



Future Teachers' Musicality and Their Competence in Integrating Music into the Classroom

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Abstract

The study aims to determine the interrelationship between future primary school teachers' confidence in their musicality and the competence to integrate types of musical activity into other subjects. The study included 78 ($n=78$) part-time students enrolled in the professional bachelor study programme offered by the University of Latvia. The study was based on a quantitative research design in which measurements were made according to three research scales: (1) musicality, (2) self-expression skills using types of musical activity and (3) competence in integrating musical activity types into other subjects. The SPSS 22.0 program was used for data processing, and the results were produced according to the research questions raised in the study. The study revealed that future primary school teachers are confident about their emotional response to music and sense of rhythm. The students are confident in their skills to chant and perform rhythm exercises with and without sound gestures. Confidence in musicality and self-expression skills using different musical activity types are not related to age and teaching experience. Confidence in skills to express oneself using types of musical activity is connected with the competence to integrate them into other subjects. Future primary school teachers are more competent in integrating musical games and listening to music into other subjects than playing musical instruments. The study findings can be used to improve the professional training of future primary school teachers.

Keywords: future primary school teacher training, music education, primary school subjects, teacher competence, teacher confidence

1. Introduction

Future primary school teachers learn the methodology for teaching music for grades 1-3 during their study process. To teach music for children in grades 1-3, the teachers need to acquire a certain level of knowledge, skills and competencies that make it possible to implement the achievable outcomes specified in the basic education standard by the end of the 3rd grade. However, it should be noted that the study hours allocated to learning music teaching methodologies are insufficient, namely, 16 hours for full-time students and only 12

hours for part-time students, which follows one credit point. If future teachers do not have prior education in the music field, they cannot provide high-quality music teaching. Natassa Stavrou also admits that teachers who take one or two music courses in their bachelor's degree programme cannot learn everything to teach music. However, they can gain a positive attitude towards music and music as a subject and at the same time, they can also acquire basic knowledge and skills in music (Stavrou, 2012).

In Latvia, the normative regulations do not demand that primary school teachers should teach music besides other subjects because every comprehensive school has a music teacher who also teaches music at the primary level. Nevertheless, every primary teacher has to make cross-curricular links between subjects, including music. Acquiring the music teaching methodology during the study process enables the primary teacher to integrate musical activities into other subjects.

2. Literature review

There is no clear answer to whether the music subject should be taught by a primary school teacher or a music teacher at the primary level of education. That is still a controversial issue because, as Anita Collins points out, if primary school teachers teach one of the arts subjects, they are expected to have the same standard and quality as teachers of visual arts, music, drama and other arts-related subjects (Collins, 2016). Quality of music education is based on qualified teachers with appropriate musical and pedagogical skills and understanding (Savage, 2018). Vesna Slavina and colleagues believe that in Croatia, where a music teacher starts teaching music only in the 4th grade, primary school teachers play an essential role in the child's musical talent early diagnosis (Slavina et al., 2021). The teacher must be able not only to identify the musical talents of the child but also to develop them. Andrea Asztalos finds a relationship between the teacher's qualifications, practice, the duration of learning to play a musical instrument and their views on the development of children's musical abilities. Teachers with higher qualifications and more experience can develop the children's musical ability to a greater degree (Asztalos, 2023). Therefore, for primary school teachers to be able to teach the subject of music, they must have the appropriate qualifications during their studies and be allowed to practice teaching music during pedagogical practices.

