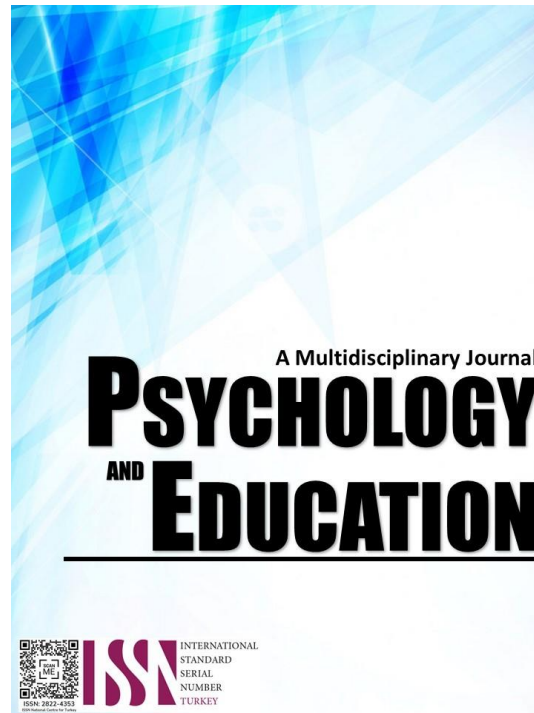


**UTILIZATION OF KNOWLEDGE CHANNEL
EDUCATIONAL PACKAGE IN TEACHING
MATHEMATICS FOR GRADE FIVE PUPILS IN
PULONG KUMANOY ELEMENTARY SCHOOL**



PSYCHOLOGY AND EDUCATION: A MULTIDISCIPLINARY JOURNAL

2023

Volume: 7

Pages: 592-597

Document ID: 2023PEMJ579

DOI: 10.5281/zenodo.7745676

Manuscript Accepted: 2023-13-3



Utilization of Knowledge Channel Educational Package in Teaching Mathematics for Grade Five Pupils in Pulong Kumanoy Elementary School

Dianne DU. Resurreccion*

For affiliations and correspondence, see the last page.

Abstract

The study was conducted in Pulong Kumanoy Elementary School in the District of Morong, Division of Rizal which focused on the utilization of knowledge educational packaged in teaching Mathematics for grade five pupils in the said school. Seventy-six (76) Grade 5 pupils who belong to two sections were the respondents of this research. The researcher utilized the pretest and posttest as the main instruments to analyze the performance of the pupil-respondents. Based on the results, it was found out that both groups of respondents were dominated by male pupils whose parents had obtained secondary education and from the families with monthly income of Php 10,000 below. The respondents also obtained a grade range of 76-80. As reflected in the pretest result, the level of performance of the control group was said to be moderately satisfactory, while in the posttest, their performance was satisfactory. For the experimental group, the level of performance of the respondents was found to be satisfactory as reflected in the pretest results, and outstanding based on the posttest. The hypothesis on the Experimental group's performance in terms of their profile was accepted in terms sex but it is rejected in terms of monthly family income, father and mothers' educational attainment, and academic performance. The hypothesis is accepted in terms of sex and monthly family income, but it is rejected in terms of father and mothers' educational attainment and academic performance for the control group. Based on the findings of the study, the following conclusions were drawn: Pupils' exposure to the knowledge channel educational package enhanced their performance and that monthly family income, father and mothers' educational attainment and academic performance are determinants to the level of performance of the pupils in school.

Keywords: *experimental and control group, level of performance, effectiveness*

Introduction

Education is a process of imparting or acquiring general knowledge, developing the powers of reasoning and judgment, and generally preparing oneself or others intellectually for mature life. It is considered as a powerful medium of development, one of the tools for stability, reducing poverty, knowledge of uplifting gender equality and improving health. Education is one of the strongest instruments in order to achieve the mission or goal of every nation.

The latest reform in the Philippine Educational System in the Philippines is the implementation of the K to 12 programs. It seeks to provide for a quality 12-year basic education program. This is in cognizance with Article IV Section 2 of the 1987 Philippine Constitution which states that: "The State shall establish, maintain, and support a complete, adequate, and integrated system of education relevant to the needs of the people and society".

