Asian Journal of Business and Technology
Vol. 1, No. 1, (2018)
ISSN 2651-6713 (Print)
ISSN 2651-6721 (Online)

Effectiveness of Video Presentation in Teaching Mathematics for Kindergarten Pupils

Ricardo Cruz Ahillon, Jr.
University of Rizal System – Morong Campus
Morong, Rizal, Philippines

Abstract:

This study aimed to determine the Effectiveness of Video Presentation in Teaching Mathematics for Kindergarten Pupils of University of Rizal System – Laboratory Department during the school year 2014 – 2015. This study used descriptive developmental and experimental descriptive method of research with a researchers-made questionnaire as a main tool in gathering data.In terms of acceptability of the video presentation, mean was used. To determine the level of performance of the control and experimental groups, mean and standard deviation were used. To find the significant difference on the level of performance of the control and experimental groups as revealed by their pretest and posttest results with respect to the different lessons the researchers used the independent t-test. Lastly, to get the significant difference on the on the level of performance of the experimental group as revealed by their posttest results the dependent t-test was used. The results described that the developed video presentation in teaching Mathematics for kindergarten pupils is highly acceptable by the respondents. Furthermore, there is a significant difference on the level of performance of kindergarten pupils in the control group as revealed by the pretest and posttest results in terms of size and height since the computed p-value of 0.048 and 0.008 respectively are less than 0.05 level of significance. Also, there is significant difference on the level of performance of kindergarten pupils in the experimental group as revealed by pretest and posttest results since the computed p-value of 0.0000 and 0.001 respectively are less than 0.05 level of significance. However, there is no significant difference on the level of performance of kindergarten pupils in control and experimental groups as revealed by the posttest result in terms of size since the computed p-value is 0.095 which is greater than 0.05 level of significance. The researcher concluded that the developed video presentation is highly acceptable in terms of objectives, content, format and style and language used; the developed video presentation is an effective tool in teaching Mathematics for kindergarten pupils; the developed video presentation can be used as an appropriate material in teaching "Height" for kindergarten pupils. Based on the findings and conclusion the researchers recommended to exposed kindergarten pupils to different video presentations to enhance learning on the different topics; develop other video presentations which focus on other subject areas; and conduct other studies on video presentation utilizing other grade levels and considering other variables.

Keywords *– Mathematics, Video- Presentation, Kindergarten pupils*

INTRODUCTION

Kindergarten education is vital to the academic and technical development of the Filipino child for it is the period when the young mind's absorptive capacity for learning is at its sharpest [1].

Nowadays, K to 12 curriculum is the national curriculum that the Department of Education (DepEd) is using. This curriculum sets an additional 2 years in educational system and includes kindergarten as part of the curriculum. K to 12 focuses on the children's understanding and abilities; furthermore, K to12 curriculum follows the global standards in education and competencies. K to 12 will be the key of avoiding dictation and teacher-centered classroom.

It is also the policy of the State to make education learner-oriented and responsive to the needs, cognitive and cultural capacity, the circumstances and diversity of learners, schools and communities through the appropriate languages of teaching and learning [2].

As children reach school age, our comprehensive, academically-rich kindergarten program helps them explore, communicate, and create — all in a nurturing, small-class setting. In the unique curriculum of reading, language arts, mathematics, science, social studies, and physical fitness in an engaging way that encourages a lifelong love of learning. Kindergarten program prepares children to confidently enter first grade [3].

Using technology inside the classroom is very useful to teachers and students. To the side of teachers, work will be easily finished and other works will be accountable immediately. This will greatly help the students in understanding a particular subject. The situation that everyone is encountering now in the private and public school is the attention of the pupils. The span of attention of the children didn't last until the end of the given time of the subject because they are not interested to the time-honored way of teaching that uses chalk and board as a tool for learning.

From the innovative style of the society that is delivering to everyone, technology is included and very useful to the changing society. Technology serves as the way of communication and a path where everyone will make work easier and creative.

