THE EFFECT OF PYRAMID METHOD ADAPTED TO TURKISH PRESCHOOL EDUCATION PROGRAM ON THE RECEPTIVE AND EXPRESSIVE LANGUAGE SKILLS OF 5-YEARS OLD CHILDREN: A PILOT STUDY

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Abstract— The purpose of this study is to investigate the effect of Pyramid method adapted to Turkish Pre-School Education Program on the receptive and expressive language skills of 5-year old children. The Pyramid Method has been developed by Van Kuyk under CITO which is one of the most famous measurement and evaluation centers in the world. The one-group pretest-posttet design which is one of the weak experimental designs have been used. For this purpose, 15 five years old children were included in this study at the Gazi University Vocational Education Faculty Preschool. The data have been collected by TELD-3: Turkish, which is a Turkish version of "Test of Early Language Development". As a result of the research, Pyramid Method was found to have significantly different influences on the receptive and expressive language skills of children.

Keywords— Turkish Pre-school Education Program, Pyramid Method, Perceptive Language, Expressive Language.

I. INTRODUCTION

Many different of views on the definition of the language have been used. Different disciplines such as philosophy, anthropology, sociology and psychology have been investigating this issue by using diffferent approaches [1].Language is a system that consists of symbols and it is a tool used for communication and expression of individuals' views on universe [2]. In another definition [3], language is a system of codes used to express the common beliefs, attitudes, knowledge, and wishes of the society. In both definitions, communication has been emphasized as a common function of the language. Language has three functions in communication of views among individuals. These are description, effect and explanation functions. Among these, description function is used to transfer the knowledge from one individual to another. Effect function is used to influence an individual. Explanation function is used to explain the concepts common to both people [4]. Putting these three functions together, the communication among individuals is maintained. A famous linguist Chomsky has stated that "language" is a uniquely special tool for human being which enables an exceptional communication among individuals. He emphasizes that even very weakly intelligent people are aware of the rules and principles created by inconsistent propositions [5].A famous early childhood educatorMontessori has referred language as a miracle process which is only pursued by human voice [6]. She states that language development is one of the most important development areas in the early childhood period. Such that 5 years old children have already become experts of their language and learned thousands of words [7]. Language development is known to start in infancy years and continue onwards. Moreover, it is known that children do not pass to another development task without finishing the initial one [8]. In this context, early childhood period is critically important to develop language skills. Developmental delays in these years might cause severe effect whole life [4]. Some studies emphasize various facts on language development of children. First, the fact that language abilities effect personal communication skills and academic success [7], second, the fact that early age language skills help predicting emotional and social functions [9], third, the fact that these skills support being a good reader [10] have been put forward. Some other studies point that language skills of children are influenced by the vocabulary of caregivers [12] and the level of attachment to their mothers [11]. Indeed, socio-economic level of the family is also influential on the language skills of the children [13] - [14]. In order to support the language development skills, it has been suggested by educators to make conversation with children one-by-one individually, to use extenders during conversations, to plan supportive activities to improve learning new vocabulary and use them in dialogs [14] - [15]. To achieve all these, early child programs should be used.

One of the early child education programs is called Pyramid Method. This method was initially developed by Van Kuyk to help the children of economically disadvantageous immigrants in language skills and their social development in Netherlands [16] - [17]. The efficiency of Pyramid Method has been evaluated in comparison to High Scope program during 1996-1999 years. As a result, it was found that both methods are effective in cognitive and language development. When both methods are compared, Pyramid method is found to have a more significant impact on the cognitive development of children [16]. Today, in Netherlands

64 % of preschools has been used Pryamid Method [18]. In thiss concept, it is useful to spent few words on Pyramid Method which is inspired from various theories such as Dynamic Systems Theory, Attachment Theory, Distance Theory, Multiple Intelligence Theory and Emotional Intelligence Theory. Pyramid Method includes activities such as extra language induction and interactive storytelling and education by private tutors [19]. Hence, the purpose of this study is to investigate the effect of Pyramid Method adapted in Turkish Pre-School Education Program on the receptive and expressive language skills of children.