This provision reiterates that the basic education is the right of every citizen and education has the highest priority. Education is very significant in everyone's life especially in the lives of pupils who are pursuing the basic education necessary for them to develop their total well-being. In this regard, teachers need to devise

effective avenues to attain the desired goals and objectives.

Mathematics is a field that needs a deeper understanding of concepts. Successful mathematical instruction depends upon many factors and skills with different characteristics. It is used to solve problems and with the advent of the computer technology, it has helped in making social, economic, and technological advances that few decades ago would have been unthinkable.

In Pulong Kumanoy Elementary School, teachers utilize knowledge educational channel in presenting lessons. Teachers believe that the use of knowledge educational channel in every classroom can deliver quality education materials that will help to improve the academic performance and increase completion rate of every learner. However, no researches have been made in the school if the learning package is useful. There are observations that pupils still perform low in Mathematics despite the different technology-based instruction employed by teachers. The researcher, being a Mathematics teacher observed that some pupils found the subject but they are very much engaged in their learning when the lessons in the Knowledge Channel Educational Package.

The researcher believed that the engagement of the

senses of the pupils by watching and listening using the package improves the performance of the pupils in Mathematics. Moreover, the researcher believed that the teacher and the strategy used plays a significant role in providing the needed knowledge for her. Likewise, she would like to find out the possible effects on the effectiveness of knowledge educational package on the performance of pupils in Mathematics Five.

Research Questions

The study focused on the utilization of Knowledge Channel Educational Package in teaching Mathematics for grade five pupils in Pulong Kumanoy Elementary School, District of Morong, Division of Rizal. Specifically, it sought answers to the following questions:

1. What is the profile of the pupil-respondents in terms of:
 - 1.1 sex;
 - 1.2 parents' educational attainment;
 - 1.3 monthly family income; and
 - 1.4 academic performance?
2. What is the level of performance in Mathematics of the experimental group and the control group as revealed in the pretest and posttest results?
3. Is there a significant difference between the level of performance in Mathematics of the experimental and control groups as revealed by the pretest and posttest results?
4. Is there a significant difference on the posttest performance in Mathematics of the two groups of respondents?
5. How does the performance in Mathematics of the grade five pupils as revealed in the posttest differ in terms of their profile?

Literature Review

As stated by Cleaver (2014), kids gravitate towards technology— most children head straight for the video games or Facebook after school. With a world of information at their fingertips nowadays, it seems like kids should be finding it easier than ever to succeed in school. However, as more classrooms invest in the latest technology, test scores remain the same, bringing its effectiveness into question.

Likewise, according to Jonassen et al. (2010), educational computing and technology use does not conceive of technologies as teachers or repositories of information. Rather, it is believed that, in order to

learn, students should teach the computer or use the technology to represent what they know rather than memorizing what teachers and textbooks tell them. Technologies provide rich and flexible media for representing what students know and what they are learning. A great deal of research on computers and other technologies has shown that they are no more effective at teaching students than teachers, but if we begin to think about technologies as learning tools that students learn with, not from, then the nature of student learning will change.

Moreover, Paul (2014) stated that educational technology often presents itself as a radical departure from the tired practices of traditional instruction. But in one way, at least, it faithfully follows the conventions of the chalk-and-blackboard era: EdTech addresses only the student's head, leaving the rest of the body out.

As stated by Andog and Florencio (2008), technology is not only the answer, but it can help provide young people with necessary workplace skills and enable school system to run more efficiently and effectively. Educators must always innovate. Teachers must use technology to maximize students' learning potentials, supplement basic skills with sound guidance thereby affecting a transformation of the educational process toward more students centered learning environment.

Likewise, according to Andrew (2011), a study entitled "How Effectively Use Video and Multimedia in the Classroom" using video and multimedia in the classroom is one way to engage the students, but there are some methods that are more educationally effective than others. Research showed that the use of video for educational purposes had a variety of positive benefits. When compared to traditional teaching methods, teachers who used interactive video with their instruction had students with more positive attitudes towards learning. Video also uses a variety of sensory images that allow students to form mental models more easily than lecture alone.

