactic tool. In the study, the advantages of using song to achieve a wide range of didactic objectives and as a catalyst for social change are explored in depth, based on anthropological, social, cultural, therapeutic-educational, and emotional arguments. "The musical experience through song is a pleasurable activity but also an area that encourages discipline and the training of body and mind" (p. 30). In the same line, more recently, Muñoz (2019), López (2007) and Martín (2010) have expressed their opinion, considering song as one of the most complete and globalising tools for working on musical and extra-musical content. In general terms, it has been shown that the use of songs improves motivation (Murphey, 1990; Crookes & Schmidt, 1991; Falioni, 1993; Fonseca & García, 2010) and memorisation (Schellemberg et al., 2007).

From a more holistic perspective, Álvarez et al., (2016) defend the introduction of music as a pedagogical tool, as it develops creativity, a critical sense, and knowledge and control of emotions. Aspects that, according to the experiment carried out by Martínez & Lozano (2007) with secondary school students, have a positive impact on student performance and contribute to generating a more suitable working environment for learning. Ocaña (2020), advocates a paradigm of "learning ecologies" based on interdisciplinarity, in which music is an intrinsic part. The author also points out that there is a need for "true awareness of the formative value of music" (p. 107). Furthermore, Díaz & Moliner (2020) point to the use of music as an important resource to achieve educational and social inclusion.

From another perspective, Pérez (2012) explores the role which rhythmic activities can play in the learning of non-musical subjects based on four factors: 1) stimulation of emotions; 2) fun and well-being; 3) interdisciplinary education; and 4) relationships among peers. According to this author, "Rhythmic education provides the student with stimuli for identifying and expressing emotions, for fun and well-being, and also to foster interdisciplinary learning, while enhancing peer relationships." (p. 36).

Nevertheless, very few studies to date have dealt comprehensively with the use of music as an interdisciplinary teaching tool. The origin of this situation may be due to a lack of sufficient specific studies, which could enable the formation of a general overview in this respect.

However, in recent years there has been an increase in the number of studies that have examined the advantages of including musical teaching tools in the subjects of Foreign Language [FL] and Mathematics. In the case of the former, the starting point is the confirmation of the advantages that the use of music has in the development of pronunciation, grammatical structures and the four basic skills (reading, writing, listening and speaking), as demonstrated by Thain (2010), Toscano (2011), Kraus & Chandrasekaran (2010), Toscano-Fuentes & Fonseca (2012), Fonseca-Mora & Gómez-Domínguez (2015), among others. This research has led to more specific studies linked to the subject of FL (mainly English) in primary education, which address the issue mainly from two perspectives: a quantitative one that studies the inclusion of musical activities in textbooks (Pérez & Leganés, 2012) and a qualitative one (Leganés & Pérez, 2012) which, based on interviews with Foreign Language teachers in the Valencian Community, assesses the use of music in the classroom. Both studies have shown that the inclusion of musical activities in foreign language books is a growing trend. Similarly, almost all the teachers interviewed acknowledged that they made regular use of music in their classes. However, none of the studies explores in depth the reasons why music is considered an effective tool in the teaching-learning process and its possible direct relationship with students' academic results (beyond the motivation that working with such resources may provide for students). This latter area is addressed in the study by Fonseca-Mora et al., (2015), which shows that the use of simple and rhythmic melodies in class with 7-8 year olds improves reading skills in a foreign language.

On the other hand, the link between music and mathematics has a long history from many different approaches: physical, acoustic, etc. However, it is only recently that the synergies that may exist between the two disciplines in the educational field have begun to be addressed. They are approached from a double perspective: the first one on the effects of Music Education on mathematical learning, and the second one directly related to music as a didactic tool. The latter is based on the three volumes of *Mathe macht Musik* (Cslovjecsek, 2001/2004) which provide practical resources for the classroom, as well as in the works of An & Campraro (2011), Johnson & Edelson (2003) and Schilling (2002). In the Spanish-speaking world, despite the fact that in recent years the number of Bachelor's and Master's Degree Final Projects related to the subject has been increasing (Contreras, 2017; Diciembre, 2019, for example); and that there are numerous informal forums in which teachers themselves share their experiences and resources (e.g. the *Matemusicant* space or the *Sumado* blog), there are still very few works published on the subject in specialised journals. Among these, the journal on the teaching and learning of mathematics *SUMA* stands out, which in 2008 (no. 58) introduced the section "Musymáticas" which, coordinated by Professor Vicente Liern, regularly included articles related to music as a didactic tool in the teaching of mathematics.

