

A Review of the Development of Musical Skills in Students

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ABSTRACT: The aim of this study is to examine the literature on the development of musical skills in students from a holistic perspective, revealing the cognitive, affective, and psychomotor dimensions of musical skills and the main factors influencing this process.

The study was conducted in accordance with the basic reporting principles recommended for systematic reviews. The selected researches were evaluated based on the developmental dimensions of musical skills, and the findings were summarized thematically.

It shows that the development of musical skills has a multidimensional structure. In the cognitive dimension, it is emphasized that music education supports attention, memory, and executive functions; in the psychomotor dimension, instrumental and vocal studies strengthen motor coordination and timing skills; and in the affective dimension, attitude and motivation are decisive in skill development. In addition, family support, teacher competence, and the quality of the school environment significantly affect musical development.

In conclusion, music education is a fundamental area that supports the holistic development of students, and it is recommended that it be structured in a high-quality manner from an early age.

Keywords: Musical Skills, Musical Development, Music Education

INTRODUCTION

Music is one of the fundamental art disciplines that simultaneously affects an individual's cognitive, affective, and psychomotor development. In the context of education, music is considered not only an aesthetic form of expression or an artistic activity, but also a multifaceted tool that supports learning processes, strengthens cognitive functions, and contributes to psychosocial development. Findings indicating that systematic music education, especially during childhood and adolescence, has positive effects on fundamental developmental areas such as attention, memory, problem-solving, and emotional regulation are increasingly common in recent years ([Hallam, 2010](#); [Schellenberg, 2011](#)).

Students' musical skills are shaped within a developmental process from early childhood, and this process is formed as a result of the interaction between individual characteristics and environmental factors. In the literature, musical skill is defined as a multidimensional structure encompassing numerous components such as rhythm perception, melody discrimination, tonal memory, auditory attention, vocal and instrumental performance, musical expression, and creativity ([Gordon, 1997](#); [McPherson & Welch, 2018](#)). In this respect, musical skills are considered a complex developmental area that is not limited to performance-based outcomes but integrates with perceptual, cognitive, and affective processes.

The development of musical skills cannot be explained solely by the individual's innate predispositions; it is significantly influenced by factors such as quality educational environments, teacher guidance, family support, and the socio-cultural context in which they are situated. [Gordon \(1997\)](#) emphasizes that musical aptitude

becomes apparent at an early age, but the development of this potential largely depends on environmental stimuli and educational experiences. Similarly, [Hallam \(2010\)](#) states that regular and structured music education supports students' musical skills as well as their general learning capacity.

Recent empirical research has placed particular emphasis on the relationships between musical skills and academic and cognitive outcomes. [Schellenberg \(2004\)](#) revealed that students who received music education showed a significant increase in their cognitive performance and academic success; while [Habibi et al. \(2018\)](#) demonstrated that music education had positive effects on executive functions and attention processes. However, various studies have reported that participation in musical activities supports students' psychological well-being, self-confidence, and social adjustment ([Rickard et al., 2013](#)).

However, a significant portion of these studies in the literature focus on specific age groups, individual musical skill dimensions, or specific educational models. It is noteworthy that comprehensive review studies that address the development of musical skills in students together with their cognitive, affective, and psychomotor dimensions, and synthesize different research findings, are limited. This situation increases the need for a holistic evaluation of existing information and for systematic reviews that will guide educational practices.

In this context, the aim of this study is to examine the development of musical skills in students. It aims to reveal the developmental processes of musical skills, the individual and environmental factors affecting this process, and the educational implications of music education with a holistic approach.

MATERIALS AND METHODS

This study was prepared as a review to bring together research conducted on the development of musical skills in students. The basic reporting principles recommended for systematic reviews were followed in the study ([Page et al., 2021](#)). The literature search was conducted in academic databases. The keywords musical skills, musical development, music education, and students were used in the search process. The study examined studies published in peer-reviewed journals and whose sample consisted of student groups. The selected studies were evaluated considering the developmental dimensions of musical skills (cognitive, affective, and psychomotor), and the findings were summarized under common themes.

FINDINGS

The studies examined within the scope of this work reveal that the development of musical skills in students is a multidimensional process closely related to developmental and environmental factors. Findings in the literature show that musical skills are concentrated around cognitive, affective, and psychomotor dimensions, and that these dimensions develop in interaction with each other.

Findings Regarding the Cognitive Dimension of Musical Skills

A significant portion of the research examined reveals that musical skills are closely related to cognitive development. In particular, musical skills such as rhythm perception, melody discrimination, and tonal memory have been reported to have positive effects on attention, memory, and executive functions. Findings have been reported that students who receive music education exhibit higher attention span and improved auditory memory performance compared to their peers who do not receive music education ([Schellenberg, 2004](#); [Habibi et al., 2018](#)).

Some studies indicate that regular music education is also significantly related to academic success. These studies show that music education provides indirect contributions, especially in the areas of mathematics and language skills. Findings obtained in the cognitive dimension reveal that musical skills not only produce music-specific outputs but also support general learning processes ([Schellenberg, 2011](#)).

Findings Related to the Psychomotor Dimension

Studies focusing on psychomotor musical skills show that instrumental and vocal studies have significant effects on motor coordination, timing, and bodily awareness. It has been reported that hand-eye-ear coordination improves, fine motor skills are strengthened, and motor learning processes are accelerated during the instrument playing process ([Zatorre et al., 2007](#)).

It is emphasized that music education, especially that started at an early age, has long-term effects on the permanence of motor skills and performance accuracy. The studies examined show that musical performance skills are not limited only to technical proficiency; they exhibit a holistic structure in which bodily control, rhythmic harmony, and coordination develop together.

