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Finding solutions to promote the inclusion of children with Cerebral Palsy in Arts Education Programmes of Music: an integrative literature review using webQDA

Identificando soluções que promovam a inclusão de crianças com Paralisia Cerebral no Ensino Artístico Especializado da Música: uma revisão integrativa de literatura utilizando o webQDA

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Abstract

In order to promote the inclusion of children with Special Needs in Arts Education Programmes of Music in Portugal, an Action-Research project began in September 2018. The present work -an Integrative Literature Review- aims to identify articles related to the theme of our study, analyse what the objectives of these studies were, their methodological options and the conclusions obtained. In this way we will have an in-depth notion of the state of art, or what is already known about the inclusion of children with motor disabilities due to Cerebral Palsy in music teaching. We began by conducting a search through selected keywords in English in the search engine b-on and Google Scholar, and in the following databases: Science Direct, Scopus, ERIC, Scielo and

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Web of Science. Sixty articles related to the theme of our study were selected. All the compiled information was organised and studied by content analysis supported by the webQDA software. Among the results obtained, we found the need to invest in specialised teacher training, in curricular adaptations considering the students' potentialities and in enabling contexts and accessibility. The studies also refer the need to develop a collaborative network, that includes designers, teachers, participants, parents, therapists, researchers, etc. so that musical instruments, or digital technologies that replace them, are accessible to all and suited to their individual needs. In this way, the inclusion of people with Special Needs in Arts Education Programmes of Music will be a reality.

Keywords: Music Education; Music Learning; Cerebral Palsy; Inclusion; Assistive Technology; Integrative Literature Review.

Resumo

Com o intuito de promover a inclusão de crianças com Necessidades Especiais no Ensino Artístico Especializado da Música em Portugal, em setembro de 2018 dá-se início a um projeto de Investigação-Ação. O presente trabalho -uma Revisão Integrativa de Literatura- tem como objetivo identificar artigos relacionados com a temática do nosso estudo, analisar quais foram os objetivos destes estudos, as suas opções metodológicas e as conclusões obtidas. Pretendemos obter uma noção aprofundada do *Estado da Arte*, ou seja, do que já se sabe sobre a inclusão de crianças com deficiência motora decorrente de Paralisia Cerebral no ensino da música. Começámos por realizar uma busca através de palavras-chave, em inglês, utilizando os motores de busca b-on e Google Scholar e as Bases de dados: Science Direct, Scopus, ERIC, Scielo e Web of Science. Foram selecionados sessenta artigos relacionados com a temática do nosso estudo. Todas as informações compiladas foram organizadas e estudadas por meio de análise de conteúdo apoiada pelo software webQDA. Como resultado, verificamos a necessidade de investir na formação especializada dos docentes, nas adaptações curriculares pensando nas potencialidades dos alunos e na habilitação dos contextos e acessibilidades. Os estudos também falam da necessidade de desenvolver um trabalho em rede colaborativa que inclua designers, professores, participantes, pais, terapeutas, investigadores, etc. para que os instrumentos musicais e/ou as tecnologias digitais que os substituam, sejam acessíveis a todos e adequados às suas necessidades individuais. Desta forma, a inclusão de pessoas com Necessidades Especiais no Ensino Artístico Especializado da Música, poderá ser uma realidade.

Palavras-chave: Educação Musical; Aprendizagem da Música; Paralisia Cerebral; Inclusão; Produtos de Apoio; Revisão Integrativa de Literatura.

Resumén

Con el fin de promover la inclusión de niñas y niños con Necesidades Especiales en la Educación Artístico-Musical en Portugal, se inició en septiembre de 2018 un proyecto de Investigación-Acción. Este trabajo -una Revisión Integrativa de Literatura- pretende identificar artículos relacionados con el tema en estudio, analizar cuáles fueron los objetivos de estos estudios, sus opciones metodológicas y las conclusiones obtenidas. Pretendemos obtener una noción del estado del arte, es decir, de lo que ya se sabe sobre la inclusión de las niñas y de los niños con discapacidad motriz originada por Parálisis Cerebral en la Educación Musical. Comenzamos

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realizando una búsqueda mediante palabras-clave, en inglés, en los motores de busca b-on y Google Scholar y en las bases de datos: Science Direct, Scopus, ERIC, Scielo y Web of Science, seleccionado sesenta artículos relacionados con el tema en estudio. Toda la información recopilada se organizó y estudió mediante análisis de contenido a través del software webQDA. Como resultados, encontramos la necesidad de invertir en la formación especializada del profesorado, en las adaptaciones curriculares considerando las potencialidades de los alumnos, y en la habilitación de contextos y accesibilidades. Los estudios también hablan de la necesidad de desarrollar una red de colaboración que incluya a diseñadores, profesores, participantes, padres, terapeutas, investigadores, etc. para que los instrumentos musicales y/o las tecnologías digitales sean tanto accesibles para todos, como también se adapten a sus necesidades individuales. De este modo, la inclusión de personas con Necesidades Especiales en la Enseñanza Artístico-Musical podrá ser una realidad.

Palabras-Clave: Educación Musical; Aprendizaje de la Música; Parálisis Cerebral; Inclusión; Tecnología Asistida; Revisión Integrativa de Literatura.

Introduction and purpose of the study

In Portugal, in the year 2018, the mother of a child with motor disabilities, due to Cerebral Palsy (CP), went to an Artistic School to enrol her 7-year-old son, in the First year of the First Cycle, of the Arts Education Programmes in Music. Unfortunately, she ended giving up the enrolment, because she considered that the Artistic School did not meet the necessary conditions for her son, to be able to attend this teaching modality. This situation, according to the current legislation, should not happen, since in Portugal inclusive education, which involves Arts Education Programmes, is considered fundamental. This is regulated by the law: *Lei de Bases do Sistema Educativo* (LBSE), Lei Nº. 46/86, *Diário da República* of 14 October and by *Decretos Lei* Nº. 344/1990 of 2 November, Nº. 54/2018 and Nº. 55/2018 both of 6 July. Due to this situation, in September of that same year, an Action-Research Project began, with the aim of contributing to the inclusive education of children with Special Needs (SN) in Arts Education Programmes of Music.

