The Development of Cooperation Skills by Improving Sense of Rhythm during Music Lessons in Primary School

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Abstract: This study clarifies the importance that music lessons in primary school should be focused not only on teaching the music subject-related skills and knowledges but also on promoting the development of general learning skills. Modern music lesson should prepare pupils for practical life by using different forms of musical activities. One of the most important life skills is cooperation skills, which can be developed through using different exercises to improve sense of rhythm. The aim of the study is to analyze and determine the relationship between performing rhythm exercises accurately and the pupils’ cooperation skills. In order to achieve the objectives of the study, various cognitions about the sense of rhythm and cooperation skills were theoretical analyzed and some exercises to improve the sense of rhythm were created and experimentally tested. A self-assessment questionnaire was carried out to determine if primary school pupils can develop their cooperation skills by performing different exercises to improve their sense of rhythm. It is determined that the pupils while performing exercises to improve sense of rhythm, they using often some cooperation skills like activity coordination, supporting each other and listening to other’s opinion. The study helped to identify different disturbing factors that can affect pupils’ cooperation in learning group while they trying to perform the rhythm exercise together. The development of cooperation skills can be affected by the discipline in classroom, the pupil’s readiness to perform rhythm exercises and the pupils’ desire to cooperate with each other.

Keywords: exercises to improve sense of rhythm, cooperation skills, music lessons, primary school.

Introduction

The National basic education standard considers that the cooperation aspect is an important part of the educational aspects (Noteikumi par…, 2004). The school teachers should develop the cooperation skills among pupils during teaching process. Teaching music at school could promote the pupils’ cooperation skills by participating in singing (Douglas, North, 2005) and instrumental activities. Rhythm perception in music lesson is associated not only with musical ear but also with the sense of muscle movement (Chemin, Mouraux, 2014; Campbell, 1991). The improvement of sense of rhythm is an integral part of music lesson in comprehensive school. The sense of rhythm could be improved by singing, musical games, playing children's musical instruments and other forms of musical activities. One of the most widely used means for improving sense of rhythm is the performance of multiform rhythm exercises.

It is important to acquire the music subject-related skills and knowledge during music lessons in order to increase the children's musical abilities in the primary years, but it is more important to promote their learning skills in general as well (Matthews, Ubbes, 2016). Modern music lessons should prepare the children to deal with their daily situations and give them the opportunity to develop their skills by using different form of musical activities. Cooperation skills is one of the most needed life skills that help people to communicate with each other in order to achieve one goal or to accomplish joint work. It is possible to develop this skill by performing multiform rhythm exercise, which can improve pupils' sense of rhythm as well.

The human sense of rhythm comes from the left hemisphere of the brain. The human life is not imaginable without rhythm because it is everywhere, where there is movement and life. It is generally means an alternation between different elements. No matter where you look in nature, rhythm is to be found, for example in change of seasons, in the sea or ocean waves’ sound, it is even found in the human body, in our heartbeats and breathing. Rhythm in music is one of the means of musical expression. It organizes the relationships among variable musical sounds and provides single musical form in the same time. Rhythm is also reflected in other works of art. Meter in poetry is a rhythm of accented and unaccented syllables arranged into feet, but in painting, sculpture and architecture there is the rhythm of colors and lines, which is called symmetry.

Sense of rhythm is a musical ability, which is inherited as a given in a varying degrees of intensity and could be developed (Hallam, 2010). It is based on the perception and reproduction of the relationship
between sound durations. D. Kirnarskaya considers that the sense of rhythm is deeply subconscious and reflexive. She has discovered three components of sense of rhythm. The primary property of the sense of rhythm is its kinship with movement. The second component of rhythmic giftedness is the ability to form a rhythmic image. The third component in the sense of rhythm is the sense of tempo, the beat. (Kirnarskaya, 2009).

Sense of rhythm is reflected only in action. Lots of experiments are proven that sense of rhythm is closely connected with human body movement (Stankov, Spilsbury, 1978; Tapacosa, 1988; Бепреп, 2004). Having a good sense of rhythm is not only the ability to distinguish the rhythm, but also to feel it emotionally. M. Starceus believes that sense of rhythm consists of two components: The emotional component and intellectual component (Craptveyc, 2005).

