



READINESS TO PRIMARY SCHOOL: A COMPARISON REGARDING VISUAL PERCEPTION AND DRAWING LINES SKILLS

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Abstract

First grade of primary school is among the most important steps in terms of acquiring skills such as literacy and arithmetic that we shall use for a lifetime and directing our future attitudes towards reading. In order for the child to develop correct writing skill, it is of great significance to acquire basic skills on which preparation to writing is based starting from the pre-school period. Also, doing practices regarding the visual perception skill improves literacy, spelling, making arithmetical calculations skills in children and helps them improve all the necessary skills to succeed in school. In line with this idea, this study aims to identify by comparing the relationship between pre-school children's primary education readiness in terms of visual perception and drawing line skills by various variables. For this aim, Frostig Visual Perception Test, Line Practices sub-scale of Marmara Primary Education Readiness Scale, and questionnaire forms filled out by the teachers regarding demographic information and studies of the children were used and statistical analysis of the data obtained from 120 pre-school children was done.

Keywords: Visual Perception, Drawing lines skills, readiness to school.

INTRODUCTION

Starting primary education readiness is one of the most critical turning points of a child's life. Primary school is a different environment from home and the child spends most of her/his day with new friends and adults. The child has new responsibilities such as participating in the activities of a programmed teaching, obeying the rules, fulfil the teacher's instructions, and more importantly learning how to read and write and arithmetic. For this reason, first grade of elementary teaching is among the most important steps in terms of acquiring skills such as literacy and arithmetic that we shall use for a lifetime and directing our future attitudes towards reading (Oktay-Unutkan, 2003).

In order for the child to develop the correct writing skill, it is important to perform some preliminary studies beginning from the pre-school period. For instance, practices to develop fine motor skills on which writing is based: beading, kneading, pouring something from one pot to another, drawing lines by holding their pencil appropriately etc. The child has to have skills requiring muscle power such as holding a pencil, control her/his body, move, and sit up (Tepperman, 1998).

Drawing vertical and circular lines behaviours, which are important for writing skill, are fine motor skills that develop during the pre-school period (Berndt, 1997). In order to write in cursive, italic neatly, arm, wrist, and finger muscles and sense of touch should be developed. As well as doing practices that support this skill, it is important to hold and use their pencil correctly and to develop visual perception skills for the child to write neatly.

Coordinated movements of hand and eyes are critical for acquiring writing skills which depends on the development of hand and arm muscles (thin and thick muscles) as well as on the coordination of the eyes (Oktay, 2010).

Visual perception is the ability to notice visual stimulants, telling them apart and decipher them by relating to previous experiences. Visual perception is not only the ability to see (Quoted from: Cengiz, 2002 Frostig, 1968). According to Frostig visual perception skill improves literacy, spelling and doing arithmetical calculations in children and helps them improve the necessary skills to succeed in school. Still, most children start primary school in a less prepared state to perform the tasks that include visual perception (Quoted by Cengiz, 2002 Frostig, 1968).

From this point of view, this study was carried out to identify the relationship between their primary education readiness in terms of visual perception level and drawing line skills in children aged 5 and 6.

The study looked for answers to the questions below:

1. Is there a relationship between their primary education readiness in terms of visual perception level and drawing line skills in children aged 5 and 6?
2. Are primary education readiness levels of children aged 5 and 6 in terms of visual perception level and drawing line skills affected by age, sex, and duration of pre-school education?
3. Are primary education readiness levels of children aged 5 and 6 in terms of visual perception level and drawing line skills affected by parents' educational levels and jobs?
4. Are primary education readiness levels of children aged 5 and 6 in terms of visual perception level and drawing line skills affected by positioning the body appropriately?
5. Does holding their pencil correctly affect children's primary education readiness levels in terms of visual perception level and drawing line practices?
6. Does the skill of drawing a line without lifting the hand affect children's primary education readiness levels in terms of visual perception level and drawing line practices?
7. Does the skill of copying by looking at a model affect children's primary education readiness levels in terms of visual perception level and drawing line practices?
8. Does the skill cutting affect children's primary education readiness levels in terms of visual perception level and drawing line practices?
9. Does the skill of doing tasks that require eye and hand coordination affect children's primary education readiness levels in terms of visual perception level and drawing line practices?

