
Music Education from the Perspective of the Cognitive and Communicative Dimensions as Components of the Integral Formation of Secondary School Students: A Documentary Analysis

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ABSTRACT

Music education is recognized as a key component in the comprehensive development of secondary school students, as it enhances cognitive and communicative dimensions while fostering socio-emotional skills in educational contexts. This study examines the impact of music education on the development of socio-communicative and cognitive skills in secondary school students, aiming to identify the implications and benefits of music as a pedagogical tool. Using a qualitative approach with a bibliographic design, sources, and curricular documents were reviewed to explore the relationship between music education and students' holistic development. The findings reveal that music education not only promotes emotional expression and inclusion in the classroom but also that sensory-perceptual stimulation through music contributes to holistic learning, enhancing competencies and critical thinking skills. Integrating music into the school curriculum is essential for developing socio-emotional skills and socio-cognitive competencies that are crucial for academic success, supporting a well-rounded education.

Keywords: *music, cognitive, communicative, holistic learning, curriculum*

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La Educación Musical Una Perspectiva de las Dimensiones Cognitiva y Comunicativa como Componentes de la Formación Integral de Estudiantes de Básica Secundaria: Un Análisis Documental

ABSTRACT

La educación musical se reconoce como un componente clave en la formación integral de los estudiantes de básica secundaria, ya que potencia las dimensiones cognitivas y comunicativas y favorece el desarrollo de competencias socioemocionales en el contexto educativo. Este estudio analiza el impacto de la educación musical en el desarrollo de habilidades sociocomunicativas y cognitivas en estudiantes de básica secundaria, con el fin de identificar las implicaciones y beneficios de la música como herramienta pedagógica. A través de un enfoque cualitativo con diseño bibliográfico, se revisaron fuentes bibliográficas y documentos curriculares que examinan la relación entre la educación musical y la formación integral de los estudiantes. Los hallazgos revelan que la educación musical no solo fomenta la expresión emocional y la inclusión en el aula, sino que también la estimulación sensorio-perceptual que brinda contribuye a un aprendizaje holístico, potenciando competencias y pensamiento crítico en los estudiantes. Integrar la música en el currículo escolar resulta fundamental para promover habilidades socioemocionales y competencias sociocognitivas esenciales para el éxito académico, consolidando una formación integral.

Palabras clave: *música, cognitiva, comunicativa, aprendizaje holístico, currículo*

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INTRODUCTION

Music education in students constitutes a field of knowledge that significantly impacts the processes of interaction and communication, favoring the development of communicative skills that cover multiple aspects of human life, such as the regulation of emotions, moods and the management of feelings. As mentioned by (Ballesteros-Agámez, 2020), music in education generates positive effects on the learning of children and adolescents, by contributing to cognitive development and psychophysiological aspects, which are linked to the activation of the left hemisphere of the brain, related to language, logic and communication skills (Marsimian, 2023).

Learning through music strengthens memory, particularly the evocation of memories, known as emotional musical memory, which is related to phoneme recognition. This type of memory facilitates communication by stimulating different areas of the brain that increase creativity. Music education in students constitutes a field of knowledge that has proven to have a significant impact on the processes of interaction and communication, by supporting the development and strengthening of communicative skills. These skills are expressed in diverse human actions, such as the regulation of emotions, moods and the management of feelings. As mentioned by (Angeles, 2023), music in the educational environment produces positive effects on the learning of children and adolescents, by contributing to cognitive and psychophysiological development. These effects are linked to the activation of the left hemisphere of the brain, associated with language, logic and communication skills (Faubel, 2019).

As indicated by (Moya-Pérez et al., 2024), the development of musical activities, such as playing instruments or singing, offers benefits associated with improved self-esteem, the attainment of personal goals and achievements, which are constructively related to social validation. These benefits promote higher levels of sociability and cooperation, integrating

empathy and fostering greater phonological awareness. This process contributes significantly to the development of cognitive and communicative skills, with a positive impact on students' teaching and learning processes (Dietrich & Zakka, 2023).

The integral development of students through musical education favors the consolidation of life skills, which are fundamental for their impact on learning processes and personal growth (Gross, 2023). The influence of music on the cognitive and communicative dimensions, through its interrelation, contributes to an integral and holistic education. This perspective integrates curricular aspects and allows addressing the student's training in its entirety (Pérez-Eizaguirre, 2018).

The cognitive dimension involves the execution of mental processes oriented to the acquisition and application of knowledge. This dimension is strengthened through the promotion of skills that require the collaboration of higher processes such as memory, attention and reasoning (Chen et al., 2020). These elements contribute significantly to learning processes, in which it has been identified that musical practice acts as a catalyst of cognitive functions. In this way, music facilitates the consolidation of learning and enriches the integral formation of students (Marsimian, 2023).