The improvement of sense of rhythm in Latvia has a rich tradition. In the early 20th century 20s-30s it was already considered that the cross-curricular approach should be implemented in music lessons due to its many benefits for teaching and learning process, and the pupils’ knowledge and skills should be acquired through an active way. Improving sense of rhythm in that period was often associated with other school subjects (Розитис, 1927), and within training the sense of muscles’ movement (Бебру, 1922). Connecting singing with rhythmical movement, musical games, rhythmical exercises and scansion are recommended in that period to improve sense of rhythm effectively.

During the soviet era the sense of rhythm was improved by learning different songs and doing solfege exercises. It was believed that acquiring the notation elements is prerequisite for improving the sense of rhythm, but musical ear is a must to achieve a sense of rhythm (Медиш, Йакобсоне, 1958). In the 20th century 70s-80s a relative solmization is used to improve sense of rhythm (Едиш, 1976). In the soviet period it was recognized that in order to improve sense of rhythm effectively, the choice of rhythm exercises should be gradually and systematic, in which each of the following rhythm exercise can be a little more difficult than the previous one, and the same exercise should be performed by using different rhythm performance techniques.

After 1990 the music experts in Latvia have acknowledged the pre-existing approaches to music education, for example, A. Stabulniece was one of the experts, who took into account the knowledge of music teachers in the soviet period, but some other experts like I. Нельсоне, L. Розенберга, A. Platpers (Нельсоне, Розенберга, Platpers, 1995) and I. Вилкарсе, I. Черпинска (Вилкарсе, Черпинска, 2000) have recognized the achievements of music teachers in the 1920s-1930s. A. Stabulniece (Stabulniece, 1997) kept using the relative solmization to improve sense of rhythm. One of the most widely used forms of musical activities after 1990 to improve sense of rhythm is scansion, which is often associated with performing sounding gestures and/or playing percussion instruments (Нельсоне, Розенберга, Platpers, 1995), which its theoretical justification is found in Rozитиа’s Teaching methodology of singing (Розитис, 1929).

Based on the research actualities, the research objectives are defined. The aim of the research is to analyze and determine the relationship between performing rhythm exercises accurately and the pupils’ cooperation skills.

**Methodology**

The research participants included 49 pupils in grade 3 at Riga X middle school and 17 pupils in grade 3 at Latgale regions X middle school. In total, 66 respondents (N=66) are involved in the research. The pupils performed the rhythm exercises in small groups, about 3-5 pupils in each group. The performance of rhythm exercises in 16 learning groups was analyzed and compared, taking into account the development of pupils’ cooperation skills.

A task group consisting of three tasks was created to determine the possibility of developing cooperation skills by using rhythm exercises.

Task 1: The Latvian folk song “Dietu, dietu, jaunas meitas” (To dance, to dance, young girls!) should be performed in evenly rhythmical movements which can be fast and slow. In order to fulfill the first task, the pupils should divide themselves into different roles, which requires them to have the ability to listen to each other, express their opinion, respect other’s opinion and in sometimes even the ability to give up and back off. The children should coordinate their activity, cooperate together and support each other in order to fulfill this task successfully.
Task 2: performing rhythm exercise in one voice. The pupils should have good coordination skills to begin their joint activity, and if one of the group members could not perform this rhythm exercise successfully, the others should support him and teach him the right way to do that.

Task 3: performing a rhythm canon. At first, the group members have to divide themselves into two subgroups, which require them to have a positive attitude to each other, and to have the ability to respect other's opinion and justify their own opinion. The performance of rhythm exercises encourages the pupils to become responsible.

The previous task group was carried out in one music lesson, 40 minutes. An observation protocol during performing the rhythm exercises was filled, in which the accuracy of the performance in four-points scale was checked. After performing the rhythm exercises a self-assessment questionnaire was given for each pupil to determine his/her cooperation skills. The questionnaire consisted of 12 statements, which should be assessed by each pupil in four-points scale (4-agree, 3-partly agree, 2-partly disagree and 1-disagree). The questionnaire included also one-ended question. Each pupil should write three main things that can hinder the cooperation among group members. The self-assessment questionnaire was anonym. The pupils could ask any question to the questionnaire creator just in case of ambiguity or misunderstanding. There was no limited time to fill out the questionnaire, however it was recommended that there is no need to take a long time at the same statement. The study was carried out in September 2016.