Moreover, the study of Santos (2014) aimed to determine the extent of utilization of interactive strategies in teaching English in Catalino Salazar National High School, Janosa National High School, Talim Point National High School, and Tuna-Balibago National High School during the School Year 2014-2015. The study found out that variety of interactive strategies are often utilized by teachers in teaching English. Perceptions of teachers on the extent of utilization of direct instruction in teaching English differ significantly. However, with respect to other

interactive strategies, their perceptions did not differ significantly. The most common problems encountered by teachers in the utilization of interactive strategies in teaching English are insufficient time and lack of appropriate instructional materials.

Dela Fuente (2015) conducted a study to determine the effectiveness of pedagogical techniques utilizing technology-based in teaching grade one pupils. Her findings included the Grade one pupils have satisfactory performance in the pretest and obtained Very satisfactory performance in the posttest. Performance in Araling Panlipunan of the experimental group in the pretest and posttest differ significantly. Likewise, there is a significant difference between the performance of the control group in the pretest and posttest. Performance in Araling Panlipunan of the two groups of respondents differ significantly as revealed in the posttest. Performance in Araling Panlipunan of the grade one pupils differ significantly when they are grouped according to monthly family income. On the other hand, sex, sibling position and parents' educational attainment are not significant on the performance of pupils. Pupil's performance in Araling Panlipunan improved after exposure to different methods of teaching. Pupils exposed to technology based instruction have better performance in Araling Panlipunan than those pupils exposed to traditional method of teaching. Monthly family income is a determinant of performance of pupils in Araling Panlipunan while sex, sibling position and parents' educational attainment are not contributory to pupils' performance.

Lastly, Villaflores (2014) aimed to determine the effectiveness of utilization of electronic-based instructional materials in teaching Mathematics for grade six pupils in Buhangin Elementary School and Malakaban Elementary School during the School Year 2014-2015 specifically in the first grading period. The study found out that there are more female respondents than males. Majority belong to low-income families with average grades of 80-89. Grade six pupils obtained a fair performance in the pretest and a good performance in the posttest. Performance in Mathematics of the experimental group in the pretest and posttest differ significantly. There is a significant difference between the performance in Mathematics of the experimental group in the pretest and posttest. Performance in Mathematics of the two groups of respondents differ significantly as revealed in the posttest. Performance in Mathematics of the grade six pupils differ significantly when they are grouped according to monthly family income and academic performance. On the other hand, sex is not significant

on the performance of pupils.

Methodology

This study used experimental research design. According to Calmorin (2010) experimental method of research is a problem – solving approach that the study is described in the future on what will be when certain variables are carefully controlled or manipulated.

This was an experimental survey involving two groups of respondents. There were two comparable groups to be employed as experimental and control groups. Since the research is concerned on the effectiveness of knowledge educational package in teaching Mathematics for grade five pupils, the experimental survey using two groups design is the most appropriate method used. Documentary analysis was also used as a technique in gathering necessary data in the study since the academic performance of the grade five pupils were obtained from their first grading period.

The respondents of the study were the two sections of grade five pupils that is compose of seventy-six (76) grade five pupils in Pulong Kumanoy Elementary School. They were described in terms of sex, parents' educational attainment, monthly family income and academic performance.

A parallel set of pretest and posttest were utilized to gather the needed data. The researcher also made a test for the experimental and controlled groups to determine their performance before and after the experiment. The prepared test items were made in form of multiple choices to assess the result of the pretest and posttest for the respondents. The tests consist of forty (40) items. The table of specification was also prepared.