METHOD

Sample and Population

This study is based on the data of 120 children aged 5, 5.5, and 6 who go to a pre-school institution in Kadikoy district of Istanbul obtained from the teachers and survey model was used.

Data Collection Tools

In the study the data regarding visual perception, and their primary education readiness in terms of line practices were collected.

In order to identify the visual perception levels of children, Frostig Visual Perception Test used for children aged 4 years and 7 years and 11 months was administered. It assesses hand-eye coordination, shape-ground distinction, steadiness of perception, space-position perception, and perception of spatial relationships.



Drawing sub-scale of Marmara Primary School Readiness Test was used to determine their primary education readiness in term of drawing lines. This test is composed of sub-scales which are mathematics, science, sound, drawing, and labyrinth and each sub-scale might be used independently. Also a questionnaire form was filled out by the teachers to obtain information about demographics and studies of children.

Procedure

Frostig Visual Perception Test and Marmara Primary School Readiness Test were filled out by researchers by working one-to-one with children and questionnaire forms were filled out by the teachers.

The data obtained from the scale and questionnaire was analysed using SPSS package program. The information obtained from the questionnaires filled out by the teachers was compared to the data obtained from Frostig Visual Perception Test and Marmara Primary School Readiness Test, t test and variance analyses was done to assess the differences. Level of meaningfulness was $p < 0,05$ and $p < 0,01$ -level meaningfulness was also determined. LSD test was administered to identify the source of difference. The correlation between visual perception test total scores and line scores was also checked.

FINDINGS AND COMMENTS

Demographical data of the research group is not presented in a table.

The research group was composed of 120 children 27,5% of whom were 6, 58,3% of whom were 5,5, and 14,2% of whom were 5 years old. 58, 3% of the children were girls and 41,7% of them were boys. 27,5% of the children had been taking education for 3 years. 50% of them had been taking institutional pre-school education for 2 years and 22,5% of them had been taking institutional pre-school education for 1 year.

41, 7% of the mothers got high school education. 36, 7% of the mothers did undergraduate study and 13,3% did master's degree. 48, 3% of the fathers got high school education. 41, 7% of the fathers did undergraduate study, 8, 3% did master's degree, and 1, 7% of them completed primary school.

19,2% of the mothers were civil servants and 15,8% of them were unemployed whereas 14,2% of them were labourers, 14,1% of them were self-employed, 10,8% of them were doctors and engineers, 8,3% of them were teachers, 7,5% of them were academicians, 6,7% of them were managers, and 3,3% of them were retired. 33,3% of the fathers were self-employed, 20,8% of them were civil servants, 13,3% of them were doctors/engineers, 10% of them were teachers, and 10% of them were labourers. 5% of the fathers were retired, 4, 2% of them were managers, and 3, 3% of them were academicians.

According to the data obtained from the teachers;

53,3% of the children sometimes positioned their bodies rightly during table activities, 42,5% of them positioned their bodies correctly, and 4,2% could not position their bodies correctly.

62, 5% of the children always held their pencil correctly, 29, 2% of them frequently held their pencil correctly, and 8, 3% of the children could not hold their pencil correctly.

60% of the children sometimes lifted their hands during continuous line drawing activities. 32,5% of them could complete these activities without lifting their hands while 7,5% of them could not perform this activity. 42, 5% of the children could copy the model whereas 30% of them could frequently do this task and 27, 5% of them could not do this task.

49, 2% of the children could cut out a complicated shape without getting any help. 46, 7% of them sometimes needed help and 4,2% of them always got help for the cutting activity.

55% of the children sometimes needed help to perform tasks that required eye-hand coordination while 40% of them did not need any help. However, 5% of the children always needed support for this task.