II. METHOD

In this study,the one group pretest-posttest design which is one of the weak-experimental designs was used. With this design, the impact of experiment on dependent group was tested [20]. In below, the design is demonstrated:

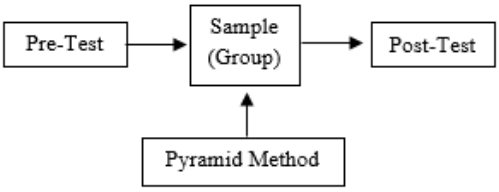


Fig.1. Research Design

2.1. Participants and Instruments

In terms of data collection, convenience sampling method was applied. Nineteen 5 years old children have been recruited for the study. Participants are the children attending to Gazi University Vocational Education Faculty Preschool in Ankara during 2015-2016 spring semester. For several reasons, 4 children left the study. The table below summarizes the ages of children at the end of the study:

Table1: The Ages of Children

Child	Age
C1	5 years 4 months 11 days old
C2	5 years 7 months 6 days old
C3	4 years 2 months 18 days old
C4	4 years 9 months 7 days old
C5	4 years 5 months 3 days old
C6	5 years 2 months 6 days old
C7	4 years 4 months 25 days old
C8	4 years 6 months 5 days old
C9	4 years 8 months 3 days old
C10	5 years 2 months 12 days old
C11	5 years 1 months 13 days old
C12	5 years 2 months 5 days old
C13	5 years 2 months 21 days old
C14	4 years 10 months 5 days old
C15	4 years 11 months 13 days old

The data was collected by Turkish version of "Test of Early Language Development (TELD-3)" which was developed to measure receptive and expressive language skills for a group of children who aged between 2 years-7 years 11 months. The adoption of the test to Turkish which is called Turkish Early Language and Development Test (TEDİL) or TELD3: T. TELD3: T consists two sub-scales; Form A and Form B. Cronbach alpha coefficients were calculated and very high values were calculated for all sub-groups. For male group, this coefficient ranged between 0.93 and 0.96; while for female group it ranged between 0.93 and 0.97. All these values indicated the reliability of the TELD3: T [21].

2.2. Procedure

Before the study, first researcher was educated about Pyramid Method at a school in Netherlands (Zandvoort) during 2015/16 academic year, fall semester. This school is suggested by CITO. The education continued for 9 weeks and 5 days per week. After the researcher came back to Turkey, the Homebuilders project which is used in this study has been adapted to Turkish Pre-School Education Program. This adapted project is presented to 7 experts to ask their views. 5 of these experts were specialized in early childhood while 2 of them were specialized in education programs.The experts evaluated the project from these perspectives:

- Whether the activities are convenient for Turkish culture
- Whether the content of the activities are convenient for the development properties of children.
- The convenience of the activities in terms of shape and content.

After the evaluations, the researchers and experts have discussed about the issues for 4 hours in a round table meeting. In the last version of the project, it is included 40 different activities such as plays, Turkish, art, literature, music, drama, math and trip fields. After the project is constructed, it was applied to Ethical Commission of Gazi University and got the required permissions. After the confirmation of commission, permissions were got also from the parents of children. In case one of the parents denied, that child was discarded from the study group.

After all the permissions were obtained, preliminary measurements of the research were performed. B form of TELD3: T was applied to each child. The time devoted for measurement ranged between 25-30 minutes for each child. The project was started to be applied on 16.05.2016 and planned to be lasted for 10 days. However, it was seen that the project needed more time than estimated since a large number of small group activities and individual activities require a special monitoring. Moreover, the fact that all children must attend the activities has created another time constraint. The last application of activities was

held on 03.06.2016. The school was closed on 17.06.2016. 20 activities were performed in the first 5 days whereas it was planned for 15 days. For the rest of 10 days, study was finalized by making the posttest measurements. Below some images from the applications are presented.