Conde et al., (2011) show a way of applying music to the teaching of fractions. Burgués (2016) proposes "Singing mathematics" and even Liern et al., (2012) introduce dance as a resource for working on the discipline. Nevertheless, as Casals et al., (2014) have noted, although there is a growing interest in the didactic relations between mathematics and music, "there is a worrying lack of specific teaching proposals and materials for Primary Education in the European context in general, but especially in Spain" (p. 7).

Based on the context described above, it is necessary to undertake quantitative and panoramic research in an effort to approach the didactic reality of primary education classrooms with the following objectives: a) to study the use of music that primary education teachers use in their work in general and according to the different areas; b) to analyse the classroom dynamics of the use of music depending on the musical training of teachers; and c) to analyse the perception of teachers on the current value given to Music usic in the primary education stage.

2. Method

2.1. Procedure, design and sample

This is a descriptive cross-sectional study presented by means of a survey using an ad hoc online questionnaire. It was carried out on a voluntary basis, with informed consent to participate in the research and without any payment for collaboration in the study. The anonymity and confidentiality of the participants and of the data provided is guaranteed, and it is impossible to determine the identity of those who answer the survey as they are not identified. The research strictly complies with the ethical criteria of the Declaration of Helsinki (2013) for studies of these characteristics and has the approval of the Bioethics Committee of the University of Burgos.

Before launching the survey, eight generalist primary school teachers from the community of Castilla y León were introduced to the study. They were selected according to heterogeneous patterns, so that an equal number of professionals from public and private schools in different provinces of the region were included, as well as teachers working in schools in both provincial capitals and rural areas. Reasoned suggestions for improvement were received and are included in the final version of the questionnaire. The survey will be disseminated via email and different social networks during the months of May, June and July 2020.

The final sample is made up of 258 active primary school teachers working in schools in the region of Castilla y León (Spain). 74.2% are women (25.8% men). 74.4% of the participants work in public schools and 25.6% in state-subsidised/private schools. 67.1% have 10 or more years of teaching experience. In terms of age of the participants, the most frequent age group is 40-44 years (22.7%), followed by 50+ (22.0%), 35-39 years (18.1%), 45-49 years (15.7%), 30-34 years (13.7%) and 25-30 years (7.5%).

All teachers have a diploma/graduate University degree in primary education, and 36.5% of them have a degree in music. Of the teachers surveyed, 111 reported having no previous musical training and 147 confirmed having it.

2.2. Instrument

There were several parts to the questionnaire. The Socio-demographic questionnaire collected information on the gender and age of the teachers, the degrees studied, a university degree in Primary Education, years of teaching experience, type of centre where they currently work and musical training outside the university sphere.

Another part focused on the use of music. Two questions are proposed, one on the general use of music: "Rate from 1 to 10 the general use you make of music in your work as a teacher", with 10 response options, where 1 is "none" and 10 is "continuously", and the other on the use of music in each specific subject: "Rate from 1 to 10 the use you make of music in the subject of… There is one question for each area)", with 10 response options, where 1 is "no use" and 10 is "continuously". This question is asked for each of the subject areas taught at this stage, so that if the respondents do not teach it, they mark the option "no response".

In the part on teacher perception of the current value given to music in primary education, the question is: "What do you believe to be the current value given to music in primary education?" There are 3 possible response options: "insufficient", "adequate" or "overrated".

2.3. Analysis

The statistical analysis was carried out with the SPSS 25 programme. Descriptive data were calculated, as well as the t-test for the contrast of means, confidence intervals for the mean, Cohen's d for the effect size and Chi-square for the study of contingency tables.