Technologies are integrated in different disciplines, to have a meaningful understanding to specific lessons and integrate it in the real life situations. Even in educational system, it also integrates technologies in teaching to have an interactive way of rendering lessons inside the classroom. Integrating technologies in different disciplines in educational system, mathematics is one of the most in need to have integration in technology since, it is one the difficult subjects that will be taken by the students and pupils in formal and non formal education.

Teaching mathematics in kindergarten will be more effective with the use technology. Using technology, the learning process of the pupils will become highly intellectual and they can easily come-up with different ideas.

According to the study of Cross, et. al. (2009) Ordering is a higher level of comparing that is another step toward measurement. Ordering involves comparing two things or more than two groups and it also involves placing things in a sequence from first to last. In Piaget's terms, ordering is called seriation [4].

IT-based materials are great indicators that teaching is pursuing the changes that society is offering. The long-established way of teaching right now, is gradually altered by the high-technology materials pictures, videos, audiovisual-presentation and others, that will surely reach the goals and objectives of the lesson set by the teacher.

The use of technology in teaching mathematics for kindergarten will enhance the

communication of teachers and students in the deeper understanding of the lesson, achievement and behavioral interaction. This is one way on how the teacher will get the attention of the pupils inside the class.

Video created programs is one of the instructional materials that a teacher uses in teaching inside the classroom. This video created programs provides a systematic way on rendering the lessons inside the classroom and it easily captures the attention of the students because of the creative way of presenting the lessons or topics.

According to Linda Mechling (2005), in her studies entitled "The Effect of Instructor-created Video Programs to Teach Students with Disabilities: A Literature Review" Operating primarily through the premise of observational learning, learning by watching others, and imitation of observed behaviors, video technology can provide multiple examples of stimulus and response variations across a variety of settings that closely resemble the natural environment where the student will be performing the skills [5].

According to RA 10157 Sec 7 (e)
known as the "Kindergarten Education Act"

"Introduce innovative programs in kindergarten that shall include educational technologies, whenever applicable [6]."

Accompanied by the required Kindergarten Education Act RA 10157 Sec 7 (e), supports learning with educational technology that helps student to figure out the real representation of the certain pictures in the book**.** Thus, instructional material is very useful to the learning process of a child, because instructional material is one of the best ways to render the lesson came from the teacher.

Teaching – learning process by the use of educational technology inside the classroom will get easier both for the teacher and the learner. On the teacher's side, the flow of the discussion will get smoothly it could flash the ideas according to the sequence of your topic, in recording of grades it will get easier in computing by just putting the sample scores and applying formulas in different columns. In this way of teaching, mentors will be accountable in different works.

On the other hand, pupils especially who are in the kindergarten who really needs real objects as example to their lesson their attention will focus to the creative visual aids, and will participate to the daily discussion.

This study determined the effectiveness of video presentation in teaching mathematics with the kindergarten pupils at URSM Laboratory to indicate size and height as subtopic)". This study helped us, as future teachers from the emerging society that demands competent and high quality standard teachers. Using technology in the present times, produce an accurate response and a result-oriented, because technology provides and summarizes the information that the people need.

The researchers have a desire to know if video presentation is also useful in teaching Mathematics among kindergarten pupils. The researchers want to determine if the video can also be a tool in facilitating learning inside the classroom. It simply shows how pictures on the textbooks are in real, produce favorable responses and increase the attention span of the kindergarten in listening mathematics. Based on their experience, teacher uses board and chalk, textbooks and pictures as a teaching material. So, researchers School with the topic "order and seriation" (decided to develop a video presentation involving mathematics as lesson.

OBJECTIVE OF THE STUDY

The main objective of the study was to see the effectiveness of the researcher's made video – presentation to the kindergarten pupils of the University of Rizal System – Morong Campus Laboratory School, S.Y. 2015 – 2016.