The future primary school teachers, already during their study years, gain confidence in whether they can teach music in primary education. According to Sabahat Burak, primary school teachers believe that teaching music is essential, but they do not consider themselves competent enough in this area (Burak, 2019). Students' previous and current connection with music is closely related to the development of self-efficacy (Carroll & Harris, 2023), which ensures personal and professional involvement in musical activities (Lowe et al., 2017). Efficacy refers to teachers' confidence in promoting student learning (Nieuwmeijer et al., 2023). Confidence and perception of appropriate expertise in the field of music are common problems among primary school teachers (Barrett et al., 2020; Thorn & Brasche, 2020). Self-confidence in teaching music is influenced by musical skills (Zelenkovska & Islam, 2017) and deficiencies in preparing future primary school teachers (Murillo & Tejada, 2022; Sepp et al., 2023). Primary teachers should not separate music teaching from their general teaching skills to be more confident (Savage, 2018), and they should participate in deliberate, incremental and self-directed learning experiences as they continue to develop their knowledge and skills in music (Sirek & Selton, 2023).

Research revealed that primary school teachers must be endowed with musical abilities to teach music effectively (Nethsinghe, 2018), they need practical training in playing musical

instruments and singing (Begič et al., 2017) and must be provided with the opportunity to develop their mastery based on autonomy, support and cooperation (Garrett, 2019). Primary school teachers show concern about their musical abilities (Shin, 2019). The concept of musicality describes musical abilities as a whole. Nouri Khalas and colleagues believe that musicality is a concept that refers to a person's ability to perceive and reproduce music. It is not something only musicians have but can be developed by anyone (Khalass et al., 2019). Even though musicality is an innate and widespread ability, it can be limited by a person's cognitive abilities and underlying biology (Honing, 2018). It would be the reason why future primary school teachers are not sufficiently confident in their sense of rhythm, musical hearing, emotional responsiveness, singing quality, musical thinking and musical memory because, as Heather Shouldice (2019) points out, it is the musicality that enables successful engagement in musical activities.

The support of a mentor can help primary school teachers in teaching music. Lindsay Ibbotson and Beng See have found that regular mentor support creates a positive attitude towards music in teachers and promotes the development of skills, knowledge, self-efficacy and musicality (Ibbotson & See, 2021). According to Margaret Barrett and colleagues, teaching music under the guidance of a mentor has a positive effect not only on the performance of a primary school teacher but also on students' singing ability and attitude towards music (Barrett et al., 2020). Primary school teachers are motivated to teach music by positive musical experiences (Sepp et al., 2023) and verbal persuasion (Zainal Abidin & Jamaludin, 2022). The support of colleagues and the educational institution leadership is also significant.

Research has determined that primary school teachers are not educated enough to face the challenges of teaching music (Rosa-Napal et al., 2021). They also do not feel comfortable teaching music and believe it should be taught by music teachers (Altun, 2010; Hash, 2010; Welch & Henley, 2014). However, primary school teachers recognize the high value of creative musical activities for primary school children (Kokotsaki, 2012) and believe music can contribute to developing competencies into other subjects (Mateos-Moreno & Bravo-Fuentes, 2023). Primary school teachers support integrating music into other subjects (Battersby & Cave, 2014; Devolli & Avdiu-Kryeziu, 2022; Hash, 2010; Potter, 2022). They mainly use singing and listening to music in teaching English, mathematics and history (King, 2015), which helps to enable students to engage more deeply in their learning experiences (King, 2018). Because of all the previous aspects, **the study aims** to determine the interrelationship between future primary school teachers' confidence in their musicality and the competence to integrate types of musical activity into other subjects.

3. Methods

The design and implementation of the research methodology meet the ethical standards of the Institutional Research Committee, the European Code of Conduct for Research Integrity and the Declaration of Helsinki adopted in 1964 and its subsequent amendments on the ethical standards.

3.1. Participants

The study involved 78 (n=78) future primary school teachers who enrolled in part-time undergraduate study programmes. Overall, 58 respondents work in one of the educational institutions along with their studies, and 20 did not work or work in a job unrelated to the education system. There were 52 (n=52) respondents under the age of 30 and 26 (n=26) respondents over 31 years of age (Table 1).