Similarly, the communicative dimension encompasses the development of interpersonal skills focused on the ability to express ideas and on fostering creativity through communication (Avilés-Estrada, 2023). This dimension is strengthened through cooperative work, promoted in the musical activities carried out in the classroom. Such activities foster relational aspects such as empathy, active listening and the development of skills that, in turn, reinforce the educational, social and cultural spheres, key elements in comprehensive training (Faubel, 2019).

Music, as part of the integral formation in the curricula, promotes a transversality of life skills, which generates positive effects in students, such as improved academic performance,

increased logical reasoning capacity and the promotion of creativity (Rosen et al., 2020). In addition, it enhances the visuospatial and mathematical fields, favoring the understanding, explanation and analysis of problematic situations through a constructivist epistemological approach (Martín & Jiménez, 2020). This approach supports psychic development through the organization of cognitive schemes, which generates an active learning process in which students develop, and articulate strategies linked to the educational challenges of the 21st century (Botella et al., 2018).

Current educational trends promote an integral and harmonious formation of individuals through the integration of cultural, environmental, contextual and academic aspects, which contribute to the expression of values. From the curricular point of view, it is essential to consider the globalization of education, which promotes the development of transversal skills and abilities throughout academic life (Troya-González et al., 2023). This approach strengthens educational trends articulated from curricular models focused on a solid and competitive education. In this way, citizens are formed who integrate learning processes in the social, cultural, technological, artistic and academic spheres, contributing to the transformation of society (Marín-Liébaña et al., 2021).

Music education contributes to the integral development of the individual, highlighting its importance in the learning process. This discipline is considered a tool that favors the development of cognitive skills and abilities (Li, 2021). Musical educational models, which impact various aspects of education, are aligned with quality guidelines and propose a clear implementation within the curricular processes, focused on artistic and didactic activities that promote the impact of music on learning (Sungurtekin, 2021). From the teaching perspective, it seeks to develop skills and enhance abilities that contribute significantly to an education that values the arts and music, considered as means that favor the formation and well-being of students from a holistic perspective in the classroom (Díaz-Abraham & Juste, 2019).

The processes of knowledge acquisition that include musical training in a transversal manner contribute to the sensory-perceptual development of individuals, strengthening the human dimension through “learning to learn” in educational experiences that contribute to comprehensive training. This approach promotes an awareness focused on cognitive and communicative competencies developed through music (Hogle, 2021). It also enhances learning skills and abilities that benefit personal well-being and the individual's prospects in society, by fostering human relationships, the appropriation of knowledge and the different human manifestations generated through cognitive experiences that enrich education from the curricular plans (Shek & Lee, 2024).

The importance of the justification of this work presents an analysis of the main findings reported from the area of music education that addresses the artistic component in an integral way interrelating the cognitive and communicative dimensions in which it contributes to the strengthening of the development of skills in which attention, memory and problem solving are strengthened as part of the development of skills that are enhanced through music. As mentioned by Moya-Pérez et al., (2024), the transversalization of curricular aspects through music education fosters the expression of ideas and emotions that potentiate critical thinking in students (Sungurtekin, 2021).

Thus, the work from the creative promotion of the cognitive dimension is potentiated in the context of music, offering evidence that allows inclusion processes in the development of soft skills in the student population, which is essential according to the challenges of education in the XXI century (Del Barrio-Aranda et al., 2022). Likewise, the communicative dimension is important in the development of the integration of linguistic skills, which is conducive to the development of learning strategies that serve as a highly effective resource in the integration of skills for comprehensive training.

Emphasizing the need to adapt the curricular plans from the acquisition of scientific

knowledge and from the formation in the emotional and social development that is presented in the students. Providing in this way, a solid base that is articulated in the improvement of the educational programs and the indicators of integral formation that lead to high quality learning processes (Dietrich & Zakka, 2023).

The findings described in this manuscript recognize the value of music education and the incidence in the cognitive and communicative dimensions in which the element that is fundamental in the educational development that favors the aspects of inclusion by favoring integral formation is based (Hogle, 2021). Taking as a starting point that music within its main advantages presents an easy adaptation and integration in different areas of knowledge, which favors the teaching-learning processes through the development of skills that establish links between the different forms of knowledge acquisition and the development of emotions, thus highlighting the importance in the implementation of curricular plans at different educational levels especially in children and adolescents due to the evolutionary cycle through which they go through constant changes both cognitive and psycho-emotional and communicative (Faubel, 2019).

The objective of this documentary analysis was to review and synthesize the main contributions of music education and its effects on the cognitive and communicative dimensions, identifying its integration in the integral formation of young people. In this way, it contributes to an updated knowledge that highlights the importance of music education. The relevance of this analysis lies in the need to recognize the contributions of curricular processes in the current challenges of educational training, providing a comprehensive perspective that emphasizes the strengthening of curricular plans through the incorporation of current educational components.

