RESEARCH ON DEVELOPMENT DYNAMICS OF CHILDREN ENROLLED IN PRESCHOOL INSTITUTIONS AND OBSERVATION OF FACTORS AFFECTING THEIR DEVELOPMENT

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1. EXECUTIVE SUMMARY

Numerous researches on children development and the role and importance of preschool institutions in the general education system state that preschool education positively affects the quality of elementary education, as it enhances the child's ability to adapt to the school environment, perceptivity, and learning progress. Preschool education in Armenia is in its development stage, and one of its priorities is to make preschool education accessible for everyone through reconstruction and foundation of preschool institutions, paying a special attention to increase of the level of enrollment of children from socially vulnerable families. The purpose of this research is to analyze the development dynamics of children enrolled and not enrolled in institutions implementing preschool education micro-projects, and the factors affecting it (for each year, by regions and micro-projects implementation process).

This report summarizes the results of preschools activity during the last four academic years (2019-2019) and the children's development dynamics.

1.1. Introduction

Highlighting the importance of preschool education issues and the need for reforms in the system, the RA government has signed agreements with the World Bank to support the implementation of the "Education Improvement" Project. The RA government's main goal is to improve the quality and accessibility of preschool education services, with special emphasis on increasing the enrollment of children from socially vulnerable families in preschool institutions.

Establishment of preschool institutions within the program framework was made in different time periods, thus, the research was carried out through several stages as well, covering each year the regions where preschools had been newly established. In the years 2015-2016 the research was conducted in three regions of Armenia: Shirak, Gegharkunik, Kotayk; in the years 2016-2017 - in the regions of Tavush, Lori, Armavir; in the years 2017-2018 – in Syunik, Ararat, Aragatsotn; and in the years 2018-2019 - in Yerevan, Vayots Dzor, Gegharkunik and Lori.

2. DESCRIPTION OF FIELDWORK

During the period 2015-2016 the research was conducted in the regions Shirak, Gegharkunik, Kotayk; during 2016-2017 - in Tavush, Lori, Armavir; during 2017-2018 – in Syunik, Ararat, Aragatsotn; and during 2018-2019 - in Yerevan, Vayots Dzor, Gegharkunik and Lori.

2.1. Implementation of fieldwork at the beginning of academic year

In total, 80 communities were visited at the beginning of the academic year for testing the children enrolled and non-enrolled in preschool institutions.

2.1.1. Testing of children attending preschool institutions

At the beginning of academic year, the fieldwork for testing the preschool children was conducted during the period from 25 December 2015 to 31 March 2016 for the first stage, from 09 to 25 of November 2016 for the second stage, from 24 October to 13 November 2017 for the third stage, and from 08 to 21 of November 2018 for the fourth stage.

Of the total number of children enrolled in preschool institutions, the sampling number provided for by the methodology (not less than 10 children for each case) was examined during the fieldwork. It is worth to mention that because of small number of children aged 5-6 years in the community preschool provided by sampling in some of the regions, an additional visit was made to another preschool of the same region as well to ensure the representativeness of the sampling parameters (for example, in cases of the following communities, in the second stage: Dovegh-Achajur, Voskepar-Yenokavan, Nerkin Tsaghkavan-Vazashen; in the third stage: Avan-Aghdzk; in the fourth stage: Dzoramut-Gugark).

The schedule of preschool visits is presented in Table 1.

Table 1: Schedule of fieldwork planned in the prime communities for the beginning of 2015-2019 academic years, by regions

Region	Village/City	Date
2015-2016		
Shirak	Gyumri	22.02.2016
	Gyumri	22.02.2016
	Mets Mantash	25.12.2015
Gegharkunik	Martuni	11.03.2016
	Chambarak	26.02.2016
	Dzoragyugh	15.02.2016
Kotayk	Abovyan	26.02.2016
	Kasakh	23.03.2016
	Aragyugh	24.03.2016
2016-2017		
Armavir	Armavir	10.11.2016
	Metsamor	09.11.2016
	Voskehat	10.11.2016
Tavush	Dovegh (Aknaghbyur)	23.11.2016
	Voskepar (Yenokavan)	23.11.2016
	Nerkin Tsaghkavan (Vazashen)	22.11.2016
Lori	Stepanavan	24.11.2016
	Vanadzor	25.11.2016
	Spitak	25.11.2016
2017-2018		
Ararat	Ararat	07.11.2017
	Vedi	08.11.2017
	Deghdzut	09.11.2017
Aragatsotn	Ujan	10.11.2017
	Avan (Aghdzk)	10.11.2017
	Vardenis	13.11.2017
Syunik	Goris	24.10.2017
	Karahunj	24.10.2017
	Sisian	25.10.2017
2018-2019		
Gegharkunik	Tsaghkunk	13.11.2018
Vayots Dzor	Getap	16.11.2018
	Gladzor	16.11.2018
	Yeghegis	16.11.2018

Lori	Dzoramut (Gugark)	21.11.2018
	Margahovit	20.11.2018
	Vanadzor	20.11.2018
Yerevan	Yerevan 1[1]	10.11.2018
	Yerevan 2[2]	08.11.2018
	Yerevan 3[3]	12.11.2018

2.1.2. Testing of children not attending preschool institutions

In those communities where the corresponding number of children not attending preschool was not found, reserve communities were selected (according to the methodology). 46 reserve communities were selected for 13 regional visits in total, moreover, in some cases the selected reserve communities were quite far from the prime community, as there were no 5-6 year old children not attending preschool in the nearby communities.

The reasons for not finding sufficient number of children were mainly as follows: initially the number of children aged 5-6 years was small, some of them had relocated/emigrated, had been sick, or factually living in other communities, or attending a kindergarten.

Therefore, generalized groups of non-attending children with combined gender composition were sometimes formed for prime communities. Correspondingly, the control group for each preschool was selected from the mentioned generalized groups, taking into account the distribution by gender and quantity.

Table 2: Schedule of visits to the selected reserve communities for the beginning of 2015-2019 academic years, by regions and prime communities

Region	Prime Community	Reserve Community	Date
2015-2016			
Shirak	Gyumri (N23 primary school)	Gyumri	22.02.2016
	Gyumri («Ani kindergarten» preschool)		
	Mets Mantash	Pokr Mantash	24.02.2016
Gegharkunik	Martuni	Martuni Vaghashen	11.03.2016 15.02.2016
	Chambarak	Chambarak v. Martuni	26.02.2016
	Dzoragyugh	Vaghashen	15.02.2016
Kotayk	Abovyan	Abovyan	26.02.2016
	Kasakh	Kasakh Proshyan	28.03.2016 21.03.2016
	Aragyugh	Karenis Nurnus Mrgashen	31.03.2016 31.03.2016 29.03.2016
2016-2017			

[1] Yerevan Basic School N66 named after Al.Myasnikyan
[2] Yerevan Basic School N13 named after E.Thaelmann
[3] Yerevan Basic School N55 named after A.Chekhov

Armavir	Armavir	Mrgashat	10.11.2016
	Metsamor	Aknalich Taronik	09.11.2016 16.11.2016
	Voskehat	Taronik Mrgastan	16.11.2016
Tavush	Dovegh	Koghb Berdavan Achajur Azatamut	23.11.2016 23.11.2016
	Voskepar	Kirants Sarigyugh Achajur	22.11.2016
	Nerkin Tsaghkavan	Azatamut	25.11.2016
		Sarigyugh	22.11.2016
Lori	Stepanavan	Loriberd Urasar Pushkino Amrakits Armanis	24.11.2016
	Vanadzor	Vanadzor	25.11.2016
	Spitak	Spitak	25.11.2016
2017-2018			
Ararat	Ararat	Ditak	
	Vedi	Dashtakar	09.11.2017
	Deghdzut	Kanachut	
Aragatsotn	Ujan	Partizak	10.11.2017
	Avan	Chknagh	13.11.2017
	Vardenis	Ttujur	13.11.2017
Syunik	Goris	Karashen	24.10.2017
	Karahunj	Vorotnavan	25.10.2017
	Sisian	Svarants	24.10.2017
2018-2019			
Gegharkunik	Tsaghkunk	Norashen	14.11.2018
Vayots Dzor	Getap	Salli	
	Gladzor	Artabuynk	16.11.2018
	Yeghegis	Horbategh	
Lori	Dzoramut (Gugark)	Vanadzor	
	Margahovit	Spitak	20.11.2018
	Vanadzor	Gugark	
Yerevan	Yerevan 1	Yerevan	07.11.2018 08.11.2019
	Yerevan 2		
	Yerevan 3		

2.2. Implementation of fieldwork at the end of academic year

At the end of academic year visits for testing were organized to the same 80 communities visited at the beginning of the year. Fieldwork at the end of academic year was implemented in the period from 13 to 31 of May 2016 for the first stage, from 17 May to 23 June 2017 for the second stage, from 17 May to 01 June 2018 for the third stage, and form 23 May to 12 June 2019 for the fourth stage.

For the analysis of children development dynamics, children tested in the previous stage should have been tested in this stage of the fieldwork. Some of the children tested in the previous stage were absent during the end of year visit due to sickness, relocation/emigration and other reasons. Analysis was based on the results of children tested in both stages of fieldwork maintaining the gender distribution foreseen by the methodology.

2.2.1. Testing of children attending preschool institutions

Similar to the visits made at the beginning of the year, visits were made at the year end to one more preschool in addition to the three visited preschools in the same region to ensure the representativeness of the sampling parameters (for example, the communities Dovegh-Achajur, Voskepar-Yenokavan, Nerkin Tsaghkavan-Vazashen, in the second stage; Avan-Aghdzk, in the third stage; Dzoramut – Gugark, in the fourth stage).

The time schedule by regions of visits made to the prime communities is presented in Table 3.

Table 3: Schedule of fieldwork planned in the prime communities at the end of 2015-2019 academic years, by regions

Region	Village/City	Date
2015-2016		
Shirak	Gyumri	25.05.2016
	Gyumri	25.05.2016
	Mets Mantash	24.05.2016
Gegharkunik	Martuni	13.05.2016
	Chambarak	16.05.2016
	Dzoragyugh	27.05.2016
Kotayk	Abovyan	20.05.2016
	Kasakh	19.05.2016
	Aragyugh	31.05.2016
2016-2017		
Armavir	Armavir	17.05.2017
	Metsamor	17.05.2017
	Voskehat	19.05.2017
Tavush	Dovegh	21.06.2017
	Voskepar	21.06.2017
	Nerkin Tsaghkavan	20.06.2017
Lori	Stepanavan	22.06.2017
	Vanadzor	23.06.2017
	Spitak	23.06.2017
2017-2018		
Ararat	Ararat	29.05.2018
	Vedi	30.05.2018
	Deghdzut	01.06.2018
Aragatsotn	Ujan	22.05.2018
	Avan	24.05.2018
	Vardenis	23.05.2018
Syunik	Goris	17.05.2018
	Karahunj	17.05.2018
	Sisian	18.05.2018
2018-2019		
Gegharkunik	Tsaghkunk	31.05.2019
Vayots Dzor	Getap	12.06.2019
	Gladzor	12.06.2019
	Yeghegis	12.06.2019

Lori	Dzoramut (Gugark)	05.06.2019
	Margahovit	05.06.2019
	Vanadzor	05.06.2019
Yerevan	Yerevan 1	27.05.2019
	Yerevan 2	07.06.2019
	Yerevan 3	22.05.2019

2.2.2. Testing of children not attending preschool institutions

Meetings with children not attending preschool institutions were organized with the support of community heads. Meetings were organized in community councils, schools and places of residence.

The time schedule by regions of visits made to the reserve communities is presented in Table 4.

Table 4: Schedule of fieldwork in the reserve communities planned for the end of 2015-2019 academic years, by regions and prime communities

Region	Prime community	Reserve community	Date
2015-2016			
Shirak	Gyumri (N23 prime school)	Gyumri	25.05.2016
	Gyumri («Ani kindergarten» preschool)	Gyumri	25.05.2016
	Mets Mantash	Poqr Mantash	24.05.2016
Gegharkunik	Martuni	Martuni Vaghashen	13.05.2016 27.05.2016
	Chambarak	Chambarak v. Martuni	16.05.2016
	Dzoragyugh	Vaghashen	27.05.2016
Kotayk	Abovyan	Abovyan	20.05.2016
	Kasakh	Kasakh Proshyan	19.05.2016 17.05.2016
	Aragyugh	Karenis Nurnus Mrgashen	31.05.2016
2016-2017			
Armavir	Armavir	Mrgashat	17.05.2017
	Metsamor	Aknalich Taronik	17.05.2017
	Voskehat	Taronik Mrgastan	17.05.2017 19.05.2017
Tavush	Dovegh	Koghb Berdavan Achajur Azatamut	21.06.2017 21.06.2017 20.06.2017 20.06.2017
	Voskepar	Kirants Sarigyugh Achajur	20.06.2017
	Nerkin Tsaghkavan	Azatamut Sarigyugh	20.06.2017
Lori	Stepanavan	Loriberd Urasar Pushkino Amrakits Armanis	22.06.2017
	Vanadzor	Vanadzor	23.06.2017
	Spitak	Spitak	23.06.2017

2017-2018			
Ararat	Ararat	Ditak Dashtakar Kanachut	01.06.2018թ 29.05.2018թ. 01.06.2018թ
	Vedi		
	Deghdzut		
Aragatsotn	Ujan	Partizak Chqnagh Ttujur	22.05.2018թ.
	Avan		23.05.2018թ.
	Vardenis		23.05.2018թ.
Syunik	Goris	Karashen Vorotnavan Svarants	17.05.2018թ.
	Karahunj		18.05.2018թ.
	Sisian		17.05.2018թ.
2018-2019			
Gegharkunik	Tsaghkunk	Norashen	14.11.2018
Vayots Dzor	Getap	Salli Artabuynk Horbategh	16.11.2018
	Gladzor		
	Yeghegis		
Lori	Dzoramut (Gugark)	Vanadzor Spitak Gugark	20.11.2018
	Margahovit		
	Vanadzor		
Yerevan	Yerevan 1	Yerevan	07.11.2018 08.11.2019
	Yerevan 2		
	Yerevan 3		

2.3. Quantitative picture of fieldwork

1,807 standardized interviews were conducted with 5-6 years old children attending and not attending preschool institutions at the beginning and at the end of academic year, out of which the number of children tested at the beginning of the year comprised 938 children, and at the end of the year – 869 children. In general, 599 children attending preschool institutions and 364[4] children not attending preschool institutions were tested, of which the number of retested children comprised 506 and 294[5] children respectively. As a result, 744 children aged 5-6 years participated in the analysis, of which the number of children attending and not attending preschools comprised 367 and 288[6] children respectively.

Table 5: The number of tested and retested children attending and not attending preschool institutions at the beginning and at the end of 2015-2019 academic years, by regions

Region	Village/City	Number of tested beneficiary children	Number of retested beneficiary children (of which participated in the analysis)	Number of tested children not attending preschool institutions	Number of retested children not attending preschool institutions (of which participated in the analysis)
2015-2016					
Shirak	Gyumri (N23 primary school)	21	18 (18)	29	18 (18/14)
	Gyumri («Ani kindergarten» preschool)	18	14 (14)		
	Mets Mantash	17	14 (14)	20	14 (14)
Gegharkunik	Martuni	18	16 (16)	20	14 (16)
	Chambarak	25	10 (10)	11	10 (10)
	Dzoragyugh	26	16 (16)	20	16 (16)
Kotayk	Abovyan	18	18 (18)	22	18 (18)
	Kasakh	18	13 (12)	23	17 (12/16)

[4,5,6,] The mentioned number does not correspond to the total number of tested, retested and participated in the analysis children not attending preschool presented in the table, as for all prime communities generalized gender combined groups were formed for children not attending preschool. A control group for each preschool was selected from the mentioned generalized groups taking into account the distribution by gender and quantity as well as the distance of the reserve community from the prime community.

	Aragyugh	19	16 (16)		
2016-2017					
Armavir	Armavir	19	10 (10)	16	14 (10)
	Metsamor	19	15 (11)	15	13 (11)
	Voskehat	18	15 (11)	11	11 (11)
Tavush	Dovegh	14	14 (12)	23	17 (12)
	Voskepar	10	10 (9)[7]	14	11 (9)
	Nerkin Tsaghkavan	11	10 (8)[8]	15	12 (8)
Lori	Stepanavan	16	11 (10)	11	10 (10)
	Vanadzor	21	9 (7)[9]	25	14 (7)
	Spitak	12	10 (10)	12	11 (10)
2017-2018					
Ararat	Ararat	18	15 (14)	17	17 (14)
	Vedi	18	18 (12)	17	17 (12)
	Deghdzut	10	10 (10)	17	17 (10)
Aragatsotn	Ujan	16	15 (11)	13	13 (11)
	Avan	13	13 (10)	13	13 (10)
	Vardenis	13	11 (11)	13	13 (11)
Syunik	Goris	18	17 (14)	15	15 (14)
	Karahunj	18	15 (12)	15	15 (12)
	Sisian	18	16 (14)	15	15 (14)
2018-2019					

[7, 8] The sample size planned by the methodology was not kept in order to keep the gender distribution.

[9]The preschool did not provide the required number of children due to absences.

Gegharkunik	Tsaghkunk	11	12 (10)	10	10 (10)
Vayots Dzor	Getap	10	10 (10)	11	11 (11)
	Gladzor	18	16 (11)		
	Yeghegis	4	4 (10[10])		
Lori	Dzoramut (Gugark)	15	15 (15)	18	18 (18)
	Margahovit	26	28 (18)		
	Vanadzor	17	15 (12)		
Yerevan	Yerevan 1	18	18 (14)	19	19 (19)
	Yerevan 2	10	11 (10)		
	Yerevan 3	18	18 (16)		
Total		**609**	**516 (456)**	**480**	**406 (362)**

Interviews with the head master, tutor and parents of beneficiary children were conducted in each community. Focus group discussions were conducted with the parents as well. In case there were categories of tutor assistant, parents of children with special needs, children from socially vulnerable families, and parents working for payment in the community preschools, interviews were conducted with them as well. More detailed description of each category is presented in the Analysis section. In-depth interviews were conducted with the parents of children not attending preschool in Vanadzor (during two years), Goris, Chambarak, Abovyan, Kasakh, and Yerevan (four interviews in each).

