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A study on 6-year-old preschoolers' musical skills and their parents' rhythmic skills

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Abstract

Rhythm education, a method used in pre-school music education, forms the basis of children's musical skills. Thus, children with sound rhythm education grasp the other basic elements of music more easily and learn music faster. Rhythm education is thus an important aim of music education. In this survey, the descriptive method has been used with the purpose of determining the relation between the musical skills of 6-year-old preschoolers and the rhythmic performance of their parents. The participating children were chosen among students at independent preschools affiliated with the Ministry of Education and located in the Asian side of Istanbul. The results showed that the rhythmic skills of 6-year-old children varied in favour of boys and that there was a positive correlation between the rhythmic skills of 6-year-old children with that of their parents and between the rhythmic skills of children with other musical skills. In addition, it was revealed that the rhythmic skills of children whose parents were working were higher than the rhythmic skills of children whose parents were not working.

Keywords: Musical skills; rhythm; rhythmic skill; pre-school education;

1. Problem

Pre-school period is a very important phase in the development of a child. The education given in this period undeniably affects children's success and the steps they take to organize their lives in the future. Yet, this education should not be limited to education provided by schools. The family, the environment in which the child finds himself and learns the social culture, is the other influential element of the process of education. The education that children receive during this period also affects their musical life in the years to come.

Many studies report that babies can hear as much as adults starting from the neonatal period. In the rather noisy environment of the mother's womb, the fetus can hear mother's heartbeat as well as the conversations occurring around her. The heartbeat of the mother makes as much noise as the sounds of people conversing around (Bee and Mitchell, 1984, pp. 54, 116). As can be seen, babies start to hear very early on. Morgan notes that sensory organs used for seeing, hearing, touching, smelling, tasting, feeling heat, and pain-ache start functioning immediately after

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birth. Even though such senses in newborns are not as sensitive as they are in adults, they develop over time. Compared to the rest, the senses of touching and feeling heat are relatively more developed in newborn babies, while the feelings of pain-ache are not as developed during the very first weeks. Although the senses of smell and taste function at birth, they are not very sensitive either. The one sensory organ which is readily formed at birth and is rather well developed is the sense of hearing (Morgan, 1990, pp. 53, 54).

During the years of infancy, children are particularly inclined towards inquiry and discovery. They satisfy these feelings of curiosity by seeing an object, hearing the sound it makes, touching and tasting it. As preschool is the most important period during which humans acquire the basic knowledge and skills to last a lifetime, it is of utmost importance to lead children towards musical activities by using visual stimuli and games, which also fosters their mental development (Öztürk, 2004, p.16). Altınok (1980) refers to the teaching of musical activities at preschool as an enjoyable educational process which affects almost all developmental areas and contributes particularly to the development of musical skills.

Haines and Gerber (1992) define rhythm as one of the fundamental elements of music, which can be observed in natural phenomena occurring around people such as the change of seasons, night and day, the phases of the moon, and ebb and tide. They maintain that rhythm forms the basis of the universe and our daily lives, and establishes important ties between humans and art. Likewise, it is observed that children start to understand and begin to be successful in music as a result of their conscious rhythmic experiences. Considering the approach of Haines and Gerber, especially when one considers children's cognitive development and global music development, one concludes that rhythm education, the most fundamental element of music, would contribute significantly to the developmental process of a child.

There are many studies which point to the fact that rhythmic skills are not only related to children's musical skills but also to other areas of development and learning. In a study conducted by Butziaff (2000), a rhythm and reading test was administered to children and a positive correlation was found between the children's music education and reading performance. There are also other similar studies revealing a positive relationship between the skills of music and reading (Hurtwiz, Wolff, Bortnick, Kokas, 1975; Lamb and Gregory, 1993; Frith, 1985, Qtd. in. Özkardeş, 2005, p. 267) and the positive effects of music education on learning and creativity (Monty and Hejmadi, 1992, Qtd. in. Özkardeş, 2005, p. 267), on the ability of three-dimensional thinking (Rauscher, Saw, Levine, Key and Wright, 1994, Qtd. in. Özkardeş, 2005, p. 267), and on spatial judgement (Rauscher & Shaw, 1994, Qtd. in. Özkardeş, 2005, p. 267). In addition, the results of another study conducted by Aydın and Mertoğlu (2006) indicated a parallel relationship between the rhythmic skills of children and their reasoning skills. All these findings emphasize that activities to enhance children's rhythmic performance should be incorporated into their educational process with great care.