MATERIALS AND METHODS

The study developed is qualitative in approach, through a documentary review, following an analytical-synthetic paradigm. This approach is based on the collection, selection and evaluation of information obtained from documentations that contribute to the generation of new knowledge. The data collected come from primary sources, which offer a comprehensive view of the topic addressed in a systematic way, allowing the identification of the main contributions in the field of study (Pérez & Rodríguez, 2017). It is important to note that the analytical-synthetic process performs a detailed interpretation and synthesis of the information, generating a new document that consolidates the contributions made by the research analyzed (Martínez-Corona et al., 2023).

The sample consisted of 50 research-derived documents. For the selection of these documents, inclusion and exclusion criteria were applied. Regarding the inclusion criteria, scientific articles published under peer review in indexed journals were selected. (Schenke & Pérez, 2019) Research reports based on meta-analysis, published in Spanish and English in the last five years, which included empirical data, relevant theories or proposed approaches, were also considered. We excluded bachelor's and master's theses and gray literature reports prior to 2019, as well as those studies that did not present methodology or were not available in full text.

The justification for the selection of 50 scientific articles from the documentary review technique is especially important in the field of application of education, focusing on the communicative and cognitive dimensions. It covers the research advances in the subject and is justified by the need to obtain a wide range of information with the main results and research reports that contribute to the representativeness from the different theoretical and practical perspectives that have been reported and documented from the contributions of the scientific literature.

In this way, a complete analysis was favored that includes a holistic vision from music education in the promotion of the development of integral processes in students. In this way, the review of the 50 scientific articles validates the importance that is currently presented in the research processes of music education, providing a solid theoretical framework that supports and contributes to future research.

Procedure

First, four academic databases were selected: Scopus, Clarivate WoS, EBSCOhost and Google Scholar. Next, keywords were formulated that, combined together, facilitated the search for information. The keywords included “music education and cognitive dimensions”, “music education and communicative dimensions”, “comprehensive education, music education and high school students” and “cognition, students, comprehensive education and music education”. The search strategies employed and the combinations of keywords used were recorded. Subsequently, the criteria for inclusion and exclusion of the documents were established, thus refining the selection of scientific literature.

The selection of the documents was carried out by means of an initial filtering that consisted of reading the titles and abstracts. Subsequently, the full texts were evaluated and acceptance or rejection decisions were recorded, according to the inclusion and exclusion criteria. Next, an information collection template was created in which the data were classified according to the following criteria: main authors, methodology, results and main contributions. This allowed a thematic analysis of the information extracted through categories of analysis. The evaluation of the quality of the documents was carried out through an analysis of the relevance of the content in educational studies, considering the methodological quality of each research report. Finally, the qualitative analysis of the results was carried out, taking into account the quality and thematic relevance of the scientific literature.

The thematic coding was carried out considering the information by means of the elements

of the inclusion and exclusion criteria that considered the articles presented in the research results, established by means of methodological relevance, year of publication, objective, methodological rigor, which served to filter the studies. In this sense, the relevant categories of analysis were defined, which served as a supply for the elaboration of the analysis matrix.

Analysis of variables

Cognitive dimension and musical training

The positive impact of the cognitive dimension indicates that musical practice favors academic performance and success, as evidenced by various research in the area. It should be noted that aspects related to memory are strengthened through the performance of musical activities in the school context (Jácome-Sotomayor et al., 2023). Musical practice contributes significantly to the development of memory through association, repetition and visualization activities. These practices suggest that musical exercises promote the use of valuable mnemonic strategies for learning, which improves students' ability to retain and remember information, thus enhancing the comprehensive development of their skills (Cuervo & Ordoñez, 2021).

The development of cognitive skills is transversal beyond the academic spaces of the classroom, because the research developed as mentioned (Barrios-Montes, 2023) indicates that the development of brain functions linked to memory work, lead to a concentration of individuals focusing their attention, which allows them to follow the rhythm, strengthen motor coordination, strengthen auditory perception. These exercises contribute to an improvement in information management and brain processing, promoting greater cognitive agility that directly impacts the learning processes involved in this way an analytical understanding of abstract concepts (Vargas-Hermosillo, 2023).

The activation of brain areas through music contributes to the development of transferable skills that benefit academic processes (Jiménez-Díaz & Esperilla-García, 2019).

Demonstrating that musical training potentiates specific skills in students and strengthens cognitive abilities due to the development of social and collaborative environments that foster communication and cooperation through dynamic learning that contributes to the interaction and exchange of ideas favoring the comprehensive training of learners (Ortega-Orozco & Orozco-Calderón, 2019).

Communicative dimension and musical education

The communicative dimension within the aspects related to musical training helps the expression of emotions and sensations, which leads to students being able to understand and reflect on their feelings, thoughts and ideas that are staged through music by means of their experiences (Troya-González et al., 2023). It should be noted that improving these aspects directly impacts the learning process by improving academic and personal aspects. The incorporation of music in the curricular plans has evidenced that from the communicative dimension students report better listening skills, increase participation in activities, a greater coordination correspondence is presented through sound or gestural signals that reinforce teamwork leading to different forms of expression that improves the capacity for multidimensional communication where emotional, bodily and verbal expressions are combined (Gamboa-Suárez, 2017).