[10] To have the minimum number of children (10) according to the methodology, during the analysis the children not participated in the analysis of Gladzor preschool were added to the children in Yeghegis preschool.

Table 6: Qualitative research conducted by regions and categories at the beginning and end of 2015-2019 academic years.

Region	Village/City	Focus group discussion	In-depth interview with head master	In-depth interview with tutor	In-depth interview with tutor assistant	In-depth interview with remunerated parent	In-depth interview with parent from socially insecure family	In-depth interview with parent of a child with special needs
2015-2016								
Shirak	Gyumri (N23 primary school)	v	v	v			v	
	Gyumri [11] («Ani kindergarten» preschool)	v	v	v (2)	v	v	v	
	Mets Mantash	v	v	v			v	
Gegharkunik	Martuni	v	v	v (2)	v	v	v	
	Chambarak	v	v	v			v	
	Dzoragyugh	v	v	v			v	
Kotayk	Abovyan	v	v	v (2)		v	v	
	Kasakh	v	v	v (2)	v			
	Aragyugh	v	v	v			v	
2016-2017								
Armavir	Armavir	v	v	v (2)			v	
	Metsamor	v	v	v (2)				v
	Voskehat	v	v	v			v	v
Tavush	Dovegh	v	v	v			v	
	Voskepar	v	v	v			v	
	Nerkin Tsaghkavan	v	v	v			v	
Lori	Stepanavan	v	v	v			v	
	Vanadzor	v	v	v			v	

[11] As the gender structure of children attending preschools in Gyumri community was the same, a group of 18 not attending children with the same gender structure was taken as a control group.

	Spitak	v	v	v			v	
2017-2018								
Ararat	Ararat	v	v	v			v	
	Vedi	v	v	v			v	
	Deghdzut	v	v	v			v	
Aragatsotn	Ujan	v	v	v			v	
	Avan	v	v	v (2)			v	
	Vardenis	v	v	v			v	
Syunik	Goris	v	v	v			v	v
	Karahunj	v	v	v				
	Sisian	v	v	v				
2018-2019								
Gegharkunik	Tsaghkunk	v	v	v				
Vayots Dzor	Getap	v	v	v		v	v (beginning of the year)	v (beginning of the year)
	Gladzor	v	v	v		v		v (beginning of the year)
	Yeghegis	v	v	v				
Lori	Dzoramut (Gugark)	v	v	v				
	Margahovit	v	v	v			v	
		v	v	v				
Yerevan	Vanadzor	v	v	v			v	
	Yerevan 2	v	v	v			v	
	Yerevan 3	v	v	v				

2. ANALYSIS PRINCIPLES

Analysis of qualitative section includes focus group discussions, in-depth interviews and physical environment observations, while quantitative analysis includes class observations and testing of children.

Analysis principles are detailed below:

2.1. Principles of quantitative analysis

3.1.1. Child testing

For the analysis of children development dynamics enrolled in preschool institutions 789 children attending and not attending preschools (495 children attending preschools, 294 children not attending preschool institutions) have been evaluated and all of them passed both preliminary and secondary testing. Only through this kind of analysis the dynamics of children development can be observed.

The group of children not enrolled in preschool institutions served as a control group for the analysis. Children not enrolled in the preschool institutions are either inhabitants of the same region, or inhabitants of the closest reserve community taken because of insufficient number of children in the selected communities. For measurement of program effectiveness, testing results of the control group for the beginning/end of the year will be compared with the results of the observation group for the beginning/end of the year.

Based on "State education criterion of preschool education", all the assignments included in the children's testing package can be differentiated into five fields, which in turn can be differentiated into the following subfields:

- General math knowledge (the child has basic math knowledge, knowledge of size and shape, spatial perception, time reading ability) /assignments 2, 3, 5, 6, 9, 10 / /cognitive field/,
- Logic and thinking (the child is able to compare, explores the phenomena and objects, finds solutions to various problems, finds patterns, performs critical analysis) /assignments 11, 4/ /cognitive field/,
- Oral speech perception (the child has a proper vocabulary of his/her age, recognizes linguistic notions, displays knowledge of various sounds and grammar concepts, shows interest in books and reading, expresses and understands words, tells stories) /assignment 7/ /speech development/,
- Early reading (the child understands the principles of printed word, distinguishes letters and their images in books) /assignments 1,8/ /speech development/,

- Writing and drawing skills (the child exhibits development of coordination, balance and control when walking, running, crawling, and moving, displays painting, modeling, cutting, building skills) /assignments 12, 13/ /motor function field/:

The analysis of development dynamics of children enrolled in preschool institutions implementing educational microprograms, as well as the analysis of development level of children not enrolled in this program was performed based on the following principles:

- analysis of the development dynamics of children enrolled and not enrolled in preschool institutions of each target community according to the criteria mentioned above,
- analysis of the development dynamics of children enrolled and not enrolled in preschool institutions of each target region according to the criteria mentioned above,
- comparison of the generalized results of the analysis for all regions according to the criteria mentioned above.

Analyzed data is presented through histograms in percentages. Each figure is accompanied by descriptive analysis.

3.1.2. Class observations

Class observations conducted in preschool institutions give an opportunity for getting insights and analyse the following areas:

- purpose,
- objectives /developmental, teaching, instructional/,
- structure /type of class, clear sequence of class stages, time constraints, correspondence of class stages to the type of child's cognitive activity, etc./..
- content /scientism and significance of the material presented, correspondence of the content, complexity and scope of the material to the age peculiarities of the child, the ratio of didactic and theoretical material, relation of the material presented to the real life, etc./
- methodological saturation /usage of diverse educational methods and tactics, justification of their selection, feasibility and effectiveness of application, etc./,
- behavioral and operational peculiarities of children /activeness, independence, interest, attention stability during different stages of the class, organized activity, peculiarities of children's intergroup and interpersonal relationships, as well as relationships with the teacher, etc./,
- peculiarities of teacher's professional qualities /familiarity with the material, preparedness for the lesson, pedagogical tact and skills, usage of communication skills with the child, speech literacy, teacher's attitude, etc./,

- general results /implementation of class plan, reaching the target, class effectiveness, quality, inferences directed towards improvement of future work, strengthening of success, etc./.

Each class can be analyzed based on different approaches. During the analysis the criteria and characteristics separated in class observation cards were considered.

Class observation cards were analyzed based on the following principles:

- Comprehensive analysis of class observation cards of each preschool by the separated eight criteria in each card,
- Comprehensive analysis of class observation cards of preschools in each region by the separated eight criteria in each card,
- General average indicators of all eight criteria separated in the card across all the regions.

For more accurate illustration of comparative results obtained during the analysis of classes held in preschools, the data is presented in the following way:

- Comparison of each criterion, by all preschools,
- Analysis of each criterion, by regions,
- Analysis of class observation results, by the general average indicators of preschools in all communities/regions.

The analysed data is presented in the form of histograms and in percentages. Each figure is accompanied with descriptive analysis.

2.2. Principles of qualitative analysis

3.2.1. Interviews and discussions

For understanding and stating the notion of appropriate personnel recruitment for preschool institutions and for decent management of microproject and children upbringing, the following activities have been performed:

- Focus group discussions, which have been implemented among the parents of children enrolled in the microproject,
- In-depth interviews, by the following categories:
  - microproject directors
  - tutors,
  - assistants of tutors,
  - parents of children with special needs,

- parents of socially vulnerable children,
- Remunerated parents,
- parents of children not attending preschools.

During the analysis the effect of respondents surveyed for each category on the child development, their characteristics and skills were taken into account. Analysis of interviews and discussions was implemented based on the following principles:

- comprehensive analysis of interviews and discussions in each preschool, by the aforementioned categories,
- comprehensive analysis of interviews and discussions in the selected preschools of each region, by the aforementioned categories.

We have tried to maximally show the comparative situation for different preschools in the same region. The analysed data are mainly presented through text.

3.2.2. Physical environment observation

Observation of physical environment in preschool institutions was implemented by the following criteria:

- child security,
- conformity to the dimensions of the child: accessibility of accessories (objects, building conditions and other supplies) for the child,
- availability of required materials, which may include books, desks, hygene means, etc,
- accessibility of materials, which will show how easily children can make use of them,
- movability of the environment,
- workability of accessories.

During the analysis, the effect of each criterion on child physical development was taken into account. Analysis was performed based on the following principles:

- Complete analysis of physical environment observation held in each preschool, by criteria,
- Complete analysis of physical environment observation held in preschools of each region.

We have tried to maximally show the comparative situation for different preschools in the same region. The analysed data are mainly presented through text and figures.

3. GENERALIZED ANALYSIS

The generalized analysis is presented below by quantitative and qualitative research methods.

4.1. Generalized analysis of quantitative research

4.1.1. Generalized analysis of children's testing

4.1.1.1. Generalized analysis of children's testing by indicators

The generalized analysis of children's testing results by indicators is presented in the form of a table showing the results of target group testing (TG) and retesting (TR), and control group testing (CB) and retesting (CR) results by the years and indicators.

When looking at the Table 7, we can see that the testing results of the preschool children for the years 2015-2016 are mostly exceeding the testing results of the children not attending preschool. The most significant increase has been noticed in respect of (4) Forming stereotypes /25.34%/ and (11) Recognition of similarities-differences /19.93%/ indicators of *Logic and thinking* subfield.

The comparison of retesting results of children attending and not attending preschool in the years 2015-2016 reveals that the results of the preschool children at the year end are higher than those of the children not attending preschool. The most significant difference has been noticed regarding the following indicators: (4) Forming stereotypes /44.74%/ indicator of *Logic and thinking* subfield, and (8) Letter recognition indicator /35.93%/ of *Early reading* subfield.

When looking at the data in the Table 7, we can see that the testing results of the preschool children for the years 2016-2017 are also exceeding the testing results of the children not attending preschool. The most significant difference has been recorded in respect of (5) basic math knowledge /17.78%/ indicator of *General math knowledge* subfield, (7) Response to multistep instructions /16.06%/ indicator of the *Oral speech perception* subfield, and (11) Recognition of similarities-differences /23.31%/ indicator of *Logic and thinking* subfield.

The comparison of retesting results of children attending and not attending preschool in the years 2016-2017 reveals that the results of the preschool children at the year end are higher than those of the children not attending preschool. The most significant difference has been noticed in the (3) number recognition /31.39%/ indicator of *General math knowledge* subfield and (11) Recognition of similarities-differences /33.97%/ indicator of *Logic and thinking* subfield.

Table 7. Generalized testing results by indicators (2015-2019)

Indicator	Date (region)															
	2015-2016 (Shirak, Gegharkunik, Kotayk)				2016-2017 (Armavir, Tavush, Lori)				2017-2018 (Ararat, Aragatsotn, Syunik)				2018-2019 (Vayots dzor, Lori, Gegharkunik, Yerevan)			
	TTG	TCG	RTG	RCG	TTG	TCG	RTG	RCG	TTG	TCG	RTG	RCG	TTG	TCG	RTG	RCG
1. Printed text	62.27	50.05	85.39	67.78	61.38	48.54	82.06	57.76	63.04	32.87	87.91	55.20	47.61	24.65	79.38	61.63
2. Spatial perception	17.90	5.26	30.93	2.35	2.16	1.01	16.07	4.14	0.00	1.11	8.16	0.00	6.27	5.08	58.77	28.63
3. Number recognition	54.76	46.65	85.55	55.89	48.69	36.07	83.78	52.38	29.20	27.25	82.41	45.37	57.54	48.64	93.89	90.03
4. Forming stereotypes	56.70	31.36	82.11	37.37	35.32	30.15	70.52	40.71	42.64	21.58	66.18	26.13	22.90	28.75	80.66	63.19
5. Basic math knowledge	85.99	77.66	99.54	89.06	93.31	75.52	98.69	82.67	80.08	68.53	94.16	86.02	87.59	77.11	97.22	84.71
6. Math knowledge	47.02	38.19	75.25	45.92	39.01	38.05	73.12	45.04	23.78	22.68	61.35	44.53	30.34	32.92	73.01	55.54
7. Response to multistep instruction	87.51	77.04	95.45	69.05	73.00	56.94	95.63	68.86	82.52	54.02	96.97	59.04	74.93	47.63	96.63	77.11
8. Letter recognition	6.76	2.31	43.60	7.66	2.78	1.11	28.37	7.54	1.90	0.00	44.58	0.00	0.00	0.60	53.04	7.12
9. Recognition of left-right	80.60	70.22	98.59	88.55	80.44	70.79	96.29	82.86	81.62	59.49	91.36	72.99	71.51	53.08	96.21	79.18
10. Time reading	31.88	26.49	71.81	38.85	27.00	16.58	51.90	26.12	10.39	1.72	48.75	22.47	19.18	11.73	39.10	14.87
11. Recognition of similarities-differences	61.55	41.62	82.02	58.56	57.96	34.65	86.01	52.04	49.98	25.11	68.05	22.86	38.80	38.31	90.29	82.21
12. Basic writing skills	8.13	4.33	18.39	4.06	3.05	0.81	16.31	4.11	1.98	0.63	14.21	0.00	1.30	2.15	20.53	4.73
13. Sensual-motional skills	94.99	82.50	98.61	75.58	91.05	77.98	94.75	80.40	46.45	43.65	95.41	64.79	63.61	65.34	98.29	90.07

When looking at the Table 7, we can see that the testing results of the preschool children for the years 2017-2018 are mostly exceeding the testing results of the children not attending preschool. The most significant difference has been noticed in respect of (1) Printed text /30.17%/ indicator of *Early reading* subfield, and (7) Response to multistep instructions /28.51%/ indicator of the *Oral speech perception* subfield. The testing results of the children not attending preschool exceed the testing results of the preschool children only in case of the (2) Spatial perception /1.11%/ indicator of *General math knowledge* subfield.

The comparison of retesting results of children attending and not attending preschool in the years 2017-2018 reveals that the results of the preschool children at the year end are higher than those of the children not attending preschool. The most significant difference has been noticed in the (8) Letter recognition indicator /44.58%/ of *Early reading* subfield and (11) Recognition of similarities-differences /45.19%/ indicator of *Logic and thinking* subfield.

We see from the Table 7 that the testing results of the preschool children for the years 2018-2019 are mostly exceeding the testing results of the children not attending preschool, except for the (4) Forming stereotypes /5.85%/ indicator of *Logic and thinking* subfield, (6) Math knowledge /2.59%/ indicator of *General math knowledge* subfield, (8) Letter recognition indicator /0.60%/ of *Early reading* subfield, and (12) basic writing skills /0.85%/ and (13) sensual-motional skills /1.73%/ indicators of Writing and drawing skills subfield. The most significant difference has been noticed in case of the (7) Response to multistep instructions /27.30%/ indicator of the *Oral speech perception* subfield.

The comparison of retesting results of children attending and not attending preschool reveals that the results of the preschool children at the yearend are higher than those of the children not attending preschool. The most significant difference has been noticed in the (8) Letter recognition indicator /45.93%/ of *Early reading* subfield and (2) Spatial perception /30.14%/ indicator of *General math knowledge* subfield.

Of the children testing results for the whole period of four years (see Table 7) the lowest results have been mostly received regarding the (8) Letter recognition indicator of *Early reading* subfield, and the highest results – regarding the (5) basic math knowledge indicator of *General math knowledge* subfield and (13) sensual-motional skills indicator of Writing and drawing skills subfield.

Similarly, of the children retesting results for the whole period of four years, the lowest results have been mostly received regarding the (2) Spatial perception indicator of *General math knowledge* subfield and (12) basic writing skills of Writing and drawing skills subfield, and the highest results have been mostly received regarding the (5) basic math knowledge indicator of *General math knowledge* subfield.

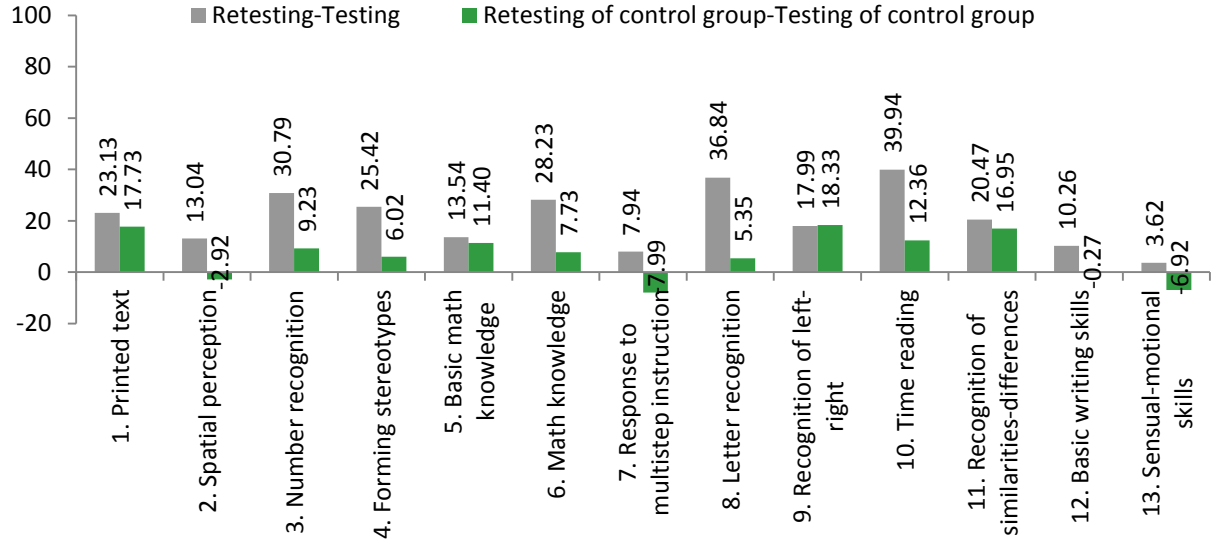
To illustrate the dynamics of children development, we present the testing results by the years and indicators.

When looking at the testing and retesting results of the children for 2015-2016 in the Figure 1, we see that the most significant increase has been displayed in case of (3) number recognition

/30.79%/ and (10) time reading /39.94%/ indicators of *General math knowledge* subfield, and (8) Letter recognition /36.84%/ indicator of *Early reading* subfield.