MATERIALS AND METHODS

This study used descriptive developmental and experimental descriptive method of research to determine the effectiveness of video presentation in teaching Order and Seriation in Mathematics to the kindergarten pupils utilizing researchers made video presentation as a tool in teaching.

Experimental method of research is often regarded as the most rigid and scientific of all research methods. When used properly, it can provide conclusions that are beyond conclusions that are beyond question and which will be definitive for a specific subject [7].

Descriptive research, according to Calmorin focuses at the present condition. The purpose is to find new truth may have different forms such as increase quantity of knowledge, a new generalization, and an increase insight in two factors which are operating, the discovery of a new causal relationship, a more accurate formulation of the problem to be solved and many others [8].

Furthermore, Gonzales said that descriptive method is a finding process with adequate interpretation. It is something beyond just data gathering.

Data must be subjective to the thinking process in terms of ordered reasoning. Moreover, Descriptive research attempts to interpret the present fact.

In this kind of study the researchers have a big opportunity to answer the problems about how educational technology affects the performance and understanding of the kindergarten pupils in University of Rizal System – Morong Laboratory School. The researchers gathered data to solve the problem and answer on how educational technology really affects the cognitive development of a child while doing order and seriation to specific objects. Hence, the researchers chose experimental method to solve the present problem and curiosity of people in using educational technology inside the classroom.

At present it has a total of 24 kindergarten pupils composed of 14 females and 10 males with 4 subject teachers. The college promotes the preschool education because of the new curriculum that the Department of Education is using nowadays; K-12 program is the curriculum that requires the pupils to take kindergarten before they start the formal education.

RESULTS AND DISCUSSIONS

Development of Video Presentation in Teaching Mathematics for Kindergarten Pupils.

The researchers focused only on the development of video presentation in Mathematics which major topic, Order and Seriation. The video presentation is geared to enhance kindergarten pupils performance in Mathematics.

It consist of two subject topics such as Size and Height. The researchers highlighted the visual effect of the video presentation using animated pictures. Also, the video presentation included voice over to emphasize discussion.

This presentation serves as an instructional tool which provided the pupils relevant and substantial information about the selected topic in Mathematics.

Level of Acceptability of the Developed Video Presentation in Teaching Mathematics for Kindergarten Pupils in terms of Objectives, Contents, Format and Style and Language Used as Evaluated by the Teacher Respondents.

Table 1 presents the computed mean on the level of acceptability of video presentation in teaching Mathematics for kindergarten pupils as evaluated by teacher respondents with respect to objectives.

Table 1. Computed Mean on the Level of Acceptability of Video Presentation in Teaching Mathematics for Kindergarten as Evaluated by Teacher Respondents with Respect to Objectives

Objectives	$\bar{x}$	Verbal Interpretation
1. Contain clear and specific objectives	4.77	Highly Acceptable
2. Present attainable tasks.	4.77	Highly Acceptable
3. Enhances the pupils interest in the subject.	4.77	Highly Acceptable
4.Suit to pupils learning abilities.	4.85	Highly Acceptable
5. Drive pupils to learn.	4.85	Highly Acceptable
Average	4.80	Highly Acceptable

The table reveals that with regard to the evaluation of teacher respondents the objectives of the video presentation are highly acceptable. The video presentation contains clear and specific objectives presents attainable, "enhances the pupils interest in the subject" all with a obtained mean of 4.77 and verbally interpreted as highly acceptable. Objective 4 " suits pupils learning abilities" has an obtained mean of 4.85 verbally interpreted as highly acceptable and objective 5, " drives student to learn" has an obtained mean of 4.85 and verbally interpreted.

It is also the policy of the State to make education learner-oriented and responsive to the needs, cognitive and cultural capacity, the circumstances and diversity of learners, schools and communities through the appropriate languages of teaching and learning.

This implies that the video presentation reached the goal of the objectives of the lesson. Furthermore, this implies that the content of the video presentation is suited to the needs of the kindergarten pupils.