In January 2019, an Initial Awareness Training was held at an Artistic School of Music (Moreno, 2019). Then, a characterisation of the child with CP, who gave rise to the study, was performed in order to know his potentialities and identify his needs (Moreno et al., 2020; Moreno et al., 2021) and, in parallel, with the purpose of knowing the good practices of teachers and the needs of children with CP, interviews were conducted with different professionals and parents of children with CP (Moreno et al., 2021). The results, gathered in the characterisation of the child with CP show his cognitive development considerably above average, the importance given to the use of Assistive Technology, the curricular adaptations through Universal Design for Learning (UDL) and the support network (people) that should exist in the Artistic Schools, so that the child under study, and all the children who need it, can have access and success, in Learning Music (Moreno et al., 2020; Moreno et al., 2021). Moreover, all the studies mentioned so far show the need to enhance the different factors existing in the contexts (environment), promoting accessibility and the use of Digital Technologies, Assistive Technologies/Assistive Products, so that access to Arts Music Learning Programmes may become for All (Moreno et al., 2020; Moreno et al., 2021).

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Considering the evidence mentioned so far, taking on ourselves as "curious teacher-researchers" (Olson, 1991, p. 13), with the present work, we intend to know, in full and with greater depth, what has already been done, at the level of the inclusion of children with SN in the teaching of music. More specifically, what were the problems that other researchers found, and wanted to answer? What did they do to respond to these problems? What was the methodology used by them? What were the results obtained? And what were the conclusions they reached in these studies?

For Amado (2017), Coll and Monereo (2010), Coutinho (2018), Fink (2020), Mendes et al. (2008) and Whittemore and Knafl (2005) the best way to fully understand what has already been done and answer our questions is in the Literature Review. Among all the existing forms of Literature Review (Fink, 2020; Mendes et al., 2008), due to the theme of our study, we decided to opt for the Integrative Literature Review (Whittemore and Knafl, 2005), because when we search for something, we do it somewhere, with some intention and in some way (Amado, 2017; Coutinho, 2018; Elliot, 1990; Olson, 1991).

We will identify and select some papers, through different pre-selected keywords, in English and in different databases, published from 2015 to 2020. We will analyse what were the objectives of the different selected studies, what were their methodological options and what were the results and conclusions reached in these studies. Thus, with these results, we will be able to have an in-depth notion of the existing State of the Art, related to the subject of study of our Research Project. With these results, we intend to obtain tools to prepare a Long-term Continuous Training, and an Intervention Programme that will help us to promote Inclusion of children with SN in Arts Education Programmes of Music. All this work will be carried out with the support of the content analysis technique, through the webQDA platform (Costa and Amado, 2018).

Once the aims of the study are defined, we will now present the literature review process undertaken.

Methodology and Outcomes

For this study, we place ourselves in an interpretative perspective, with the aim of gaining in-depth knowledge on a specific theme (Coutinho, 2018). Given the previous knowledge acquired, through the research that was conducted in previous studies (Moreno, 2019; Moreno et al., 2020; Moreno et al., 2021), we observed that there is a limited number of studies on this topic, we consider it necessary to conduct a more in-depth literature review.

Every literature review is considered as the process in which we search, analyse, and describe an information to find answers to our research questions (Carvalho et al., 2019; Coll and Monereo, 2010; Coutinho,2018; Fink, 2020). Literature, on the other hand, refers to all relevant material on the topic being considered, a situation that may include written materials, audiovisuals, social mass media, etc. (Coll and Monereo, 2010; Fink, 2020). But how can we develop a good search? And which search will be the most appropriate?

In the network society in which we find ourselves, the possibility of choosing information is conditioned to the possibilities of access to relevant information on the Internet, successfully

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facing the main challenges of a computerised, digitalised and per se information-based world (Coll and Monereo, 2010).

Research with the required rigour, "are intellectual activities that require access to the most diverse, exhaustive, accessible, and reliable informational sources, and a network like the Internet meets these expectations very well" (Coll and Monereo, 2010, p. 346). For this reason and considering the amount of information that can be found, its actuality, certainty, quality, comprehensibility and consumability (Coll and Monereo, 2010), we chose to use the internet as a fundamental tool to conduct the literature review.

Among the various literature reviews commonly used: Rapid Review; Scoping Review; Critical Review; Literature Review; Mapping Review/Systematic Mapping; Mixed Studies Review/Mixed Methods Review; Meta-Analysis; Overview; Systematic Qualitative Review/Synthesis of Qualitative Evidence; State-of-the-Art Review; Systematic Review; Systematic Search and Review; Umbrella Review and Integrative Literature Review (Fink, 2020; Mendes et al, 2008), we wanted to search for the one that best suited our study.

We considered the Integrative Literature Review method "as an approach that allows for the inclusion of diverse methodologies (i.e., experimental and non-experimental research) and has the potential to offer a major contribution in evidence-based practice" (Whittemore and Knafl, 2005, p. 547), to be the literature review method that best meets our task.

This same method will enable us: to determine the current state of knowledge, on the topic under study; combine research using different methods in different contexts, broadening the possibilities of literature analysis (Amado, 2017; Coutinho, 2018; Fink, 2020; Mendes et al., 2008; Whittemore and Knafl, 2005), and identify some existing gaps in our area of study - Inclusion of children with SN in Arts Education Programmes of Music.

Having defined the strategies for Literature Review, more specifically, the Integrative Literature Review, we will now specify the methodological processes developed. This is a process that comprises five development phases, as presented in Table 1.