When looking at the testing and retesting results of the children not attending preschool, we see that the most significant increase has been displayed in case of (9) recognition of left-right /18.33%/ indicator of General math knowledge subfield and (11) Recognition of similarities-differences /16.95%/ indicator of *Logic and thinking* subfield.

Figure 1. Children's development dynamics by indicators for the years of 2015-2016

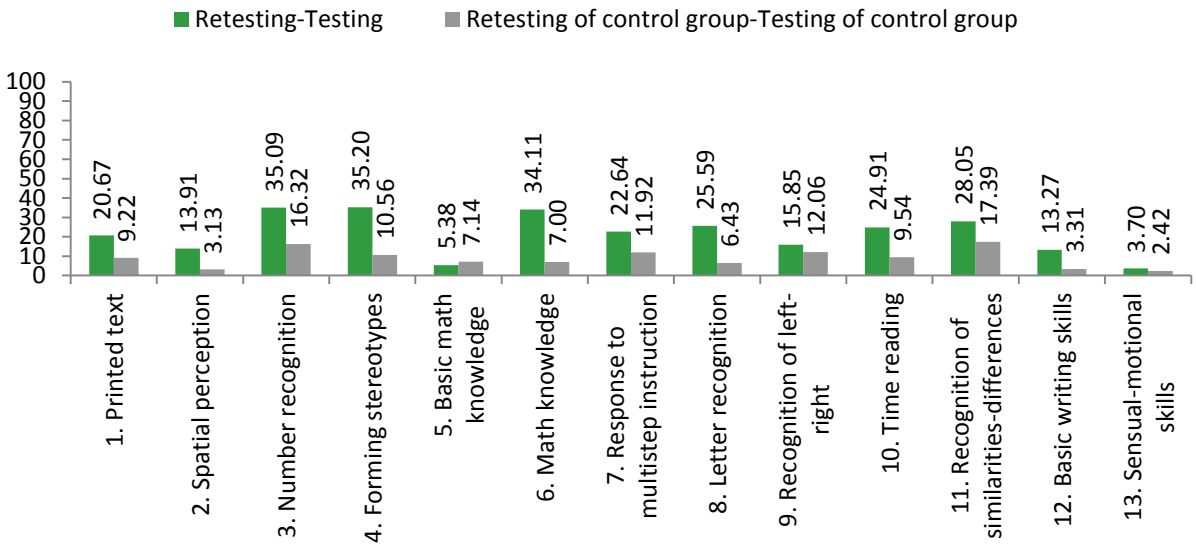


In the years 2015-2016 a negative trend was displayed only by the children not attending preschool in case of (2) Spatial perception indicator /2.92%/ of *General math knowledge* subfield, (7) Response to multistep instructions /7.99%/ indicator of the *Oral speech perception* subfield, and (12) basic writing skills /0.27%/ and (13) sensual-motional skills /6.92%/ indicators of Writing and drawing skills subfield.

When looking at the testing and retesting results of the children for 2016-2017 in the Figure 2, we see that there is an increase in all the indicators of the children attending and not attending preschool.

In respect of the testing and retesting results of the preschool children, the most significant increase has been displayed in case of (3) number recognition /35.09%/ and (6) Math knowledge /34.11%/ indicator of *General math knowledge* subfield, and (4) Forming stereotypes /35.20%/ indicator of *Logic and thinking* subfield.

Figure 2. Children's development dynamics by indicators for the years of 2016-2017

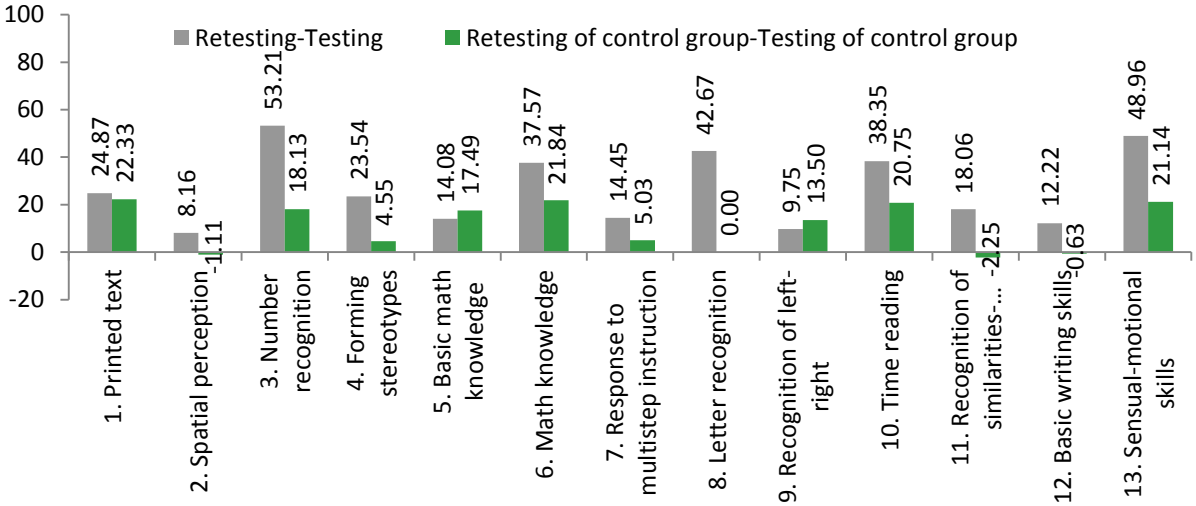


The testing and retesting results of the children not attending preschool for the years 2016-2017 show that the following indicators have mostly increased: (3) number recognition /16.32%/ indicator of *General math knowledge* subfield and (11) Recognition of similarities-differences /17.39%/ indicator of *Logic and thinking* subfield.

When looking at the testing and retesting results of the children for 2017-2018 in the Figure 3, we see that the most significant increase has been displayed in case of (3) number recognition /53.21%/ indicator of *General math knowledge* subfield and (13) sensual-motional skills /48.96%/ indicator of Writing and drawing skills subfield.

The testing and retesting results of the children not attending preschool for the years 2017-2018 show that there is an increase regarding almost all indicators, in particular, in the (1) Printed text /22.33%/ indicator of *Early reading* subfield, (6) Math knowledge /21.84%/ indicator of *General math knowledge* subfield, and (13) sensual-motional skills /21.14%/ indicator of Writing and drawing skills subfield.

Figure 3. Children's development dynamics by indicators for the years of 2017-2018



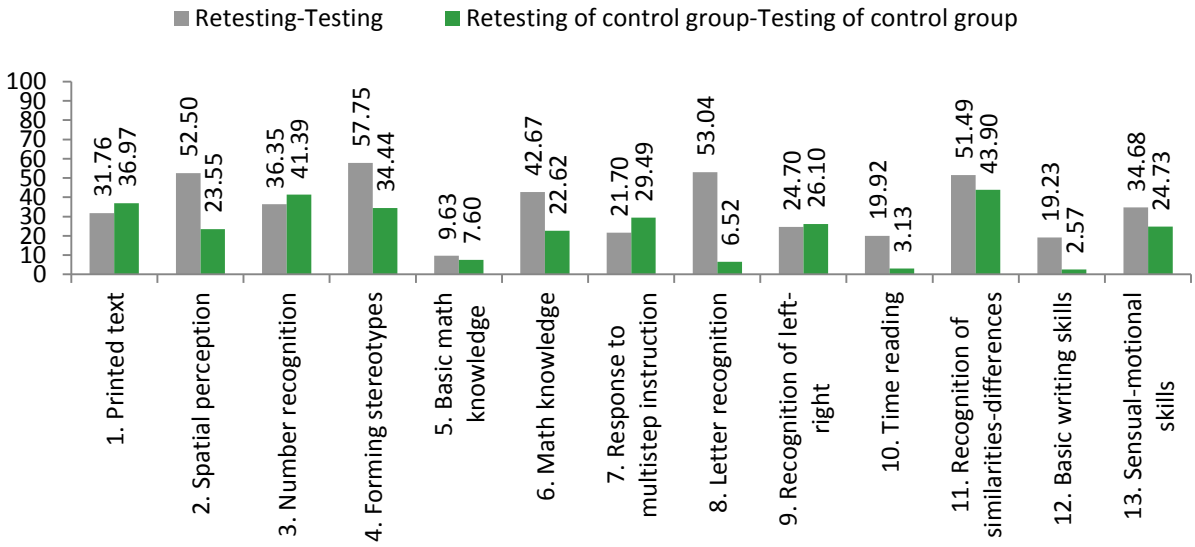
In the years 2017-2018 a negative trend in the development dynamics was displayed only by the children not attending preschool, in particular, in respect of the following indicators: (2) Spatial perception indicator /1.11%/ of *General math knowledge* subfield, (11) Recognition of similarities-differences /2.25%/ indicator of *Logic and thinking* subfield, and (12) basic writing skills /0.63%/ indicator of Writing and drawing skills subfield.

When looking at the testing and retesting results of the preschool children for 2018-2019 in the Figure 4, we see that the most significant increase has been displayed in case of (4) Forming stereotypes /57.75%/ indicator of *Logic and thinking* subfield and (8) Letter recognition indicator /53.04%/ of *Early reading* subfield.

The testing and retesting results of the children not attending preschool for the years 2018-2019 show that there is an increase regarding all the indicators. The most significant increase has been displayed in case of the (3) number recognition /41.39%/ indicator of *General math knowledge* subfield and (11) Recognition of similarities-differences /43.90%/ indicator of *Logic and thinking* subfield.

No negative trend has been noticed in children development dynamics in the years 2018-2019.

Figure 4. Children's development dynamics by indicators for the years of 2018-2019



4.1.1.2. Generalized analysis of children's testing by subfields

And now we present in the form of a table the generalized analysis of children's testing by subfields, where the target group testing (TT) and retesting (TR), and the control group testing (CT) and retesting (CR) results by the years and subfields have been shown.

When looking at the Table 8, we can see that in the years 2015-2016 the testing results of the children attending preschool are exceeding those of the control group children regarding all the subfields. The most significant increase has been noticed in respect of the (2) *logic and thinking* /22.64%/ and (3) *oral speech perception* /10.47%/ subfields.

The comparison of retesting results of children attending and not attending preschool in the years 2015-2016 reveals that the results of the preschool children are higher than those of the children not attending preschool. The most significant difference has been noticed in the (2) *Logic and thinking* /34.10%/ and (4) *early reading* /26.78%/ subfields.

When looking at the data for the years 2016-2017 in the Table 8, we can see that the target group testing results are exceeding the control group results regarding all the subfields. The most significant difference can be seen in case of (2) *Logic and thinking* /14.24%/ and (3) *oral speech perception* /16.06%/ subfields.

The comparison of retesting results of children attending and not attending preschool in the years 2016-2017 reveals that the results of the preschool children are higher than those of the children not attending preschool. The most significant difference has been noticed again in the (2) *logic and thinking* /31.89%/ and (3) *oral speech perception* /26.77%/ subfields.

Table 8. Generalized testing results by subfields (2015-2019)

Date (region)	Category	Subfields					
		1. General math knowledge	2. Logic and thinking	3. Oral speech perception	4. Early reading	5. Writing and drawing skills	TOTAL AVERAGE
2015-2016 (Shirak, Gegharkunik, Kotayk)	TTG	53.02	59.12	87.51	34.51	51.56	57.15
	TCG	44.08	36.49	77.04	26.18	43.41	45.44
	RTG	76.95	82.07	95.45	64.49	58.50	75.49
	RCG	53.44	47.97	69.05	37.72	39.82	49.60
2016-2017 (Armavir, Tavush, Lori)	TTG	48.43	46.64	73.00	32.08	47.05	49.44
	TCG	39.67	32.40	56.94	24.83	39.39	38.65
	RTG	69.98	78.27	95.63	55.21	55.53	70.92
	RCG	48.87	46.38	68.86	32.65	42.26	47.80
2017-2018 (Ararat, Aragatsotn, Syunik)	TTG	37.51	46.31	82.52	32.47	24.22	44.61
	TCG	30.13	23.34	54.02	16.44	22.14	29.21
	RTG	64.37	67.12	96.97	66.24	54.81	69.90
	RCG	45.23	24.49	59.04	27.60	32.40	37.75
2018-2019 (Vayots dzor, Lori, Gegharkunik, Yerevan)	TTG	45.40	30.85	74.93	23.81	32.45	41.49
	TCG	38.10	33.53	47.63	12.62	33.75	33.12
	RTG	76.37	85.47	96.63	66.21	59.41	76.82
	RCG	58.83	72.70	77.11	34.37	47.40	58.08

When looking at the Table 8, we can see that the testing results of the preschool children for the years 2017-2018 are also exceeding those of the children not attending preschool. The most

significant difference has been revealed in case of the (2) *logic and thinking* /22.97%/ and (3) *oral speech perception* /28.51%/ subfields.

The comparison of retesting results of children attending and not attending preschool in the years 2017-2018 reveals that the results of the preschool children at the year end are higher than those of the children not attending preschool. The most significant difference has been noticed in case of the (2) *logic and thinking* /42.62%/ and (4) *early reading* /38.64%/ subfields.

According to the Table 8, the testing results of the preschool children for the years 2018-2019 exceed the testing results of the children not attending preschool, except for the (2) *logic and thinking* /2.68%/ and (5) *writing and drawing skills* /1.29%/ subfields. The most significant difference has been noticed in case of the (3) *oral speech perception* /27.30%/ subfield.

The comparison of retesting results of children attending and not attending preschool in the years 2018-2019 reveals that the results of the preschool children at the year end are higher than those of the children not attending preschool. The most significant difference has been noticed in case of the (3) *oral speech perception* /19.52%/ and (4) *early reading* /31.84%/ subfields.

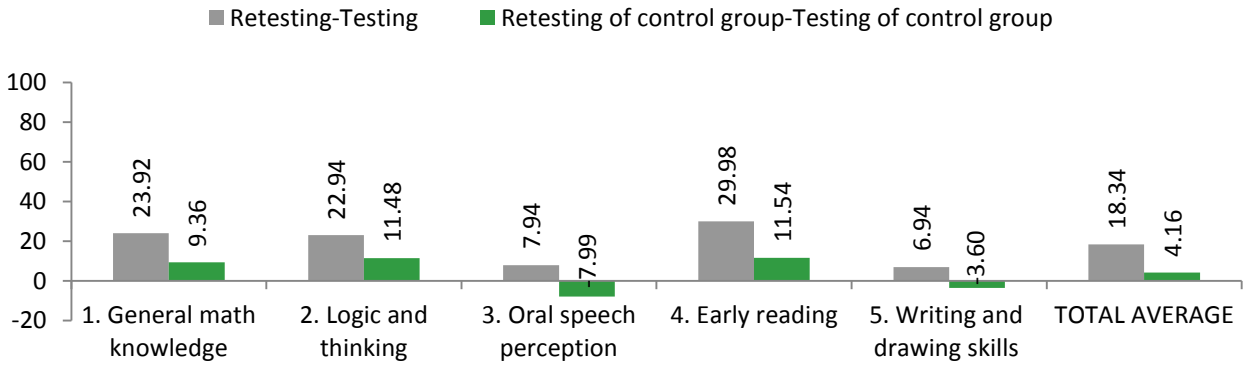
Of the children testing results for the whole period of four years (see Table 8) the lowest results have been mostly received regarding the (4) *Early reading* subfield, and the highest results – regarding the (3) *oral speech perception* subfield.

Similarly, of the children retesting results for the whole period of four years the lowest results have been mostly received regarding the (4) *Early reading* and (5) *writing and drawing skills* subfields, and the highest results – regarding the (3) *oral speech perception* subfield.

To illustrate the dynamics of children development, we present the children testing results by the years and subfields.

Figure 5 presents the children's averaged testing results by subfields for the years 2015-2016When looking at the testing and retesting results of the children for 2015-2016. We can see that the most significant increase in the children's testing and retesting results has been displayed in case of (1) *general math knowledge* /23.92%/ and (4) *Early reading* /29.98%/ subfields.

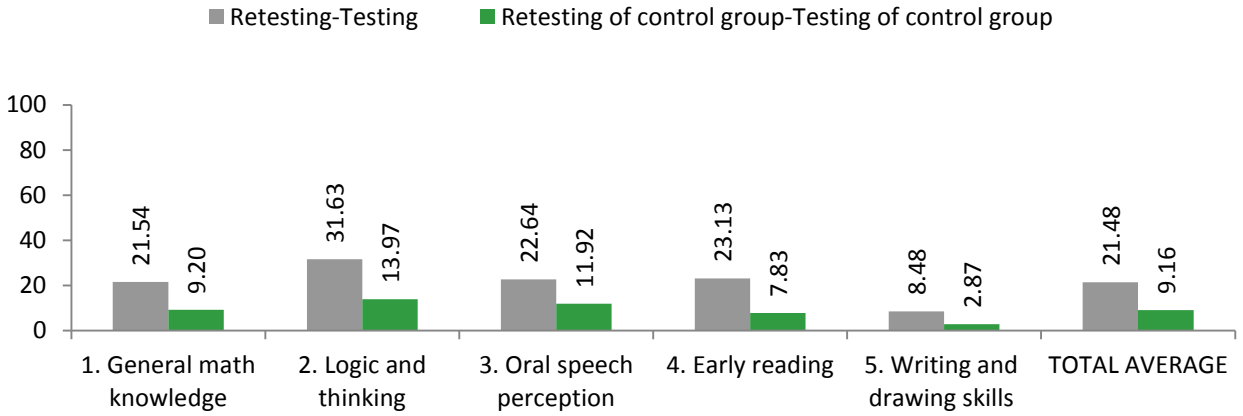
Figure 5. Children's development dynamics by subfields for the years of 2015-2016



When looking at testing and retesting results of the control group children for the years 2015-2016 (Figure 5), we see that the most significant increase has been noticed in respect of the (4) *Early reading* /11.54%/ subfield. The testing results in respect of (3) *oral speech perception* /7.99%/ and (5) *writing and drawing skills* /3.60%/ subfields exceed the retesting results.

When looking at testing and retesting results of the target group children for the years 2016-2017 (Figure 6), we see that the most significant increase has been noticed in case of the (2) *logic and thinking* /31.63%/ subfield.