Results

Profile of the Pupil-Respondents in Terms of Sex, Parent's Educational Attainment, Monthly Family Income, and Academic Performance



Table 1. Profile of the Pupil-Respondents

Sex	Experimental			Control		
	f	%	R	f	%	R
Male	21	55	1	20	53	1
Female	17	45	2	18	47	2
Total	38	100.0		38	100	
<i>Parents' Educational Attainment</i>						
<i>Father</i>						
College Graduate	9	24	3	4	11	4
Technical/Vocational	10	26	2	9	24	2
Secondary	13	34	1	20	53	1
Elementary	6	16	4	5	13	3
Total	38	100.0		38	100	
<i>Mother</i>						
College Graduate	14	37	2	11	29	2
Technical/Vocational	7	18	3	5	13	3
Secondary	17	45	1	22	58	1
Total	38	100		38	100	
<i>Monthly Family Income</i>						
Php. 20 000 and above	6	16	3	2	5	3
Php. 11 000 – 19 999	15	40	2	17	45	2
Php 10 000 and below	17	45	1	19	50	1
Total	38	100		38	100	
<i>Academic Performance</i>						
86 and above	4	11	3	5	13	3
81-85	18	47	1	12	32	2
76-80	13	34	2	17	45	1
75 and below	3	8	4	4	11	4
Total	38	100		38	100	

It is glaring that when pupil respondents are grouped according to sex, the males dominate in frequency at 24 or 55 percent against females at 17 or 45 percent for the experimental group. Most of the fathers obtain secondary at 13 or 34 percent, followed by those who finish Technical/Vocational courses with 10 or 26 percent, college graduates at 9 or 24 percent and elementary at 6 or 16 percent. The pupils' mothers are dominated by those who obtain secondary with 17 or 45 percent, followed by college graduate at 14 or 37 percent and the others who took Technical/Vocational with 7 or 18 percent. As to family income, most receive P10,000.00 and below at 17 or 45 percent, followed by those who receive P11000.00 –P19,900.00 and the rest who receive P20,000-and above at 6 or 16 percent. As to academic performance, the experimental group marks a highest frequency of 18 or 47 percent followed by those with 76-80 at 13 or 34 percent, 86 and above at 4 or 11 percent and 75 and below at 3 or 8 percent.

The control group on the other hand is dominated by males at 20 or 53 percent against females at 18 or 47 percent. Their fathers are mostly secondary graduates with the highest frequency of 20 or 53 percent, followed by the technical vocational at 9 or 24 percent, those who finish elementary at 5 or 13 percent, and college at 4 or 11 percent. The pupils' mothers claim that 22 or 58 percent are secondary graduate, 11 or 29 percent are college graduate and 5 or 11 percent took technical/vocational courses. The pupils' family are dominated by those who earn P10,000 and below with the frequency of 19 or 50 percent, followed by those who receive P 11,000-19,999 at 17 or 45 percent and by those with P20,000 and above at 2 or 5 percent. Lastly as to academic performance, the highest frequency of 17 or 45 percent got grades of 76-80, followed by those who have grades of 81-85 at 12 or 32

percent, 86 and above with 5 or 13 percent and lastly those who got 75 and below with 4 or 11 percent.

Level of Performance in Mathematics of the Experimental and Control Groups as Revealed in their Pretest and Posttest Results

Table 2. Level of Performance in Mathematics of the Experimental and Control Groups as Revealed in their Pretest and Posttest Results

Score	Verbal Interpretation	Control				Experimental			
		Pretest		Posttest		Pretest		Posttest	
		f	%	f	%	f	%	f	%
40	Excellent	-	-	1	3	-	-	5	13
31-39	Very Satisfactory	-	-	14	37	-	-	18	47
21-30	Satisfactory	14	37	16	42	19	50	13	34
11-20	Moderately Satisfactory	17	45	7	18	17	45	2	5
1-10	Needs Improvement	7	18	-	-	2	5	-	-
Total		38	100	38	100	38	100	38	100
Highest Score				26	40			28	40
Lowest Score				8	17			5	16
Mean				18.1	27.6			18.9	32.1
Mean Percentage Score				45%	69%			47%	80%
Std. Deviation				5.402	6.254			5.715	6.234

It is reflected from the data that the frequency of the control group is noted in the range score of 11-20, interpreted as moderately satisfactory, with 17 or 45 percent and the lowest is in the range of 1-10 with 7 or 18 percent for the pretest. The highest score is 26 and the lowest is 8, which lead to a mean of 18.1 and a total mean score of 45 percent and a standard deviation of 5.402, which explained that individual scores in the pretest are quite far to the mean score. However, in the posttest, it is noted that the highest frequency of 16 or 42 percent is in the score range of 21-30, Satisfactory, followed by 14 or 37 percent who fall in the range of 31-39 Very Satisfactory. There is 1 or 3 percent who got 40, interpreted as excellent and nobody fall in the lowest range. It is also shown that the highest score obtained in the posttest is 40 and the lowest is 14, thus higher in the pretest. The mean is 27.6 and the mean score percentage is 69 percent, thus truly indicating an improved performance though the dispersion is higher at 6.254.