3. Results

3.1. General use of music in the classroom

In the evaluation of the general use they make of music at work, teachers with musical training make greater use of it (mean = 8.72) than those with no training (mean = 6.17) (t-test; $p < .001$) (table 1).

Table 1. Average use of music in the classrooms according to training

MUSICAL TRAINING	*M*	*SD*	Levene's Test	t-test		Effect Size
			p	t	*p*	*d*
NONE	6.17	2.70	<.001	-7.82	<.001	1.19
YES	8.72	1.71				

Regarding the frequency of use of music in the classroom, it should be noted that most teachers make a *high use* of music in class (scoring this item with 7 or more) whether they have musical training or not. The data (Table 2) show that the *infrequent* use of music in class is carried out by 39% of teachers with no musical training compared to 39% of teachers with musical training. A *high use* of music is carried out by 89.9% of teachers with specialised training, as opposed to 51% of teachers without specialised training. A *very frequent* use of music in their work (9 or 10 points) is done by 64.3% of teachers with specific training and by 24.1% of those with no musical training.

These data show that the more training, the greater the use of music in the classroom, even though teachers with no musical training also use music (Table 2).

Table 2**.** General use of music in your work

MUSIC USE		TRAINING	
		NONE	*YES*
INFREQUENT	1 NONE	4.6%	
	2	8.0%	
	3	11.5%	3.1%
	4	2.3%	
	5	12.6%	3.1%
FREQUENT	6	9.2%	3.9%
HIGH	7	12.6%	8.5%
	8	14.9%	17.1%
VERY FREQUENT	9	14.9%	15.5%
CONTINUOUSLY	10 ALL THE TIME	9.2%	48.8%

3.2. Use of music in different teaching areas

Regarding the use of music in the different areas taught by the teachers, significant differences ($p< 0.05$) were found between subjects and the existence or non-existence of musical training. The difference between subjects is more important than the existence of training. Music is most used in English, Special Education, Hearing and Speech, Arts and Crafts and Physical Education (there are no significant differences between them; $p< 0.05$). The least use of music is in Mathematics, Natural Sciences and Social Sciences (Table 3).

Table 3. Use of music by area according to musical training

AREA	MUSICAL TRAINING				CI for the mean (95%)		Levene (p)	t (p)	Effect size d
		n	M	SD	LI	LS			
ENGLISH	NO	47	6.94	2.78	6.12	7.75	.004	.003**	0.64[+]
	YES	45	8.42	1.81	7.88	8.97			
ARTS AND CRAFTS	NO	52	6.13	2.64	5.40	6.87	.553	.009**	0.51[+]
	YES	59	7.42	2.44	6.79	8.06			
SPECIAL EDUCATION OR HEARING AND SPEECH	NO	19	6.05	3.39	4.42	7.69	.764	.757	0.10
	YES	17	6.41	3.52	4.60	8.22			
RELIGION / SOCIAL AND CIVIC VALUES	NO	39	5.38	2.75	4.49	6.28	.827	.021*	0.52[+]
	YES	43	6.84	2.81	5.97	7.70			
PHYSICAL EDUCATION	NO	26	5.38	3.36	4.03	6.74	.030	.021*	0.69[++]
	YES	23	7.48	2.66	6.33	8.63			
LITERATURE	NO	69	5.14	2.65	4.51	5.78	.134	.001**	0.56[+]
	YES	73	6.52	2.30	5.98	7.06			

AREA	MUSICAL TRAINING	n	M	SD	CI for the mean (95%) LI	CI for the mean (95%) LS	Levene (p)	t (p)	Effect size d
SECOND FOREIGN LANGUAGE	NO	14	4.71	3.93	2.44	6.98	.074	.062	0.53+
	YES	17	7.18	3.15	5.56	8.79			
SOCIAL SCIENCES	NO	52	4.08	2.44	3.40	4.76	.753	.010*	0.50+
	YES	60	5.30	2.46	4.66	5.94			
NATURAL SCIENCES	NO	51	4.04	2.40	3.36	4.71	.648	.008**	0.50+
	YES	67	5.22	2.34	4.65	5.79			
MATHEMATICS	NO	61	3.92	2.23	3.35	4.49	.008	.005**	0.52+
	YES	61	5.25	2.89	4.51	5.99			

Note: *p< .05; **p< .01; Effect size: + medium (± 0.50), ++ high (± 0.80).