Table 1: Respondents' characteristics

Item	Description	N (%)
Age	Up to 30 years of age	52 (66.7)
	31 years of age and over	26 (33.3)
Teaching experience	Works at an educational institution	58 (74.4)
	Does not work at an educational institution	20 (25.6)

Source: (own research)

3.2. Instruments

A two-part questionnaire was designed to measure the competence of future primary school teachers to teach music. The questionnaire was developed to be used in this study and was anonymous. The first part of the questionnaire included general questions about the respondents' age and teaching experience. The second part of the questionnaire involved statements that were divided into three research scales: (1) musicality, (2) self-expression skills using types of musical activity and (3) competence in integrating musical activity types into other subjects.

The respondents rated each statement in the second part of the questionnaire on a four-point scale. To assess their confidence in their musicality, the respondents had to choose one of four answer options - sufficient (4 points), rather sufficient (3 points), rather insufficient (2 points) and insufficient (1 point). To describe their confidence in the skill to express themselves using musical activities, the respondents had to choose one of four answer options - good (4 points), rather good (3 points), rather bad (2 points) and bad (1 point). To assess their competence to integrate musical activities into other subjects, the respondents had to choose between the following answer options: does not cause difficulties (4 points), rather does not cause difficulties (3 points), rather causes difficulties (2 points) and causes difficulties (1 point).

The study raised six research questions:

RQ1: What is the confidence of future primary school teachers about their musicality?

RQ2: What is the confidence of future primary school teachers about the skills to express themselves using musical activities?

RQ3: What is the confidence of future primary school teachers about their competence to integrate musical activities into other subjects?

RQ4: What are the relationships between future primary school teachers' confidence in their musicality and the competence to integrate musical activities into other subjects?

RQ5: What are the relationships between future primary school teachers' confidence to express themselves in musical activities and the competence to integrate them into other subjects?

RQ6: Is there a statistically significant difference among future primary school teachers' confidence in musicality, the skills to express themselves in musical activities, the competence to integrate musical activities into other subjects, and their age and teaching experience?

The four points of the Likert scale were divided into three levels to answer the first three questions raised in the study. The first level ranged (1.00 - 1.99 points) referred to low confidence, the second level (2.00 - 2.99) to medium confidence and the third level (3.00 - 4.00) to high confidence of the respondents in their musicality, the skills to express

themselves in musical activities and the competence to integrate musical activity types into other subjects.

3.3. Data collection

The study took place between January 2022 and October 2023. Three groups of respondents participated in the study. The first group filled out the questionnaire in January 2022, and the last group in October 2023. The study was based on a quantitative research design. The data was collected online using Google Drive. Before completing the questionnaire, the respondents were informed about the purpose of the study, the confidentiality, and that the use of the obtained data would be in a summary manner. Participation in this study was voluntary, and each respondent could stop filling out the questionnaire at any time. The data collection process took about 20 minutes.

3.4. Statistical analysis

The SPSS 22.0 program provided an analysis of the collected data, and the results were grouped according to the research questions raised in the study. Cronbach's alpha coefficient was calculated for each research scale. The study used descriptive statistics methods to determine the confidence level of future primary school teachers about their musicality, skills to express themselves in musical activities, and competence to integrate musical activities in other subjects. Central tendency measures like arithmetic mean, median, and mode, as well as deviation measures such as standard deviation, skewness, and kurtosis, were determined in the study. Based on the views of Tiffany Bergin, it was assumed that descriptive statistics helps to understand the characteristics of sample data and can detect extreme values (Bergin, 2018).

Due to the relatively small sample size ($n=78$), a Kolmogorov-Smirnoff (K-S) test was used for each study scale to determine whether the frequency of the data sets had an equal distribution around the mean. On the one hand, the data distribution around the mean for the musicality scales ($D(78)=.095$, $p=.079$) was non-normal. On the other hand, the distribution of data around the mean for the self-expression in musical activities scales ($D(78)=.112$, $p=.016$) and the competence to integrate musical activities into other areas of learning scales ($D(78)=.108$, $p=.025$) was normal therefore it was necessary to use non-parametric methods to further data analysis. The Mann-Whitney U test determined whether there is a statistically significant difference between future primary school teachers' confidence about musicality, the skills to express themselves in musical activities, the competence to integrate musical activities into other subjects, and their age and teaching experience.