Table 1. Integrative Literature Review phases

Phases	Process Steps
1	Identification of the problem, theme, or research question (previously carried out) for the elaboration of the integrative revision
2	Literature Review (Establishing criteria for inclusion and exclusion of studies/sampling or literature research)
3	Definition of information to be extracted from selected studies/ categorisation of studies
4	Evaluation of the studies included in the Integrative Review and Interpretation of Results
5	Presentation of the review/knowledge synthesis

Source: adapted from Whittemore and Knafl, 2005, p. 549

Next, we will define in detail the procedures and results achieved in the Integrative Literature Review, in each of the five phases established by Whittemore and Knafl (2005):

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Phase 1

Our objectives were: to identify articles related to the theme of our study; to analyse the objectives of these studies, their methodological options and the results achieved. With these results we intend to obtain an in-depth notion of the existing "State of Art", in order to obtain tools that will help us to promote the inclusion of children, with motor disabilities due to Cerebral Palsy, in Artistic Schools in Portugal.

Phase 2

Based on the theme of our study, and the results gathered in each of the research works already conducted (Moreno, 2019; Moreno et al., 2020; Moreno et al., 2021), we came across a series of guiding keywords that directed us in the search for information. With these words, we started by doing a search in English, Spanish and Portuguese, noting that most of the papers found in Spanish and Portuguese could also be found in English. Because of this, we decided to keep only the English language and organised these guiding keywords in four groups, by affinity. Then, with each of the keywords belonging to each of these research groups, we conducted a search in the publications from 2015 to 2020. Our decision to choose this range of years was motivated by the search for updated information, since in the area of Accessibilities, Technologies and Assistive Technologies, these quickly become obsolete. We need to be constantly updated in this area. For this purpose, we have used the search engine b-on and Google Scholar, and the following databases: Science Direct, Scopus, ERIC, Scielo and Web of Science. The search was conducted between January and March of 2021. In each group of words, we selected and eliminated the words according to the results of the search, namely:

Group 1: *Music, music education, music learning, music teaching, music teacher education, teacher music education, school music, school music programmes, music arts education programmes, teacher education, special music education, music therapy* and *music education therapy* – of these words, only "music education" and "music learning" were selected, given that the remaining words referred to works unrelated to our subject of study or referred to studies already referenced with "music education" and "music learning".

Group 2: *Inclusion, inclusive education, special education, inclusive music education, inclusive education for students with disabilities* and *inclusive education for students with cerebral palsy* – of these words, "inclusion" and "special education" were kept because the articles found with the remaining words were the same or not related to the theme of the study.

Group 3: *Cerebral Palsy, disability, physical disability, special needs* – the word "disability" was discarded because it is derived for works that do not necessarily have to do with our area of study. As a result, we established "cerebral palsy", "physical disability" and "special needs" as our search words for this group.

Group 4: *Adaptative instrumental music, adaptation instrument music, technology integration, assistive technology, music support products, accessible music* – of these words, "assistive

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technology" and "assistive devices" were kept because the articles found with the remaining words were the same or were not related to the theme of the study.

In short, the words "music education" or "music learning" and "inclusion" or "special education" and "cerebral palsy" or "physical disability" or "special needs" and "assistive technology" or "assistive devices" were our "selected keywords" for the searches in the aforementioned search engine and databases.

As a first exclusion criterion, we determined to consider only articles published in the last 6 years of research (between 2015 and 2020), with the "selected keywords". We will now present the results obtained in this literature search, per search engine, per database, and per set of "selected keywords", together with the use of inverted commas in each "selected keywords", and a Boolean operator: the term "and" (Table 2).

Table 2. Results obtained.

Keywords	b-on	Google Scholar	Science Direct	Scopus	ERIC	Scielo	Web of Science
music education, inclusion, special needs	291	2240	10	3	10	1	6
music education, inclusion, cerebral palsy	34	298	2	0	0	0	0
music education, inclusion, physical disability	38	226	2	0	2	0	0
music education, special education, special needs	237	1750	3	4	12	1	2
music education, special education, cerebral palsy	23	263	1	0	2	0	0
music education, special education, physical disability	19	150	3	0	0	0	0
music learning, inclusion, special needs	100	581	2	1	0	0	1
music learning, inclusion, cerebral palsy	6	65	0	0	0	0	0
music learning, inclusion, physical disability	8	53	1	0	0	0	0
music learning, special education, special needs	45	388	1	0	3	0	0
music learning, special education, cerebral palsy	4	57	0	0	0	0	0
music learning, special education, physical disability	6	40	1	0	0	0	0
music education, inclusion, special needs, assistive technology	19	190	2	0	0	0	0
music education, inclusion, cerebral palsy, assistive technology	6	61	0	0	0	0	0

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music education, inclusion, physical disability, assistive technology	4	45	1	0	0	0	0
music education, special education, special needs, assistive technology	22	195	1	0	0	0	0
music education, special education, cerebral palsy, assistive technology	6	65	0	0	1	0	0
music education, special education, physical disability, assistive technology	4	44	1	0	0	0	0
music education, inclusion, special needs, assistive devices	4	35	1	0	0	0	0
music education, inclusion, cerebral palsy, assistive devices	3	17	0	0	0	0	0
music education, inclusion, physical disability, assistive devices	1	11	0	0	0	0	0
music education, special education, special needs, assistive devices	4	32	0	0	0	0	0
music education, special education, cerebral palsy, assistive devices	3	14	0	0	0	0	0
music education, special education, physical disability, assistive devices	2	9	0	0	0	0	0
music learning, inclusion, special needs, assistive technology	8	60	1	0	0	0	0
music learning, inclusion, cerebral palsy, assistive technology	3	19	0	0	0	0	0
music learning, inclusion, physical disability, assistive technology	2	15	1	0	0	0	0
music learning, special education, special needs, assistive technology	7	58	1	0	0	0	0
music learning, special education, cerebral palsy, assistive technology	2	22	0	0	0	0	0
music learning, special education, physical disability, assistive technology	2	15	1	0	0	0	0