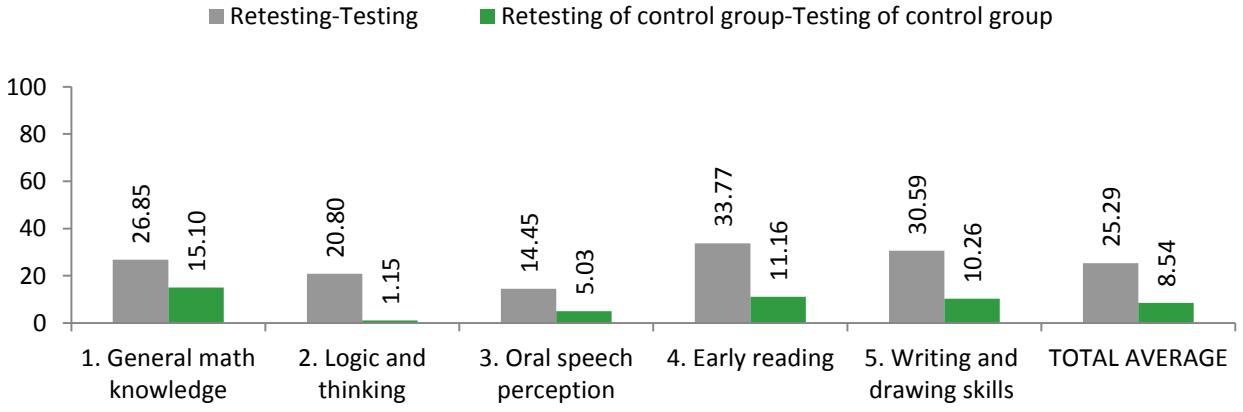
Figure 6. Children's development dynamics by subfields for the years of 2016-2017



The testing and retesting results of the children not attending preschool for the years 2016-2017 show that there is an increase in respect of all subfields, and most significant increase – regarding the (2) *logic and thinking* /13.97%/ and (3) *oral speech perception* /11.97%/ subfields.

The Figure 7 reveals that the most significant increase in the preschool children testing and retesting results has been displayed regarding the (4) *Early reading* /33.77%/ subfield.

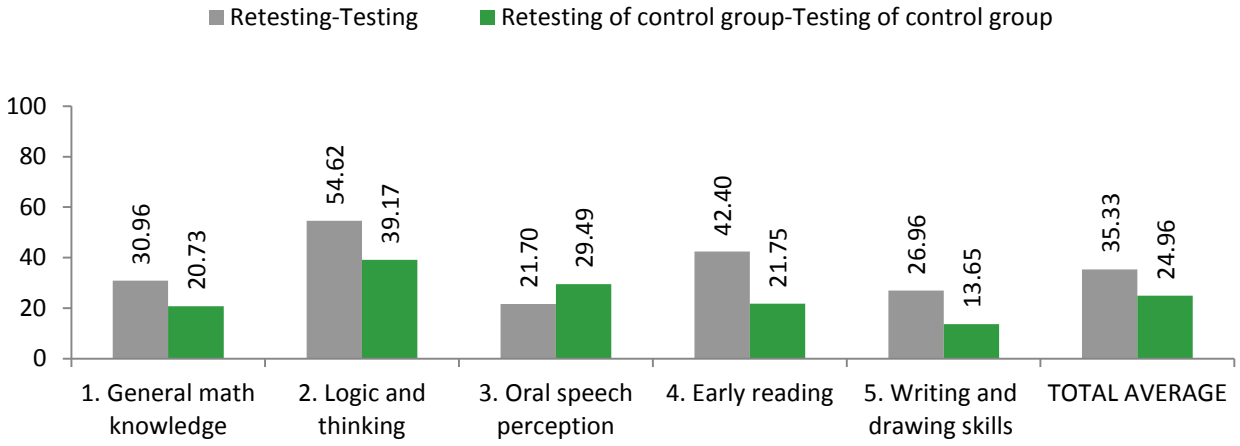
Figure 7. Children's development dynamics by subfields for the years of 2017-2018



The retesting results of the control group children for the years 2017-2018 exceed the testing results as well (Figure 7). The most significant increase has been displayed in case of (1) *general math knowledge* /15.10%/ subfield.

Figure 8 presents the children's averaged testing results by subfields for the years 2018-2019, where we can see that the most significant increase in the children's testing and retesting results has been displayed in case of the (2) *logic and thinking* /54.62%/ subfield

Figure 8. Children's development dynamics by subfields for the years of 2018-2019



The retesting results of the control group children for the years 2018-2019 also have exceeded the testing results (Figure 8). And again the most significant increase has been displayed in case of the (2) *logic and thinking* /39.17%/ subfield

4.1.1.3. Generalized analysis of children's testing by gender characteristics

As far as the children's testing analysis by gender characteristics has been performed starting from the second year of the research, we will present the generalized analysis based on the data of the second, third and fourth years.

Table 9 presents the generalized children's testing analysis by the gender characteristics, where the target group testing (TT) and retesting (TR), and the control group testing (CT) and retesting (CR) results by the years and gender have been shown.

When looking at the generalized testing results of the preschool children for the period of three years in the Table 9, we see that girls have a knowledge advantage over boys, in particular, the most significant difference has been noticed in case of the (11) recognition of similarities–differences indicator /17.62%/ of *logic and thinking* subfield (2017-2018). The advantage of boys over girls is mostly expressed in case of the (9) recognition of left-right /14.16%/ indicator of *general math knowledge* subfield (2016-2017). No difference has been revealed between boys and girls only in case of the (8) letter recognition /0.00%/ indicator of *early reading* subfield (2016-2017, 2018-2019) and (2) spatial perception /0.00%/ indicator of *general math knowledge* subfield (2017-2018).

From the preschool children's generalized retesting results for the period of three years (Table 9) we can see that boys have a knowledge advantage over girls, in particular, the most significant difference has been noticed in case of the (7) response to multistep instructions /13.61%/ indicator of *oral speech perception* subfield (2016-2017). The advantage of girls over boys is mostly expressed in case of the (4) forming stereotypes /13.29%/ indicator of *logic and thinking* subfield (2017-2018).

When looking at the data of the children not attending preschool in the Table 9, we see that during both testing and retesting the boys mostly have had a knowledge advantage over girls, in particular, the most significant difference has been noticed in case of the (13) sensual-motional skills indicator /16.83% and 13.84% respectively/ of *writing and drawing skills* subfield (2018-2019). During testing the girls mostly have had a knowledge advantage over boys in case of the (11) recognition of similarities-differences indicator /19.45%/ of *logic and thinking* subfield (2017-2018), and during retesting – in case of the (7) response to multistep instructions /20.12%/ indicator of *oral speech perception* subfield (2017-2018).

Table 9. Generalized testing results by indicators and gender (2016-2019)

Indicators	Gender	Date (region)											
		2016-2017 (Armavir, Tavush, Lori)				2017-2018 (Ararat, Aragatsotn, Syunik)				2018-2019 (Vayots dzor, Lori, Yerevan, Gegharkunik)			
		TTG	TCG	RTG	RCG	TTG	TCG	RTG	RCG	TTG	TCG	RTG	RCG
1. Printed text	Male	33.89	23.78	43.24	31.03	28.07	13.88	41.17	25.04	26.56	15.30	40.49	36.10
	Female	27.49	24.76	38.82	26.74	34.97	18.99	46.74	30.16	21.06	9.35	38.89	25.52
2. Spatial perception	Male	0.93	1.01	11.81	1.01	0.00	0.00	3.44	0.00	3.77	4.48	27.01	15.44
	Female	1.23	0.00	4.26	3.13	0.00	1.11	4.72	0.00	2.50	0.60	31.76	13.18
3. Number recognition	Male	27.60	20.41	42.35	28.76	12.87	10.91	37.53	22.29	31.46	31.05	51.06	51.57
	Female	21.09	15.66	41.42	23.62	16.33	16.33	44.89	23.08	26.08	17.59	42.83	38.46
4. Forming stereotypes	Male	18.93	13.50	38.64	26.18	18.53	4.24	26.45	7.37	10.90	16.18	44.94	33.40
	Female	16.39	16.65	31.88	14.53	24.11	17.34	39.74	18.76	12.00	12.57	35.72	29.80
5. Basic math knowledge	Male	51.16	39.86	54.32	44.74	36.50	32.00	43.32	41.27	48.15	42.10	52.17	47.08
	Female	42.15	35.66	44.37	37.92	43.58	36.53	50.85	44.76	39.44	35.01	45.05	37.63
6. Math knowledge	Male	23.28	19.89	39.83	26.12	9.07	11.61	26.82	19.49	15.05	19.14	39.99	32.85
	Female	15.73	18.16	33.29	18.93	14.71	11.07	34.54	25.03	15.28	13.79	33.01	22.69
7. Response to multistep instruction	Male	42.28	30.87	54.62	38.01	43.38	22.12	44.59	19.46	40.90	24.40	53.24	41.04
	Female	30.72	26.07	41.01	30.85	39.15	31.90	52.38	39.58	34.03	23.22	43.39	36.08
8. Letter recognition	Male	1.39	0.00	17.91	2.82	0.00	0.00	17.10	0.00	0.00	0.00	27.62	5.93
	Female	1.39	1.11	10.46	4.72	1.90	0.00	27.48	0.00	0.00	0.60	25.42	1.19
9. Recognition of left-right	Male	47.30	35.99	52.93	43.12	37.08	27.15	41.02	37.82	33.78	25.65	51.57	40.24
	Female	33.14	34.80	43.36	39.73	44.54	32.34	50.34	35.17	37.73	27.44	44.64	38.94
10. Time reading	Male	14.56	9.64	30.19	14.26	4.14	0.00	25.07	8.79	7.27	7.58	20.14	8.73
	Female	12.44	6.94	21.71	11.86	6.25	1.72	23.67	13.68	11.91	4.15	18.96	6.14
11. Recognition of similarities-differences	Male	29.58	15.91	46.62	30.06	16.18	2.83	27.43	7.06	20.35	26.02	47.06	46.33
	Female	28.38	18.75	39.39	21.98	33.80	22.28	40.61	15.80	18.45	12.29	43.23	35.88
12. Basic writing skills	Male	1.46	0.25	8.09	2.63	0.00	0.00	3.41	0.00	0.35	1.56	10.66	2.45
	Female	1.59	0.56	8.23	1.48	1.98	0.63	10.80	0.00	0.95	0.60	9.87	2.28
13. Sensual-motional skills	Male	49.84	44.12	52.51	43.19	17.05	25.11	43.89	29.35	30.85	41.08	53.51	51.95
	Female	41.21	33.85	42.24	37.21	29.40	18.54	51.52	35.44	32.75	24.25	44.78	38.12

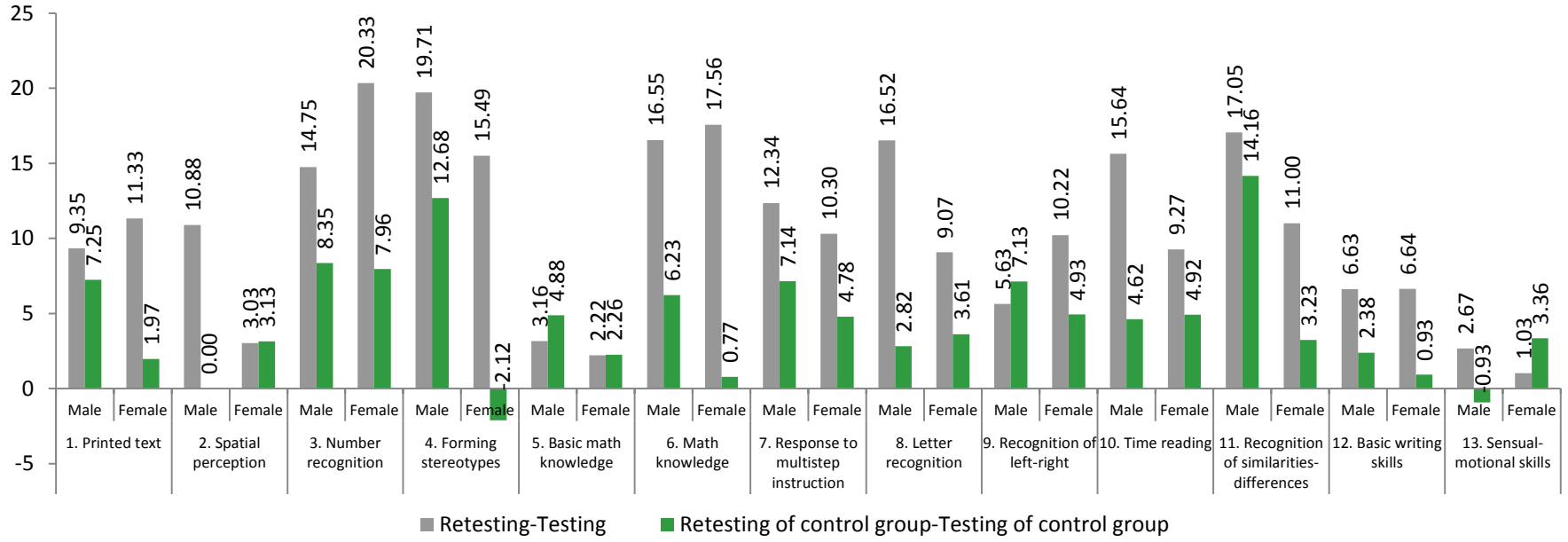
Although, according to the year-over-year averaged data, boys have been generally more developed than girls, we however cannot make a conclusion on existence of a correlation between gender characteristics and children development.

The relationship between gender and indicators is particularly evident in the figures below.

Figure 9 shows that of the children attending preschool in 2016-2017, boys showed a greater increase in case of the (4) forming stereotypes /19.71%/ indicator of *logic and thinking* subfield, and girls – in case of the (3) number recognition indicator /20.33%/ of *general math knowledge* subfield.

Of the children not attending preschool in 2016-2017, boys showed a greater increase in case of the (11) recognition of similarities–differences indicator /14.16%/ of *logic and thinking* subfield, and girls – in case of the (3) number recognition indicator /7.96%/ of *general math knowledge* subfield.

Figure 9 Children's development dynamics by indicators and gender for the years 2016-2017

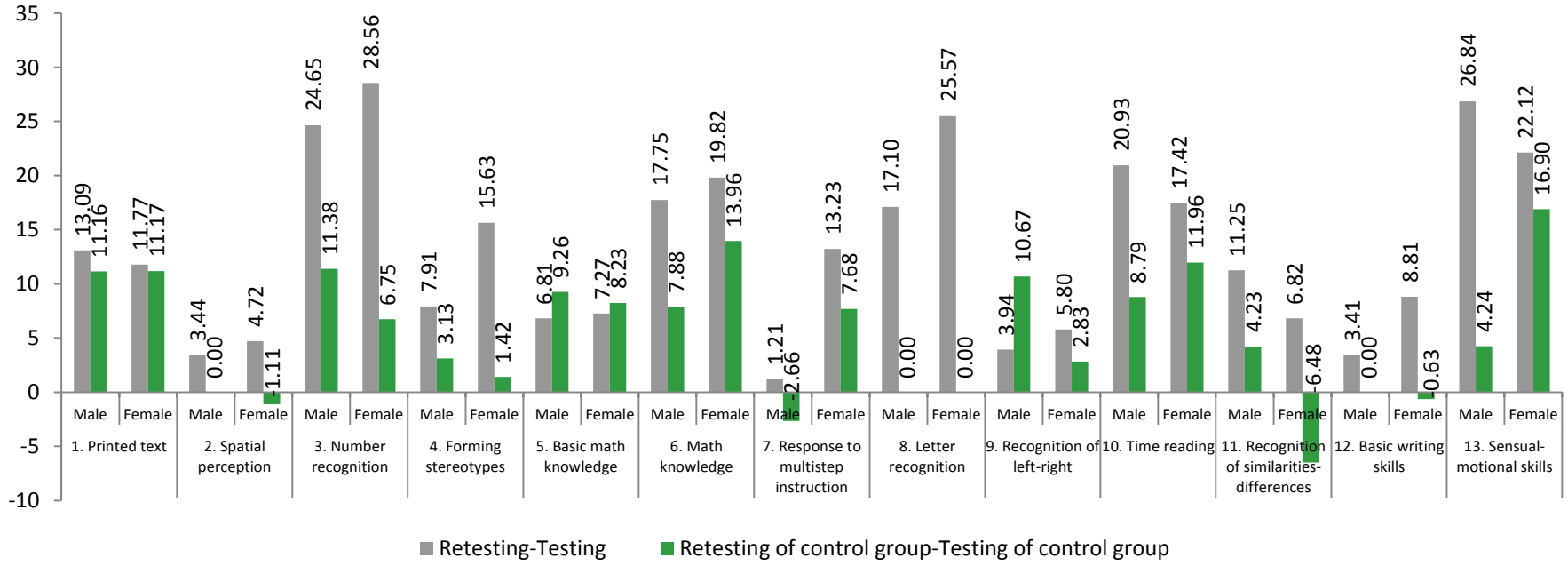


A decline in some of the indicators has been displayed only in case of children not attending preschool, in particular, in case of boys – regarding the (13) sensual-motional skills indicator /0.93%/ of *writing and drawing skills* subfield, and in case of girls – regarding the (4) forming stereotypes /2.12%/ indicator of *logic and thinking* subfield.

No changes have been noticed only in case of boys not attending preschool regarding the (2) spatial perception /0.00%/ indicator of *general math knowledge* subfield.

We can see from the Figure 10 that of the children attending preschool in 2017-2018, boys showed a greater increase in case of the (13) sensual-motional skills indicator /26.84%/ of *writing and drawing skills* subfield, and girls – in case of the (3) number recognition indicator /28.56%/ of *general math knowledge* subfield.