For the experimental group, the highest frequency of 19 or 50 percent is marked in the score range of 21-30, Satisfactory, followed by the 17 or 45 percent who fall in 11-20, Moderately Satisfactory. Only 2 or 5 percent fall in the range of 1- 10, needing improvement. The highest score during pretest is 28 and the lowest is 5. The mean is 18.9 and the mean percentage score is 47 percent having registered as well a standard deviation of 5.715, indicating that the individual scores of the pupils are quite far from the mean score. The posttest score for the experimental group reflects an improved performance since the highest frequency of 18 or 47



percent fall in the score range of 31-39, interpreted as Very Satisfactory, followed by 13 or 34 percent who fall in the range of 21-30 Satisfactory. There are 5 or 13 percent who got a perfect score of 40, interpreted as excellent and no one is registered in the lowest range. The highest score of 40 and the lowest score of 16 lead to a mean of 32.053. The mean percentage score is 80 percent, a very high increase, and the standard deviation is 6.234, thus indicating that the individual scores of the pupils are quite scattered with some far from to the mean score.

Significant Difference Between the Level of Performance in Mathematics of the Experimental and Control Groups as Revealed in their Pretest and Posttest Results

Table 3. Result of the t-test in the Significant Difference in the Level of Performance of the Experimental and Control Group in the Pretest and Posttest

Group	Test	N	Mean	SD	t-value	p-value	Decision	Verbal Interpretation
Experimental	Pretest	38	18.9	5.715	29.350	0.000	Reject Ho	Significant
	Posttest	38	32.1	6.234				
Control	Pretest	38	18.1	5.402	19.000	0.000	Reject Ho	Significant
	Posttest	38	27.6	6.254				
Test Group								
Pretest	Experimental	38	18.9	5.715	0.639	.524	Accept Ho	Not Significant
	Control	38	18.1	5.402				
Posttest	Experimental	38	32.1	6.234	3.105	.003	Reject Ho	Significant
	Control	38	27.6	6.254				

On comparison of the pretests of the experimental and control groups, no significant difference was found which indicates that a match in the performance in Mathematics of the two groups really exists at the start of the experiment. After teaching the pupils a difference on the performance of the control and experimental was found since the p-value of .003 is lower at 0.05 level. It can be concluded that the mean of the group exposed to Knowledge Channel Educational Package (32.1, MPS 80%) is significantly higher than the group taught by the traditional method (27.1, MPS 69%).

Significant Difference on the Level of Performance of the Grade Five Pupils Experimental and Control to Knowledge Channel Educational Package in teaching Mathematics in Terms of their Profile

Table 4. Result of the F-test on the Significant Difference on the Level of Performance of the Grade Five Pupils Exposed and Unexposed to Knowledge Channel Educational Package in teaching Mathematics in Terms of their Profile

Group	Variables	F-value	p-value	Decision	Verbal Interpretation
Experimental	Sex	0.619	0.437	Accept Ho	Not Significant
	Monthly Family Income	7.067	0.003	Reject Ho	Significant
	Fathers' Educational Attainment	4.460	0.010	Reject Ho	Significant
	Mothers' Educational Attainment	5.024	0.012	Reject Ho	Significant
	Academic Performance	82.432	0.000	Reject Ho	Significant
Control	Sex	0.069	0.795	Accept Ho	Not Significant
	Monthly Family Income	2.480	0.098	Accept Ho	Not Significant
	Fathers' Educational Attainment	3.091	0.040	Reject Ho	Significant
	Mothers' Educational Attainment	5.622	0.008	Reject Ho	Significant
	Academic Performance	34.350	0.000	Reject Ho	Significant

When grouped according to profile, the hypothesis is accepted in terms of the Experimental group performance and sex since the p-value of .437 is higher than at 0;05 level but it is rejected in terms of monthly family income, father and mothers, educational attainment and academic performance considering that .003, .010, .012 and .000 are lower at 0.05 level.