In order to increase the credibility and validity of the research results the triangulation technique was carried out using a combination of both qualitative and quantitative methods. In quantitative data analysis the Statistical Package for Social Sciences (SPSS software version 22) is used. For each statement in the questionnaire an average score is calculated based on the four-points scale. The analysis of Variance (ANOVA) was carried out to indicate the statistically significant differences between the variables. Cronbach’s Alpha is used to determine and measure the internal consistency reliability of the research items. The correlation between two different factors (variables) is calculated according to Pearson's method. The correlation coefficient shows the relationship between two variables. The qualitative data of the research are analyzed using content analysis.

The following research questions will be answered by the study:

- Is there a relationship between performing rhythm exercises correctly and the cooperation skills among group members?
- What are the factors that affect the pupil's satisfaction with the participation in a concrete learning group?
- What are the factors that hinder cooperation?

**Results and discussion**

The way of pupil’s cooperation to perform rhythm exercises was analyzed in three dimensions. The first one intended to determine how accurately the rhythm exercises have been performed by the pupils in each learning group. The performance of rhythm exercises was compared with the pupils’ self-assessment of their cooperation skills. The second dimensions analyzed the pupils’ satisfaction with their participation in the groups. The obtained data were compared with pupils’ self-assessment of their cooperation skills. The third dimension should define the factors that could hinder cooperation among pupils while they performing rhythm exercises.

The internal consistency reliability of the research items is high (a=0,777). In the research was analyzed some basic pupils’ coordination skills like the ability to coordinate joint activities, and the way to support and assist each other if it is necessary. The accuracy of performing rhythm exercises is associated with the ability to provide mutual support for each other in the form of giving the opportunities to be supported by group members (r=0,327, p<0,01) and to support other group members (r=0,438, p<0,01). It is important that the members of learning group should be able to coordinate their joint activities easily (r=0,355, p<0,01). The joint activities are easier to coordinate if pupils in learning group defer to each other opinion (r=0,365, p<0,01) and if there is friendly atmosphere among them in the group (r=0,360, p<0,01). But how is this friendly atmosphere created in the learning group? One of the factors that affecting the friendly atmosphere among group members is the opportunities to support each other and be supported from others to perform the joint activity perfectly (r=0,350, p<0,01).
The ability to listen to each other and respect other’s opinion depends on the pupils’ self-confidence, which is based on their level of competence. The research identified that there is a relationship between self-confidence and the responsibility to perform the rhythm exercises accurately ($r=0.364$, $p<0.01$). The learning group members should take different decisions while they performing the rhythm exercise. It is necessary that each pupil could have the opportunity to express his/her opinion in order to make the right decision. Listening to other’s opinion is associated with the willingness to take responsibility for the decision. The pupil is ready to take into account other’s opinion if he/she has the ability to pay attention to this opinion ($r=0.411$, $p<0.01$) and if he focusses on supporting the other group members ($r=0.369$, $p<0.01$). The pupil’s willingness to perform rhythm exercise depends on his/her interest in doing this activity and how comfortable he/she feels during music lessons. The pupil, who became infatuated with the rhythm exercise, often took his decision spontaneously. The decision should be taken with a sense of responsibility to prevent any unneeded consequences. In a cooperative learning group, the pupil, who takes a certain decision, will be responsible for it not only toward himself but also toward other group members. The responsibility to perform rhythm exercises within learning group is associated with the ability to coordinate joint activity ($r=0.541$, $p<0.01$), as well as with the possibility to be supported from other group members ($r=0.378$, $p<0.01$), and also with the willingness to support other group members ($r=0.363$, $p<0.01$).

It is determined that the pupils’ satisfaction with the participation in a certain learning group affecting the accuracy of performing the rhythm exercise ($r=0.322$, $p<0.01$). Also the analysis of pupils’ self-assessment shows the same relationship ($r=0.434$, $p<0.01$). It is identified several factors that affect the pupils’ satisfaction with the participation in a certain learning group. The first one is the possibility to be supported by other group members ($r=0.385$, $p<0.01$), the second one is the ability to coordinate joint activity easily ($r=0.529$, $p<0.01$), and the third factor is the friendly relationship among group members ($r=0.443$, $p<0.01$).