Findings Related to the Affective Dimension

Studies in the literature reveal that affective factors play a decisive role in the development of musical skills. Students' attitudes towards music, motivation levels, and self-confidence directly affect the musical

learning process. It has been reported that students who develop a positive attitude towards music participate more willingly in musical activities and develop their skills faster (Hallam, 2015).

Furthermore, there are findings indicating that music education supports students' emotional expression skills and psychological well-being. Participation in musical activities is stated to reduce stress levels, strengthen social interaction, and increase the sense of belonging (Rickard et al., 2013). These findings show that the development of musical skills is not only a technical process but also an emotional and social one.

Findings Regarding Developmental Processes

The studies examined reveal that musical skills develop at different rates and in different ways depending on age. While rhythm and sound awareness come to the forefront in early childhood, basic musical concepts and performance skills develop in primary school. It is reported that musical identity, expression, and interpretation skills become more pronounced during adolescence (Gordon, 1997; McPherson & Welch, 2018).

However, it is emphasized that individual differences are decisive in musical development. Previous musical experiences, feedback provided during the learning process, and students' personal interest levels significantly affect the development process of musical skills.

Findings Regarding Environmental and Educational Factors

As a result of the literature review, it is seen that family, school, and teacher factors play a critical role in the development of musical skills. The family's relationship with music supports students' participation and continuity in musical activities. In addition, it is stated that qualified teacher guidance and structured music lessons positively affect the development of musical skills (Hallam, 2010).

It is emphasized that variables such as physical facilities offered in the school environment, lesson time duration, and program content also have an effect on musical development. These findings show that the development of musical skills depends not only on individual effort but also on the quality of the educational environment.

DISCUSSION

The findings of this study reveal that the development of musical skills in students is not a one-dimensional process; rather, it exhibits a multidimensional structure where cognitive, affective, and psychomotor domains interact with each other. The studies examined show that musical skills are not limited to artistic performance alone, but also play a decisive role in students' general learning processes and psychosocial development.

The findings regarding the cognitive dimension are consistent with previous research highlighting the effects of music education on attention, memory, and executive functions. In particular, it is stated that rhythm and melody-based studies support skills such as auditory discrimination and cognitive flexibility (Bergman Nutley et al., 2014). This suggests that the development of musical skills is not only a gain limited to music lessons, but also indirectly strengthens students' general academic learning capacity. Indeed, Miendlarzewska and Trost (2014), drawing attention to the effects of music education on brain plasticity, state that musical experiences gained at an early age can support cognitive development in the long term.

Findings from the psychomotor dimension reveal that musical skills are closely related to bodily coordination and motor learning processes. The findings that instrumental playing and vocal performance processes support the development of timing, rhythmic harmony, and fine motor skills are consistent with motor learning theories (Ericsson et al., 1993). In this context, musical performance can be considered not only a technical skill but also a complex learning area involving repetition, feedback, and self-regulation processes. McPherson and Zimmerman (2011) emphasize that music education strengthens self-regulation skills in students and that these skills are decisive in performance success.

Findings related to the affective dimension show that motivation, attitude, and emotional involvement play a critical role in the development of musical skills. Students developing positive attitudes towards music increases their active participation in the learning process and accelerates skill development. This finding supports Hidi and Renninger's (2006) interest development model. It is stated that voluntary and willing participation in musical activities strengthens both the continuity of learning and the self-confidence of students. Furthermore, findings suggesting that music contributes to emotional expression and stress management processes support the relationship between music education and psychological well-being (MacDonald et al., 2012).

From a developmental perspective, it is observed that musical skills follow a different course depending on age. While basic rhythmic and auditory awareness are prominent in early childhood, musical expression, interpretation, and identity development become more prominent in later years. These findings are consistent with theoretical frameworks advocating developmental music education approaches (Ilari, 2018). It is stated that music becomes an important tool for individual identity formation and social belonging, especially during adolescence.

Findings regarding environmental and educational factors clearly show that the development of musical skills cannot be explained solely by individual abilities. Family support, teacher competence, and school environment are among the key variables that determine the direction and speed of musical development. Creech and Hallam (2011) emphasize that family and teacher support plays a critical role in students' continuity in music education and skill development. Similarly, Welch and Ockelford (2016) state that quality teaching environments are indispensable for the sustainable development of musical skills. When evaluated in the Turkish context, it is observed that the number of studies on the development of musical skills is limited and mostly remains at a descriptive level. The lack of longitudinal research and comparative studies covering different age groups is particularly noteworthy. This situation highlights the need to strengthen the position of music education within the education system and support it with scientific research.

CONCLUSION

In conclusion, the study reveals that the development of musical skills in students is a multidimensional process related to cognitive, affective, and psychomotor domains. The literature reviewed shows that musical skills should be evaluated not only as technical competencies specific to the field of music, but also as a structure that supports students' general learning processes and psychosocial development. The findings reveal that regular and high-quality music education has positive effects on attention, memory, and executive functions; instrumental and vocal studies support motor coordination and bodily awareness. Furthermore, it is seen that students' attitudes and motivation towards music are decisive in the development of musical skills, and participation in musical activities supports psychological well-being. When evaluated from a developmental perspective, it is understood that supporting musical skills from an early age provides lasting gains; and that this process is significantly influenced by educational and environmental factors such as family, teachers, and school environment. In this context, it is recommended that music education be considered as a fundamental educational area that supports the holistic development of students and that it be qualitatively strengthened in educational programs.

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