The Pearson's correlation coefficient was calculated to identify the relationship between the confidence of future teachers in their musicality and the competence to integrate musical activities into other subjects, as well as to determine the relationship between the confidence in the skills to express themselves in musical activities and the competence to integrate them into other subjects.

4. Results

The reliability of the research scales was measured using Cronbach's alpha coefficient. The Cronbach's alpha coefficient for the three scales was between .772 and .862 (Table 2), which indicates that the reliability is either very good or good.

Table 2: Cronbach's alpha coefficient of the research scales

Research scales	Items	Cronbach's alpha	Reliability
Musicality	from 1 to 6	.772	Good
Self-expression skills using types of musical activity	from 7 to 15	.868	Very good
Competence in integrating musical activity types into other subjects	from 16 to 26	.835	Very good

Source: (own research)

The first research question intended to find out the confidence of future primary school teachers about their musicality. The study revealed that future teachers' confidence in such components of musicality as sense of rhythm, musical hearing, emotional responsiveness, musical thinking and musical memory is at a high level. Most respondents were confident in their emotional response to music ($M=3.58$, $SD=.545$) and sense of rhythm ($M=3.46$, $SD=.638$). The respondents rated their confidence in singing quality at a medium level ($M=2.83$, $SD=.828$). In general, the respondents have rated their confidence in all components of musicality ($M=3.25$, $SD=.458$) at a high level.

The second research question examined the confidence of future primary school teachers about the skills to express themselves using types of musical activities. The study determined that the respondents are highly confident in the skill to analyse the music they listen to ($M=3.05$, $SD=.642$), the skill to chant ($M=3.21$, $SD=.677$), the skill to perform rhythm exercises ($M=3.33$, $SD=.657$) and the skill to perform rhythm accompaniments with sounding gestures ($M=3.23$, $SD=.701$). Three of the four self-expression skills are directly related to a sense of rhythm, which is also one of the highest-rated components of musicality in this study. The respondents are moderately confident about their skill in playing musical instruments ($M=2.15$, $SD=1.069$) and composing music ($M=2.15$, $SD=.954$). Also, the future teachers rated confidence in their skill to sing ($M=2.91$, $SD=.855$), to improvise ($M=2.87$, $SD=.827$) and to create musical performances ($M=2.89$, $SD=.905$) at a medium level. Overall, the respondents rated their confidence in their skill to express themselves in musical activities ($M=2.86$, $SD=.573$) at a medium level.

The third research question determined the confidence of future primary school teachers about their competence to integrate musical activities into other subjects. The study showed that the respondents are at a high level of readiness to use types of musical activities such as listening to music ($M=3.57$, $SD=.634$), musical games ($M=3.41$, $SD=.691$), musical rhythmic movements ($M=3.29$, $SD=.704$) and exercises for improving the sense of rhythm ($M=3.11$, $SD=.821$) into other subjects. At the same time, it is hard to integrate such musical activities as playing rhythm and musical instruments ($M=2.65$, $SD=1.017$) and singing ($M=2.78$, $SD=1.100$) into another primary school subject. Generally, the respondents rated confidence in their competence to integrate musical activities into other subjects ($M=3.08$, $SD=.600$) at a high level.

The fourth research question identified the relationships between future primary school teachers' confidence in their musicality and the competence to integrate musical activities into other subjects. The study revealed that listening to music, for which the respondents were largely confident that they would be able to integrate it successfully into another area of learning, was linked to confidence in the existence of a musical component such as musical hearing ($r=.314$, $p<0.01$). On the other hand, confidence in the integration of musical games in another subject is connected with the quality of singing ($r=.302$, $p<0.01$), but the integration of musical rhythmic movements and exercises to improve the sense of rhythm is related to the sense of rhythm ($r=.502$, $p<0.01$; $r=.368$, $p<0.01$).