### Table 1

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>Statements</th>
<th>Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-assessment of cooperation skills</td>
<td>The performance of rhythm exercises was mutually coordinated</td>
<td>3.0455</td>
</tr>
<tr>
<td></td>
<td>I have got support from group</td>
<td>2.7121</td>
</tr>
<tr>
<td></td>
<td>I have supported the group members</td>
<td>3.0152</td>
</tr>
<tr>
<td></td>
<td>I have listen to other’s opinion</td>
<td>3.3333</td>
</tr>
<tr>
<td></td>
<td>I performed the rhythm exercise with a sense of responsibility</td>
<td>2.8636</td>
</tr>
<tr>
<td></td>
<td>I accepted other’s opinion</td>
<td>3.0455</td>
</tr>
<tr>
<td></td>
<td>I was sure of what I did</td>
<td>3.1414</td>
</tr>
<tr>
<td>Satisfaction with participation in the group</td>
<td>The group members were friendly</td>
<td>3.1970</td>
</tr>
<tr>
<td></td>
<td>It was easy to coordinate the joint activity in the group</td>
<td>2.5758</td>
</tr>
<tr>
<td></td>
<td>I am satisfied with my participation in this group</td>
<td>3.0758</td>
</tr>
<tr>
<td></td>
<td>One pupil was a group leader</td>
<td>2.8788</td>
</tr>
<tr>
<td></td>
<td>Our group performed the exercise correctly</td>
<td>2.6515</td>
</tr>
</tbody>
</table>

The average scores of the questionnaire statements are reflected in table 1. The lowest average score received the following statements, *It was easy to coordinate the joint activity in the group* (2.5758), *Our group performed the exercise correctly* (2.6515), and *I have got support from group member* (2.7121). The pupils believe that they had to get support from group members to perform the exercise correctly ($r=0.320$, $p<0.01$). This attitude is normal indeed because not all pupils in learning group have the same musical skills and knowledge, but the rhythm exercise should be performed taking into account the accuracy of each pupil’s performance. The pupils believe also that the coordination of their joint activity in the group can strongly affect the accuracy of performing rhythm exercises ($r=0.334$, $p<0.01$). This is connected with the fact that the rhythm exercise should be performed by several group members at the same time, and if they have not the appropriate coordination among them to begin the rhythm exercise combined with metro-rhythmic performance and to finish together, then it is not worth to speak about correct performance of the rhythm exercise.
The highest average score received the following statements, *I have listen to other’s opinion* (3,3333), *The group members were friendly* (3,1970) and *I was sure of what I did* (3,1414).

It is important that the children have friendly relationship in the learning group, in order to perform the rhythm exercise correctly ($r=0.326$, $p<0.01$). Listening to another pupils’ opinion it could also affect the accuracy of performing rhythm exercise ($r=0.253$, $p<0.05$).

The result of content analysis indicated the factors that may hinder the children’s ability to cooperate. These factors could be grouped into three different groups; the first one is connected with the discipline in the learning group, the second one is connected with the child’s readiness and willingness to perform the rhythm exercise, and the last group of factors is associated with the other children’s ability to perform rhythm exercises.

Pupils believe that the cooperation among them is hindered by the inappropriate discipline like joking and talking around, noises, laughing and other behaviors that is not connected with the given exercise for the group. The cooperation among group members is associated with their individual preparation and the willingness of each pupil to work in the group. The most things that hinder successful cooperation among pupils are their excitement, the inability to concentrate while performing the rhythm exercise, and a digression from the main subject. The rhythm exercise, which does not meet the pupils’ musical abilities, could be a disturbing factor for the cooperation among group members. The rhythm exercise could be difficult for all pupils in the group or for some of them. If one of the pupils understood the requirements for performing a concrete rhythm exercise, then he has to explain that for other group members and will try to teach them the right way to perform the rhythm exercise. In this case, the pupils will face several disturbing factors during their cooperation process with each other. On the one hand, those who did not understand the rhythm exercise may refuse to accept their classmate’s explanation and support because they consider that as a command. On the other hand, the pupil who believes that he comprehended the requirements to perform the exercise correctly will try to explain it for other pupils and will not consider or respect another group members’ opinion. That could lead to conflict situations in learning group. If pupils could not work together and/or unable to coordinate their joint activity, then the cooperation process will be failed. Sometimes it may happen that one pupil refuses to work together with the other group members at performing the rhythm exercise, which can strongly affect the accuracy of the performance.