Uçan (2001) points out that the aim of rhythm education is not only to teach the structures of rhythm but that developing the child's sense of rhythm and bodily skills contributes to his happiness and helps him develop a positive personality. This process of education cannot be thought separately from the family. There is no doubt that parents' skills and experiences will also affect their children. The same situation may also be true for the musical skills of children. Therefore, this study attempts to analyze the relationship between the musical skills of children and their parents.

1.1. Problem statement

Do the musical skills of 6-year-old pre-scholars and the rhythmic skills of their parents vary with respect to certain variables?

1.2. Aim

This study aims to find the relationship between the musical skills of 6-year-old children and the rhythmic skills of their parents. To that end, it seeks to answer the following questions:

1. Is there a relation between the musical skills of 6-year-old children and the rhythmic skills of their parents?
2. Do the musical skills of 6-year-old children vary according to gender?
3. Do the musical skills of 6-year-old children vary depending on whether their parents are employed or not?
4. Do the musical skills of 6-year-old children vary depending on the educational level of their parents?

5. Do the rhythmic skills of parents vary depending on whether they are employed or not?
6. Is there are relation between the rhythmic skills of children and their other musical skills (being able to sing in the right tone, being able to transpose, sound intervals)?

2. Method

2.1. Study model

Since this study aimed to analyze the relationship between the musical skills of 6-year-old pre-schoolers and their parents in terms of certain variables, it was designed as a general survey.

2.2. Population

The main population of this study comprised 6-year-old children enrolled in independent preschools affiliated with the Ministry of Education and located in the Asian side of Istanbul and their parents.

2.3. Sample

The sample included 64 children from among those enrolled in independent preschools affiliated with the Ministry of Education and located in the Asian side of Istanbul and their parents.

2.4. Data collection

A "Personal Information Form" was used to gather data. In order to determine their musical skills, the "Musical Skills Observation Form" developed by the researcher and adjusted by an expert was used. The Child Personal Information Form consisted of gender and age-related information for 6-year-old children. The Parent Personal Information Form involved questions related to their gender and whether they were employed or not.

The Musical Skills Evaluation Form administered to the children consisted of information for determining 6-year-old children's musical skills; rhythmic performance (being able to sing rhythmically, keeping the rhythm, keeping the rhythm while singing), sound intervals, being able to transpose, singing with the correct tone. The rhythmic skills of parents, on the other hand, comprised information related to Rhythmic Skills Evaluation in adults.

The consent of the school administration and their parents was taken before children's musical skills were evaluated. The analysis was done at children's schools. All the children were chosen from among those who had not previously received any formal rhythm instruction. The analysis of children lasted 15 days. In order to lessen the level of anxiety the children might have had, the researchers met the children within the classroom atmosphere and a short musical activity was carried out. The survey was administered to the children one by one in order for them not to be affected by each other and to eliminate the source of error that suppressive learning would create. Taking into consideration the attention span of children and the fact that they may get tired and bored, the survey was administered in three different sittings. Each sitting was done on a different day. The analysis of parents was made during the weekends. The analysis of unemployed parents was made at school during the week days. The Rhythm Performance evaluation of parents took place by asking them to keep the rhythm by singing.

3. Data Analysis

In order to determine whether 6-year-old children's musical skills vary depending on gender, the Independent one-sample t test; whether 6-year-old children's musical skills vary in relation to their parents educational level One-way analysis of variance (ANOVA); to determine the relationship between 6-year-old children's and their parents' rhythmic skills Pearson product-moment correlation coefficient; whether 6-year-old children's musical

skills vary depending on their parents' employment status Independent one-sample t-test; to determine the relationship between the children's rhythmic data and other musical skills (being in tune with music, being able to transpose, and sound intervals) Pearson product-moment correlation coefficient was used.