Figure 10 Children's development dynamics by indicators and gender for the years 2017-2018



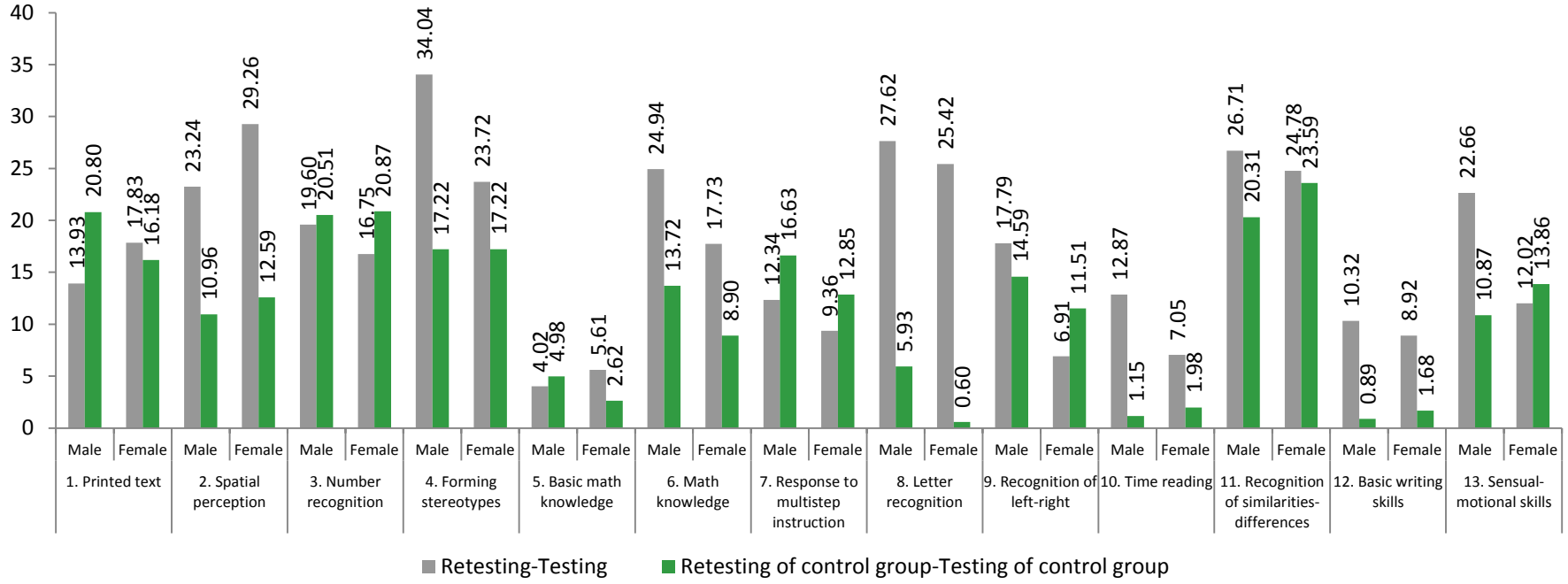
Of the children not attending preschool in 2017-2018, boys showed a greater increase in case of the (3) number recognition indicator /11.38%/ of *general math knowledge* subfield, and girls – in case of the (13) sensual-motional skills indicator /16.90%/ of *writing and drawing skills* subfield.

A decline in some of the indicators has been displayed only in case of children not attending preschool, in particular, in case of boys – regarding the (7) response to multistep instructions /2.66%/ indicator of *oral speech perception* subfield, and in case of girls – regarding the (2) spatial perception /1.11%/ indicator of *general math knowledge* subfield, (11) recognition of similarities–differences indicator /6.48%/ of *logic and thinking* subfield, and (12) basic writing skills /0.63%/ indicator of *writing and drawing skills* subfield.

There were no changes only in case of both boys and girls not attending preschool regarding the (8) letter recognition /0.00%/ indicator of *early reading* subfield.

We can see from the Figure 11 that of the children attending preschool in 2018-2019, boys showed a greater increase in case of the (4) forming stereotypes /34.04%/ indicator of *logic and thinking* subfield, and girls – in case of the (2) spatial perception indicator /29.26%/ of *general math knowledge* subfield.

Figure 11 Children's development dynamics by indicators and gender for the years 2018-2019



Of the children not attending preschool in 2018-2019, boys showed a greater increase in case of the (1) printed text indicator /20.80%/ of *early reading* subfield, and girls – in case of the (11) recognition of similarities–differences indicator /23.59%/ of *logic and thinking* subfield.

When looking at the generalized testing results of preschool children over the period of three years in the Table 10, we see that during both testing and retesting boys have had a knowledge advantage over girls, in particular, most significant difference has been noticed in case of the (3) *oral speech perception* /11.56% and 13.61% respectively/ subfield (2016-2017). The advantage of girls over boys regarding both testing and retesting results has mostly been displayed in case of the (2) *logic and thinking* /11.59% and 13.24% respectively/ subfield (2017-2018).

When looking at the results of children not attending preschool in the Table 10, we see that during both testing and retesting boys have had a knowledge advantage over girls, in particular, most significant difference has been noticed during testing in case of the (5) *writing and drawing skills* /8.90%/ subfield (2018-2019), and during retesting – in case of the (2) *logic and thinking* /9.87%/ subfield (2016-2017). The advantage of girls over boys during testing has mostly been displayed in case of the (2) *logic and thinking* /16.28%/ subfield (2017-2018), and during retesting – in case of the (3) *oral speech perception* /20.12%/ subfield (2017-2018).

Table 10 Generalized testing results by subfields and gender (2016-2019)

Date (region)	Category	Subfields											
		1. General math knowledge		2. Logic and thinking		3. Oral speech perception		4. Early reading		5. Writing and drawing skills		TOTAL AVERAGE	
		Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
2016-2017 (Armavir, Tavush, Lori)	TTG	27.47	20.96	24.25	22.39	42.28	30.72	17.64	14.44	25.65	21.40	27.46	21.98
	TCG	21.13	18.54	14.70	17.70	30.87	26.07	11.89	12.94	22.19	17.20	20.15	18.49
	RTG	38.57	31.40	42.63	35.63	54.62	41.01	30.57	24.64	30.30	25.23	39.34	31.58
	RCG	26.33	22.53	28.12	18.25	38.01	30.85	16.92	15.73	22.91	19.35	26.46	21.34
2017-2018 (Ararat, Aragatsotn, Syunik)	TTG	16.61	20.90	17.36	28.95	43.38	39.15	14.04	18.44	8.52	15.69	19.98	24.63
	TCG	13.61	16.52	3.53	19.81	22.12	31.90	6.94	9.50	12.56	9.58	11.75	17.46
	RTG	29.53	34.84	26.94	40.18	44.59	52.38	29.13	37.11	23.65	31.16	30.77	39.13
	RCG	21.61	23.62	7.21	17.28	19.46	39.58	12.52	15.08	14.68	17.72	15.10	22.66
2018-2019 (Vayots dzor, Lori, Yerevan, Gegharkunik)	TTG	23.25	22.16	15.62	15.23	40.90	34.03	13.28	10.53	15.60	16.85	21.73	19.76
	TCG	21.67	16.43	21.10	12.43	24.40	23.22	7.65	4.97	21.32	12.42	19.23	13.90
	RTG	40.32	36.04	46.00	39.47	53.24	43.39	34.05	32.15	32.09	27.32	41.14	35.68
	RCG	32.65	26.17	39.86	32.84	41.04	36.08	21.01	13.36	27.20	20.20	32.35	25.73

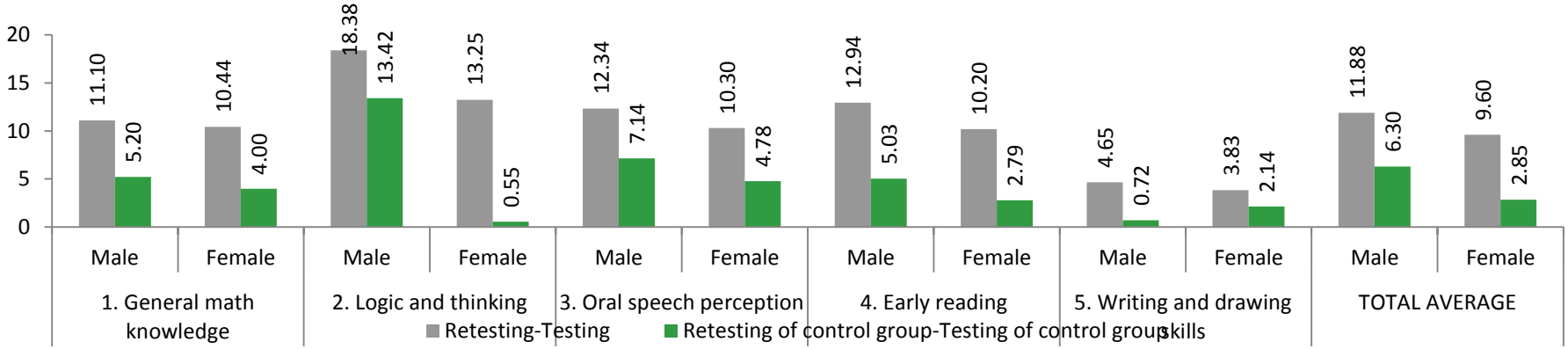
Although, according to the major part of children's testing and retesting results, boys have been generally more developed than girls, we however cannot make a conclusion on existence of a correlation between gender characteristics and children development.

The relationship between gender and subfields is particularly evident in the figures below.

Figure 12 shows that both boys and girls attending preschool in 2016-2017 have displayed the most significant increase in case of the (2) *logic and thinking* subfield /13.25% and 18.38% respectively/.

Of the children not attending preschool in 2016-2017, boys showed a greater increase in case of the (2) *logic and thinking* subfield /13.42%/ and girls – in case of the (4) *early reading* subfield /4.78%/.

Figure 12 Children's development dynamics by subfields and gender for the years 2016-2017

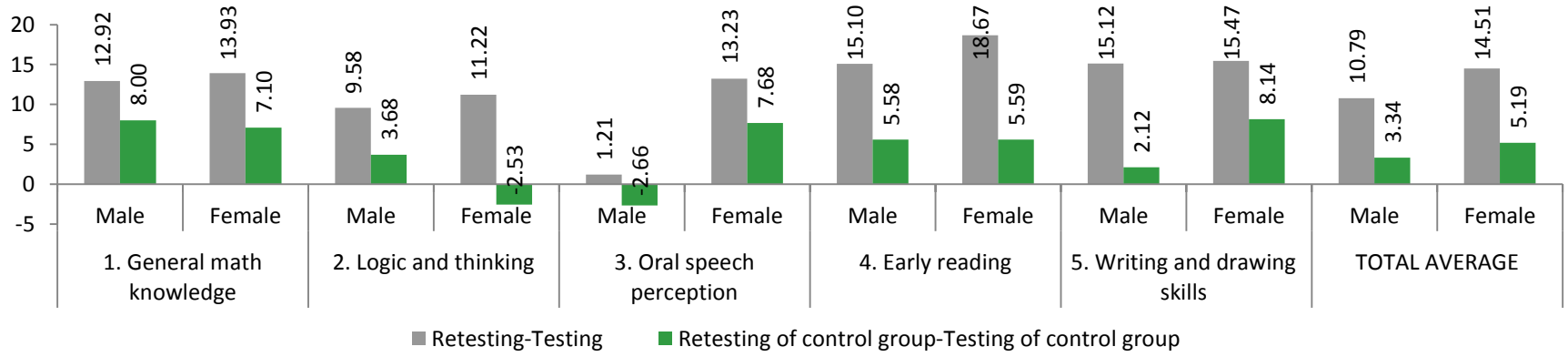


There were no cases of decline regarding individual subfields.

We can see from the figure 13 that the boys attending preschool in 2017-2018 displayed the most significant increase in case of the (5) *writing and drawing skills* /15.12%/ subfield, and the girls - in case of the (4) *early reading* subfield /18.67%/.

Of the children not attending preschool in 2017-2018, boys displayed the most significant increase in case of the (1) *general math knowledge* /8.00%/ subfield, and the girls – in case of the (5) *writing and drawing skills* /8.14%/ subfield.

Figure 13 Children's development dynamics by subfields and gender for the years 2017-2018

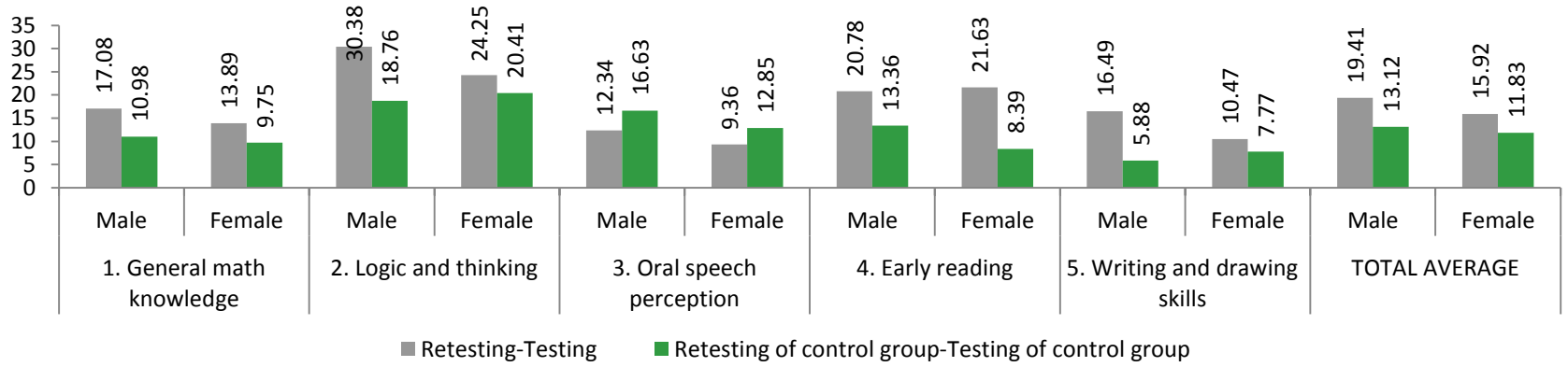


A decline regarding individual subfields has been displayed only in case of children not attending preschool, in particular, in case of boys – regarding the (3) *oral speech perception* /2.66%/ subfield, and in case of girls – regarding the (2) *logic and thinking* /2.53%/ subfield.

We can see from the figure 14 that boys and girls attending preschool in 2018-2019 have displayed the most significant increase in case of the (2) *logic and thinking* subfield /30.38% and 24.25% respectively/.

Of the children not attending preschool in 2017-2018, boys and girls have displayed the most significant increase again in case of the (2) *logic and thinking* subfield /18.76% and 20.41% respectively/.

Figure 14 Children's development dynamics by subfields and gender for the years 2018-2019



There were no cases of decline regarding individual subfields.

4.1.1.4. Analysis of the effect of gender characteristics on children's development dynamics

Now we will look at the impact of gender characteristics on the children's development dynamics by regions on year over year basis.

Figure 15 shows gender characteristics of children attending and not attending preschool for the years of 2015-2016, according to the children's progress, in the regions of Kotayk, Gegharkunik, and Shirak.

In Kotayk region, both at the beginning of the year and at the year end, the development level of the boys attending preschool, according to the average number of correct answers per child, was higher than that of the girls attending preschool. Conversely, in case of the children not attending preschool, both at the beginning of the year and at the year end, the development level of the girls was higher than that of the boys not attending preschool. In Gegharkunik region, gender characteristics of children attending and not attending preschool, according to the children's progress, were variable. What concerns Shirak region, both at the beginning of the year and at the year end, the development level of the girls attending preschool was higher than that of the boys attending preschool. The situation in case of the children not attending preschool was variable.

Since the indicators of boys and girls differ irregularly by child groups and period of academic year, we cannot comment on knowledge advantage conditioned by gender factor.

Figure 15 Gender characteristics of children involved and not involved in preschool, according to the children's progress (2015-2016)

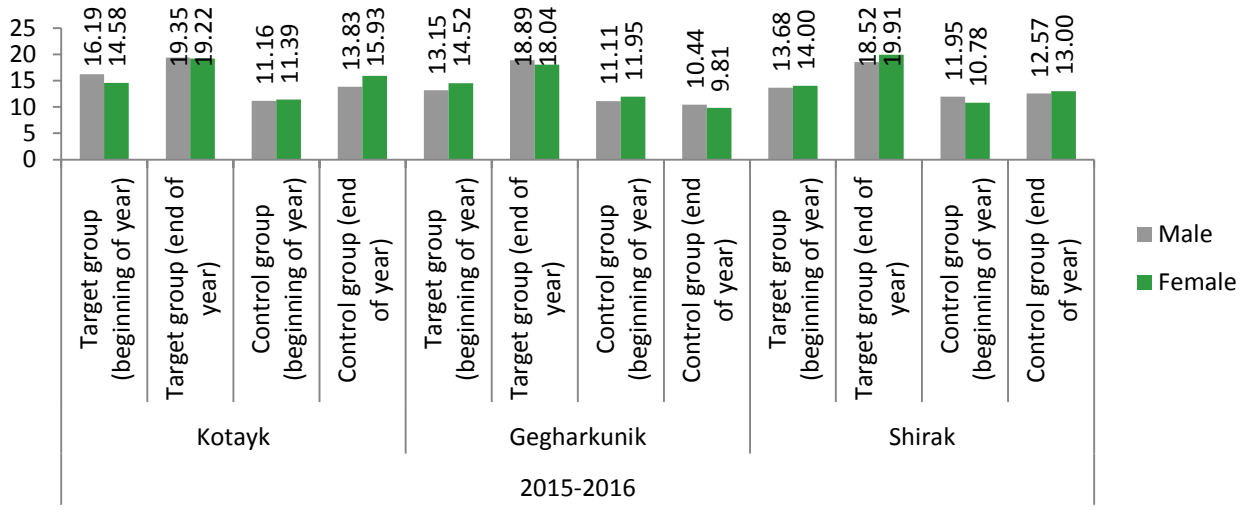


Figure 16 shows that gender characteristics of children attending and not attending preschool for the years 2016-2017, according to the children's progress, in the regions of Armavir, Tavush, and Lori. In Armavir region, both at the beginning of the year and at the year end, the development level of the boys attending preschool, according to the average number of correct answers per child, was higher than that of the girls attending preschool. Conversely, in case of the children not attending preschool, both at the beginning of the year and at the year end, the development level of the girls was higher than that of the boys not attending preschool. What concerns gender characteristics of children attending and not attending preschool in Tavush and Lori regions, according to the children's progress, they remain the same both at the beginning of the year and at the yearend: the development level of the girls was higher than that of the boys.

Since the indicators of boys and girls in Armavir region differ irregularly by child groups and period of academic year, we cannot comment on knowledge advantage conditioned by gender factor. On the other side, in Tavush and Lori regions, girls have a knowledge advantage over boys due to gender factor.