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music learning, inclusion, special needs, assistive devices	2	18	0	0	0	0	0
music learning, inclusion, cerebral palsy, assistive devices	1	6	0	0	0	0	0
music learning, inclusion, physical disability, assistive devices	0	4	0	0	0	0	0
music learning, special education, special needs, assistive devices	2	19	0	0	0	0	0
music learning, special education, cerebral palsy, assistive devices	1	4	0	0	0	0	0
music learning, special education, physical disability, assistive devices	0	3	0	0	0	0	0

Source: the authors

As can be seen in Table 2, the "selected keywords" sets that have the least results: *music education, inclusion, physical disability, assistive devices; music education, special education, physical disability, assistive devices; music learning, inclusion, cerebral palsy, assistive devices; music learning, inclusion, physical disability, assistive devices; music learning, special education, cerebral palsy, assistive devices; music learning, special education, physical disability, assistive devices.* Oppositely, the "selected keywords" sets with the most results obtained are as follows: *music education, inclusion, special needs; music education, special education, special needs; music learning, inclusion, special needs; music learning, special education, special needs; music education, inclusion, special needs, assistive technology; music education, special education, special needs, assistive technology.*

Knowing that, if we consider the breadth of the search (between the years 2015 and 2020) and furthermore do not put any other restriction, there are few works found in these areas of study (*Music Education* or *Music Learning*) as compared to other areas of study, for example *Music Therapy.*

Among the papers found, we observed that many of them were repeated both within the same platform and between platforms, such as between the search engines b-on or Google Scholar, and each one of the other databases used in this study.

Therefore, as the second exclusion criterion used in our research, it was determined: i) not to consider books, parts of books, theses, dissertations, reports, randomly published works without scientific support and online journals and webpages only with information and, ii) to exclude all repeated works, selecting in detail only those studies related to our research theme. Thus, we ended up with a total of 60 articles (see Fig. 1), which can be found in our bibliographical references.

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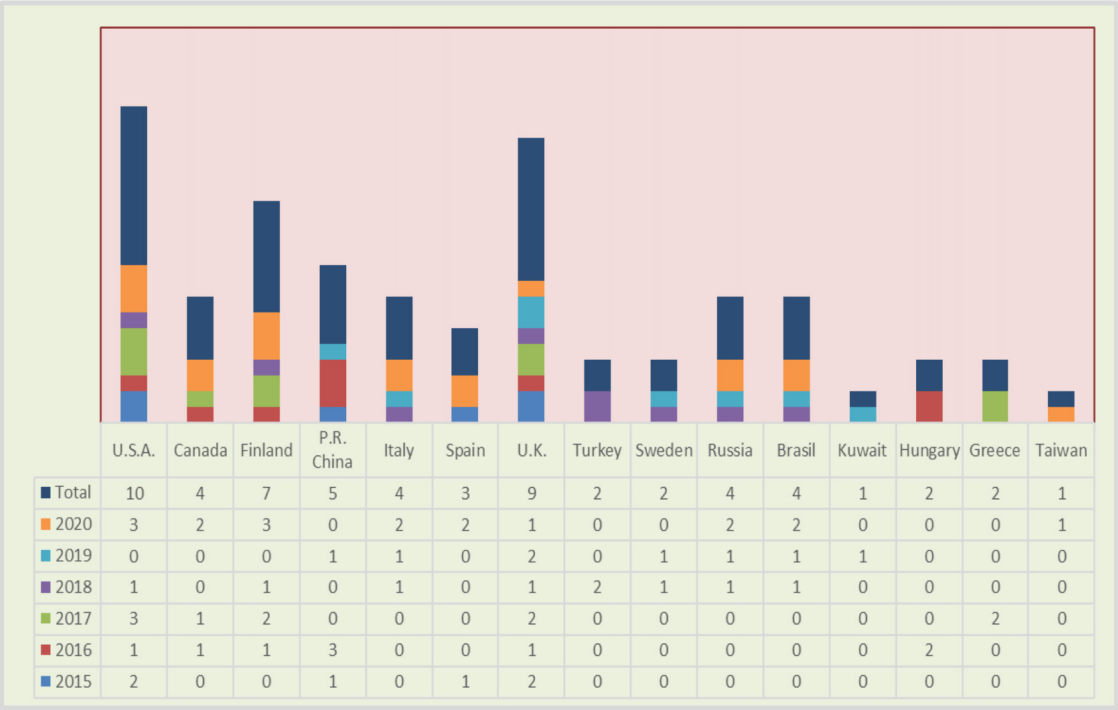

	U.S.A.	Canada	Finland	P.R. China	Italy	Spain	U.K.	Turkey	Sweden	Russia	Brasil	Kuwait	Hungary	Greece	Taiwan
Total	10	4	7	5	4	3	9	2	2	4	4	1	2	2	1
2020	3	2	3	0	2	2	1	0	0	2	2	0	0	0	1
2019	0	0	0	1	1	0	2	0	1	1	1	1	0	0	0
2018	1	0	1	0	1	0	1	2	1	1	1	0	0	0	0
2017	3	1	2	0	0	0	2	0	0	0	0	0	0	2	0
2016	1	1	1	3	0	0	1	0	0	0	0	0	2	0	0
2015	2	0	0	1	0	1	2	0	0	0	0	0	0	0	0

