

## The Development of Multiple Intelligence with Storytelling

Nuket Gunduz<sup>1\*</sup> and Deniz Ozcan<sup>2</sup>

*Near East University, Ataturk Education Faculty, Gifted Education Department,  
North Cyru, Mersin 10, Turkey*

*\*Telephone: +90 392 223 64 64*

*\*E-mail: <sup>1</sup><nuket.gunduz@neu.edu.tr>, <sup>2</sup><deniz.ozcan@neu.edu.tr>*

**KEYWORDS** Constructivism. Curriculum. Linguistic/Verbal Intelligence. Preschool. Students

**ABSTRACT** The present paper aims to evaluate the implementation and effectiveness of curriculum for multiple intelligence development in preschool students based on constructivism through the storytelling methodology. The study was designed using a descriptive and experimental mixed methods approach. The experimental group for the study consisted of 24 randomly selected five-year-old preschool students who were enrolled in public preschool during the year 2014-2015. The researcher developed a survey for "Implementations of Multiple Intelligences", and video cameras and videotapes were used as data collection tools. A paired sample t-test and content analysis were conducted in order to analyze the data from the study. The results indicated that the preschool students achieved a high level of development in linguistic/verbal intelligence, spatial intelligence, bodily kinesthetic and naturalist intelligence areas through the use of the storytelling method. Furthermore, some positive effects were also seen in the logical-mathematical intelligence, musical intelligence, interpersonal intelligence and intrapersonal intelligence areas.

### INTRODUCTION

Education policymakers are working meticulously to find and develop ways to integrate contemporary methods and approaches into modern teaching and learning environments that can meet the needs of the 21<sup>st</sup> century. Thus, there is a common discussion in the education settings that the Information Age in this century demands individuals to develop the ability to ask questions, challenge assumptions, invent new ways of solving problems, connect new knowledge to information already known, and apply knowledge and reasoning skills in new situations (Zobisch et al. 2015). However, culture and the society needs play an important role in the development of the curriculum selection as well as the content to serve the above mentioned demands. In the modern world, there is an increasing demand for students to understand, appreciate and engage in society. Each individual is required to develop in a manner that will enable them to cope with a diverse range of different communities in order to meet the needs of sustained learning and effectively participate in today's society (Yuksel 2013). Child development is important for future social skills, emotional development, self-confidence and academic success, and it depends, to a large extent, on the way the preschool curriculum is designed, planned and implemented. Therefore, applying the Multiple Intelligence Theory in the

designed curriculum helps draw a different picture compared to traditional classrooms by focusing on comprehensive aspects of learning either in terms of knowledge, emotional, kinematic or functional aspects and looks upon learners as integrated and improved in all aspects (Zyoud and Nemrawi 2015). In early childhood education, play is considered to be a bridge to learning social, cognitive, emotional, language and physical skills, which are important to overall development of children (Axelrod 2014). Since child growth and development can be related to anthropology and education, the cultural variables in education process is an issue to consider. Furthermore, curriculum experts and policymakers draw attention to building bridges between home and school culture. The preschool period is a systematic and conscious educational process for physical, psychomotor, social, emotional, mental and linguistic development of children in accordance with their individual qualities and developmental levels (Balat et al. 2008). Socialization, cultural transmission, child development and intelligence are the main issues of anthropology and education (Spindler 2000). Therefore, preschool curriculum development and implementation plays an important role in how students' build knowledge and develop their skills.

The starting point for curriculum development is generally a needs analysis study that is shaped through boundaries and parameters that

are interconnected by plans of intended outcomes, content, learning activities and assessment. Material resource plans, time, facilities and physical environment are also important issues to consider when designing a curriculum. Thus, meaningful contexts are essential to engage students in a way that empowers their effective interaction, develops their problem solving skills and enables them to make decisions about meaningful issues (Gordon 1998).

Constructivism is one of the contemporary education theories that is closely associated with curriculum development. Constructivism is identified as the creation of knowledge in learning environments that is supported by active learning, reflective learning, creation of authentic tasks, contextual learning, and collaborative learning (Novak 1998). Constructivist learning environments offer various paths for students to explore under the guidance of teachers who act as the mentors or facilitators. Effective constructivist pedagogies incorporate various tools for active learning, allowing teachers to act as guiding partners (Gallant 2000). However, communication with the students, fair treatment, understandable lesson content and knowledge improvement are the most important elements that rely on the teacher profession (Kan 2015).