Fig.2. Project Process Pictures

2.3. Analyses

From TELD3: T, results were obtained in the form of both raw and standardized points T [21]. By using experimental design, raw points were used in this study. The data was analyzed using SPSS 22.0 software package. Since the number of children included in the study was below 30, a Wilcoxon Signed Rank Test for Paired Samples was used in pretest - posttest comparisons. It is also known as paired test is used to understand whether there is a significant difference among two sets of paired observations T [22].

III. RESULTS AND DISCUSSION

TELD3: T was used to study group children in order to examine the effect of the pyramid method. This method was adapted to Turkish Preschool Education Program to assess the receptive and expressive language skills of 5 year-old children. Below $\bar{X}$ and ss scores of children are showed.

Table2: $\bar{X}$ and ssScores of Children

TELD3: T	Pretest		Posttest	
	$\bar{X}$	ss	$\bar{X}$	ss
Receptive Language	30.40	1.95	32.53	2.58
Expressive Language	31.26	2.63	32.93	1.98

As it can be seen in the table above, there are differences between the mean of receptive and expressive language skill scores of children. According to the receptive and expressive language skill sub dimension pretest-posttest score differences of children, it was found thatthe mean score difference of receptive language ($\bar{X}_{\text{receptive language (post-pre)}}$=2.13) was higher than the mean score difference of expressive language ($\bar{X}_{\text{expressive language (post-pre)}}$=1.67).Accordingly, pyramid method which is adapted to Turkish Preschool Education Program was more effective on receptive language skills of children than their expressive language skills.

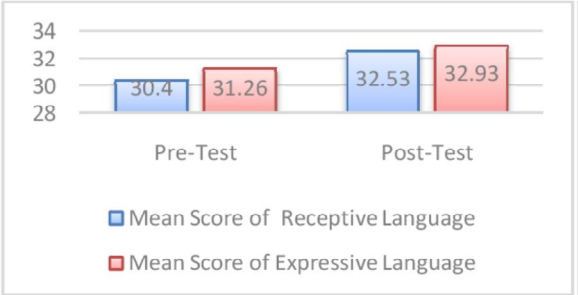


Fig.3. Mean Score of TELD3: T Subscales

According to the graph above, pyramid method which is adapted to Turkish Preschool Education Program led to significantly increase in scores of both receptive ($\bar{X}_{\text{receptive language (post-pre)}}$=2.13) and expressive ($\bar{X}_{\text{expressive language (post-pre)}}$=1.67) language skills. This significant increase can be seen in the table below and the significance was shown by using the Wilcoxon Signed Rank Test for Paired Samples.

Table3: Wilcoxen Signed Rank Test for Paired Samples of Receptive Language Skills

Pretest-Posttest	n	Mean Rank	Sum of Ranks	z	p
Negative Ranks	1	2.00	2.00	2.76*	0.006**
Positive Ranks	10	6.40	64.00		
Ties	4	-	-		

*Based on negative ranks**p<0.05

In **Table 3**, Wilcoxon Signed Rank Test for Paired Samples results showed whether or not the receptive language skill scores of children before and after the application were significantly changed.According to the results, there was a significant difference between the before and after application scores of children (z=2.76, p<0.05).When the mean ranking and total scores are considered, it can be seen that the difference was in favor of positive rankings (post test scores).

Table4: Wilcoxen Signed Rank Test for Paired Samples of Expressive Language Skills

Pretest-Posttest	n	Mean Rank	Sum of Ranks	z	p
Negative Ranks	2	6.00	12.00	2.13*	0.032**
Positive Ranks	10	6.60	66.00		
Ties	3	-	-		

*Based on negative ranks**p<0.05

In **Table 4**, Wilcoxon Signed Rank Test for Paired Samples results showed whether or not the expressive language skill scores of children before and after the application were significantly changed. According to the results, there was a significant difference between the before and after application scores of children (z=2.13, p<0.05).When the mean ranking and total

scores are considered, it can be seen that the difference was in favor of positive rankings (post test scores).