Transmitting the development of individual expressions within the framework of the communicative dimension has indicated that students who interpret or use an instrument, this helps them to generate an emotional bond that leads to the expression of feelings, which is favorable in educational contexts given the characteristics of the stage of development in which they find themselves.

At the same time, self-confidence and self-esteem are strengthened, which is a personal indicator that improves the capacity to strengthen the development of interpersonal skills that strengthen the learning processes in an integral manner. Research reported by (Ocampo-

Gómez et al., 2019) indicates that students who use musical activities in the development of their learning strategies and tools tend to present a greater capacity for attentive listening, improve comprehension and increase language production, enhance linguistic skills and global understanding in various fields of knowledge (Dietrich & Zakka, 2023).

RESULTS

The results of the documentary analysis of music education from the cognitive and communicative dimensions are presented, revealing a comprehensive reflective understanding of the impact and importance of music in academic and personal development. The studies analyzed indicate that from a cognitive and communicative perspective, learning processes contribute to a better stimulation of memory, attention and critical thinking, contributing to the development of socioemotional skills. The documentary review identified that the integration of music in the curricular aspects fosters cooperation, teamwork and empathy, which are fundamental aspects in the formative processes of young people (Solórzano-Mero et al., 2024) in line with the educational challenges of the 21st century, as shown in Table 1 below:

Table 1 Documentary Matrix

NO.	Reference apa	Objective of the Study	Method and sample	Dimensions Assessed	Key Findings	Methodological Quality	Country
1	(Troya-González et al., 2023)	Focused on describing the implications of music education that contribute to the development of students' socio-communicative skills	Qualitative documentary with bibliographic design, with literature review and analysis. Does not specify number or particular group	Communicative	Music education improves socio-communicative skills and expression of ideas, thoughts and feelings, promoting inclusion	Half	Ecuador
2	(Del_Barrio-Aranda et al., 2022)	To analyze the creativity process available in the primary education curriculum in order to understand the appropriate musical didactic orientation as a transversal competence in educati.	Qualitative documentary review with analysis and comparison of musical curricula. Curricular documents of Primary Education related to musical creativity.	Cognitive	The teaching of musical creativity can favor the development of autonomy, comprehension and musical expression of the students.	High	Spain
3	(García & Bernabé, 2019)	Analyze students' expectations about the necessary competencies of teachers in the musical field for the stimulation of critical capacity	Qualitative methodology with narrative technique approach through experiences and perceptions. 115 pedagogical narratives of students of the Degree of Early Childhood Education.	cognitive	The musical element is a complement in the development of curricular activities recognizing its importance as a stimulating tool.	High	Spain

4	(Aranda et al., 2023)	Analyze students' expectations about the necessary competencies of teachers in the musical field for the stimulation of critical capacity	Qualitative Ethnographic type of practice, analysis and discussion of competencies. The number of participants is not specified	Cognitive	The importance of multidimensional training contributes to the development of competencies and critical capacity.	High	Spain
5	(Marín-Liévana et al., 2021)	To formulate a critical music education based on critical education principles, establishing paradigmatic, curricular and didactic parameters that guide this practice.	Qualitative bibliographic review. The sample consists of 97 academic works that address critical education.	Communicative	Establishment of paradigmatic, didactic and curricular parameters that focus on critical music education emphasizing the recognition of cultural diversities.	High	Spain
6	(Puetate, 2022)	To provide a guide of musical strategies to mediate language development.	Qualitative of descriptive type through three phases (diagnosis, design and validation of the guide). Sample Not specified..	Communicative	The importance of developing a guide to enhance language development through curricular adjustments and innovation of didactic strategies was identified	High	Ecuador
7	(Faubel, 2019)	Analyze the application of educational praxis through the exploration and comparison of research results.	Qualitative analytical and concept exploration. Sample Not specified as it is a conceptual analysis.	Cognitive	Challenges of the implementation of the application of praxis in the context of music education contributing to educational development	Half	Spain

8	(Solórzano-Mero et al., 2024)	To analyze music as a didactic strategy in the learning of writing of boys and girls of General Basic Education in Ecuador, from a documentary perspective.	Qualitative documentary type with review of bibliographic sources and literature. The text does not specify a specific sample	Communicative	Music education as a teaching-learning strategy develops primary and motor skills that contribute to the transformation of teaching practice.	Half	Ecuador
9	(Carioti et al., 2019)	To evaluate longitudinally the impact of intensive musical training on cognitive and visuomotor functions of high school students.	Quantitative by longitudinal design with group comparison. The sample consisted of 128 students	Cognitive	The curricula that transversalize music education showed better performance of cognitive skills positively valuing previous musical experiences	High	England
10	(Cai & Liu, 2022)	Exploring the psychological aspects of the influence of music associated with innovative teaching methods.	Mixed, Qualitative literature review and quantitative in the application of questionnaires. The sample consists of 180 students.	Cognitive	A music curriculum based on deep learning could stimulate students' interest and that more attention should be paid to the psychological state of students in music education.	High	China
11	(Buitrago-Ocampo, 2021)	To establish the relationship between the representations of the deaf population in the city of Manizales with respect to music.	The study is developed under a qualitative approach, using the technique of collecting social representations. Sample 42 people associated	Communicative	The relationship between music and identity in deaf people contributes to the transversalization of sign language as a form of communication.	High	Colombia