Table 1: The results of the correlation tests regarding their primary education readiness levels in terms of visual perception and drawing line activities

		Visual Perception	Drawing
Visual Perception	Pearson Correlation	1	,522
	Sig. (2-tailed)		,000
	N	120	120
Drawing	Pearson Correlation	,522	1
	Sig. (2-tailed)	,000	
	N	120	120

In order to identify the correlation regarding preschoolers' primary education readiness levels in terms of visual perception and drawing line activities, Pearson correlation test was administered. As shown in Table 1, the relationship between their primary education readiness levels in terms of visual perception and drawing line activities was $p < 0.01$.

Table 2: t test results for visual perception and drawing line activities scores by gender

		N	X	sd	df	t	Sig.
Visual Perception	Female	70	75,9143	26,02716	118	2,473	,014
	Male	50	61,9800	35,70999			
Drawing	Female	70	64,0857	27,04786	118	1,346	,181
	Male	50	56,7600	32,42987			

Table 2 shows that gender had an effect at $p < 0,01$ level in terms of visual perception level and arithmetical averages show that girls scored higher. Gender did not affect their readiness to primary education in terms of drawing line activities.

Table 3: Results of the variance analysis carried out for visual perception and line activities scores by year of pre-school education variable.

		Sum of Squares	df	Mean Squares	F	Sig.
Visual Perception	Between Groups	8358,847	2	4179,423	4,590	,012
	Within Groups	106530,745	117	910,519		
	Total	114889,592	119			
Drawing	Between Groups	7306,100	2	3653,050	4,440	,014
	Within Groups	96271,767	117	822,836		
	Total	103577,867	119			

As it can be seen in Table 3, there were meaningful differences at the level of $p < 0,01$ between their primary education readiness in terms of visual perception and drawing line activities by year of pre-school education variable. LSD test was administered to determine the source of the difference and it was found that children who had taken institutional pre-school education for 1 year had low scores compared to the children who had taken institutional pre-school education for 2 years and 3 years regarding their primary education readiness in terms of visual perception levels and drawing line activities.

Table 4: Results of the variance analysis carried out for visual perception and line activities scores by age variable.

		Sum of Squares	df	Mean Squares	F	Sig.
Visual Perception	Between Groups	33239,263	2	16619,632	23,815	,000
	Within Groups	81650,329	117	697,866		
	Total	114889,592	119			
Drawing	Between Groups	30321,758	2	15160,879	24,214	,000
	Within Groups	73256,109	117	626,121		
	Total	103577,867	119			

Table 4 shows that there were meaningful differences at the level of $p < 0,01$ between their primary education readiness in terms of visual perception and drawing line activities by age variable. LSD test was administered to determine the source of the difference and it was found that children at the age of 5 had low scores compared to the children at the age of 5, 5, and 6 regarding their primary education readiness levels in terms of visual perception levels and drawing line activities.

Table 5: Results of the variance analysis carried out for visual perception and line activities scores by mother's educational level variable.

		Sum of Squares	df	Mean Squares	F	Sig.
Visual Perception	Between Groups	6209,546	3	2069,849	2,209	,091
	Within Groups	108680,045	116	936,897		
	Total	114889,592	119			
Drawing	Between Groups	2650,501	3	883,500	1,015	,389
	Within Groups	100927,365	116	870,063		
	Total	103577,867	119			

According to Table 5 there was not a meaningful difference between their primary education readiness levels in terms of visual perception levels and drawing line activities by mother's educational level variable.

Table 6: Results of the variance analysis carried out for visual perception and line activities scores by father's educational level variable.

		Sum of Squares	df	Mean Squares	F	Sig.
Visual Perception	Between Groups	657,881	3	219,294	,223	,880
	Within Groups	114231,711	116	984,756		
	Total	114889,592	119			
Drawing	Between Groups	528,518	3	176,173	,198	,897
	Within Groups	103049,349	116	888,356		
	Total	103577,867	119			

According to Table 6 there was not a meaningful difference between their primary education readiness levels in terms of visual perception levels and drawing line activities by father's educational level variable.