In some subjects, teachers with musical training make significantly more use of music than those with no training. This can be observed in the subjects of English, Physical Education, Spanish Language and Literature, Social Sciences and Mathematics (Figure 1).

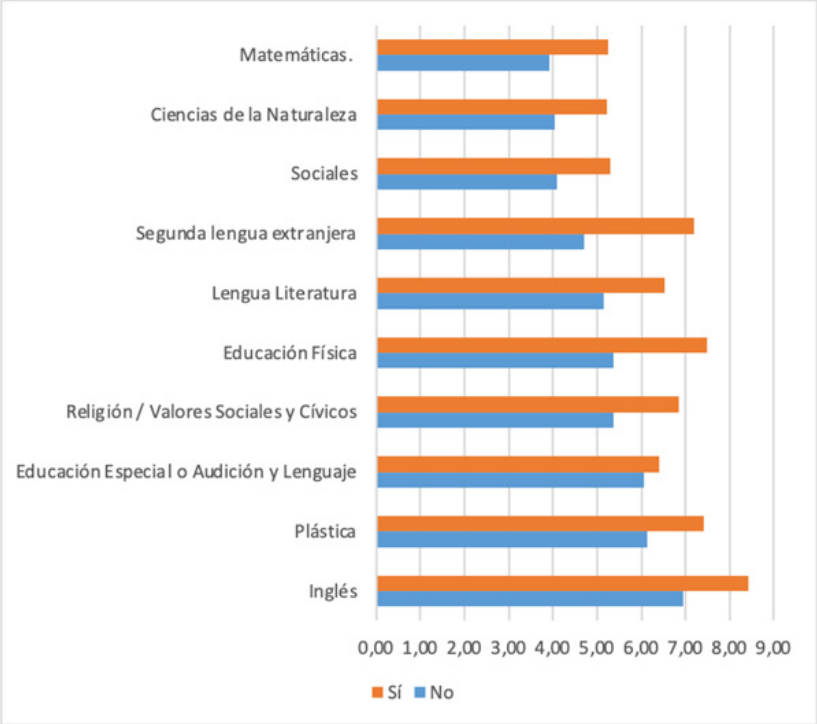

Figure 1. Use of music in different curricular areas

3.3. Perception of the current value given to music in primary education

On the question regarding the current value given to music in primary education, Table 4 shows that 85.1% think it is insufficient. There are significant differences in this question, indicating that teachers with music training consider it to be insufficiently valued to a greater extent (90.4%) compared to teachers without music training (77.8%) (Chi-square, p: .028).

Table 4. Perception of the value given to music in primary education

	MUSICAL TRAINING		Total
	NONE	YES	
INSUFFICIENT	77.8%	90.4%	85.1%
ADEQUAT E	21.1%	9.6%	14.4%
OVERRATED	1.1%		0.5%
	100%	100%	100%

4. Discussion and conclusions

With regard to the first of the established objectives: to study the use that teachers make of music in the primary school classroom, it is striking that almost three quarters of the teachers make high or very frequent use of music, half of them lacking musical training. This is a particularly relevant fact from which we can deduce the importance teachers give to the use of music as a didactic tool in the teaching-learning process. This result clashes with the scant musical training which some teachers admit to having and with the very limited training offered in the generalist Primary Education degree at the universities of Castilla y León, where musical training is limited to one compulsory six-month subject throughout the whole degree. This circumstance is paradoxical (and to a certain extent alarming) when we consider the reality of its use in the classroom described previously.

Despite their lack of musical training, teachers recognise, value and, above all, use music as a didactic tool, a fact that shows the need to open a fundamental debate on what musical training future primary school teachers should receive and on the approach and orientation it should have. Should the emphasis be placed on technical musical knowledge or on procedural knowledge? Are teachers provided with musical training appropriate to the reality of the classroom they will encounter in their future work? The implications of the possible answers open up different (but at the same time complementary) curricular itineraries in teaching studies, especially when the musical training offered by university primary degrees to future generalist teachers is so limited.