Cooperation during learning process is a joint activity among pupils. It highlights the mutual coordination of joint activity. Cooperation in classroom implies that pupils should learning from each other, and if needed, they could help and support each other as well. Cooperation during learning process is an important condition in J. Dewey’s pragmatic approach to education (Dewey, 2009). In the second half of 20th century several American educators like D.W. Johnson and R.T. Johnson (Johnson, Johnson, 1989), E. Aronson (Aronson, Blaney, 1978) have developed cooperative learning techniques. Cooperation skills are very necessary for each pupil in order to be able to take the right decision in the right time, to learn how to live with other people and to solve different problems every day. The development of cooperation skills is especially important for primary school pupils as expanding the circle of their communication objectives. At this age group begins the formation of children's moral and social habits. Cooperation skills can be actualized, if the pupil comprehends about this skill, why it is necessary for him, and how it can be developed.

The opportunities to improve cooperation skills are closely connected with the pupil's personality development and its peculiarities in different age groups. E. Erikson identified eight stages of psychosocial development that describes how the personality develops and changes from infancy up until death. The fourth stage focuses on the children at primary school age. It is necessary in the primary years to develop the children's abilities and interests, because the child at this age needs to acquire different cognitive and social skills, and he begins to become competent. E. Erikson connected competence with the ability to understand the needed intellect and skills to fulfill tasks without excessive feeling of inferiority (Erikson, 1964).

G.S. Morrison believes that the primary years are a time to use and test developing motor skills. Children at this age should be actively involved in activities that enable them to use their bodies to learn and develop feelings of accomplishment and competence (Morrison, 2015). Rhythm exercises are the appropriate type of activity, which able to use the pupil’s motor skills effectively, improve pupil’s
competence in music subject and develop the cooperation skills. Cooperation is aimed at achieving one goal of learning. D.W. Johnson and R.T. Johnson believe that cooperation helps more quickly and easily to achieve results than if it would happen individually (Johnson, Johnson, 1989). Pupil's achievement in a cooperative learning group depends on the abilities to prevent conflicts, to learn taking into account other's opinion and to coordinate his activity with the group members. The primary school pupils are highly sensitive children. The learning process and results is often determined by how the child feels emotionally. Therefore, it is strongly recommended to create a comfortable learning environment for children.

Conclusions

Cooperation is a basic life skill which helps us to work together in group to achieve something or overcome a certain problem. It is needed for everyone’s life and must be developed in each age group especially in primary years. The development of cooperation skills could be associated with improving sense of rhythm at the same time. Sense of rhythm could be improved by performing different rhythm exercises. The primary school pupils want to be active and need to continually move, that could be promoted by performing multiform of rhythm exercises. The body movements are not enough to perform rhythm exercises correctly but some music subject related skills and knowledges are required as well.

One of the research questions is to determine if there are a relationship between performing rhythm exercise correctly and the pupils’ cooperation skills in learning group. The research identified the relationship between these two variables. The accuracy of performing rhythm exercise connected with such cooperation skills as supporting group members, receiving support from classmates and the ability to coordinate joint activity. The activity in learning group could be good coordinated if pupils have the ability to respect other’s opinion and if they have friendly relationship. Performing rhythm exercise correctly is also associated with pupils’ satisfaction with their activity in a certain group, responsible attitude to teaching work and the ability to coordinate what and how better to do the joint activity.

The research determined that pupils’ satisfaction with their participation in a certain learning group could be affected by the possibilities to get support from group members, the ability to coordinate joint activity and the friendly relationship between group members.

The third research questions intended to determine the disturbing factors of cooperation process. It is identified the factors, that could hinder cooperation among pupils, are associated with pupils’ discipline in learning group, the individual preparation of each pupil and the readiness of the whole group to perform the rhythm exercise correctly.

Bibliography