Table 7: Results of the variance analysis carried out for visual perception and line activities scores by mother's occupation variable

		Sum of Squares	df	Mean Squares	F	Sig.
Visual Perception	Between Groups	9530,981	9	1058,998	1,106	,365
	Within Groups	105358,611	110	957,806		
	Total	114889,592	119			

Drawing	Between Groups	3903,433	9	433,715	,479	,886
	Within Groups	99674,433	110	906,131		
	Total	103577,867	119			

According to Table 7 there was not a meaningful difference between their primary education readiness in terms of visual perception levels and drawing line activities by mother's occupation variable.

Table 8: Results of the variance analysis carried out for visual perception and line activities scores by father's occupation variable

		Sum of Squares	df	Mean Squares	F	Sig.
Visual Perception	Between Groups	10789,422	8	1348,678	1,438	,189
	Within Groups	104100,170	111	937,839		
	Total	114889,592	119			
Drawing	Between Groups	13326,998	8	1665,875	2,049	,097
	Within Groups	90250,868	111	813,071		
	Total	103577,867	119			

According to Table 8 there was not a meaningful difference between their primary education readiness in terms of visual perception levels and drawing line activities by father's occupation variable.

Table 9: Results of the variance analysis carried out for visual perception and line activities scores by children's correct body positioning level variable

		Sum of Squares	df	Mean Squares	F	Sig.
Visual Perception	Between Groups	25423,239	2	12711,619	16,624	,000
	Within Groups	89466,353	117	764,670		
	Total	114889,592	119			
Drawing	Between Groups	17819,607	2	8909,803	12,156	,000
	Within Groups	85758,260	117	732,977		
	Total	103577,867	119			

Table 9 shows that there was a meaningful difference at the level of $p < 0,01$ between children's primary education readiness level in terms of visual perception and drawing line activities by correct body positioning variable. LSD test was administered to determine the source of the difference and it was found that children who could not position their bodies correctly had low scores compared to the other children regarding their primary education readiness in terms of visual perception levels and drawing line activities.

Table 10: Results of the variance analysis carried out for visual perception and line activities scores by holding the pencil correctly variable.

		Sum of Squares	df	Mean Squares	F	Sig.
Visual Perception	Between Groups	3729,202	2	1864,601	1,963	,145
	Within Groups	111160,390	117	950,089		
	Total	114889,592	119			
Drawing	Between Groups	6910,949	2	3455,474	4,182	,018
	Within Groups	96666,918	117	826,213		
	Total	103577,867	119			

Variance analysis results in Table 10 reveal that there was not a meaningful difference between visual perception level and holding the pencil correctly. However, there was a meaningful difference at the level of $p < 0,05$ between children's primary education readiness level in terms of drawing line activities. LSD test was

administered to determine the source of the difference and it was found that children who could not hold their pencils correctly had meaningfully low averages compared to the other children.

Table 11: Results of the variance analysis carried out for visual perception and line activities scores by completing the line without lifting their hands variable

		Sum of Squares	df	Mean Squares	F	Sig.
Visual Perception	Between Groups	38789,694	2	19394,847	29,819	,000
	Within Groups	76099,897	117	650,426		
	Total	114889,592	119			
Drawing	Between Groups	35601,320	2	17800,660	30,638	,000
	Within Groups	67976,547	117	580,996		
	Total	103577,867	119			

Table 11 shows that there was a meaningful difference at the level of $p < 0,01$ between children's primary education readiness level in terms of visual perception levels and drawing line activities by completing the line without lifting their hands variable. LSD test was administered to determine the source of the difference and it was found that children who could complete the line without lifting their hands had meaningfully high averages compared to the other children regarding their primary education readiness in terms of both visual perception levels and drawing line activities.

Table 12: Results of the variance analysis carried out for visual perception and line activities scores by copying the model variable

		Sum of Squares	df	Mean Squares	F	Sig.
Visual Perception	Between Groups	9961,166	2	4980,583	5,554	,005
	Within Groups	104928,425	117	896,824		
	Total	114889,592	119			
Drawing	Between Groups	26119,177	2	13059,589	19,726	,000
	Within Groups	77458,689	117	662,040		
	Total	103577,867	119			

According to the results in Table 12 there was a meaningful difference at the level of $p < 0,01$ between children's primary education readiness level in terms of visual perception levels and drawing line activities by copying the model variable. LSD test was administered to determine the source of the difference and it was found that children who could not copy the model had meaningfully low averages compared to the other children in terms of visual perception levels. As for the drawing line activities, it was seen that children who could copy the model had meaningfully higher averages compared to the other children in terms of their primary education readiness levels.