Vygotsky, Piaget, Dewey, and Bruner emphasized that learners are at the center of constructing information according to their developmental and cognitive processes (Sweller 1988). Problem Based Learning (PBL), Vygotsky's Zone of Proximal Development (ZPD), cognitive scaffolding, inquiry and discovery learning are the most important concepts of this theory. Therefore, constructivism theory allows teachers to be a facilitator in student learning, giving children the opportunity to be the main protagonist in his or her educational story. As children explore the carefully created school environment, they are encouraged to communicate their understandings through symbolic representation performed in activities like painting, playing with clay, dancing and singing (New 2007).

A carefully designed and implemented curriculum can lead to high quality learning results gained from formal and informal experiences during preschool. Students' explorations with problems and materials that interest them and also opportunity to practice multiple intelligence activities influence how children spend their time and construct knowledge.

Generally, the main concern of educators and education policies are "what" is learnt instead of "how" it is learnt. The myth about an infant's mind being a blank slate that can be shaped later is no longer given any credence, as one now understands that each individual possesses all eight intelligences at different levels. Thus, some individuals possess higher levels of certain intelligences than others do and most of the humans are highly intelligent in others, modestly intelligent in some, and underdeveloped in the rest (Armstrong 1994).

Theories about children having multiple ways of learning and the importance in providing them with different media and activities are seen to empower their symbolization and representations in accordance with their multiple intelligences. While humans use all of the senses to take in information, humans seem to have individual preferences for how one learns best. In order to help all students learn, it is needed to cater to as many of these preferences as possible (Cuaresma 2008). Howard Gardner's micro-story terms about "multiple intelligences" (MI) surprisingly took the interest of educationist instead of psychologists (Gardner 2010). Storytellers usually try to attract attention to their story by announcing that the story is from the age they lived and claim that age matters (Mckie and Heath 2016). Gottschall (2012) argues that stories give credit to and simulate potential situations. Likewise, storytelling is a very common method in preschool education, however, the teaching and learning process with this method needs careful design and planning using appropriate material and a variety of activities in order to address all multiple intelligence areas.

A story is defined as an act of assigning meaning or making sense from narrative memory (Connelly and Clandinin 1990; Gudmundsdottir 1991; Coulter 2007; Griffiths and Macleod 2008). Therefore, storytelling is not a state where the receiver is passive as most people think, as it is actually a state where active thinking is triggered (Osborn and Ehninger 1962). According to Pfeffer and Sutton (2006), storytelling is looked upon as a communication tool and this is confirmed with research evidences. Selecting and mixing certain materials, and displaying with visual narrative allow the teacher to accomplish the success of the activities.

This also provides opportunity to students to construct knowledge through multiple intelligence areas using the storytelling method.

## Objectives

The aim of the study is to determine the effectiveness of the developed teaching curriculum based on constructivism with the storytelling methodology. More specifically, the paper sought to answer the following questions to find answers related to the aim of the study:

1. Are there any significant differences between the pre-test and post-test results of the preschool students?
2. Are there any significant differences between the pre-test and post-tests results of the preschool students according to their multiple intelligence areas?
3. What are the results of the audio and video recordings?

## METHODOLOGY

The research design was a one group pre-test and post-test experimental model. Independent variables were applied to a randomly selected group as illustrated in Table 1.

**Table 1: Research design (one group pre-test post-test)**

<i>Pre-test</i>		<i>Post-test</i>
<i>Experimental Group</i>	<i>Pre-test</i>	<i>Application of the Post-test curriculum</i>

### Research Design

The present study was undertaken to evaluate the implementation and effectiveness of a curriculum for the multiple intelligence development of preschool students based on constructivism, using the storytelling methodology. The study was designed using a descriptive and experimental mixed methods approach. Mixed method allows the researcher to explore the realities through statistical methods as well as expressing the results numerically in order to reach a judgment through an in-depth investigation of the research area. Quantitative and Qualitative research methods provide the possibility of selecting the appropriate method according to the aim and flow of the research (Hammersley 1992; Mertens and Hesse-Biber 2012).

### Study Group

The working group of the research consisted of 24 preschool students enrolled in a public kindergarten during the year 2014-2015.