Language skills are closely related to cognitive processes and it is a compensatory factor in learning processes [13]. Language affects various critical skills of the future life of children [7] - [9] - [10]. Therefore, language skills should reach a certain level in terms of the developmental perspective.For instance; a child in a preschool period should know all speech sounds, his/her speech should be fluent, and he/she should use many words and construct complicated sentences [9] - [23]. In this regard, programs which support the holistic development of children should be used.In this study, Pyramid Method was used and it was examined whether or not this method led to significant difference in receptive and expressive language skills of children. As it can be seen in **Table 3** and **Table 4**, there was a significant improvement in both receptive and expressive language skills of children after the Pyramid Method application.This results shows that Pyramid Method was effective on receptive and expressive language skills of children.It has been shown in studies that applications which support the language development of children have positive effects on the receptive and expressive language skills of children [24] - [25] - [26]. It is important that Pyramid Method shows its positive effects on receptive and expressive language skills of children in a short time.This is supported by studies [16] - [17] which show the power of method on the language development of children.Even though the education is short-term (15 days x 4.5 hours= 67,5 hours), method was very effective because it continued during the entire day and it was not a session based education program.Other education programs generally continue for 7-8 weeks. These programs are composed of one or sometime two sessions (45 minutes-1 hour per session). Considering these programs, it can be concluded that Pyramid Method is a very good quality activity.There are dialogues of children below in order to show outputs of the application.



Fig.4. Children's Drawings

Children drew a picture as a response to a question "What is a Plumber?" and children who drew the above and left picture explained that;

> "We draw a house. There are *cold water pipes* (blue pipes located on the left side of the house) and *hot waters pipes* (orange pipes located on the right side of the house) in the house. Our house has five floors. The plumber constructs the water pipes."

Children drew a picture as a response to a question "What is an Engineer?" and children who drew the above and right picture explained that;

> "We draw *a wooden house* with a big *roof.* These yellow things are *protective walls*."

In the picture below, it can be seen dialogues of children after the field trip.



Fig.5. Children's Drawings After Field Trip

The child who drew the picture above on the left side stated that "… One part of the house can be seen in the picture. The man on the *crane* gave directions to employees: put put …it is sufficient…". The child who drew the picture above on the right side stated that "… the *crane* put wood on the top of the house. The man is builder and he has a blue *helmet*…".

It can be concluded from the dialogues of children related to the homebuilders project that they learned various words such as plumber, engineer, hot water pipe, cold water pipe, crane, and helmet.Furthermore, it was observed that children used different words and structures such as clauses "cold/hot water pipe, wooden house with a big roof, blue helmet", direction adverbs "above", and conjuction "and".Children also used plural suffix and possessives.All these findings are in line with items of TELD3:T. Consequently, Pyramid Method leads to significant difference in receptive and expressive language skills of children.

CONCLUSIONS

Consequently, it is found that the Pyramid Method which was adapted to the Turkish Preschool Education Program led to significant difference on bothreceptive and expressive language skills of children and improved the language skills of them.The pyramid method was applied for the first time in Turkey and it was conducted as a pilot study in a short time. It has been thought that this method can be involved in Preschool Education Program of the Turkish Ministry of Education as an alternative method because it significantly improves the

language skills of children and these quantitative differences are reflected to the children's dialogues.The Turkish Ministry of Education revised the Preschool Education Program in 2013 and thus teachers have individualization opportunity and they can feel resilient in orienting the program according to the conditions.Generally pyramid method can be applied to small groups and it required an individual tracking thus teachers can easily involve these practices in their daily plans. The Turkish Preschool Education Program is also eclectic. Thus, preschool education programs of other countries are examined and the program is organized by synthesizing these different programs.In this regard, it is recommended program makers to use the Pyramid Method.

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