Table 13: Results of the variance analysis carried out for visual perception and line activities scores by doing cutting activities completely variable

		Sum of Squares	df	Mean Squares	F	Sig.
Visual Perception	Between Groups	32877,863	2	16438,931	23,452	,000
	Within Groups	82011,729	117	700,955		
	Total	114889,592	119			
Drawing	Between Groups	26022,118	2	13011,059	19,628	,000
	Within Groups	77555,748	117	662,870		
	Total	103577,867	119			

According to the results in Table 13 there was a meaningful difference at the level of $p < 0,01$ between children's primary education readiness level in terms of visual perception levels and drawing line activities by doing cutting activities completely variable. LSD test was administered to determine the source of the

difference and it was found that children who could cut out a complicated shape without getting help had meaningfully high averages compared to the children who could not in terms of visual perception levels and drawing line activities regarding their primary education readiness levels.

Table 14: Results of the variance analysis carried out for visual perception and line activities scores by doing tasks that require eye-hand coordination variable

		Sum of Squares	df	Mean Squares	F	Sig.
Visual Perception	Between Groups	14742,749	2	7371,374	8,612	,000
	Within Groups	100146,843	117	855,956		
	Total	114889,592	119			
Drawing	Between Groups	34879,715	2	17439,858	29,702	,000
	Within Groups	68698,152	117	587,164		
	Total	103577,867	119			

The results in Table 14 reveal that there was a meaningful difference at the level of $p < 0,01$ between children's primary education readiness level in terms of both visual perception levels and drawing line activities by doing tasks that require eye-hand coordination variable. LSD test was administered to determine the source of the difference and it was found that children who could do tasks that require eye-hand coordination without getting help had meaningfully high averages compared to the children who could not in terms of both visual perception levels and drawing line activities regarding their primary education readiness levels.

DISCUSSION

The relationship between pre-school children's primary education readiness in terms of visual perception and drawing line activities was identified in this study and comparisons were made by age, sex, duration of education, parents' educational levels, and occupations. The relationship between pre-school children's primary education readiness in terms of visual perception and drawing line skills by various variables was at a level of $p < 0.01$. According to Frostig, visual perception skills improve literacy, spelling and arithmetical calculations and help them improve the necessary skills to succeed in school. The comparisons made with the variables support this finding. Other findings of the study also support the relationship between pre-school children's primary education readiness in terms of visual perception and drawing line skills. When the other variables were compared, parallel differences for both levels were found. As for the relationship between pre-school children's primary education readiness in terms of visual perception and drawing line skills it was seen that

- children who had taken institutional pre-school education for 1 year had low scores compared to the children who had taken institutional pre-school education for 2 years and 3 years .
- 5-year-old children 5 had meaningfully low scores compared to the children aged 5, 5 and 6.
- children who could not position their bodies correctly had low scores compared to the other children.
- children who could complete the line without lifting their hands had meaningfully high averages compared to the other children.
- children who could cut out a complicated shape without getting help had meaningfully high averages compared to the children who could not.
- children who could do tasks that require eye-hand coordination without getting help had meaningfully high averages compared to the children who could not.

It was revealed that holding the pencil correctly variable did not create any meaningful difference for visual perception levels; however, children who could not hold their pencils correctly had meaningfully lower levels compared to the other children in terms of drawing line activities regarding their readiness to primary education. According to Polat (2010) the child holding the pencil incorrectly causes the hands to be tired and prevents the child from writing beautifully. Visual perception is a skill related to deciphering visual stimulants. It was found that children who could not copy the model had meaningfully low averages compared to the children who could always and frequently perform this task but there was not a difference between always performing and frequently performing this task. As for the drawing line activities, it was seen that children who



could copy the model had meaningfully high averages compared to the other children in terms of their primary education readiness levels and that there was not a meaningful difference between performing this task frequently and not being able to perform it.

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