Table 2 shows the computed mean on the level of acceptability of video presentation in teaching Mathematics in kindergarten pupils as evaluated by teacher respondents with respect to contents.

Table 2**.** *Computed Mean on the Level of Acceptability of Video Presentation in Teaching Mathematics in Kindergarten Pupils as Evaluated by Teacher Respondents with Respect to Contents*

Contents	$\bar{x}$	Verbal Interpretation
1. Are arranged in logical order	4.69	Highly Acceptable
2. Explain and discuss to the preschooler's topics easy and understandable.	4.77	Highly Acceptable
3. Establish connection between what preschoolers are learning and what preschoolers are going to learn.	4.54	Highly Acceptable
4. Contain activities that sustain the interest of to the pupils to the subject.	4.69	Highly Acceptable
5. Encourage preschoolers to finish the lesson.	4.77	Highly Acceptable
Average	4.69	Highly Acceptable

The table presents that with regard to the teacher respondents the contents of the video presentation is highly acceptable. Item no.1, "Contents are arranged in logical order" has an

obtained mean of 4.69 which is verbally interpreted as highly acceptable together with item no.4," Contains activities that sustain the interest of the pupils to the subject. Item no.2, "Contents explain discuss to the preschoolers topics easy and understandable has a mean of 4.77 which is verbally interpreted as highly acceptable just like item no.5" encourage preschoolers to finish lesson. Item no. 3, "establish connection between what preschoolers are learning and what preschoolers are going to learn" has an obtained mean of 4.54 and verbally interpreted as highly acceptable.

Table 3 presents the computed mean on the level of acceptability of video presentation in teaching Mathematics in kindergarten pupils as perceived by teachers as respondents with respect to language used.

Table 3**.** *Computed Mean on the Level of Acceptability of Video-Presentation in Teaching Mathematics in Kindergarten Pupils as Evaluated by Teacher Respondents with Respect to Language Used*

Language Used	$\bar{x}$	**Verbal Interpretation**
1. Uses language which is simple and easy to understand.	4.92	Highly Acceptable
2. Provides pupils learning new meanings.	4.85	Highly Acceptable
3. Gives pupils to direct information on new topics.	4.77	Highly Acceptable
4. Follows the rules of spelling and punctuation	4.54	Highly Acceptable
5. Presents words/statements suited to the pupils.	4.85	Highly Acceptable
Average	4.78	Highly Acceptable

The table reveals that with regard to the teacher respondents the language used in the video presentation is highly acceptable. Item no.1, "uses language which is simple and easy to understand" has an obtained mean of 4.92. Item no. 2," Provides pupils learning new meanings" and item no.5,"presents words/statements suited to the pupils both have obtained mean of 4.85 which is verbally interpreted as highly acceptable. The third item " gives pupils to direct information on new topics" has a mean of 4.77 and verbally interpreted as highly acceptable. The fourth item, "follows rules of spelling and punctuation" ha s an obtained mean of 4.54 and verbally interpreted highly acceptable.

Table 4 shows the computed mean on the level of acceptability of video presentation in teaching Mathematics in kindergarten pupils as evaluated by teachers as respondents with respect to format and style.

Table 4. *Computed Mean on the Level of Acceptability of Video Presentation in Teaching Mathematics in Kindergarten Pupils as Evaluated by Teachers Respondents with Respect to Format and Style*

Format and Style	$\bar{x}$	Verbal Interpretation
1. Uses text and color to text effect that is clear and readable.	4.77	Highly Acceptable
2. Contains video that reinforce favorable response.	4.85	Highly Acceptable
3. The sequence of topics are properly arrange.	4.77	Highly Acceptable
4. Uses font type and size that are readable.	4.92	Highly Acceptable
5. Provides clear and descriptive illustrations.	4.85	Highly Acceptable
Average	4.83	Highly Acceptable

The table shows that with regard to the Format and Style of the video presentation as evaluated by teacher respondents as highly acceptable. Item no. 4," Uses font type and size that are readable" obtained with a mean of 4.92 and verbally interpreted as highly acceptable. Item 2 "Contains video that reinforce favorable response" together with item no. 5 " Provides clear and descriptive illustrations" has obtained a mean of 4.85 which is verbally interpreted as highly acceptable. Item No. 1," Uses text and color to the text effect that is clear and readable" this criteria obtained a mean of 4.77 both with item no. 3, " the sequence of topics are properly arrange" and verbally interpreted as highly acceptable.