## Data Collecting Tools and Analysis

### Survey

A survey titled, "Implementations of Multiple Intelligences" was one of the data collecting tools. The researcher developed survey aimed to explore the effectiveness of the developed curriculum. The five Likert type survey consisted of 74 multiple intelligence agent items. The survey was developed according to eight multiple intelligence areas with 10 linguistic intelligence, seven logical mathematical intelligence, eight spatial intelligence, 10 musical intelligence, 10 bodily kinesthetic intelligence, nine naturalist intelligence, nine interpersonal intelligence and nine intrapersonal intelligence questions. The Cronbach alpha value was calculated as .84. Audio and Videotaping A video camera and videotape was used as a second data collection tool to record the students' engaging in the activities either alone or in groups. The aim of the recording was to view students' performances and experiences in terms of their way of thinking and verbal performance. These recordings also enabled the researchers to observe which multiple intelligences areas were used by the students while participating in the activities. Video and audiotaping was recorded twice a week over a 15-week period. The use of video and audiotaping gave the opportunity to interpret and re-interpret the score of pre- and post-test results in line with the researchers' observations. Informed consent was obtained from the Ministry of Education, school principal and parents prior to researching and recording the students.

### Data Analysis

Table 2 consists of data collected from the survey that was analyzed by applying the paired sample t-test for defining the difference between the pre-test and post-test results of the experimental group. In addition, content analysis was conducted in order to analyze the data obtained

**Table 2: Points value of the scale items**

	<i>Value (Points)</i>	<i>Limitation</i>	<i>Percentage</i>
1	1.00 - 1.79	20.01 - 36	Never
2	1.80 - 2.59	36.01 - 52	Time To Time
3	2.60 - 3.39	52.01 - 68	Sometimes
4	3.40 - 4.19	68.01 - 84	Frequently
5	4.20 - 5.00	84.01 - 100	Always

from the audio and video records. Qualitative data was analyzed using an open coding method, whereby the recordings were transcribed and analyzed in detail and in isolation from each participant of the experimental group. The preschool students' performances and experiences in terms of their way of thinking and verbal performance were studied separately in line with the aim of the research and analyzed according to their relevance. Each recording was observed by the researchers and teachers in isolation of each other by watching, listening and categorizing. Repeated comparisons and similar ideas were integrated until major themes were established for each study question, then the students' attitudes were transcribed and categorized with a general agreement according to each multiple intelligence area. Therefore, this resulted in an agreement on the attitudes and matching of the multiple intelligence area and categorized under common understanding of all partners.

### **Curriculum Development Process and Implementation**

As the student intelligence profiles had not previously been specified, an expert panel was established consisting of the researchers, the teachers and the pre-school principal in order to construct the profiles. All of the students' documentation were reviewed and discussed constructively to establish an agreement on the children's intelligence profiles. The main focus was on the child's tendency to explore and learn best in learning activities in terms of multiple intelligences, child growth and development. More specifically, the children's strengths in terms of all of the multiple intelligence areas were assessed in this process. The documentation was analyzed and interpreted to gain an understanding of how these children use their multiple intelligence areas during child initiated teacher guided activities. This formed the basis of the needs analysis for developing the storytelling multiple intelligence curriculums. The collected data also helped determine whether students' multiple intelligence areas developed after implementing the curriculum. Multiple intelligence stories and activities that give responsibility to 5-year-old students were defined, selected and referred to the field experts' opinion before implementing to the students. The selected stories and activities that referred to different multi-

ple intelligence areas were implemented to the students twice a week. Furthermore, 14 selected stories were implemented for a period of 15 weeks (the survey was applied twice for each activity by the teacher). The last week was only used for the observation of the students' behavior after implementation.

Some examples of the stories and activities applied for the development of the preschool students multiple intelligences are as follows:

#### ***Linguistic/Verbal Intelligence***

*Applied Stories: "It is Good to Help" and "Can You Be My Eyes"*

*Activity 1:* Examine the pictures and say the names.

*Activity 2:* Tom the kitty was really curious about the strawberry. He could not get in touch with other kitties for the description. Can you describe what kind of fruit the strawberry is? Can you draw a strawberry and share with your family?

#### ***Logical-Mathematical Intelligence***

*Applied Stories: "House Looking for its Owner" and "Even Horses Understand Good Words"*

*Activity 1:* Match the dog and cat families. Say how many are not matched.