Fig. 1. Studies by year of publication and country

In a first analysis, the chosen articles using the “selected keywords” were related to the year of publication and the country in which the study was conducted. As shown in Fig. 1, the countries with the highest number of papers were the United State of America (USA) with 10 papers (Bugaj, 2016; Darrow and Adamek, 2018; Draper, 2020; Fuelberth and Todd, 2017; Grimsby, 2020; Jones, 2015; Laprise, 2017; Salvador, 2015; Salvador and Pasiali, 2017; Thornton and Culp, 2020); the United Kingdom (UK) with 9 papers (Anderson, 2015; Curran, 2016; Hodkinson, 2020; Matossian and Gehlhaar, 2015; Minors et al., 2017; Samuels, 2019; Searle, 2018; Ward et al., 2019; Ward et al., 2017); Finland with 7 papers (Kivijärvi and Poutiainen, 2020; Kivijärvi et al., 2017; Laes and Schmidt, 2016; Laes and Westerlund, 2018; Sutela et al., 2020a; Sutela et al., 2020b; Väkevä et al., 2017). This is followed by the People’s Republic of China (P.R. China) with 5 papers (Wong et al., 2019; Wong and Chik, 2015; Wong and Chik, 2016a; Wong and Chik 2016b; Wong et al., 2016); Canada with 4 papers (Bell, 2017; Bell et al., 2020; Grond et al., 2020; Mitchell, 2016); Russia with 4 papers (Gorbunova and Kiseleva, 2020; Gorbunova and Mikhutkina, 2020; Semenova, 2019; Tagiltseva et al., 2018); Italy with 4 papers (Amico and Ludovico, 2020; Davanzo and Avanzini, 2020; Davanzo et al., 2018; Degli Innocenti et al., 2019) and Brazil with 4 papers (Santos et al., 2020; Silva, et al., 2020; Silva et al., 2018; Souza and Sampaio, 2019). In addition, we also find Spain with 3 papers (Cano and Sanchez-Iborra, 2015; Díaz-Santamaría and Moliner, 2020; Moreno-Garcia, 2020) and Sweden with 2 papers (Frid, 2018; Frid 2019); Turkey wth 2

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papers (Altun and Eyüpoğlu, 2018; Rasmussen and Kış, 2018); Hungary with 2 papers (Tiszai, 2016a; Tiszai, 2016b) and Greece with 2 papers (Theodorou and Drigas, 2017a; Theodorou and Drigas, 2017b). Finally, we also find Kuwait (Eshaq, 2019) and Taiwan (Lee and Lin, 2020) with a work developed in each country. Moreover, we can also observe that USA, Finland, Italy, U.K, Russia and Brazil are the countries that present the most recent papers (years 2019 and 2020). We observed that in the search carried out, we did not find works developed in countries in Africa, Oceania, and Latin America.

Phase 3

Once the papers were selected, they were submitted to treatment through the content analysis technique supported by the webQDA software (Amado, 2017; Costa and Amado, 2018; Coutinho, 2018). This software enabled the organisation and systematisation of data analysis, enhancing the definition of the dimensions (Costa and Amado, 2018) necessary for the type of qualitative methodology that we used in this study. More specifically, in the Internal Sources system in webQDA, the selected articles were entered. First, a simple search for the most frequent words in the total number of articles was performed. We started by eliminating the words with less than five characters, which gave rise to a word cloud (Fig. 2). These results were used as guidelines to begin source coding, and the subsequent categorisation of the information obtained in each of the selected studies.

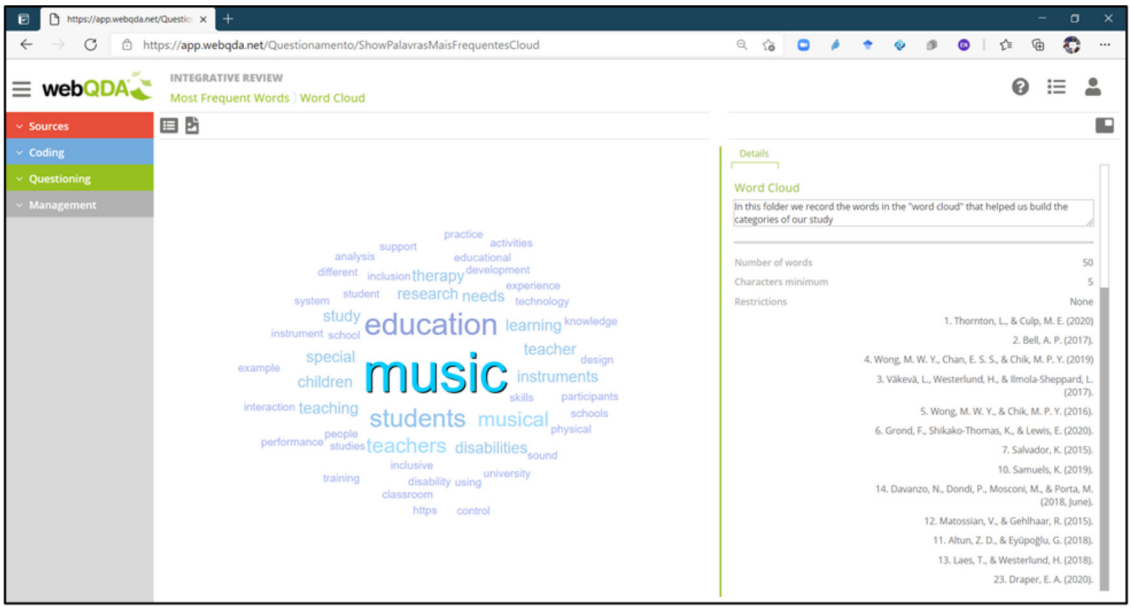

Fig. 2. Word cloud obtained through webQDA.

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Based on the results achieved in the word cloud (Fig. 2), we observed that the words music, education, students, teachers, disabilities, musical, followed by the words instruments, children, learning, research, study, therapy, teaching, disabilities, needs, special, school, inclusive, inclusion, development, training, and technology, among others, which is not surprising because this word cloud is in line with the theme of our study.

Next, using the webQDA platform and supported by the information collected in the word cloud, we began the process of content analysis and categorisation in each of the studies already compiled in the webQDA platform, with a view to investigate the following questions:

- What is the aim of the study? What is the problem that the researchers found and wanted to answer?
- What was the Methodology used? What did the researchers do to be able to study their problems?
- What were the conclusions of the studies? What were the results obtained?