Table 5 presents the composite table on the level of acceptability of video presentation in teaching Mathematics in kindergarten pupils in terms of aspect

Table 5. *Composite Table on the Level of Acceptability of Video Presentation in Teaching Mathematics in Kindergarten Pupils in Terms of Aspects*

ASPECTS	$\bar{x}$	Verbal Interpretation
1. Objectives	4.80	Highly Accepted
2.Contents	4.69	Highly Accepted
3. Language Used	4.78	Highly Accepted
4. Form and Style	4.83	Highly Accepted
General	4.78	Highly Accepted

It could be implied from the table that from the respondents the video presentation from its objectives, contents, language used and format and style are verbally interpreted as "Highly Acceptable".

The Objectives of the created video presentation has an obtained mean of 4.80 which is verbally interpreted as "Highly Acceptable" and contents has an obtained mean of 4.69 which is also verbally interpreted as "Highly Acceptable". Language Used has a mean of 4.78 which is verbally interpreted as "Highly Acceptable". Form and Style has an obtained mean of 4.83 which is verbally interpreted as "Highly Acceptable".

Level of Performance of the Control and Experimental Groups as Revealed by Their Pretest and Posttest Results

Table 6 shows computed mean on the level of performance of the control and experimental groups as revealed with respect to the different lessons.

Table 6. *Computed Mean on the Level of Performance of the Control and Experimental Groups as Revealed by their Pretest and Posttest Results with Respect to the Different Lessons*

Lesson		Mean	Df	t_c	Sig	H_o	VI
Size	Pretest	3.5	22	2.632	0.0000	R	S
	Posttest	5					
Height	Pretest	3.42	22	1.842	0.001	R	S
	Posttest	4.92					

With the use of video presentation it could be gleaned from the table that in the experimental group the pretest result in the topic "Size" has an obtained mean of 3.5. The next topic "Height" resulted with the pretest mean of 3.42. The posttest results in "Size" is 5 and "Height" is "4.92".

It could be seen from the table that in the pretest result of the control group the topic "Size" obtained 4.5. The other topic "Height" resulted with the pretest mean of 4.17. The posttest results in "Size" obtained 5 and "Height" obtained 4.5.

Data reveal that with the use of video presentation and conventional way of teaching, there is an increase in the mean scores of the respondents' posttest in the topic Order and Seriation: Size and Height. But in Size and Height topic, the mean scores of the respondents is not the same compared with the pretest. Generally, there is an increase in the students' performance using either of the two way of teaching.

Significant Difference on the Level of Performance of the Control and Experimental Groups as Revealed by the Pretest and Posttest Results

Table 7 shows computed t-test on the level of performance of the control group as revealed by the pretest and posttest results

Table 7. *T-test on the Level of Performance of the Control Kindergarten Group as Revealed by the Pretest and Posttest Results*

Lesson		Mean	Df	t_c	Sig	H_o	VI
Size	Pretest	4.5	22	4.632	0.048	R	S
	Posttest	5					
Height	Pretest	4.17	22	3.487	0.008	R	S
	Posttest	4.5					

As shown in the table, there is a significant difference on the level of performance of the kindergarten pupils control group as revealed by the pretest and posttest results in terms of size and height since the computed p-value of 0.048 and 0.008 respectively are less than 0.05 level of significance, hence, rejecting the null hypothesis

The table implies that without viewing the video presentation there is a significant factor on the level of performance of the control group. Thus, it indicates that without the use of video presentation levels of performance of the respondents will increase.