*Activity 2:* Horses are all grazing together. Count the grazing horses.

#### ***Visual-Spatial Intelligence***

*Applied Stories: "Look Who's Talking!" and "The School Adventure of the Jump Jump Kangaroo"*

*Activity 1:* The artist drew the picture but forgot to color it. Can you color the picture to help the artist?

*Activity 2:* Can you join the dots? Can you color in the shape made by joining the dots?

#### ***Musical Intelligence***

*Applied Stories: "Kind Kitty and Minnie" and "Sparing Money Box"*

*Activity 1:* Singing songs use animal noises and then ask, "Who am I?"

*Activity 2:* Each object makes a different noise. Can you hear the coins in my pocket? Can you make some object noises?

### *Interpersonal Intelligence*

*Applied Stories: "Giraffe the Long Neck" and "Squirrel the Grisle Head"*

*Activity 1:* Giraffe could not sell the collected weed and is very sad. Can you tell her why she could not sell it?

*Activity 2:* Polite Hedgehog has a problem. He wants to be friends with the Grisle Head, but he doesn't have an idea how to be friends. Can you help him?

### *Intrapersonal Intelligence*

*Applies Stories: "Puffy Bear and Wolf Puppies" and "The Arrogant Balloon"*

*Activity 1:* You will see pictures that are good for both, nature and us. Can you tell us something about these pictures and color them?

*Activity 2:* We are balloons and want to fly up to the wind. Can you draw similar balloons beneath us to help us fly?

### *Naturalist Intelligence*

*Applied Stories: "Memories of the Water Drop" and "Smelly Polecat"*

*Activity 1:* Each and every living thing has a duty in nature. Can you imagine and tell us what happens if living things don't do their duties?

*Activity 2:* Every living thing protects itself in different ways. Look at the pictures and describe how they protect themselves. How do you protect yourself from dangers?

### *Bodily-kinesthetic Intelligence*

*Applies Stories: "Little Ant" and "Curly, Worley and Perm Brothers"*

*Activity 1:* Can you color the pictures of the animals and show how they move?

*Activity 2:* Can you look at the picture and tell how many times the frog bounced? Do the same.

## RESULTS

### **Pre-test and Post-test Results of the Preschool Students**

The data presented in Table 3 shows the pre-test and post-test results obtained from the public preschool students. The Paired Sample T-test analysis was applied before and after implementing the curriculum to define whether there was a

significant difference between the scores. The teachers' survey responses regarding the students' attitudes before and after the implementation of the curriculum formed the pre-test and post-test scores for the students. Comparing the pre-test and post-test scores of the students, the Mean and the Standard Deviation for the pre-test was  $\bar{X}=59.46$  and  $S=15.398$ , while the Mean and Standard Deviation for the post-test was  $\bar{X}=90.40$ ,  $S=3.762$ . The students pre-test and post-test scores derived from the survey reveal a significant difference in favor of the post-test ( $t=12.628$ ,  $p<0.00$ ). These findings indicate that the storytelling method has an effect on the multiple intelligence success of the preschool students.

**Table 3: Comparison of the results obtained from students pre-test and post-test scores**

	<i>N</i>	<i>M</i>	<i>S</i>	<i>t</i>	<i>p</i>
Pre-test	24	59.46	15.398		
Post-test	24	90.43	3.762	12.628	.000

### **Results of the Pre-test and Post-test According to Multiple Intelligence Areas of the Preschool Students**

The Paired Sample t-test analysis was applied to determine whether there was a significant difference between the before and after implementation scores of the survey in terms of all intelligence areas.

Table 4 shows that the linguistic/verbal intelligence Mean and Standard Deviation in the pre-test ( $\bar{X}=60.24$ ,  $S=15.515$ ), and the post-test Mean and Standard Deviation ( $\bar{X}=85.47$ ,  $S=12.340$ )

These findings reveal a significant difference in the students' linguistic/verbal intelligence area ( $t=5.690$ ,  $p<0.01$ ).

The students' linguistic/verbal intelligence mean scores indicate a significant difference in favor of the post-test. This result shows that post-test scores were higher than pre-test scores, which can be interpreted to mean that the storytelling method developed the preschool students' linguistic/verbal intelligence.

When the students' Mean and Standard Deviation scores in the logical-mathematical intelligence area were examined, the pre-test scores were shown to be  $\bar{X}=55.16$  and  $S=12.340$ , while the post-test scores were  $\bar{X}=62.21$  and  $S=15.121$ .