Figure 16 Gender characteristics of children involved and not involved in preschool, according to the children's progress (2016-2017)

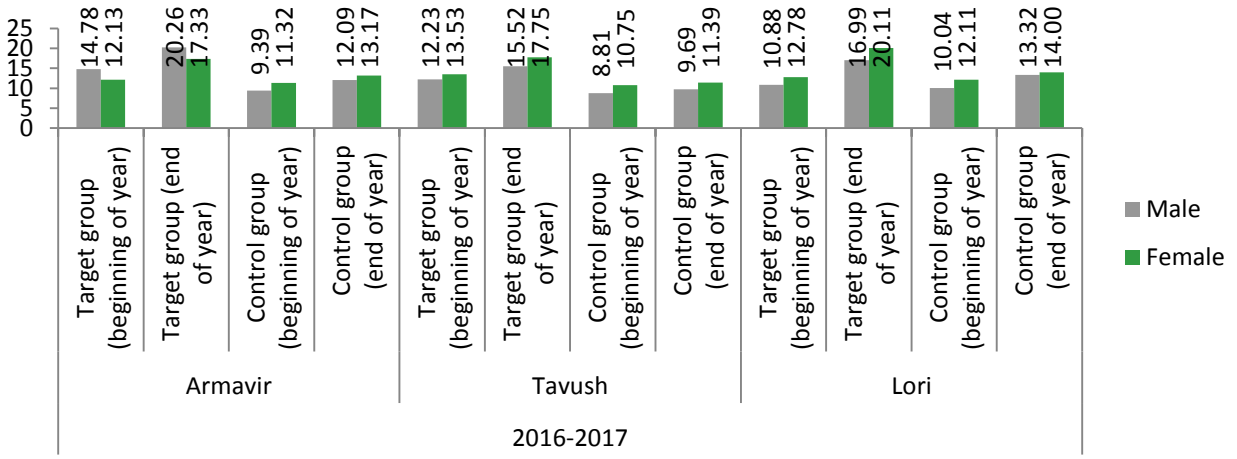


Figure 17 shows that gender characteristics of children attending and not attending preschool for the years 2017-2018, according to the children's progress, in the regions of Ararat, Aragatsotn, and Syunik. In Ararat region, both at the beginning of the year and at the year end, the development level of the girls attending preschool, according to the average number of correct answers per child, was higher than that of the boys attending preschool. Conversely, in case of the children not attending preschool, both at the beginning of the year and at the year end, the development level of the boys was higher than that of the girls not attending preschool. What concerns gender characteristics of children attending and not attending preschool in Syunik region, according to the children's progress, they remain the same both at the beginning of the year and at the year end: the development level of the girls was higher than that of the boys.

Since the indicators of boys and girls in Ararat and Aragatsotn regions differ irregularly by child groups and period of academic year, we cannot comment on knowledge advantage conditioned by gender factor. On the other side, in Syunik region, girls have a knowledge advantage over boys due to gender factor.

Figure 17 Gender characteristics of children involved and not involved in preschool, according to the children's progress (2017-2018)

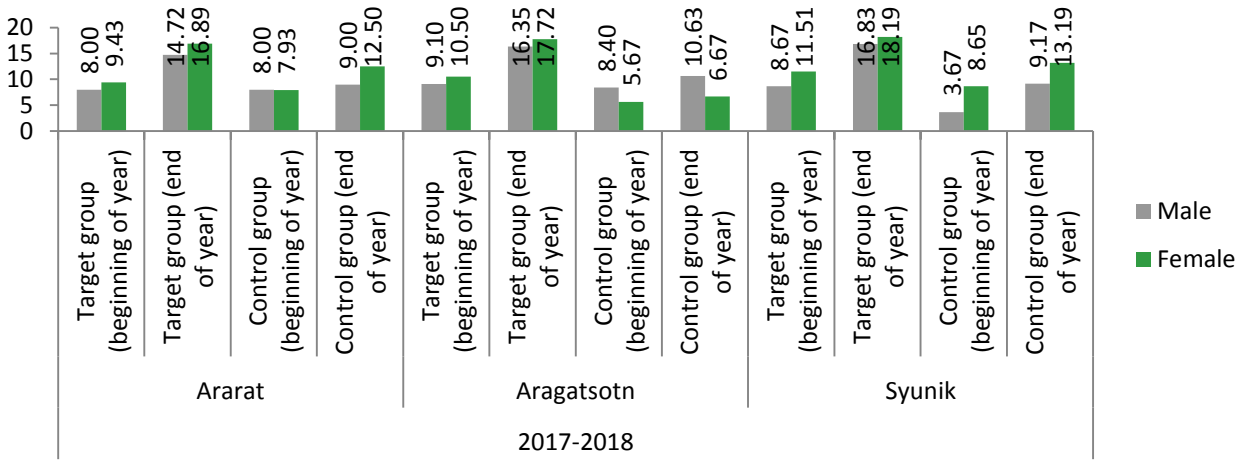
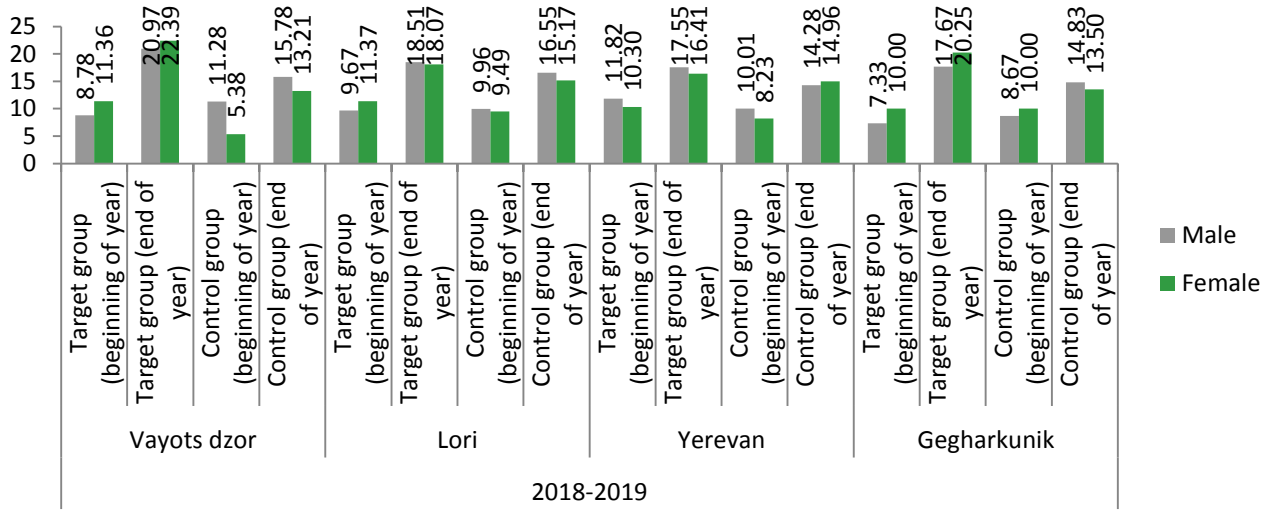


Figure 18 shows that gender characteristics of children attending and not attending preschool for the years 2018-2019, according to the children's progress, in Vayots Dzor, Lori, Gegharkunik, and Syunik regions and in Yerevan. In Vayots Dzor region, both at the beginning of the year and at the year end, the development level of the girls attending preschool, according to the average number of correct answers per child, was higher than that of the boys attending preschool. Conversely, in case of the children not attending preschool, both at the beginning of the year and at the year end, the development level of the boys was higher than that of the girls not attending preschool. In Lori region, gender characteristics of children attending preschool, according to the children's progress, were variable, and in case of children not attending preschool, both at the beginning of the year and at the year end, the development level of the boys was higher than that of the girls not attending preschool. In Gegharkunik region, both at the beginning of the year and at the year end, the development level of the girls attending preschool was higher than that of the boys attending preschool, and in case of children not attending preschool the situation was variable. What concerns gender characteristics of children attending preschool in Yerevan, according to the children's progress, both at the beginning of the year and at the year end, the development level of the boys was higher than that of the girls. The situation in case of the children not attending preschool was variable.

Since the indicators of boys and girls differ irregularly by child groups and period of academic year, we cannot comment on knowledge advantage conditioned by gender factor.

Figure 18. Gender characteristics of children involved and not involved in preschool, according to the children's progress (2018-2019)



According to the analysis performed, of the mentioned above regions and city of Yerevan, only in Tavush (2016-2017), Lori (2016-2017), and Syunik (2017-2018) can be noticed a knowledge advantage due to the gender factor (the development level of girls is higher than that of the boys).

4.1.1.5. Analysis of the effect of families socioeconomic status on children's development dynamics

Let us look at the impact of families socioeconomic status on the children development dynamics by regions on year over year basis.

Figure 19 shows the socioeconomic status of families of children attending and not attending preschool for the year end of 2015-2016 academic year, according to the children progress, in the

regions of Kotayk, Gegharkunik, and Shirak. Of the presented regions, the impact of the family's socioeconomic status on the year end testing results can be noticed only in Kotayk region. In this region the children from the families with average socioeconomic status have displayed the highest testing results. In the two remaining regions, Gegharkunik and Shirak, no clear advantage has been observed, and the average number of correct answers per child was quite different for the mentioned regions and different categories of the children families' socio-economic status.

Figure 19 The socioeconomic characteristics of the families of children involved and not involved in preschool, according to the children progress (2015-2016)

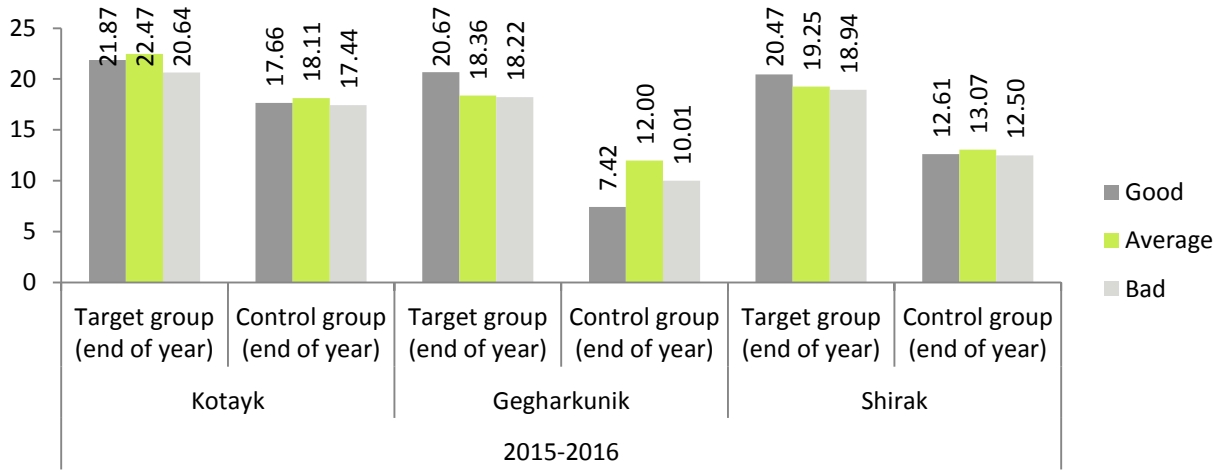


Figure 20 shows the socioeconomic status of families of children attending and not attending preschool for the year end of 2016-2017 academic year, according to the children progress, in the regions of Armavir, Tavush, and Lori. The impact of the family's socioeconomic status on the year end testing results can be noticed both in Armavir and Lori regions. In the mentioned regions the children from the families with average socioeconomic status have displayed the highest testing results. On the other side, no clear advantage has been observed in Tavush region, and the average number of correct answers per child was quite different for the different categories of the children families' socio-economic status.

Figure 20. The socioeconomic characteristics of the families of children involved and not involved in preschool, according to the children progress (2016-2017)

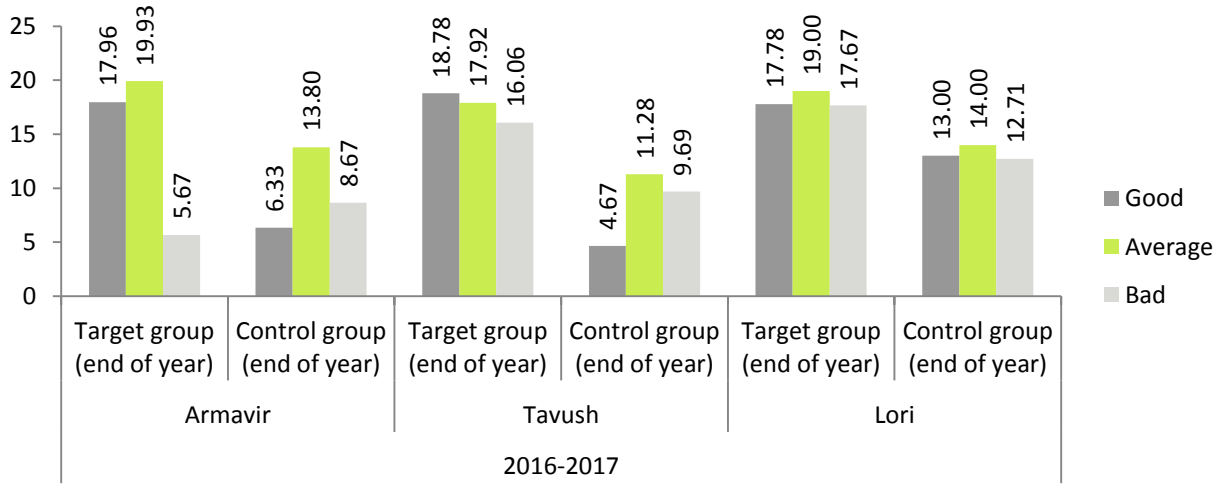


Figure 21 shows the socioeconomic status of families of children attending and not attending preschool for the year end of 2017-2018 academic year, according to the children progress, in the regions of Ararat, Aragatsotn, and Syunik. The impact of the family's socioeconomic status on the

year end testing results can be noticed both in Ararat and Syunik regions. In the mentioned regions the children from the families with high socioeconomic status have displayed the highest testing results. On the other side, no clear advantage has been observed in Aragatsotn region, and the average number of correct answers per child was quite different for the different categories of the children families' socio-economic status.

Figure 21. The socioeconomic characteristics of the families of children involved and not involved in preschool, according to the children progress (2017-2018)

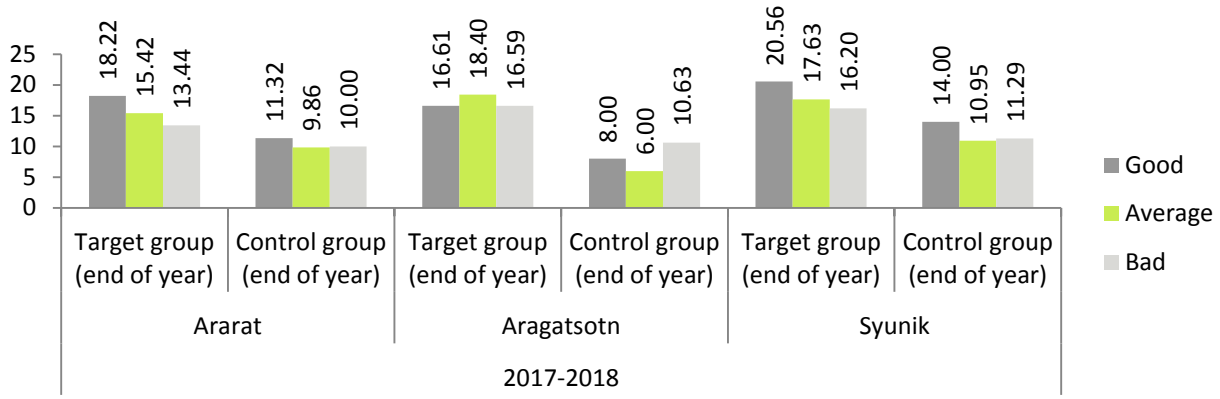
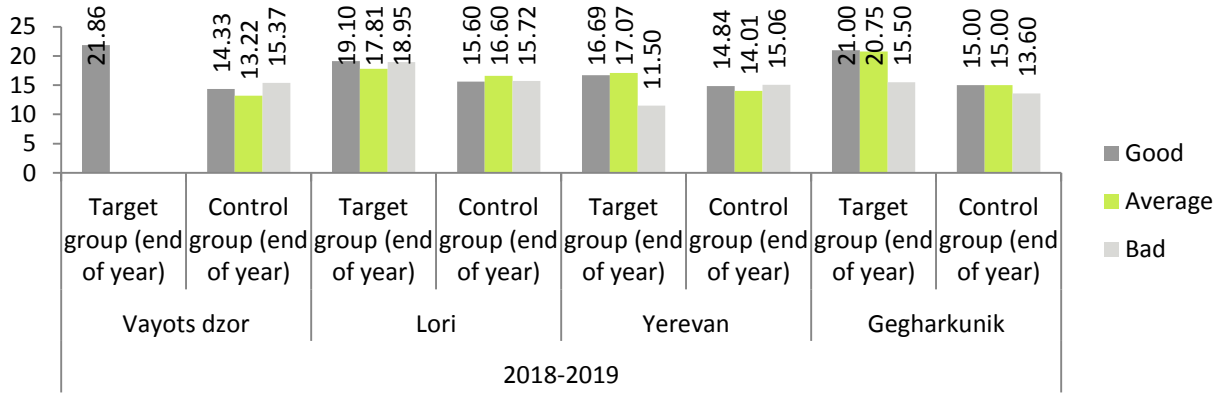


Figure 22 shows the socioeconomic status of families of children attending and not attending preschool for the year end of 2018-2019 academic year, according to the children progress, in the regions of Vayots Dzor, Lori, and Gegharkunik, and in Yerevan. In Vayots Dzor region all the preschool children were from families having high socio-economic status, and it was impossible to present a correlation between the families' socioeconomic status and children progress. What concerns Lori and Gegharkunik regions and the city of Yerevan, no clear advantage has been observed there, and the average number of correct answers per child was quite different for the different categories of the children families' socio-economic status.