12	(Lippolis et al., 2022)	To assess the impact of musical training, specifically instrumental training integrated into the public high school curriculum in Italy, on the behavioral and cognitive development of preadolescents.	Quantitative with application of test batteries measuring visuospatial working memory skills, fluid intelligence, and music-related perceptual and memory skills. The sample consisted of 285 children.	Cognitive	Significant differences were identified in the students who worked with a curriculum with music education contributions in perceptual and cognitive domains, showing better performance in visuospatial working memory and fluid intelligence.	High	Italy
13	(Li, 2021)	To explore and reform the way instrumental music is taught in normal universities, in order to train qualified talents for the teaching of this discipline.	Qualitative of descriptive type. Sample Not specified	Cognitive	The teaching systems that incorporate music serve as a reference to establish systematic and standardized processes that contribute to cognitive development.	High	Taiwan
14	(Concina, 2019)	To discuss the importance of metacognition in music performance, focusing on its impact on music students' learning and educational implications	Qualitative Review of recent literature on metacognition in music performance. The text does not specify a specific sample	Cognitive	The importance of metacognitive competencies facilitates self-regulation in learning processes by generating strategies that improve their learning experience..	High	England

15	(Navarro-Mateu et al., 2021)	To analyze the inclusion of music in the curriculum and its contribution to an inclusive approach that enhances learning.	Qualitative through analysis and discussion groups including life stories. Sample of 357 students	Cognitive	The promotion of learning activities has shown that students with specific educational needs refer positively when music is incorporated as a learning resource.	High	Australia
16	(Schiavio et al., 2023)	To identify an induction on music education, under creative elements in the environment	Qualitative of theoretical type. No specific sample is identified	Communicative	Creative processes and music facilitate adaptive processes by involving innovative aspects in the communicative dimensions	High	Germany
17	(Gutiérrez-Guevara & Ibáñez-Bernal, 2022)	To analyze the effects of the performance of individuals under the incidence of music in the curricular plans where a better performance of these was identified.	Quantitative of experimental type in 5 sessions. Sample 12 students through pre and post sessions	Cognitive	The importance of learning processes under the development of competencies that were transversalized from music is highlighted	High	México
18	(Sungurtekin, 2021)	Analyze perspectives on the development of imagination and creativity in music education.	Qualitative with phenomenological approach in understanding experiences and perceptions. Sample Not specified in number of participants	Cognitive	Imagination and creativity are essential to enhance students' learning abilities and adjustments in the music curriculum are needed	High	Turkey

19	(Howe & Baumgartner, 2024)	The impact of music on the learning of skills and competencies to acquire new knowledge and languages is explored.	Qualitative, literature review type. Sample n=30	Communicative	Cognitive effects include the influence of music on memory and cultural understanding. memory and cultural understanding. This fosters the creation of experiences with experiential learning paradigms	High	United States
20	(Dillon, 2023)	To analyze project-based learning and its implementation in musical processes with emphasis on students.	Qualitative Theoretical and analytical. Not specified concretely	Cognitive	Priority is given to a student-centered approach, through a set of practices centered on the musical model that promotes meaningful learning.	High	United States
21	(Suaza-Atencio, 2020)	To identify the theoretical elements on learning methods under social interactions, music and communication	Qualitative descriptive phenomenological type. Sample not reported.	Communicative	Music-mediated learning strategies consider the connection between affective, cognitive and social interactions in learning	High	Colombia
22	(Nijs et al., 2024)	To analyze the use of the body in music as an element favoring creativity.	Qualitative Theoretical and analytical. Sample Not specified	Communicative	Body movement is key to foster creativity and enhance learning through a holistic approach.	High	Luxembourg