**Table 4: Comparison results of the students pre-test and post-test scores according to multiple intelligence areas**

<i>Intelligence areas</i>		<i>N</i>	<i>M</i>	<i>S</i>	<i>t</i>	<i>p</i>	<i>Explanation</i>
<i>Linguistic/Verbal Intelligence</i>	Pre-test	24	60.24	15.515	5.690	.001	p<0.05
	Post-test	24	85.47	12.340			Significant
<i>Logical-Mathematical Intelligence</i>	Pre-test	24	55.16	14.642	1.500	.142	p>0.05
	Post-test	24	62.21	15.121			Significant
<i>Spatial Intelligence</i>	Pre-test	24	55.46	16.214	6.820	.001	p<0.05
	Post-test	24	87.36	13.214			Significant
<i>Musical Intelligence</i>	Pre-test	24	61.52	15.105	1.462	.152	p<0.05
	Post-test	24	68.32	14.324			Significant
<i>Bodily-Kinaesthetic Intelligence</i>	Pre-test	24	52.84	16.043	5.910	.000	p<0.05
	Post-test	24	81.42	14.526			Significant
<i>Naturalist Intelligence</i>	Pre-test	24	60.42	15.432	6.710	.000	p<0.05
	Post-test	24	91.13	13.512			Significant
<i>Interpersonal Intelligence</i>	Pre-test	24	49.82	16.618	0.741	.463	p>0.05
	Post-test	24	53.48	14.529			Significant
<i>Intra-personal Intelligence</i>	Pre-test	24	54.23	16.535	0.622	.537	p>0.05
	Post-test	24	57.45	16.178			Significant

These findings reveal that there was no significant difference in the logical-mathematical intelligence area ( $t=-1.500, p>0.05$ ). Even though, the pre and post-test results show no significant difference, slightly higher than post-test scores can be seen after the storytelling method was applied, which could indicate that there were some developments in this intelligence area.

The spatial intelligence area Mean and Standard Deviation results were  $\bar{X}=55.46$  and  $S=16.214$ , whereas the post-test scores were seen to be  $\bar{X}=87.36$  and  $S=13.214$ . The findings reveal that there was a significant difference in students' spatial intelligence after the curriculum was implemented ( $t=6.820, p<0.05$ ).

The mean score for students' spatial intelligence indicates that there is a significant difference in favor of the post-test. This result shows that students' spatial intelligence post-test scores were higher than the pre-test scores, which indicates that the storytelling method of teaching did empower the preschool students' spatial intelligence.

The students' score regarding musical intelligence pre-test were  $\bar{X}=61.52$  and  $S=15.105$ , while the post-test scores were  $\bar{X}=68.32$  and  $S=14.324$ . These findings reveal that there is no significant difference between pre-test and post-test ( $t=1.462, p>0.05$ ). However, when post-test scores are examined in more detail a small increase can be observed indicating that there was

some development in this multiple intelligence area.

The findings in the bodily-kinesthetic intelligence pre-test mean scores were  $\bar{X}=52.84$  and  $S=16.043$ , whereas the post-test Mean scores were  $\bar{X}=81.42$  and  $S=14.526$ . The Mean scores obtained ( $t=5.910, p<0.05$ ) indicated that there was a significant difference in preschool students' bodily-kinesthetic intelligence area after the curriculum.

Preschool students' bodily-kinesthetic intelligence Mean scores show a significant increase in the post-test results. As the post-test scores were higher than the pre-test scores, it can be deduced that teaching using storytelling produced a positive development in preschool students' bodily-kinesthetic intelligence.

The naturalist intelligence area pre-test Mean scores and Standard Deviation scores were  $\bar{X}=60.42$  and  $S=15.432$ , while post-test naturalist intelligence area post-test scores were  $\bar{X}=91.13$  and  $S=13.512$ . These findings ( $t=6.710, p<0.05$ ) reveal that there was a significant improvement in naturalist intelligence area.

Naturalist intelligence area Mean scores reveal a significant increase in the post-test results. This result shows that the pre-test scores of the students' naturalist intelligence area were lower than the post-test scores. Therefore, it can be stated that teaching using the storytelling method can contribute to the development of preschool students' naturalist intelligence area.