The study found that respondents' confidence in their competence to integrate singing into other subjects is related to their confidence in the quality of singing ($r=.786$, $p<0.01$). In addition, musicality components such as sense of rhythm ($r=.367$, $p<0.01$), musical hearing ($r=.381$, $p<0.01$) and emotional responsiveness ($r=.325$, $p<0.01$) are also recognized by the respondents as essential for them to be confident in their competence to integrate singing into other subjects. Most respondents strongly associate their confidence in playing rhythm and musical instruments with such components of musicality as singing quality ($r=.455$, $p<0.01$) and musical memory ($r=.418$, $p<0.01$).

As future teachers believe they have insufficient musicality to integrate musical activities into other subjects, their motivation to use them will decrease. The study found that the willingness to implement musical activities in different learning areas was related to the belief in the presence of musicality components such as singing quality ($r=.384$, $p<0.01$), musical thinking ($r=.327$, $p<0.01$) and musical hearing ($r=.312$, $p<0.01$). Respondents believe that to integrate musical activities into other subjects, they need to improve the quality of singing ($r=.361$, $p<0.01$). In general, the study concluded that there is a statistically significant relationship between respondents' confidence in their musicality and their competence to integrate musical activities into other subjects ($r=.610$, $p<0.01$).

The fifth research question identified the relationship between future teachers' confidence in their skill to express themselves in musical activities and their competence to integrate them into other primary school subjects. Confidence in playing a musical instrument, which has the lowest rating by respondents, is related to the competence to implement not only playing a musical instrument ($r=.646$, $p<0.01$) in other learning areas but also singing ($r=.459$, $p<0.01$), musical rhythmic movements ($r=.490$, $p<0.01$), musical games ($r=.352$, $p<0.01$), rhythm exercises ($r=.497$, $p<0.01$) and music theory ($r=.433$, $p<0.01$). That is because learning to play a musical instrument requires knowledge of music theory and rhythms and takes a lot of time and work. Thus, confidence in the skill to play a musical instrument also increases the confidence in one's competence to integrate several other types of musical activity in various learning areas.

Respondents believe that to have the desire to integrate musical activities into other subjects, they must be confident in their skill to sing ($r=.420$, $p<0.01$), play a musical instrument ($r=.491$, $p<0.01$), compose music ($r=.521$, $p<0.01$), chant ($r=.388$, $p<0.01$), perform rhythm accompaniment with sound gestures ($r=.335$, $p<0.01$) and create musical performances ($r=.412$, $p<0.01$). Overall, it is possible to conclude there is a statistically significant relationship between respondents' confidence in the skill to express themselves in musical activities and confidence in their competence to integrate them into other subjects ($r=.812$, $p<0.01$). It means that if we want a primary school teacher to integrate musical activities into the teaching/learning process, it is necessary to improve the skills of self-expression in musical activities both during and after their studies, which, in turn, will increase their confidence in what they do.

The sixth research question determined whether there is a statistically significant difference among future teachers' confidence in musicality, the skill to express themselves in musical activities, the competence to integrate musical activities into other subjects, and their age and teaching experience. The study revealed that confidence in musicality is slightly higher for future primary school teachers aged 31 and over (Mean Rank = 41.42) than those under 30 (Mean Rank = 38.54). However, the study did not find a statistically significant difference between confidence in one's musicality and age ($U=626.00$, $z=-.534$, $p=.593$). In addition, the confidence in their competence to integrate musical activities into other subjects is slightly higher for those respondents aged 31 and older (Mean Rank = 41.13) than those

aged 30 and younger (Mean Rank = 38.68). Again, there was no statistically significant difference between the two age groups regarding the confidence in their competence to integrate musical activities into other subjects ($U=633.50$, $z=-.452$, $p=.192$). Confidence in the skill to express oneself using different types of musical activities is almost similar for both age groups (Mean Rank = 39.51 and Mean Rank = 39.48), and therefore no statistically significant difference has been found ($U=675.50$, $z=-.005$, $p=.996$).