Furthermore, the analysis of the results allows us to delve deeper into the dynamics of the use of music in each of the areas of the curriculum. In this respect, it is striking that the subject which makes most use of music is Foreign Language (English), which as previously stated is in line with the large number of studies and resources published in this respect. However, the case of the subject of mathematics is striking since, despite the growing number of published studies and resources demonstrating the validity of the use of music as a teaching-learning tool, its use is minimal, both for teachers with no musical training (the data show that it is the subject in which music is used the least) and those with specific training (together with Natural Sciences, these are the areas with the least use of music). This incongruity may be due to several reasons. Firstly, there is a lack of access to or interest in published material, which is already recognised within the educational community. There is furthermore little contact between research (university) and classroom (school), a fact already recognised by Eisner (1995) when he stated, "the researcher often enters the school as a stranger" (p. 219). Secondly, the didactics of mathematics has a long tradition of research, and there are currently specific methods that are highly elaborated, widespread, and recognised within the educational community (ABN, Singapore, etc.), which do not include music as a resource. Thirdly, the field of mathematics has traditionally been linked to the rational dimension, abstract thinking, etc. of the child, which clashes with the field of expressiveness and creativity, traditionally attributed to music.

On the other hand, the results obtained show a frequent use of music in the subject of Physical Education, a significant fact given that no studies have been found that go into this fact in depth, and demonstrate that the inclusion of music responds to the experience and background of the teachers themselves, but not to scientific evidence published and recognised by the educational community. The gap between research and classroom reality is still evident in this respect.

This divergence is less evident in the case of Special Education and Hearing and Speech teachers who, whether they have specific musical training or not, recognise a frequent use of music in their sessions. In the case of these specialities, teachers have at their disposal a fairly rich scientific corpus, due to the amount of research in music therapy and monographs in specific music teaching journals.

As for the second objective -to analyse the dynamics of the use of music in the classroom according to the musical training of the teachers - something that may seem obvious a priori becomes evident. The greater the musical training of the teacher, the greater the use of music in the classroom. The results obtained leave no doubt in this respect. However, two facts are striking with regard to teachers without musical training: the first is that more than 60% of them use music regularly in their work (mainly in the areas of English, arts and crafts, special education/audition and speech and religion/civic values). This raises many questions about what kind of use they make of it and the reasons that lead them to consider it a useful teaching tool, when they themselves recognise their lack of training in this respect. A second circumstance inferred from the results is that, in general, the same priority of subjects is repeated in terms of the use of music in the classroom, both in teachers with and without musical training. This furthermore seems to reflect the existence of an intrinsic relationship between certain areas of the curriculum and music: the subject of English is the paradigm of the closest link, while mathematics (contrary to what might be deduced from the number of studies published on the subject), is the one with the least links to music.

With regard to the third objective - to analyse teachers' perception of how music is currently valued in primary education - the data obtained, both in the more specific questions and in those of a more general nature, show that most teachers feel that music is not sufficiently valued in their educational sphere. However, what is particularly relevant is that more than three quarters of teachers without specific musical training consider music to be insufficiently valued. This fact highlights the existing divergences between the legislative norm and the reality of the classroom, between the legislator and the teachers and, ultimately, between an educational model based on quantitative and productive paradigms and a more holistic and qualitative one, in line with Aróstegui (2006).

In short, this study presents a panoramic view - not addressed to date - of the use of music as a didactic tool in Primary Education in an area of Spain. The evidence has shown that music is considered a first-rate resource in the daily work of a large proportion of teachers, both by those who have specific musical training and by those who do not. However, once this fact has been demonstrated, it is necessary and urgent to undertake studies that go deeper into the specific uses of music in the classroom and the reasons that teachers have for using one type of musical tool or another, as well as to find out first-hand the training needs of teachers. As Montes-Rodríguez (2020) points out, it is necessary to work on music in teacher education, from a holistic perspective and in relation to other disciplines. This means from an ecological perspective of the knowledge needed in the professional development of teachers throughout the degree program disciplinary, experiential and practical knowledge (Ocaña, 2020).

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