When the findings of the students' pre-test scores of interpersonal intelligence were examined,  $\bar{X}=49.82$  and  $S=16.618$  were the calculated Mean and Standard Deviation scores, whereas  $\bar{X}=53.48$  and  $S=14.529$  were obtained as the Mean and Standard Deviation scores. These findings ( $t=-0.741$ ,  $p>0.05$ ) indicate that there is no significant difference. This result indicates that the storytelling method had no significant influence on the students' interpersonal intelligence area but a minimal increase in the scores of the post-test could indicate a small positive effect.

Preschool students' intrapersonal intelligence pre-test scores were  $\bar{X}=54.23$  and  $S=16.535$ , and post-test scores were  $\bar{X}=57.45$  and  $S=16.178$ . The analysis of the intrapersonal intelligence pre- and post-tests scores show no significant difference ( $t=0.622$ ,  $p>0.05$ ). This result is similar to the interpersonal intelligence results in that the storytelling method had no significant influence on the students' intrapersonal intelligence area but again, a small increase in the post test scores could indicate that there was a slightly positive effect.

In summary, the results reveal that teaching with the storytelling method in preschool education can produce significant developments in linguistic/verbal intelligence, spatial intelligence, bodily-kinesthetic intelligence and naturalist intelligence areas. However, although they show some progress, the logical-mathematical intelligence, musical intelligence, interpersonal intelligence and intrapersonal intelligence areas did not show the same significant developments.

The preschool experimental group teachers observed the students and completed the 73-item survey that was designed and practiced according to eight multiple intelligence types before and after each activity. The striking results of the survey items are as follows:

1. The survey item "*successful in telling stories*" used to verify the linguistic/verbal intelligence (Word Smart) attitudes of the students before the activities was expressed as "partially appropriate" by teachers. However, after practicing the activities the view changed to "completely appropriate".
2. The teachers' answer to the item "*like counting numbers*" to verify the logical-mathematical intelligence (number/reasoning smart) attitudes of the students before

practicing the activities is stated as "partially appropriate" while after practicing the activities, it was stated to be "appropriate" by the teachers.

3. The students' attitudes before the practiced activities in terms of spatial intelligence ("Picture Smart") was classified as "partially appropriate" by the teachers respond to the "*sensitive towards color*" item but changed to "completely appropriate" after the application of the activities.
4. The musical intelligence ("Musical Smart") of the students was classified as "partially appropriate" by the teachers in relation to the survey item "*use body movements according to rhythms while singing*" and later switched to "appropriate" due to the students demonstrating more expected-behavior after the practicing the activities.
5. The bodily-kinesthetic intelligence ("Body Smart") item of the survey "*use body movements while expressing him/herself*" was stated by the teachers to be "highly appropriate" and changed to "completely appropriate" with the practice of the activities.
6. Before applying the naturalist intelligence ("Nature Smart") activities the teachers' response to the survey item "*like pets*" was "partially appropriate" but changed to "highly appropriate" after applying the activities.
7. The teachers' view of the surveys "*likes playing with friends*" item related to interpersonal intelligence ("People Smart") was "partially appropriate" but changed to "appropriate" after practicing the interpersonal intelligence activities.
8. Practicing intrapersonal intelligence ("Self Smart") activities in the classroom developed students' attitudes, as the teachers' pre-application views to the item "*are aware of the activities*" changed from "slightly appropriate" to "partially appropriate" after carrying out the activities.

#### **Analysis of the Audio and Video Recording Findings to Determine the Effectiveness of the Curriculum**

The qualitative findings obtained from the audio and video recordings recorded over a 14 weeks period before and one week after the im-

plementation of the curriculum revealed a concrete development in the preschool students' linguistic/verbal intelligence learning using the storytelling method. The recordings revealed students to be "more successful in telling stories" and "using words in more meaningful ways" indicating the progress of the students in the linguistic/verbal intelligence area.

Development in the logical-mathematical intelligence area can also be clearly observed through the recordings, as their attitudes were seen to have changed in a positive way. The findings of the recordings indicated that the preschool students were more willing while counting numbers and enjoyed the process more. In addition they were more interested and displayed better performance than previously when taking part in number games.