23	(Guhn et al., 2020)	To analyze participation, musical performance, and level of engagement) with academic performance taking into account cultural factors.	Quantitative by analyzing educational records at the population level of 4 cohorts of students. Sample (n = 112,916) from grades 7 to 12.	Cognitive	The relationship between music and academic performance is positive, highlighting that instrumental music education refers greater benefits in academic impact.	High	Canadá
24	(Roynel Soledispa-Castro & Miladi Zambrano-Loor, 2021)	To analyze the development of skills through singing and its incidence in the curriculum	Qualitative-quantitative, exploratory, descriptive and bibliographic. Sample Not specified	Cognitive	The importance of singing in music education contributes to the development and integral formation of students, generating positive impacts on them..	High	Ecuador
25	(Fernández, 2021)	To analyze music as an element that favors conflict resolution in the classroom, promoting integral growth.	Qualitative of phenomenological type. Sample Not specified	Communicative	The transversalization of singing in curricular activities favors integral education and fosters critical thinking, self-esteem and communication performance.	High	Spain
26	(Meza & Herrera, 2020)	To enhance language development in students through the implementation of a musical guide during the school year 2020 - 2021	Quantitative, with a quasi-experimental design and a type of explanatory research. The sample was composed of 22 students of the third year.	Communicative	The design and application of musical guides as a methodological strategy favors the development of grammar and increases vocabulary.	High	Ecuador

27	(Tulenbayeva et al., 2024)	To study the development of cognitive activity and self-education with musical orientation.	Qualitative analytical and literature review. The text does not mention a specific sample of participants	Communicative	The process of self-education allows the active development of individuality in students through autodidactic methods.	High	Kazakhstan
28	(Hou et al., 2023)	To corroborate the influence of musical training in relation to Gestalt principles.	Quantitative A comparative study. Sample Three groups does not specify the exact number of participants in each group.	Cognitive	Students with musical training scored significantly better on the gestalt visual closure subtest compared to those with musical training	High	United States
29	(Müllensiefen et al., 2022)	To document the study of students' musical development in relation to the development of musical skills, intelligence, and cognitive development	Qualitative literature review and data analysis. The sample consisted of three children	Cognitive	The results suggest that high intelligence and good working memory skills can promote significant growth in later musical development.	High	Germany
30	(Pimentel-Aguilar & Ramírez-González, 2024)	To identify the factors that favor or hinder the consolidation of music education in rural children.	Qualitative Participant and anecdotal observation was used. The initial sample included 26 children (18 boys and 8 girls).	Communicative	Gender and cultural characteristics negatively affect the musical education of girls and favor boys by replicating private and public spaces.	High	México
31	(Hao et al., 2024)	To investigate the benefits of rhythmic musical intervention and its impact on cognitive function and mood.	Qualitative through action and participatory research technique. Sample 22 participants	Cognitive	It was identified that through music the participants showed better cognitive prognoses and memory speed.	High	China

32	(Gürsel-Artıktay, 2024)	To investigate the benefits of rhythmic musical intervention and its impact on cognitive function and mood.	Qualitative theoretical review. Sample Not reported	Cognitive	One of the main findings is the brain's ability to create stronger neural connections through repetition and deliberate practice, which explains the principle of “neuroplasticity” in musical learning.	High	Turkey
33	(Shek & Lee, 2024)	To investigate the effects of music therapy on cognitive development and learning difficulties using neuroimaging techniques.	Qualitative with multimodal approach	Cognitive	To investigate how music therapy can improve aspects such as attention, memory, language processing, emotional regulation and social communication.	High	United States
34	(Krevel et al., 2024)	Analyze the musical objectives according to the taxonomy of learning domains (cognitive, affective and psychomotor).	Qualitative documentary analysis. Sample 97 plans for music classes.	Cognitive	A predominance of the cognitive domain attributed to the nature of teaching was identified identifying a need for a balanced approach	High	Slovenia
35	(Mazur et al., 2022)	To determine the incidence of musical thinking on the cognitive dimension and individual psychological capacities.	Quantitative descriptive Sample n=75	of type. Cognitive	Students' musical thinking is based on advanced abilities, especially the sense of ensemble and emotional response to music	High	Ukraine

36	(Li et al., 2023)	To analyze the effects of training on metacognition and learning processes.	Quantitative experimental design. Sample n=84	with cognitive	Music training significantly improved metacognitive abilities with increased willingness for self-directed learning	High	China
37	(Román-Caballero et al., 2022)	To investigate the impact of early training programs in learning musical instruments on the cognitive skills and academic performance of children and adolescents.	Quantitative meta-analysis: Sample n=34	Communicative	Music programs in curricula were identified as having benefits related to cognitive skills	High	Spain
38	(Fernández-García, 2023)	To promote the use of musical resources to facilitate the development of Intercultural Communicative Competence (ICC) through a Multi-literacy pedagogy	Qualitative bibliographic Sample n =50	type: Communicative	Students' socioemotional resources coupled with music report an increase in communicative skills through a multi-literacies pedagogy..	High	Spain
39	(Smit & Rathcke, 2024)	To analyze the incidence of (in)sensitivity to prosody, emotional intelligence, autistic traits and musical training.	Qualitative through phenomenological analysis. Sample n=41	Communicative	Sentence complexity influences on speech transformation through music and prosody sensitivity	High	Germany