Figure 22. The socioeconomic characteristics of the families of children involved and not involved in preschool, according to the children progress (2018-2019)



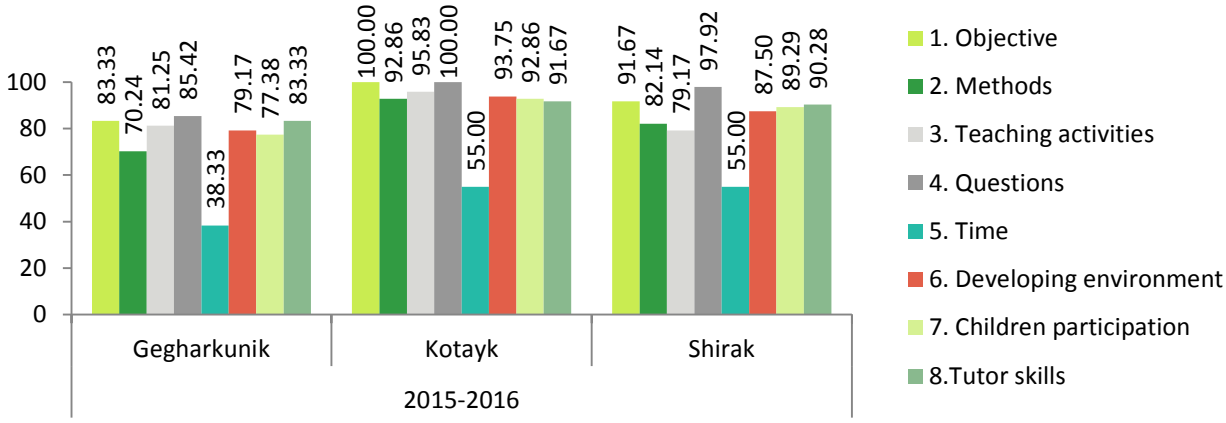
Children from families having average socioeconomic status in the regions of Kotayk (2015-2016), Armavir (2016-2017), and Lori (2016-2017), as well as children from families having high socioeconomic status in the regions of Ararat (2017-2018) and Syunik (2017-2018) have displayed highest testing results. In the other regions and in Yerevan there is no clear picture of the impact of families' socioeconomic status on children's development level, thus, we cannot make any comment on the impact.

4.1.2. Generalized analysis of class observation

Let us look at the averaged preschool class observation results per observed criteria in the regions, on the year over year basis.

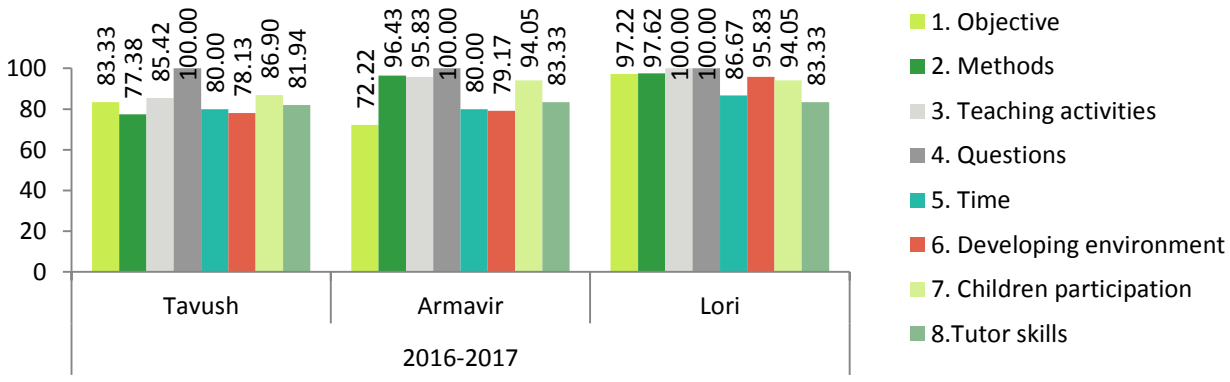
The averaged data in respect of all the criteria for the 2015-2016 academic year show that the *Questions* criterion has maximum representation in three regions, with the highest result in Kotayk region /100%/, and the lowest result – in Gegharkunik region /85.42%/. The *Time* criterion has minimum representation, with the highest result in Kotayk and Shirak regions /55.00%/, and the lowest result – in Gegharkunik region /38.33%/. Of all the criteria in all regions, only the *Objective* and *Questions* criteria have maximum representation in Kotayk region.

Figure 23. The analysis of the averaged class observation results by regions and criteria (2015-2016)



The averaged data in respect of all criteria for the 2016-2017 academic year (Figure 24) show that the *Questions* criterion has maximum representation in three regions /100%/. The *Teaching activities* criterion has maximum representation /100%/ in Lori region as well. The *Methods* criterion has the lowest representation in Tavush region /77.38%/, the *Objective* criterion – in Armavir region /72.22%/, and the *Tutor skills* criterion – in Lori region /83.33%/.

Figure 24. The analysis of the averaged class observation results by regions and criteria (2016-2017)



The averaged data in respect of all criteria for the 2017-2018 academic year show that the *Questions* criterion has maximum representation in two regions, with the highest result in Aragatsotn region /100%/, and a bit lower result – in Ararat region /95.83%/. Of the eight criteria, the lowest results have been displayed in Ararat and Aragatsotn regions by the *Time* criterion - 55.00% և 56.67% respectively. In Syunik region, of the eight criteria only the *Objective* criterion

has maximum representation /100%/, and the lowest result has been displayed by the *Children participation* criterion /76.19%/.

Figure 25. The analysis of the averaged class observation results by regions and criteria (2017-2018)

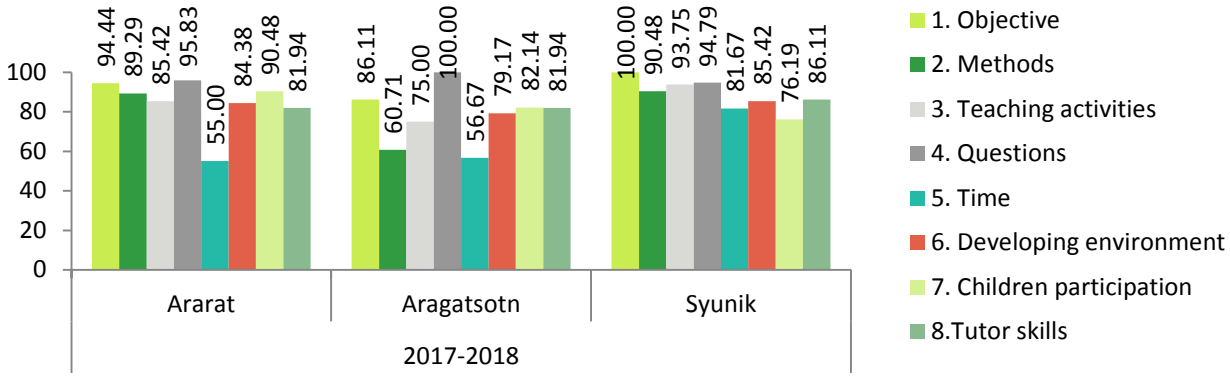
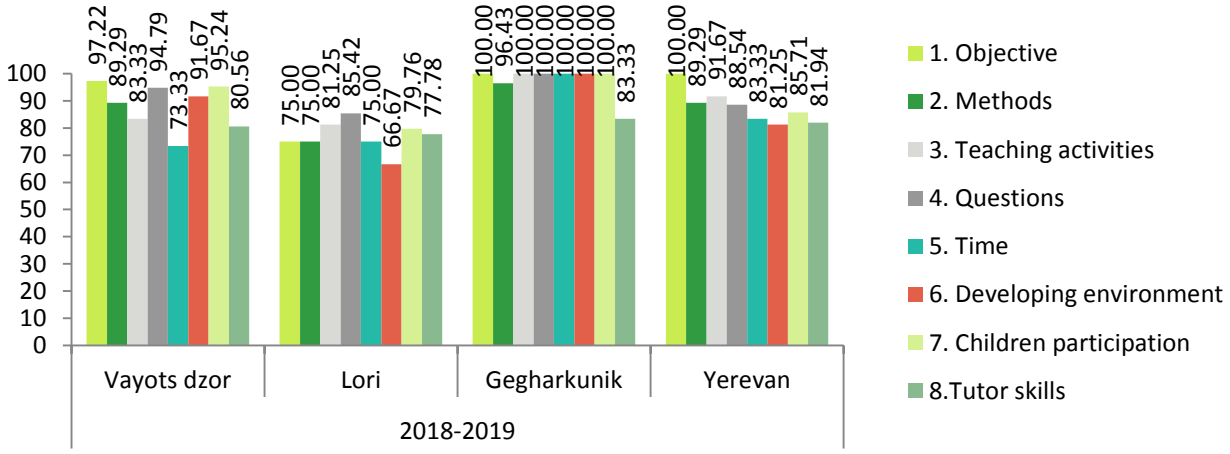


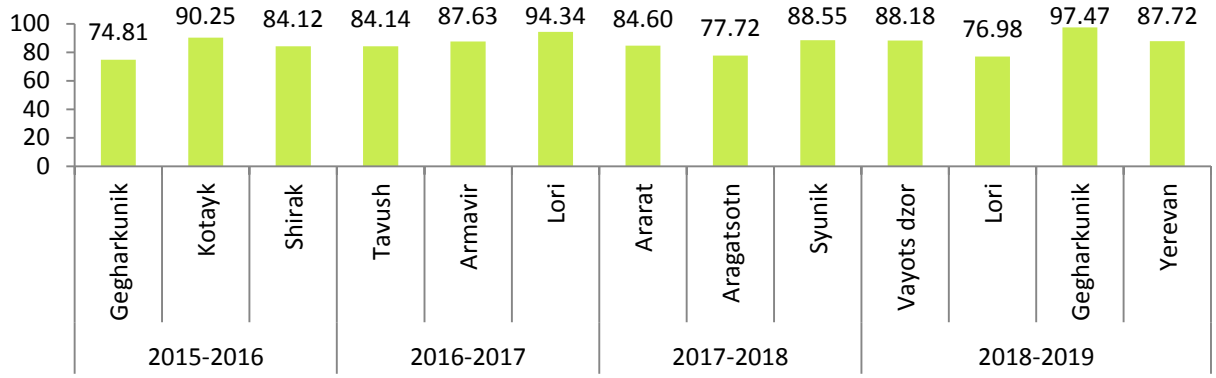
Figure 26 shows that for the 2018-2019 academic year, in Vayots Dzor region the maximum result has been displayed by the *Objective* criterion /97.22%/, and the minimum result - by the *Time* criterion /73.33%/; in Lori region, correspondingly, the *Questions* criterion /85.42%/ and the *Developing environment* criterion /66.67%/; in Yerevan, correspondingly, the *Objective* criterion /100.00%/ and the *Developing environment* criterion /81.25%/. In Gegharkunik region all criteria have maximum representation, except for the *Methods* /96.43%/ and *Tutor skills* /83.33%/ criteria.

Figure 26. The analysis of the averaged class observation results by regions and criteria (2018-2019)



We can see from the Figure 27 that according to the averaged class observation results in all regions, the highest results have been presented by Lori region /94.34%/ (observed in 2016-2017 academic year), and the lowest results – by Gegharkunik region /74.81%/ (2015-2016 academic year). In 2018-2019 academic year the averaged class observation result in Gegharkunik region has been 97.47%.

Figure 27. The analysis of the averaged class observation results by regions



In the academic year 2015-2016, the highest result has been displayed by Kotayk region /90.25%/, in the academic year 2016-2017 – by Lori region /94.34%/, in the academic year 2017-2018 – by Syunik region /88.55%/, and in the academic year 2018-2019 – by Vayots Dzor region /88.18%/.

In the academic year 2015-2016, the lowest result has been displayed by Gegharkunik region /74.81%/, in the academic year 2016-2017 – by Tavush region /84.14%/ in the academic year 2017-2018 – by Aragatsotn region /77.72%/, and in the academic year 2018-2019 – by Lori region /76.98%/.

4.2. Generalized analysis of qualitative research

In general, the micro-project managers, tutors and parents have mentioned that the micro-project has a positive effect on the children development dynamics.

The overall obtained and generalized results of preschool visits made in the regions at the beginning and at the end of the academic year are presented below:

- *The general conditions of a preschool*
  - ✓ The fact whether the community has been urban or rural may have a certain effect on a preschool, as well as organization of the physical environment, and limitation of a possibility of staff selection.
  - ✓ The basis on which the preschool has been established (kindergarten or school) may have a certain effect as well. In some of the preschools, mainly at the request of the head master, a kindergarten physical education teacher, music and foreign languages teachers, psychologist, school teachers, language and music tutors have been involved in the working process, who impart certain knowledge to the preschool children and get acquainted with them. In school-based preschools, the integration of a child into the school environment is easier, as the child has already been familiar with the school's rules and activities, attend elementary class events, etc.
  - ✓ The building conditions of all preschools have been satisfactory, newly renovated. In some cases the preschool was located at the end of the community (for example, 40 minutes on a road), and transportation problems arose in winter months. All preschools were permanently supplied with cold water, and the Tsaghkung community preschool in Gegharkunik region had hot water supply as well. There

was a problem regarding water supply in Nerkin Tsaghkavan community of Ararat region, which was associated with scheduled water supply, and children had to bring drinking water from their homes. There was a heating problem in Dovegh, Voskepar, Nerkin Tsaghkavan, and Dzoramut communities preschools, where it was quite cold at the time of the visit.

- ✓ Concerning the daily regime, it can be generalized that the parents wished the working time of the preschool within the program to be extended, to enable them to work.
- ✓ Some of the preschools have benefited from UN Food Program. The amount paid by parents for food varied between AMD 500 to AMD 4000; In some of the preschools the children brought the food from home, which may create safety and identity issues. In the communities Dzoragyugh, Ujan, Vardenis, Martuni, and Goris no food was provided to children, and in Sisian food was provided by Mayor.
- ✓ In general, there were no mechanisms at the preschools to help socially vulnerable families (some of the head masters applied for help to local authorities, NGOs, and the trade unions at schools; in some cases parents were bringing meals for all children rather than only for their child, or they collected a bit greater amount for food).
- ✓ There was a problem with tutor's payment in Vardenis community of Aragatsotn region, which was solved due to help of parents, they paid 3000 drams monthly during three months.
- ✓ Of the preschools opened during these four years, only at the preschool in Kasakh all the working centers had been separated. In general, inadequate budget allocation in preschools has led to a problem with the work center supplies in respect of their availability and sufficient quantity, as there has been a lack of didactic and visual materials in almost all preschools.
- ✓ In the preschools located in city communities 5 to 6 year old children were prevailing, however in village communities the picture in general was quite the opposite.

- *Preschool staff, training*
  - ✓ Since all the preschools have been newly opened, the teaching program also has been new for everybody; tutors did not fully perceive child-centered and integrated teaching principles and methods, application of situational approach, which could be explained by lack of experience. In the general picture, the teachers from Gyumri primary school N23, Kasakh, Abovyan, Martuni, Chambarak, Spitak, Ararat, Goris, Karahunj, Tsaghkunk, Getap and Gladzor preschools can be particularly distinguished, as they applied a creative approach to the teaching process trying to present the topics in a new and interesting manner.
  - ✓ In all the preschools the tutors worked alone, except for the Avan community preschool in Aragatsotn region, where two tutors worked (for one group) at the beginning of the year. Tutors could not pay by themselves due attention to the children's hygiene. The interested parties almost in all the preschools pointed out

the need for a tutor assistant. The situation was more complicated especially in the mixed age groups.

- ✓ All the tutors have been trained. The tutors have been satisfied with the training, they mentioned that it was very informative, and they received a lot of knowledge; except for the tutors of Margahovit preschool and the preschool established on the basis of Yerevan secondary school No. 66. They mentioned about the absence of practical part in the training, and the Margahovit's tutor also mentioned about incompleteness of necessary materials. Dzoramut's tutor had attended the training partly (through no fault of her own) and encountered difficulties at the beginning of the year. The only comment coming from the tutors was that the trainings were short in time, and they wished that the trainings were recurring.

- *The class provision*
  - ✓ The best working qualities were shown by the tutors of the following preschools: Kasakh, Abovyan, Gyumri (N23 PSP), Spitak, Stepanavan, Goris, Getap, Gladzor, Tsaghkunk and Vanadzor (4th year).
  - ✓ Mainly, not all the centers were formed at the preschools, in some preschools the centers were not fully equipped (mostly cooking, role play, biology, construction, and sports centers). The tutors were mainly concentrating on all the aspects of a child development, however most of all they focused on language and cognitive development areas.
  - ✓ During classes the tutors used both teaching principles, however, the integrated approach was used most often.
  - ✓ The tutors applied towards the children both individual and group evaluation. Sometimes they made use of observation questionnaire, however the tutors were of an opinion that completion of the questionnaire was rather time consuming.

- *Socio-economic condition of communities, families' lifestyle*
  - ✓ Of all the observed communities 17 have been rural, and 18 - urban. For the majority of the preschool children's families the main source of income was paid job and outgoing work, there were also many families for which the main source of income was agriculture, cattle breeding, and farming. In general, children were not involved in these works, but sometimes they helped parents at their own will to collect fallen fruits in the garden, to water the garden, etc. The most involvement in agricultural work was noticed among the children of Stepanavan and Karahunj preschools; in particular, they guarded animals, loosened the soil, collected potatoes. The outgoing work in some of the communities made the wife bear responsibility for solving the family's social economic problems, and her being constantly stressed affected relationships with the children.
  - ✓ According to the qualitative research results (per majority of respondents) the socio-economic condition in the communities has had a direct effect on a child development. For example, the children sometimes bring their family problems to the preschool; they are well aware of the problems at home; parents are unable to take their children to the theater or to the movies. In socially disadvantaged communities parents are more focused on coping with their daily life problems

and earning a living, rather than educating their children. The conditions created in the preschools allow to smooth social differences by providing equal conditions for all children.