The preschool students' development in the spatial intelligence area was crystal clear in recordings. The students were seen to be more sensitive to colors, preferred to draw and color the pictures, enjoyed colorful jigsaws and playing with Lego. Preschool students were observed to be more creative, and enjoyed visual materials

For students' development related to the musical intelligence area, the recordings showed students remembering the song lyrics, murmuring songs subconsciously, keeping rhythm and singing the song they had learnt to their friends.

The most striking behaviors observed from the recordings of the preschool students' bodily-kinesthetic intelligence area was students' running, jumping and moving around continuously. In addition, they examined objects curiously, were more successful in the activities that required hand skills, and also touching each other as well as using facial expressions to express their feelings.

Observation of the recordings regarding the naturalist intelligence development of the preschool students showed that they were curious about animals, they liked to hold animal toys even while eating, plant and animal visuals attracted their attention and they also enjoyed playing with soil.

The preschool students' interpersonal intelligence area developments that were observed in the recordings were that they enjoyed playing with their friends and continued to interact with their peers.

The only difference observed from the recordings in the intrapersonal intelligence area of the preschool students' development was the awareness of the activities.

The preschool students' behavioral changes can indicate that implementing the developed constructivism based curriculum for multiple intelligences with a storytelling methodology develops the multiple intelligences area of the students' in a positive way. Thus, the developed curriculum can be seen to be effective and serves its main purpose.

## DISCUSSION

There was a significant difference between the scores of the pre and post-test results of the students in the experimental group. Practicing the storytelling method on the preschool students can be regarded as having a positive impact on the students.

More specifically, post-test results obtained from the implemented multiple intelligence teaching curriculum using storytelling method, revealed a significant difference in the linguistic/verbal intelligence, spatial intelligence, bodily-kinesthetic intelligence and naturalist intelligence areas. Learning with direct instruction and learning with multiple intelligence instruction method revealed that the curriculum was more comprehensible to students using the multiple intelligence methods (Kagan 2000; Ogunnaike 2015).

There were no significant difference in the pre- and post-test scores for the logical-mathematical intelligence, musical intelligence, interpersonal intelligence and intrapersonal intelligence areas. However, the post-test scores are seen to be slightly higher than the pre-test scores. Taking into account that each child possesses strengths and weaknesses, the multiple intelligence method can help teachers to profile their students during the learning process (Moran et al. 2006).

More significantly, teaching with the storytelling method in preschool can be seen to develop students' in linguistic/verbal intelligence, spatial intelligence, bodily-kinesthetic and naturalist intelligence areas. Some positive effects can also be found in the logical-mathematical intelligence, musical intelligence, interpersonal intelligence and intrapersonal intelligence areas in parallel with McKiea and Heath (2016) results.



Audio and video recordings produced for the purpose of evaluating the preschool-students' behaviors after the completion of the storytelling based teaching curriculum revealed positive developments in the students' multiple intelligence areas. These results not only revealed the effectiveness of the curriculum but they also demonstrated that the goal of the developed curriculum was accomplished. Similarly, many other studies have revealed that applying storytelling with meaningful activities develops students' abilities to cope with abstract tasks of successful literacy, such as learning letters of the alphabet, decoding nonsense words, and producing rich descriptive sentences (Gardner 1983; Brand and Donato 2001; Armstrong 2003). Thus, curriculum development and context with cultural values shape human behavior and is related to anthropology (Mebratu and College 2011). It can be concluded that since each child experiences learning with stories told by elders, the storytelling methodology in the classroom is like feeling at home and learning more easily in such settings. In this framework historical singularity and the examination of cultures and/or civilizations, creativity is represented on bases of plurality of structured configurations (Ege 2013).

### CONCLUSION

It can be concluded that implementing constructivism based curriculum for multiple intelligences with a storytelling methodology in preschool, plays an important role on upgrading students' development in many areas of multiple intelligence. However, linguistic/verbal intelligence, spatial intelligence, bodily-kinesthetic and naturalist intelligence areas are seen to be more upgraded than the logical-mathematical intelligence, musical intelligence, interpersonal intelligence and intrapersonal intelligence areas. Since, storytelling is an act of assigning meaning or making sense from narrative memory, and constructivism is where teachers are facilitator of the students', giving them the opportunity to be the main protagonist in their educational story then implementation of curriculum based on all these facts can fulfill the needs of the future generation.