40	(Assaneo et al., 2024)	To analyze the effect of musical training on cognitive skills and academic performance.	Qualitative of phenomenological type. Sample Not specified	Cognitive	The positive impact of music on academic processes presents a perspective of improvement of cognitive skills emphasizing a balanced perspective	High	México
41	(Onwuegbuna & Uduak, 2024)	To evaluate the importance of music education in the integration of the curriculum and its impact on the formation of students.	Qualitative Documentary analysis of curricular plans. Sample Not specified	Cognitive	The promotion of music education requires highly qualified teachers who have an effective impact on the development of skills and cognitive experiences.	Half	Nigeria
42	(Vidulin & Kazić, 2021)	To identify the incidence of cognitive-emotional musical hearing in the auditory training classes and appreciation of classical music in students.	Qualitative documentary analysis. No specific sample is mentioned in the text	Communicative	The fostering of emotional experience contributes in the impact of student learning due to the effects that are presented and report better satisfactory results.	High	Croatia
43	(Hong, 2024)	To evaluate the benefits of music education for children with language skills by identifying the impact on curricular plans.	Qualitative with analytical approach. Sample Not specified	communicative	Music has a significant impact on phonological awareness, improving language skills increasing the benefits of music education	High	United States

44	(Del_Barrio-Aranda et al., 2022)	To analyze the approach to creativity in the Primary Education curriculum of the Spanish educational system through the transversalization of music.	Qualitative and comparative documentary review. Sample n = 18 curricula	Comunicative	The promotion of creative skills through music influences the development of understanding, methodologies and the educational process.	High	Spain
45	(Milencovici, 2022)	To identify the musical competencies of the students in relation to the integration of learning.	Qualitative With semi-structured interview techniques. Sample n= 19	Comunicative	It is pointed out that music education should be integrated in the different learning situations in order to contribute to the development of skills and competencies.	Media	Romania
46	(Addaquay, 2024)	To analyze the integration of music education and critical thinking in interdisciplinary education processes.	Qualitative method with a case study design, which included document analysis, semi-structured interviews and classroom observations. Sample N= 13 . 4 teachers 6 students and 3 moderators	Cognitive	The promotion of critical thinking through creative techniques integrates phenomenology, semiotics and cultural theory are adequate for a flexible and inclusive curriculum.	Half	Ghana

47	(Yu, 2023)	Analyze the connection between creativity and musical training for the promotion of soft skills.	Qualitative using holistic approach including case studies. Sample Not specified	Cognitive	Music practice fosters key soft skills, such as problem solving, communication and teamwork, by stimulating flexible thinking processes and collaboration..	High	South Korea
48	(Davidson, 2024)	To analyze the theoretical contributions from the perspective of music, specifically in solfeggio techniques.	Qualitative Documentary and analytical. Sample Not specified	Communicative	The practical implications of music in curricular plans promote a sense of self through an integrative approach.	High	England
49	(Pastor Prada et al., 2022)	To identify the perception and understanding of initial training with education through dance.	Quantitative descriptive and correlational. Sample 309 teachers (198 women and 107 men).	Communicative	Educational dance brings benefits related to didactic training and self-perception processes	High	Spain
50	(Arriaga-Sanz et al., 2020)	To identify the relationship between pedagogical thinking and the formative curriculum through music.	Qualitative Documentary analysis. Sample Not specified	Communicative	Experiential activities foster understanding and self-knowledge which is key to improving educational performance.	High	Spain

DISCUSSION

Music education, approached from the communicative and cognitive dimensions, has been recognized as a tool that favors the integral development of students. Research reported by (Davidson, 2024) points out that its impact on individuals in basic secondary education stimulates a diversity of mental functions, among which memory and attention stand out (Vidulin & Kazić, 2021). In line with the studies of (Mazur et al., 2022), creativity has also been identified as a factor that, when integrated with musical learning, contributes to the strengthening of socioemotional skills. This combination translates into better learning outcomes when incorporated in a cross-cutting manner in the curriculum, fostering an integral formation that is fundamental for academic success (Milencovici, 2022).

The research analyzed underlines that the aspects of comprehensive training in the educational approach seek to enhance and develop the skills of individuals in all their dimensions: cognitive, emotional, physical, psychological and social as indicated by (Fernández-García, 2023). These contributions are of great relevance within the educational framework, since students not only acquire knowledge, but also strengthen skills that facilitate better adaptation and a more focused approach to learning aspects (Hou et al., 2023). This approach contributes significantly to articulate the cognitive and communicative dimensions, which allows a deeper integration in the educational process and in the integral development of students (Suaza-Atencio, 2020).

In addition, and as mentioned by (Krevel et al., 2024), from the cognitive dimension, music education promotes the management and stimulation of various mental skills, which are fundamental elements of learning. The studies reported by (Tulenbayeva et al., 2024) coincide in pointing out that participation in musical activities or the use of instruments favors attentional processes, optimizes memory and improves the ability to concentrate. These skills, when integrated into the music education curriculum, enrich learning

environments and strengthen academic competencies in different fields of application (Li, 2021). It is essential to highlight that an adequate integration of music in the formative processes not only enriches academic learning, but also fosters essential interpersonal skills for life (Panchi et al., 2021).