For the control group the hypothesis is accepted in terms of sex and monthly family income since the p-values of 0.795 and 0.098 are higher at 0.05 level but it is rejected in terms of father and mothers' educational attainment and academic performance since the p values of 0.040., 0.008 and 0.000 are lower at 0.05 level.

It can be inferred that the male and female pupils Mathematics performance do not depend in the strategies used in the teaching learning process as no significant difference in their performance was found. It is not surprising that pupils with higher academic performance have also higher scores in both groups.

Discussion

Based on the results, it was found out that both groups of respondents were dominated by male pupils whose parents had obtained secondary education and from the families with monthly income of Php 10,000 below. It can be implied from the result that pupil's exposure to the knowledge channel educational package is very effective as proven by their increased scores and the mean percentage score or the number of skills mastered at 80 percent.

On the comparison of pretest and posttest of the two groups, the result leads to an implication that the knowledge channel educational package is effective in teaching grade five Mathematics. It could be inferred that the Knowledge Channel is living up to its aim of providing mastery of concepts and skills in Mathematics. The researcher observed that the pupils



enjoy lessons in the Knowledge Channel like the “MathDali” series which focuses on overcoming the fear of the subject to pave the way for better Math learning. Thus, it can be recommended that teachers should continuously utilize electronic-based instructional materials like Knowledge in teaching Mathematics for better performance.

The findings lead to an implication that monthly family income, father and mothers’ educational attainment and academic performance are contributory to the level of performance of the pupils in school, considering the facts that parents are the ones guiding their children in making assignments and reviewing lessons at home, sufficient income would enable parents to provide their children with their academic needs in school and pupils who are already performing well in Mathematics have the positive tendency of improving themselves once embraced with new technologies.

Conclusion

Based on the findings, it can be concluded that pupils’ exposure to the knowledge channel educational package enhanced their performance. Monthly family income, father and mothers’ educational attainment and academic performance are determinants to the level of performance of the pupils in school.

References

- Andrew, Tammy, “How Effectively Use Video in the Classroom”, Vancouver, BC Canada: Suite Communities, 2011.
- Calmorin, Laurentina and P. Calma. Educational Research and Measurement and Evaluation. Mandaluyong City: National Bookstore, 2010.
- Cleaver, Samantha., “Technology in the Classroom: Helpful or Harmful?”, Retrieved on July 12, 2016 from <http://www.education.com/magazine/article/effective-technology-teaching-child/>. Sep. 15, 2014.
- Dela Fuente, Jackie Lou M., “Effectiveness of Selected Pedagogical Techniques Utilizing Technology-Based Instruction on Teaching Araling Panlipunan for Grade One Pupils”, Unpublished Thesis, Tomas Claudio Memorial College, Morong, Rizal, 2015.
- Jonassen, D., Howland, J., Marra, R.M. and Crismond D., “How Does Technology Facilitate Learning?”. Retrieved on July 15, 2016, from <http://www.education.com/reference/article/how-does-technology-facilitate-learning/?page=2>. July, 2010.
- Paul, Annie Murphy., “The Body Learns”. Retrieved on July 15, 2016 from http://www.slate.com/articles/technology/future_tense/2014/07/educational+technologysnextmovetools_to_help_kids_learn_with_their_bodies.html, July 2014.
- Villaflores, Lucilla F., “Utilization of Electronic-Based Instructional Materials on Teaching Mathematics for Grade Six Pupils”, Unpublished Thesis, Tomas Claudio Memorial College, Morong, Rizal, 2014.

Affiliations and Corresponding Information

Dianne DU. Resurreccion

Pulong Kumanoy Elementary School
Department of Education - Philippines