Thus, an analysis and coding were performed by categories (tree codes) related to the objective of the study, the methodology used, and the conclusions reached by the different researchers in each of the selected studies. The analysis and categorisation were performed separately by two researchers who then compared their respective categories, reaching an agreement on the final categorisation. With these categories or tree codes, a hierarchical system of connection between the codes was organised, giving rise to a tree of categories (see Fig. 3).

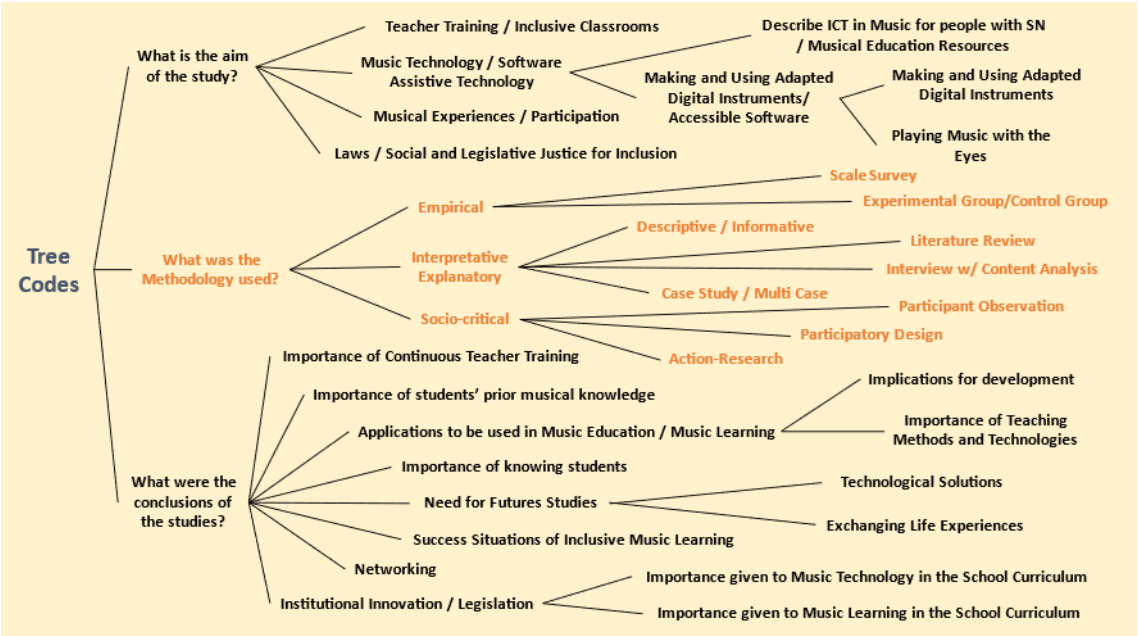

Fig. 3. Categories obtained through webQDA software.

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As can be seen in Fig. 3, we inductively assigned a theoretical position as an answer to the questions posed. We will then go on to interpret the results achieved in the studies compiled in our research.

Phase 4

As we can see in Fig. 3, in relation to the objectives of the studies - *What is the aim of the study?* The categories *Teacher Training/Inclusive Classrooms*, *Musical Experiences/Participation*, *Laws/Social and Legislative Justice for Inclusion* and *Music Technology/Software Assistive Technology*, the latter subdivided by the categories *Describe Information and Communication Technology (ICT) in Music for people with SN/Musical Education Resources and Making and Using Adapted Digital Instrument/ Accessible Software*. This whole set of categories refers us to the concern on the part of researchers regarding teacher training in inclusive classes, for experiences carried out within the scope of music education. Moreover, for a concern regarding legislation and social justice around the issue of inclusion. It is worth noting the objective related to Technologies and Assistive Technologies linked to music, describing, demonstrating, and experimenting with both software adaptations and adaptations of instruments and technologies. The accessibility of and to "instruments" thus seems to be a major concern.

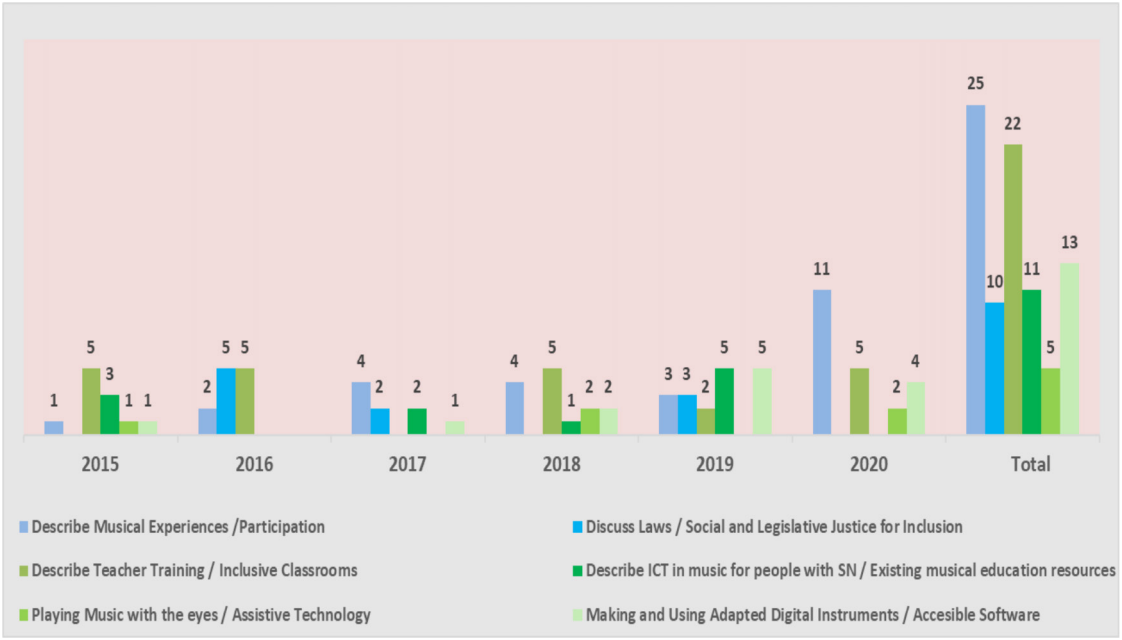

Fig. 4. What is the aim of the study? Categories obtained through webQDA software.