3. 1. Findings and interpretations

Table 1. Frequency and percentage values of children according to gender.

	f	%	$\%_{val}$	$\%_{cum}$
Female	31	48,4	48,4	48,4
Male	33	51,6	51,6	100
Total	64	100	100	

As can be seen in Table 1, 31 (48, 4%) participants were girls and 33 (51,6%) were boys.

Table 2. Frequency and percentage values of parents y according to gender.

	f	%	$\%_{val}$	$\%_{cum}$
Female	60	93,8	93,8	93,8
Male	4	6,3	6,3	100
Total	64	100	100	

As can be seen in Table 2, 60 (93,8%) parents were female and 4 (6,3%) male.

Table 3. Frequency and percentage values of parents according to employment status.

	f	%	$\%_{val}$	$\%_{cum}$
Employed	30	46,9	46,9	46,9
Unemployed	34	53,1	53,1	100
Total	64	100	100	

As can be seen in Table 3, 30 (46,9%) parents were employed whereas 34 (53,1%) were not.

Table 4. Frequency and percentage values of mothers according to level of education.

	f	%	$\%_{val}$	$\%_{cum}$
University	24	37,5	37,5	37,5
High school	26	40,6	40,6	78,1
Primary	14	21,9	21,9	100
Total	64	100	100	

As can be seen in table 4, 24 (37,5%) of the children's mothers were university graduates, 26 (40,6%) were high school graduates, and 14 (21,9%) were primary school graduates.

Table 5. Frequency and percentage values of fathers according to level of education.

	f	%	$\%_{val}$	$\%_{cum}$
University	29	45,3	45,3	45,3
High school	21	32,8	32,8	78,1
Primary	14	21,9	21,9	100

Total	64	100	100

As can be seen in table 5, 29 (45,3%) were university graduates, 21 (32,8%) were high school graduates, and 14 (21,9%) were primary school graduates.

Table 6. Results of pearson product-moment correlation coefficient used to determine the relationship between rhythmic skill scores of 6-year-old children and their parents.

Variables	N	r	p
Rhythm skill scores of parents- Rhythmic skill scores of children	64	,459	**,001**

As can be seen from table 6, as a result of Pearson product-moment correlation coefficient, which was used to determine the relationship between the rhythmic skill scores of 6-year-old children and their parents, a positive statistically meaningful relation was found *(r=0,459; p<0,01).* In other words, as the rhythmic skill scores of parents rise, so do those of their children. On the other hand, as parents' rhythmic skill scores decrease, their children's scores decrease as well.

Table 7. Results of independent one-sample t-test used to determine whether rhythmic skill scores of 6-year-old children varied according to gender.

	Descriptive Values				t Test		
Gender	N	X	ss	sh	t	sd	P
Female	31	9,25	3,53	,63	-2,650	62	**,010**
Male	33	11,8	4,14	,72			

As can be seen from table 7, the results of Independent one-sample t-test run to determine whether rhythmic skill scores of 6-year-old children varied according to gender revealed that the difference between arithmetic mean of the groups was statistically meaningful *(t=-2,650; p<0,05).* The difference is in favour of males. In other words, rhythmic skill scores of males were higher than those of females. Previous studies indicated that as age becomes younger, this result changes to the advantage of females in some rhythmic structures (Mertoğlu, 2002).

Table 8. Independent one-sample t-test results used to determine whether rhythmic skill scores of 6-year-old children varied according to employment status of parents.

	Descriptive Values				t Test		
Mother's employment status	N	x	ss	sh	t	sd	p
Employed	30	11,9	3,90	,71	2,564	62	**,013**
Unemployed	34	9,41	3,84	,65			

According to table 8, the results of Independent one-sample t-test run to determine whether rhythmic skill scores of 6-year-old children varied according to employment status of their parents revealed that the difference between arithmetic means of the groups was statistically meaningful *(t=2,564; p<0,05).* This difference is in favour of mothers. In other words, rhythmic skill scores of children whose mothers were employed were higher than those of unemployed mothers. This result can be attributed to the fact that most parents in this study were either university or high school graduates. Working mothers may be thought to have less time for their children. However, parents with a higher level of education have more quality time with their children, communicate with a wider range of vocabulary, and use the rhythmic structure of words better.