On the other hand, the findings reported by (Buitrago-Ocampo, 2021) in the communicative dimension indicate that music education allows students to improve the expression of their thoughts and emotions. As stated by (Angeles, 2023), since music is a universal language that transcends borders and cultural, linguistic and social barriers, it facilitates the connection between individuals. From an educational point of view, this aspect fosters the development of essential skills, such as empathy, active listening and cooperative work, promoting healthy relationships that stimulate diverse learning styles among young people. The contributions of (Faubel, 2019) underline the importance for educational institutions to recognize and integrate the transversalization of curricula to face the challenges of 21st century education.

The relational dynamics generated from music education processes foster inclusive spaces in educational environments, in which all students participate actively and contribute to the development of skills. As indicated by (Pastor Prada et al., 2022), this approach promotes social and emotional development, facilitating the increase of self-esteem, self-confidence and positive self-perception, which enriches the educational experience. Given these benefits, the existing discrepancies in educational processes require, as pointed out by (Marín-Liévana et al., 2021), an investment in both human and material resources to implement effective methodologies in the training of educators and students, thus improving pedagogical aspects and maximizing the positive impact of music education on the integral development of learners (Sungurtekin, 2021).

From the documentary analysis, it is observed that current curricula still present a predominant tendency towards traditional education. However, these have been gradually

updated, placing music as a key tool for comprehensive education and suggesting processes of curricular integration and adaptation that improve different areas of knowledge. The findings evidence, as mentioned by (Meza & Herrera, 2020), that the transversalization of didactic and pedagogical activities that include music enriches both personal and academic formation. Likewise, as stated by (Benítez et al., 2021), this approach enhances creativity and socioemotional skills, which contributes to the fact that learning under the paradigm of music education promotes a systematic curricular inclusion.

The studies analyzed by (Martín & Jiménez, 2020), reveal that music education promotes inclusive and healthy environments in educational processes, which facilitates the expression of ideas, feelings and emotions. In this line, (Troya-González et al., 2023) highlights that the increase in sociocommunicative skills among students facilitates greater interaction and communication, which highlights the importance of integrating music within curricular plans. This inclusion is presented as a relevant factor in fostering the social and emotional development of young people. Teaching based on creativity also favors the autonomy of individuals and contributes to the development of critical competencies. These studies reported by (Arriaga-Sanz et al., 2020), support the importance of music education as a transversal component that enriches the academic training of learners (Dietrich & Zakka, 2023).

Finally, music education stands out as an effective strategy to foster learning processes, as evidenced in the analysis conducted. The transformative pedagogical approaches introduced in this context bring an innovative educational dynamism that responds to the challenges of current education (Kalenderidis, 2020). Thus, the essential components in the cognitive and communicative development of students strengthen comprehensive training, addressing the diverse needs of learners in an educational environment in line with the challenges of the 21st century.

CONCLUSIONS

Music education, from a multidimensional perspective, is presented as a fundamental tool for the integral formation of students. Through the documentary analysis carried out from a reflective posture, it became evident that the contributions to the development and strengthening of cognitive and communicative skills also impact emotional expression, empathy and collaboration, among other aspects. This allows students to strengthen their socioemotional skills, which are essential in educational processes to achieve academic success (Ángeles, 2023).

On the other hand, the findings indicate that, from the cognitive dimension, the processes of music education cover various areas of knowledge through brain stimulation that benefits the articulated work of attention, memory, logical reasoning and executive functions. By incorporating music in curricular plans through active pedagogies, evidence shows that students not only enjoy the activities proposed, but also participate more actively in the learning process, which strengthens neural networks and promotes deeper and more meaningful learning. This contributes to improve academic processes, facilitating abstraction and understanding of concepts when music is integrated into the curriculum (Fernández, 2021).

One of the most outstanding aspects in the findings is the positive impact of musical practice on students through notes, rhythms, melodies and lyrics, as it promotes a more solid information retention process, which strengthens academic performance (Buitrago-Moreno, 2019). The sustained attention required by musical practice contributes to effective learning, since curricular activities involving music foster in students analytical processes that can be applied in problem solving and in the understanding of scientific theories. In addition, these activities stimulate critical and creative thinking skills, highly valued in today's globalized context and essential for 21st century education (Gürsel-Artıktay, 2024).

From the communicative dimension, music education contributes significantly to social development, since music uses a universal language shared by all individuals, which fosters social interaction and allows young people to experience new interpersonal connections (Avilés-Estrada, 2023). Through the development of musical practices, students reinforce the construction of their personal and cultural identity, which in turn enhances values such as listening, respect and valuing others by participating in cooperative activities. This aspect is vital in the formation of young people, as it contributes to their personal and social development, strengthening their identity and promoting self-confidence as part of a holistic growth.

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