As a result of the matrix, crossing the categories between objectives and the years in which the studies were conducted, we can observe in Fig. 4, that overall, *Describe Musical*

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Experiences/Participation is the category with the highest incidence followed by *Describe Teacher Training/Inclusive Classrooms*. It should be noted that *Describe Musical Experiences/ Participation* is also the category with the highest incidence in the year 2020, which may mean a growing interest in describing music teaching situations that promote the work of Inclusion or Participation of people with SN. The *Describe Teacher Training/Inclusive Classroom* category has been constant over the last six years. The categories *Making and Using Adapted Digital Instruments/Accessible Software*, *Describe ICT in music for people with SN/Existing musical education resources*, and *Discuss Laws/Social and Legislative Justice for Inclusion,* are similar in their frequency. In other words, in the last six years there also seems to have been a concern regarding the need to publicise new resources, new technological adaptations, and new software that can be used in *music education, for people with SN and/or in inclusive environments*. We highlight the category *Playing Music with the eyes/Assistive Technology,* for being specifically related to our study (i.e., Moreno et al., 2020; Moreno et al., 2021).

When we asked *what was the Methodology used?* and we observe Fig. 3 we can interpret that the articles which used experimental methodologies (with control and experimental groups), referred us to a more positivist and empiricist paradigm. On the other hand, the papers that referred us to case studies, were associated with an interpretative paradigm. Moreover, literature reviews and informative/descriptive articles constitute one third of the studies using this paradigm (14 studies). We can also denote that the works which implied a more collaborative logic and related to actual practice were associated with a socio-critical paradigm, although only one with our research methodology (Action-Research). It is possible to find different papers with different Methodologies since, as Whittemore and Knafl (2005, p. 547) explain, “the Integrative Literature Review has the potential to offer a great contribution in evidence-based practice, being an approach that allows the inclusion of several methodologies (i. e., experimental and non-experimental research)”. This can be seen in more detail in Fig. 5.

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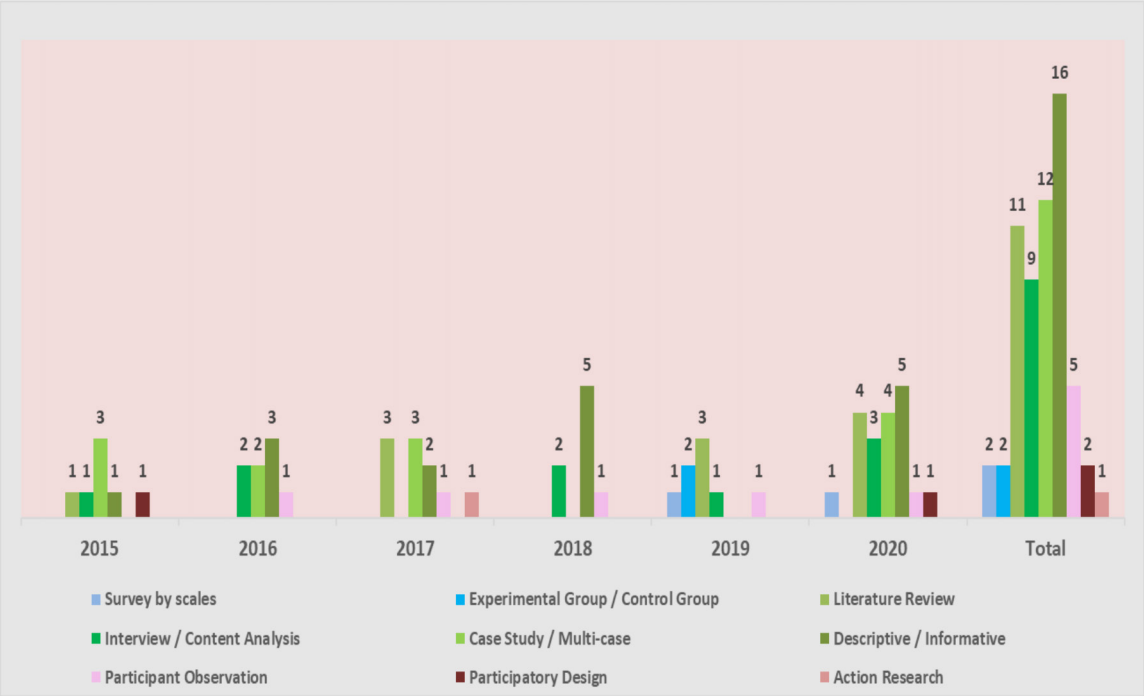

Fig. 5. What was the Methodology used? Categories obtained through webQDA software.

If we observe the graph from the analysis of the matrix between the categories referring to the conclusions, and the years in which the studies were conducted (Fig. 5), we can see that the methodology of the works compiled and categorised as *Descriptive/Informative* are those with the highest incidence, mainly in the years 2018 and 2020, followed by the categories *Case Study/Multi-case* and *Literature Review*, which are distributed between the years 2017, 2019 and 2020. We can also notice that the category *Action-Research* has only one study associated and that is from the year 2017.

Finally, when asked *what were the conclusions of the studies?* When we observe the categories of Fig. 6, we can perceive that *Applications to be used in Music Education*, *Importance of Continuous Teacher Training,* and *Implications for development/Importance of teaching methods and technologies* are the ones that appear with greater incidence in the total of the studied works. These categories are followed by success situations including *Music Learning*, *Networking*, *Importance given to Music Learning in the Curriculum*, *Need for future studies*, *Exchanging Life Experiences and Institutional Innovation/Legislation*, categories that help us to understand the need that exists among researchers to study the best possible ways, to promote the participation and inclusion of people with SN in *Music Learning*.