### RECOMMENDATIONS

The following recommendations can be considered for further studies:

1. Considering that the study group consisted of preschool students, it can be recommended to be implemented in primary schools as well.
2. As the study was limited to a public preschool, it is advised to be conducted in private preschools too.
3. It is suggested that storytelling methodology can be blended with other methodologies to upgrade multiple intelligence abilities.
4. In-service trainings are recommended to empower teachers for applying contemporary methodologies.

### REFERENCES

- Armstrong T 1994. *Multiple Intelligences in the Classroom*. Alexandria, VA: Association for Supervision and Curriculum Development.
- Armstrong T 2003. *The Multiple Intelligences of Reading and Writing: Making the Words Come Alive*. Alexandria, VA: Association for Supervision and Curriculum Development.
- Axelrod Y 2014. Todos Vamos a Jugar, even the teachers-everyone playing together. *YC Young Children*, 69(2): 24.
- Balat G, Simsek Z, Akman B 2008. Comparing mother and teacher assessments of children's behaviour problems in pre-school education. *Hacettepe Universitesi Egitim Fakultesi Dergisi*, 34: 263- 275.
- Brand ST, Donato J 2001. *Storytelling in Emergent Literacy*. Albany, NY: Delmar
- Cuaresma J 2008. *Learning Style Preferences and Academic Performance of PHEM MAJORS at the University of the Cordilleras*. Undergraduate Thesis, Unpublished. Baguio City: University of the Cordilleras.
- Ege A 2013. Creativity as a methodology and multiculturalism as an attitude in social sciences teaching and learning. *International Journal of Learning and Teaching*, 5: 2-12.
- Gallant G 2000. Professional development for web-based teaching: Overcoming innocence and resistance. *New Directions for Adult and Continuing Education*, 88: 69-78.
- Gardner H 1983. *Frames of Mind: The Theory of Multiple Intelligences*. New York: Basic Books.
- Gardner H 2010. Foreword. In: TR Hoerr, S Boggema, CWallach (Eds.): *Celebrating Every Learner: Activities and Strategies for Creating a Multiple Intelligences Classroom*. San Francisco, CA: Jossey-Bass.
- Gordon R 1998. A curriculum for authentic learning. *The Education Digest*, 63: 4-8.
- Gottschall J 2012. *The Storytelling Animal: How Stories Make Us Human*. New York, NY: Houghton Mifflin Harcour.
- Kagan L 2000. *Multiple Intelligences. Structures and Activities*. San Clemente, CA: Kagan Publishing.
- Kan UA 2015. Prospective teachers' perceptions of teaching profession. *Contemporary Educational Researches Journal*, 5: 12-16.

- McKiea D, Heath RL 2016. Public relations as a strategic intelligence for the 21<sup>st</sup> century: Contexts, controversies, and challenges. *Public Relations Review*, 42: 298–305.
- Mebratu B, College M 2011. Anthropology and education business: Areas of application, approaches and methodologies. *International Journal of Business Anthropology*, 2: 2-8.
- Mertens DM, Hesse-Biber S 2012. Triangulation and mixed methods research provocative positions. *Journal of Mixed Methods Research*, 6(2): 75-79.
- Moran S, Kornhauser M, Gardner H 2006. Orchestrating multiple intelligences. *Educational Leadership*, 64: 22-27.
- New RS 2007. Reggio Emilia as cultural activity theory in practice. *Theory into Practice*, 46: 5-13.
- Novak JD 1998. *Learning, Creating, and Using Knowledge: Concept Maps as Facilitative Tools in Schools and Corporations*. Mahwah, NJ: Lawrence Erlbaum Associates. Publications.
- Ogunnaike YA 2015. Early childhood education and human factor: Connecting theories and perspectives. *Review of Human Factor Studies*, 21(1).
- Spindler G 2000. Anthropology and education. In: G Spindler (Ed.): *Fifty Years of Anthropology and Education 1950-2000*. Mahwah, NJ. Lawrence Erlbaum Associates, Publishers, pp. 53-73.
- Yuksel M 2013. Analysing the school readiness of preschoolers from the aspect of the social skills when they start primary school. *International Journal on New Trends in Education and Their Implications*, 4: 98-112.
- Zyoud N, Nemrawi ZM 2015. The efficiency of Multiple Intelligence Theory (MIT) in developing the academic achievement and academic-self of students with mathematical learning disabilities in the areas of addition, subtraction and multiplication. *American International Journal of Social Science*, 4: 2.