The study determined that confidence in musicality and the skill to express oneself in musical activities is slightly higher for those respondents who work in an educational institution (Mean Rank = 40.99 and Mean Rank = 41.07) than for those respondents who do not work in the educational system (Mean Rank = 35.18 and Mean Rank = 34.95). Nevertheless, the result did not show a statistically significant difference between future teachers who work in an educational institution and those who do not work related to their confidence in their musicality ($U=493.50$, $z=-.997$, $p=.319$) and in their skill to express themselves using musical activities ($U=489.00$, $z=-1.044$, $p=.297$). Similarly, there was no statistically significant difference in respondents' confidence about their competence to integrate musical activities into other subjects ($U=555.00$, $z=-.287$, $p=.774$) regardless of whether they work in an educational institution or have another job.

5. Conclusion and discussion

The study revealed that the singing quality as a component of musicality was rated at the lowest level by future primary school teachers. That is because they have insufficient confidence in their singing skill and the competence to integrate singing into other subjects. These findings are supported by a previous study conducted in Finland, which found that the level of singing and composing was not sufficient for future primary school teachers to be able to teach music (Suomi et al., 2022). A study in Spain revealed that future teachers underestimated their skill to sing (Cremades-Andreu & Garcia-Gil, 2017), and in the United Kingdom, a study discovered that the hardest thing for teachers is to be confident when singing in front of others (Ibbotson & See, 2021).

The study determined that future primary school teachers are more confident about their self-expression skills in musical activities that require a sense of rhythm but less confident about the skill of playing musical instruments and composing music. The results obtained in this study are supported by other research. For example, Susan Byo's research has found that composition and improvisation are the most difficult for primary school teachers to implement according to the standard (Byo, 1999). On the other hand, those teachers who know how to play a musical instrument often identify themselves as a teacher who can teach music (Bennett & Chong, 2018) and are more confident about teaching music (Hallam et al., 2009). If future primary school teachers can play musical instruments, that increases their confidence not only to integrate playing musical instruments into other subjects but also to integrate singing, musical games, rhythm exercises, musical rhythmic movements and music theory.

Future primary school teachers are more confident in their competencies to integrate music listening and musical games into other subjects and less confident in using musical instruments and singing in the teaching/learning process. These findings are consistent with previous research on listening to music, in which Vesna Svalina and Ivona Sukop determined teachers' attitudes towards listening to music and found that listening to music is frequently used by teachers and their competence to implement it in the teaching/learning process is high (Svalina & Sukop, 2021). In addition, they are more confident about musical games as it is less related to musical abilities (Nieuwmeijer et al., 2023).

The study concluded that there are statistically significant relationships between respondents' confidence in their musicality, the skill to express themselves in musical activities and confidence in their competence to integrate musical activities into other subjects. That is related to the singing quality of future teachers, on which the integration of singing, musical games and playing musical instruments into different subjects depends. These findings are consistent with a study by Jasna Begić and colleagues, which found that students in the first three grades of primary school need to sing more, so primary teachers should teach more singing, which in turn is unimaginable without the accompaniment of playing musical instruments (Begić et al., 2017). What primary school teachers think about their musicality affects their competence to integrate musical activities into other subjects and their professional identity.

The study revealed that future primary school teachers' confidence in their musicality, the skill to express themselves in musical activities, and the competence to integrate musical activities into other subjects are not related to their age and teaching experience during their studies. These findings are in line with previous research that found that the levels of confidence in music teaching are not always related to the experience in music (Henley, 2017), but contrary to previous research that found that teaching experience increases confidence in music teaching (Zainal Abidin & Jamaludin, 2022). Any activity that requires effort from a person can lead to the belief that it is impossible to do this for a long time. As a result, primary school teachers may avoid teaching music and integrating musical activities into other subjects. The obstacles that arise are essential to overcome. It is possible to overcome any obstacles if we are passionate about what we are doing and even if we lose track of time.

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