Table 9. Independent one-sample t-test results used to determine whether rhythmic skill scores of parents varied according to employment status.

	Descriptive Values				t Test		
Employment Status	N	x	ss	sh	t	sd	p

Em ɔloyed	30	7,33	2,23	,40	2,115	62	**,038**
Une ɑploy ed	34	6,00	2,74	,47			

As can be seen from table 9, the results of Independent one-sample t-test run to determine whether rhythmic skill scores of parents varied according to their employment status revealed that the difference between arithmetic means of the groups was statistically meaningful *(t=2,115; p<0,05).* This difference is in favour of employed parents. In other words, rhythmic skill scores of employed parents were higher than those of unemployed parents.

Table 10. The results of one-way anova test used to determine whether there was a significant difference between rhythm skill scores of 6-year-old children according to their parents' employment status.

f, $\bar{X}$, ss Values						ANOVA values				
Score	**Group**	**N**	**X**	**SS**	**Var. K**	**KT**	**Sd**	**KO**	**F**	**p**
Rhythm Skill	University	24	12,12	4,08	**Betw.groups**	110,74	2	55,37	3,676	**0,031**
	High school	26	10,15	3,50	**Within groups**	918,86	61	15,06		
	Primary school	14	8,71	4,17	**Total**	1029,60	63			
	Total	64	10,57	4,04						

As can be seen in table 10, the results of One-way ANOVA test which was used to determine whether there was a significant difference between the rhythmic skill scores of 6-year-old children according to their parents' employment status, revealed that the difference between the arithmetic means of the groups was statistically meaningful *(F=3,676; p<0,05).* In order to find out which group created the difference, Post-hoc comparison analysis was applied. First of all, to decide which comparison technique should be chosen, the homogeneity of variants was evaluated. As they were found to be homogeneous *(L=0,498; p>0, 05),* Scheffe test was preferred. The results were as follows:

Table 10.1. Post-hoc scheffe test used after one-way anova to determine whether there was a significant difference between rhythmic skill scores of 6-year-old children according to their parents' employment status.

	EDUCATION (I)	**EDUCATION J)**	**(I-J)**	**SH**	**p**
Group	University	High school	1,97	1,09	0,20
		Primary school	3,41	1,30	**0,03**
	High school	University	-1,97	1,09	0,20
		Primary school	1,43	1,28	0,53
	Elementary education	University	-3,41	1,30	**0,03**
		High school	-1,43	1,28	0,53

As can be seen in table 10.1, the results of Post-Hoc Scheffe Test, run after One-way ANOVA Test to determine whether there was a significant difference between rhythm skill scores of 6-year-old children according to their parents' employment status, revealed that the difference was in favour of university with *p<0,05;* among university and elementary education groups. The difference between the other groups was not found to be meaningful *(p>0, 05).* Mertoğlu (2006), in a study with 157 pre-school children, found that rhythm perceptions of children varied according to their mothers' educational level and that this difference was in favour of university graduates. As the majority of the parents in this study were also mothers, it can be concluded that similar findings have been obtained.

Figure 1. Rhythmic skill scores of parents according to their educational level

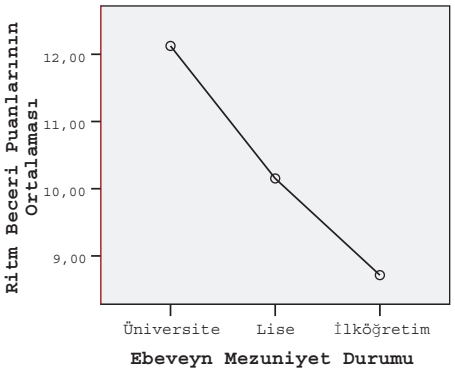

Table 11. The results of pearson correlation analysis used to determine the relationship between 6-year-old children's scores for being able to keep the rhythm while singing and being in tune with music, and the relationship between being able to transpose and sound interval scores.