- ✓ In the families mothers and fathers are equally involved in upbringing of their children, however mothers remain primarily responsible for child care. In general, parents explain their decisions to children. Children are independent in their feeding, washing and dressing matters. The children help parents in simple household tasks, and tidy up after themselves. Children are punished for lying, disobedience, conflicting, using a computer for a long time, stealing, aggressiveness, getting dirty, picking up a toy from someone else's house, not greeting adults, sneaking. Parents often punish children depriving them of their favourite things and activities, putting child in a corner. In some cases violent actions have been observed as well (slapping kids to bring them into conscience, threatening to tell father, shouting at kids).
- ✓ There were many children in preschools that had previously attended kindergarten, and they moved to preschool for a number of reasons – opening a preschool in their community, completely moving the kindergarten's elder group to the preschool (for example, in Karahunj, Ujan, and Margahovit the kindergarten's elder group was moved to the preschool established on a school basis), children not getting adapted to the kindergarten's conditions, having difficulties with payment, educators not being equally attentive to the children because of very large groups, or the parents deciding to take their child to the school on the basis of which the preschool has been established, and by attending the preschool the children will get knowledge and become prepared for the school. The children who attended kindergarten had learned to socialize, get disciplined, learned some words in English and Russian, recited verses, knew digits, letters.
- ✓ Parents think that family (the influence of parents), learning (learning methods, topics) as well as socio-economic conditions of the family have a great impact on children development.

- *Preschool-parent link*
  - ✓ In all communities, the preschool-parent link was strong enough, and the parents were in constant contact and ready to help the tutor in any matter, such as preparing posters, other learning materials. However in some communities the preschool-parent link was not strong; it was limited to only sending food with their children and changing their slippers while attending preschool. The parents' main purpose of taking their children to the preschool has been preparing them for school. They believe that the children will have an opportunity to communicate with other preschool children and will get acquainted with the school conditions.
  - ✓ In some preschools parents collected money for food provision, stationery and toys, which created certain inconvenience for parents of socially insecure families. In some preschools the parents expressed their readiness to pay for foreign language and other additional classes, and for hot meal provision (in the preschools where no meal was provided).

- *Gender differences in children's abilities*
    - ✓ The majority of tutors stated that the children abilities did not vary depending on their gender; they also mentioned about certain specificities, in particular, that the girls are more conscientious, reasoning, listening, active, courageous, and the boys – lazy.
- *The program continuity*
    - ✓ Mainly the preschool head masters did not see any threat in respect of the program continuity. It is worth to mention that only Ujan, Vanadzor, Gladzor, and Yeghegis communities preschool head masters mentioned about the threat to the program continuity. Ujan preschool head master mentioned that there is a problem concerning the children quantity, Vanadzor preschool head master noted about tutor's remuneration, and the head masters of Gladzor and Yeghegis preschools mentioned about the emigration problem.

- *Opinions of parents of the children not attending preschool*
    - ✓ These parents did not take their children to preschool mainly for a number of reasons: lack of finances, distant location of the preschool, the possibility of child care at home. However, it should be noted that the perceptions towards preschool among these parents are connected with financial issues. They mainly think that parents having financial means take their child to preschool.

The registered changes at the end of the academic year

- The preschool has fostered the school rank in the area and significantly influenced the increase in students number.
- Some expenses were not included in the budget, or were not foreseen during the planning process, which created some problems at later stages. The head masters tried to solve the problems by their own means or with the help of the community or of the parents, in particular, covering the expenses related to the remuneration of the tutor, purchase of current teaching and didactic materials.
- Sometimes an organisational issue came forth in relation to the tutor's temporary disability (sick leave payment).
- In some preschools the parents filled in questionnaires relating to current issues, and the preschool staff tried to find solutions for the problems arisen.
- The preschools' staff used to give advice to parents concerning children development, upbringing, solving psychological problems, and other matters.
- As for the general conditions, in some preschools the food supply was still a problematic area (according to parents), however in some preschools, at the end of the year, the food supply problem was solved or would be solved in the next academic year.
- The preschool water supply problems were mainly connected with the community's water supply. In some of the preschools electric heaters were used during winter months, however it was cold for the children and they often got sick.

- The head masters mentioned about the need of an outdoor playground, the absence of which resulted in reduced physical activity. The existing children playgrounds have not been safe enough.
- Concerning the changes in the preschools physical environment, it can be mentioned that at the end of the year handmade accessories, colourful wallpapers have been added and certain working centres have been separated. In many preschools there was a shortage of many accessories (didactic, visual, toys, literature, methodical materials) which was explained by their absence initially or their breakage or being worn out. Often those accessories were bought by the head teacher, tutor, or parents.
- At the end of the year the tutors mastered the new teaching methods, became more experienced and gained some confidence. Many events were arranged by tutors. During the classes various methods and principles were applied.
- In general the parents were satisfied by the tutors' attitude, the knowledge they gave and the general conditions of the building.
- The preschool gave valuable knowledge, the children have learned to speak correctly, learned letters and numbers, could count, do simple tasks with numbers, acquired the basics of socialising, got rid of some bad habits, could tell tales and recite poems, became more active, friendly, and some of them could even write their names. Some progress has been noticed regarding children with language disorders. Children having difficulties in adaptation to preschool have weakened the strong social bonds with their mothers; moreover, children are more likely to be identified with the tutor. There are certain knowledge / skills that children can only acquire in preschool, such as socializing with other children, becoming friendlier, etc.
- Children attending preschool, according to the parents, have more knowledge compared to their older sister or brother at the same age.
- The parent-preschool link have become stronger, parents frequently visited preschool to be informed of the child's daily life, provided handmade accessories during events, and in some preschools they even established duty (as there was no assistant tutor or cleaner), made class hearings and organised excursions.
- Due to the preschool, parents have got more free time and could use it more efficiently (in some cases they could spend more time with their younger kids); some parents could start employment (paid job, self-employment), and the others tried to find job, but did not succeed due to short day working regime of the preschool.
- According to the respondents, it can be stated that the preschool children successfully became ready for and integrated into the school. This has been due to the participation in the school events, which created perfect environment for the teachers to get acquainted with the children, to pass certain knowledge to them; children participated in different events with the first graders as well.
- There is a project continuity threat only for the preschool of Yerevan secondary school No. 55 after A.Chekhov SNCO, since it has not received a license for carrying on preschool activity.

- In-depth interviews with parents of children not attending preschool have shown that there was a lack of information among parents about the operating preschool; children were not taken to preschool because of either lack of transportation means, or misinformation (they did not know that the preschool attendance is free, therefore they had no interest in getting any information about the preschool and its conditions), or a person at home constantly taking care for the child.

CONCLUSIONS AND RECOMMENDATIONS

In the preschools observed, in practice, all the conditions for learning were met. However, it is worth to mention that it is necessary to pay attention on certain issues to increase the efficiency of preschool activity.

- *General conditions of preschools*
  - ✓ Preschool contributes to rising the school image and will have a significant influence on the growth in children number.
  - ✓ The analysis allows to assume, that in certain way, the type of community have had influence on the organisation of the physical environment.
  - ✓ The basis on which the preschool has been established contributes to its optimal operation. Kindergartens and schools involve language, music and other specialists in the education process, who pass certain knowledge to the preschool children. Unlike kindergarten, Children attending school-based preschools become integrated into school and adapted to discipline.
  - ✓ The building conditions of the preschools have been good, recently renovated. There have been a need in outdoor playground to provide due conditions for the children's physical activity
  - ✓ The following problems have been encountered in the preschools - scheduled water supply, non-appropriate temperature in the preschool, not appropriate location (distant location and the road conditions). In some of the preschools there was a need in a long day regime.
  - ✓ In the mixed age groups, it had been hard to combine the topics by age and work with one tutor.
  - ✓ The program does not provide for food supply, however in some preschools there was a need in its organization. In the preschools where the food problem was solved through UN Food Program, the children were receiving full nutrition at the school canteen. The parents' contribution at different preschools was different. In some preschools the food was brought from home or parents tried to provide the children with identical food.
  - ✓ There were cases of inefficient planning/spending of the budget. As a result, the head masters had to replenish the shortage by means of either the school, or the community, or the parents, or merely no replenishment was made.
  - ✓ All the necessary furniture and equipment was available at the preschools. However the preschools mainly were not equipped with enough learning materials, didactic and visual accessories, and toys. Actually, a small portion of the budget has been dedicated to purchasing necessary accessories, and the major part of the preschools has to apply to benefactors for purchasing learning materials and accessories or making their current replenishment and refreshment; or makes that through the school's means. At the end of the academic year handmade accessories and coloured posters have been added, and the working centers have been separated.
- *Preschool staff*

- ✓ Initially the Educational program was new for everyone. Tutors and head masters at the major part of the preschools had working experience. At the end of the academic year the tutors already mastered the basic teaching principles.
- ✓ The tutors mostly worked alone at the preschools. This resulted in certain drawbacks in respect of keeping track of children's hygiene, organizing efficiently the educational process, paying due attention to children of different ages in mixed age groups.
- ✓ All preschool tutors have been trained. In general, the tutors were satisfied with the training and mentioned that it had been very interesting and useful. The tutor of Dzoramut preschool did not participate the training fully. The only comment coming from all tutors was that the training was short, and they wished the trainings were continuous.

- *Socio-economic conditions of communities and family lifestyles*

- ✓ 17 of the communities observed have been rural and 18 - urban. For the majority of the preschool children's families the main source of income was paid job and outgoing work, there were also many families for which the main source of income was agriculture (often the children were also involved in these works at their own will, mostly from the preschools of Stepanavan and Karahunj).
- ✓ According to the qualitative research results (per majority of respondents) the socio-economic condition in the communities has had a direct effect on a child development, in particular, an opinion was expressed that in socially disadvantaged communities parents paid little attention to children's education and were unable to get them acquainted with cultural values.
- ✓ In general, fathers and mothers were equally engaged in upbringing of the child, however mothers were involved more in the child caring process. Parents mainly explained their decisions to the children. Children were independent in their feeding, washing and dressing matters; they helped their family members in simple household work. Children were punished for lying, disobedience, conflicting, using a computer for a long time, stealing, aggressiveness, getting dirty, picking up a toy from someone else's house, not greeting adults, sneaking. Parents often punished children depriving them of their favourite things and activities, putting child in a corner.
- ✓ There were many children in the observed preschools that had attended kindergarten previously, and they moved to preschool for a number of reasons – opening a preschool in their community, completely moving the kindergarten's elder group to the preschool, children not getting adapted to the conditions in the kindergarten, having difficulties with payment for kindergarten, educators not being equally attentive to the children, or taking later on their children to the same school and making them prepared for the school.
- ✓ According to the parents, family, learning, and the family's socio-economic condition have a great impact on children development.

- *Preschool-parent link*

- ✓ In all observed preschools, the preschool-parent link was strong enough, and the parents were in constant contact with tutor and ready to help the tutor in any matter. However in some preschools the preschool-parent link was not strong. The parents' main purpose of

taking their children to the preschool was preparing them for school and getting them acquainted with the school environment.

- ✓ In some preschools parents were ready to pay for additional classes, and for hot meal provision. Moreover, in some of the observed preschools parents collected money for purchase of food, stationery and toys.

- *Opinions of parents of the children not attending preschool*

- ✓ It worth to mention that wrong perceptions were formed towards preschool among the parents of children not attending preschool, as they assumed that socially secure families take their children to preschool. However there were parents who did not take their children to preschool mainly because of absence of finance, distant location of the preschool, and the possibility of taking care of the child at home.

- ✓ *The program continuity*

- ✓ There is a project continuity threat for the preschool of Yerevan secondary school No. 55 after A.Chekhov SNCO, since it has not received a license for carrying on preschool activity.

- *Conducting classes*

- ✓ The tutors were mainly concentrating on all the aspects of a child development, however most of all they focused on language and cognitive development areas. In the most part of the observed preschools during these four years, there was a problem of poor representation of working centers and insufficient equipment and accessories. Cooking, role-playing, biology, construction and sports work centers and their accessories were mainly missing. Tutors mostly applied integrated teaching approach during classes; they evaluated the children using individual and group assessment.

- ✓ In the academic years 2015-2016, the highest result was displayed by Kotayk region /90.25%/, in the academic year 2016-2017 – by Lori region /94.34%/, in the academic year 2017-2018 – by Syunik region /88.55%/, and in the academic year 2018-2019 – by Vayots Dzor region /88.18%/.in Lori region.

- ✓ In the academic year 2015-2016, the lowest result has been displayed by Gegharkunik region /74.81%/, in the academic year 2016-2017 – by Tavush region /84.14%/ in the academic year 2017-2018 – by Aragatsotn region /77.72%/, and in the academic year 2018-2019 – by Lori region /76.98%/.

- ✓ All the tutors have been capable of guiding the right course of instruction with the right questions, ensuring the activity of children in the group room, and applying different teaching methods.

- ✓ In the academic year 2015-2016, of all the criteria in all regions, only the Objective and Questions criteria have maximum representation in Kotayk region. The *Time* criterion has the lowest result in Gegharkunik region /38.33%/.

- ✓ In the academic year 2016-2017 the *Questions* criterion has maximum representation in three observed regions /100%/. The *Teaching activities* criterion has maximum representation /100%/ in Lori region as well. The *Objective* criterion has the lowest result in Armavir region /72.22%/.

- ✓ In the academic year 2017-2018 the *Questions* criterion has maximum representation in Aragatsotn region /100%/, the *Objective* criterion – in Syunik region /100%/. the lowest result has been displayed by the *Time* criterion /55.00%/ in Ararat region.
- ✓ In the academic year 2018-2019 the *Objective* criterion has maximum representation /100%/ and the *Developing environment* criterion /81.25%/ has minimum representation in Yerevan. In Gegharkunik region all the criteria have maximum representation, except for the *Methods* /96.43%/ and *Tutor skills* /83.33%/ criteria.

- *Children development*

- ✓ According to the tutors and parents, the preschool children have been completely prepared for school.
- ✓ The testing and retesting results of preschool children (according to the averaged data by regions) are mostly exceeding the testing and retesting results of children not attending preschool. This allows to state that preschool has played important role in children development.
- ✓ According to the averaged testing results of preschool children in all regions and in Yerevan, the highest results were displayed by the preschools opened in 2015-2016 (Shirak, Gegharkunik and Kotayk), and according to the retesting results – in case of the preschools opened in 2018-2019 (Vayots Dzor, Lori, Gegharkunik and Yerevan).
- ✓ Concerning the averaged regional data of all the children development subfield indicators, the retesting results of the children attending and not attending preschool are mostly exceeding the testing results in case of the preschools opened in 2018-2019.
- ✓ Of all the observed regions, only in five regions an impact of the families' social economic status on the children development has been clearly noticed: Kotayk (2015-2016), Armavir (2016-2017), Lori (2016-2017), Ararat (2017-2018), and Syunik (2017-2018). In the remaining regions and in Yerevan there is no clear picture of the impact of families' socioeconomic status on children's development level, thus, we cannot make any comment on the impact.
- ✓ The most part of the observed preschools' tutors mentioned that the children abilities did not vary depending on their gender; they also mentioned that the girls are more conscientious, reasoning, listening, active, courageous, and the boys – lazy.
- ✓ Children have had different development level regarding their gender characteristics, thus a significant conclusion cannot be made. However it is worth to mention that, according to the research results concerning children development by regions and communities, in respect of gender differences of children attending and not attending preschool, the data regarding development level in case of the boys mostly exceeded the data for the girls.

Recommendations

For community:

- Create unified assistance model for the low income families to ease the purchase of current learning materials, and cover the expenses for additional paid lesson, and food supply.
- To level the approach for the food supply of all the preschools so that every child gets the same conditions.

- If possible support the preschool with:
  - ✓ creating and equipping open air playgrounds, paying great attention on the children's physical development and the area improvement;
  - ✓ periodic replenishment of the necessary accessories in the classrooms: literature, devices, toys, didactic means and sports equipment;
  - ✓ Providing support to the preschools where there is a need in and a possibility of organising a long-day regime and creating sleeping amenities;
  - ✓ the preschools need an assistant tutor, as the tutors cannot pay appropriate attention to a child's hygiene because of the busy schedule;
  - ✓ in case there is a child with special needs in the preschool, to ensure the availability of the corresponding specialist;
- If possible, organise additional groups in the preschool, for example, employ a group tutor and make payment on an hourly basis, as not all the parents have the means to pay for the additional group.
- To spend the budget in the most optimal manner, wholesale purchase may be organized in each region to acquire furniture and teaching and training materials. As a result, all the preschools will have similar furniture with the same price, which will match the child's development standards (quality, colour, etc.). Moreover, wholesale purchasing will reduce the acquisition price.

For the program:

- Keep on maintaining the micro project's model of being financed from state budget.
- Before the project start, to agree the corresponding research results in the communities with the state authority providing license for carrying out preschool activity, to ensure there will be no problems with provision of the license in the future.
- To develop standards for evaluation of tutors' work. Perform monitoring and evaluation and, based on the results of which, encourage the tutors showing the highest results and share that information with all the existing preschools to promote healthy competition.
- Experience has shown that just training for tutors is not enough, and there is a need in carrying class hearings by trainers and their recommendations, keeping up the trainer - tutor link until the tutor becomes confident and ready for work.
- Organize regular trainings for the preschool staff, extending the practical part. Organize an exchange of experience (through class hearings) at the most successful preschools of a region.
- Always disseminate information on preschool activities.
- Provide an opportunity for parents of children not attending preschool to participate in program thematic events arranged at the preschool to enable them to more clearly assess the issue of preschool attendance and be oriented in respect of their child; for example, by inviting them to preschool children's events or other arrangements.
- The issue of providing a sufficient amount of teaching materials is still relevant this year. In this regard, a greater importance should be given to the *teaching and learning materials* budget line (also in terms of funding), paying more attention on provision of a sufficient

number of accessories, as they play a key role in ensuring the availability of a due environment for children development.

- ✓ It is necessary to provide a breakdown of sub-items of the mentioned budget line, listing all the necessary accessories, to efficiently organize the education process and spend the financial means; as well as, if possible, to increase the corresponding funding.

- ✓ If the latter is impossible, then to balance this budget line with other budget lines, for example, the availability of learning materials and accessories is more important than the availability of a sofa, as the children have their own chairs and they love to play on the carpet too.
- ✓ Create conditions regarding *teaching and learning materials*, in order that the tutor can apply the skills acquired during training.
- ✓ To exclude the burden on the parents and fundraising regarding *teaching and learning materials*, it is necessary that head masters make planning in respect of the materials allocations for the whole year.