Table 8**.** *Computed t-test on the Level of Performance of the Experimental Group as Revealed by the Pretest and Posttest Results*

Lesson	**Control**		**Experimental**	
	Mean	Mean	Mean	Mean
	Pretest	Posttest	Pretest	Posttest
Size	4.5	5	3.5	5
Height	4.17	4.5	3.42	4.92

As shown in the table, there is a significant difference on the level of performance of the kindergarten pupils experimental group as revealed by the pretest and posttest results in terms of size and height since the computed p-value of 0.0000 and 0.001 respectively are less than 0.05 level of significance, hence, rejecting the null hypothesis.

The table implies that when it comes on viewing the video presentation there is a significant factor on the level of performance of the respondents. Thus, it indicates that the levels of performance of the respondents were influenced by the Video Presentation as revealed by the pretest and posttest results.

Significant Difference on the Level of Performance of the Experimental Group as Revealed by the Posttest Results

Table 9 shows the t-test results on the level of performance of the control and experimental groups as revealed by the posttest results with respect to size and height.

Table 9. T-test Results on the Level of Performance of the Control and Experimental Groups as Revealed by the Posttest Results with Respect to Size and Height

Lesson		**Mean**	**Df**	**t_c**	**Sig**	**H_o**	**VI**
Size	Control	5	22	3.085	0.095	FR	**NS**
	Experimental	5					
Height	Control	4.5	22	4.862	0.008	R	**S**
	Experimental	4.92					

As shown in the table, there is no significant difference on the level of performance of the kindergarten pupils in control and experimental groups as revealed by the posttest results in terms of size since the computed p-value is 0.095 which is greater than 0.05 level of significance, hence, it failed to reject the null hypothesis. In terms of height, the computed p-value is 0.008 which is less than 0.05 level of significance, hence, rejecting the null hypothesis.

The table implies that with or without using the video presentation in size, there is no significant difference on the level of performance of the kindergarten pupils. While with height, with the use of video presentation in the control and experimental group it shows from the table that there is a significant difference on the level of performance of the kindergarten pupils.

It is supported by the required kindergarten education, RA 10157 Sec. 7(e) , supports learning with educational technology that helps student to figure out the real representation of the certain pictures in the book.

CONCLUSIONS AND RECOMMEDATIONS

Based on the findings of the study, the following conclusions were drawn.

1. The developed video presentation is highly acceptable in terms of objectives, contents, language used and format and style.
2. The developed video presentation is an effective tool in teaching Mathematics for kindergarten pupils
3. The developed video presentation can be used as an appropriate maerial in teaching ”Height” for kindergarten pupils.

RECOMMENDATIONS

Based from the summary of findings and conclusions, the following are recommended.

1. Exposed to different video presentations to enhance learning on the different topics.
2. Develop other presentations which focus on other subject areas.
3. Conduct other studies on video presentation utilizing other grade levels and considering other variables.

REFERENCES

[1] Home – GOV.PH. (2014, July 7). Retrieved from http://www.gov.ph/

[2] kinderCare / Child Daycare Centers & Early Education Programs. (2014, August 15). Retrived from http://www.kindercare.com

[3] Charlesworth, R. (2005). Google Books. Retrived form http://books.google.com.ph

[4] Mechling, L. (2015, August 18). Retrived from http://www.leighzeitz.com

[5] Jean Piaget – *Biography.* (2015, March 19). Retrieved from http://piaget.weebly.com

[6] Padua, Robert N., Ph.D Elements of Research and Statistical Models(Cagayan De Oro City, Philippines: MSPC Publishing House, 2000)

[7] Calmorin, L. P. (2001). *Research Methods and Thesis Writing'* 2007 Ed. Quezon City, Philippines: Rex Bookstore.

[8] Caderon J. F. (1993). *Methods of Research and Thesis Writing*. Quezon City, Philippines, Rex Bookstore.