Variables	N	r	p
Skills of being able to keep the rhythm by singing-Score for being in tune with music	64	,121	,34
Skills of being able to keep the rhythm by singing –Score for being able to transpose	64	,462	**,01**
Skills of being able to keep the rhythm by singing –Score for sound intervals	64	,382	**,01**

As can be seen in table 11, the results of Pearson product-moment correlation coefficient which was run to determine the relationship between 6-year-old children's rhythmic skill scores and being in tune with music, and the relationship between being able to transpose and sound interval scores indicated that there was not a statistically meaningful relationship among the variables and between the score for being able to keep the rhythm by singing and being in tune with music *(r=0,121; p>0, 05).* A statistically meaningful relationship was found between the scores for being able to keep the rhythm by singing and being able to transpose *(r=0,462; p<0, 01)*. In addition, a statistically meaningful relationship was found between the scores of being able to keep the rhythm by singing and sound interval scores *(r=0,382; p<0, 01).* In other words, as scores for being able to keep the rhythm by singing increased so did the scores for being able to transpose and sound interval scores. In other words, as scores for being able to keep the rhythm by singing decreased, so did the scores for being able to transpose and sound intervals.

Table 12. The results of Pearson product-moment correlation coefficient used to determine the relationship between 6-year-old children's skill scores for being in tune with music, being able to transpose and scores for sound intervals and their parents' rhythm scores.

Variables	N	r	p
Parent rhythm score- Score for being in tune with music	64	,228	,07
Parent rhythm score - Score for being able to transpose	64	,350	**,05**
Parent rhythm score - Sound interval score	64	,346	**,05**

As can be seen from table 12, the results of Pearson product-moment correlation coefficient, which was run to determine the relationship between 6-year-old children's scores for being in tune with music, being able to transpose and scores for sound intervals and their parents' rhythm scores, indicated that there was no statistically meaningful relationship among the variables and between the parents' rhythm scores and 6-year-old children's score for being in tune with music *(r=0,228; p>0,05).* However, a statistically meaningful relationship was found between parents' rhythm scores and children's scores for being able to transpose *(r=0,350; p<0, 05)*. In addition, a statistically meaningful relationship was found between the parents' rhythm scores and 6-year-old children's sound interval

scores *(r=0,346; p<0, 05)*. That is to say, as parents' rhythm scores increased, so did the 6-year-old children's scores for being able to transpose and sound interval scores. As the parents' rhythm scores decreased, so did the scores for being able to transpose and sound interval scores.

4. Conclusions and Recommendations

The results showed that 6-year-old children's rhythmic skills were in favour of males according to gender and that there was a positive relationship between 6-year-old children's and their parent's rhythm and other musical skills. In addition, the rhythmic skills of employed parents were observed to be higher than that of unemployed parents' children.

When the literature is reviewed, it can be seen that the studies in this field generally focus on the importance of rhythm education. This study, as a result of previous research, revealed that the relationship between children's rhythmic performance and other developmental areas is parallel to each other and that there are either positive or negative effects of parents' educational level on children's rhythmic performance. All these findings support the idea that music education should be offered in preschools with great rigour. More importantly, this study emphasizes the necessity of starting such programs within the family. In light of the findings from this study, the following recommendations may be made to the benefit of preschool institutions, children enrolled in these and their parents:

1. Pre-school institutions should evaluate the entry skills of children starting preschool, and try to determine whether their level is due to themselves or their parents, and create activities to improve children.
2. Parents should be invited to participate in the activities to be held at preschools. By doing so, parents would be informed of their children's musical and rhythmic skills and able to contribute to their children's education.
3. Parents should be informed by professionals about how they can work with their children at home through activities, and how they can provide rhythmic and musical development during the preschool period.
4. Teachers should undertake a training program to equip them with the necessary information related to the issue.
5. Future studies should be conducted in this field and they should be supported by professionals.

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