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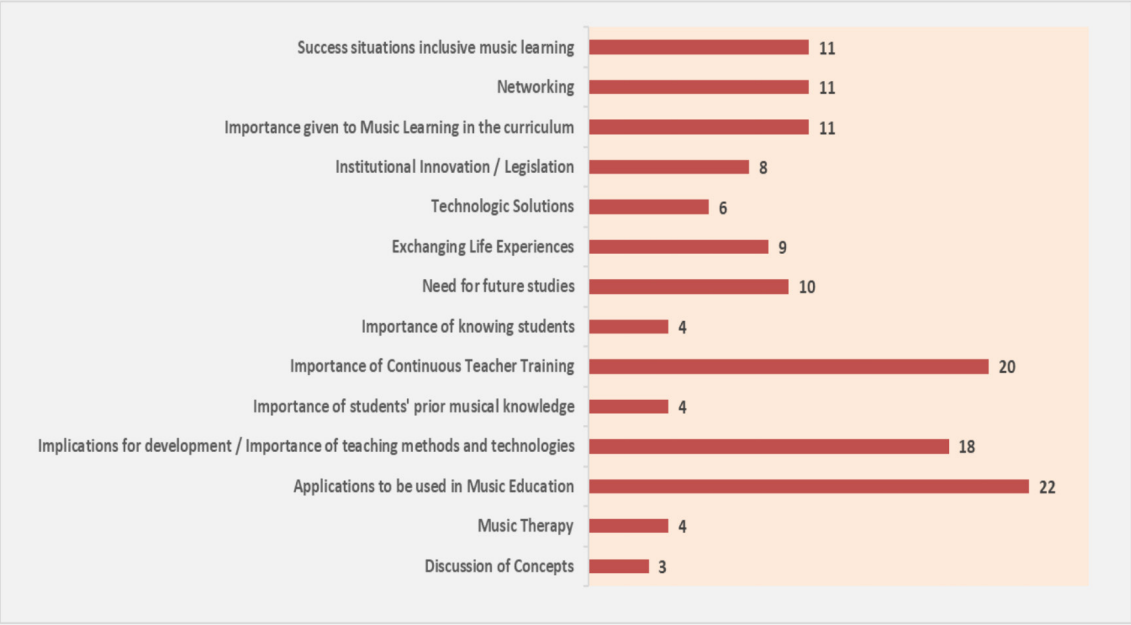

Fig. 6. What were the conclusions of the studies?
Categories obtained through webQDA software.

Making a comprehensive analysis of the categories listed, we can say that the conclusions of the studies refer to: the description of possible applications to be used in music education, particularly in situations of inclusion; Implications evidenced in the development of learners, the Importance of teaching methods and technologies used in student development. They also highlight the importance of previous knowledge of the needs of students by teachers, and their characteristics (characterise the children with whom they are going to work); they focus on the importance of the exchange of experiences between the students themselves and the sharing of life story experiences. They point out the need to study more technological solutions, including the emerging Accessible Digital Music Instruments (ADMI); the need for institutional and legislative innovation, to think critically about the necessary changes in the contexts; the importance that should be given to music in the curriculum, the need for and importance of networking (designers, teachers, participants, therapists, parents, researchers, etc.). They also underline the great importance, and urgent need for training for music teachers, to promote the inclusion of children with SN in their classes. The need to carry out future studies, and the need to make known more successful situations of pupils with SN, in music education in inclusive classes, is also one of the conclusions. Finally, the category *Music Therapy* appears also as a conclusion: the researchers alert to the need to differentiate this concept - *Music Therapy* - from the *Music Education* and *Music Learning* concepts. They highlight that in the literature these concepts are often confused.

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Phase 5

With the results reached in the analyses performed, we can observe the following:

(i) taking into account the interval of years of the research (2015-2020) and the number of searches carried out, we consider that there is a reduced number of studies related to our theme (sixty studies);

(ii) there are few empirical studies, which is not surprising, since we are dealing with educational contexts and most of the selected studies, within the scope of our theme, use a methodology inserted in an interpretative paradigm (i.e., Fig. 5);

(iii) there is a growing interest in describing situations of music learning, which promote the work of inclusion and/or participation of people with SN, in addition to situations which involve the training of teachers. There is a concern regarding the need to make known new resources, new technological adaptations, new assistive technologies, and new software, possible to use in music education with people with SN and/or in inclusive environments;

(iv) there is also a need to promote the realisation of more studies focused on successful situations in inclusive classes in music education. As limitations of our study, we may consider that we did not exhaust the type of keywords to be used in our search. This may be related to the fact that we did not find studies from other countries (i.e., Phase 2 and Fig. 1), which also points to the need for further studies.

Final reflections

The use of the webQDA software was an excellent methodological support as a tool to ground the content analysis technique. In addition to facilitating data categorisation, it allowed questioning the possible relationship between them. Thus, our major objective of conducting an Integrative Literature Review was fully achieved. The content analysis of the information compiled through the selected articles allowed us to better understand which steps to take in our Action-Research. That is, we found, according to the information that we analyse, and consider relevant (i.e., Fig. 3 and Fig. 6) that it is essential to invest in the training of teachers, in the teaching of music for inclusion, raising awareness of the need to know the characteristics and needs of children to be included; to promote curricular adaptations, thinking of the potential of students and enabling contexts; to trigger the necessary accessibility. Another important aspect will be to provide knowledge about existing and emerging technologies (i.e., ADMI), and resources for inclusive music learning. This is without forgetting the building of a network of support professionals who foster problem solving, in addition to the introduction of adapted musical instruments, new technologies and new teaching techniques that are accessible to all and suited to individual needs. Thus, it will make possible a full participation of students with SN, namely with motor disability due to CP, in the Arts Education Programmes of Music. This will be the path to follow.

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