American Journal of Education and Information Technology
2023; 7(2): 86-94
http://www.sciencepublishinggroup.com/j/ajeit
doi: 10.11648/j.ajeit.20230702.15

The Role of Technological Instructional Method in Improvement of Pre-primary Children's Understanding of Curriculum Content

Leoncia Henerico Kibani

Department of Technical Education, The College of Science and Technical Education, Mbeya, Tanzania

Email address:
lkibani@yahoo.com

To cite this article:
Dr Leoncia Henerico Kibani. The Role of Technological Instructional Method in Improvement of Pre-primary Children's Understanding of Curriculum Content. *American Journal of Education and Information Technology*. Vol. 7, No. 2, 2023, pp. 86-94.
doi: 10.11648/j.ajeit.20230702.15

Received: November 21, 2022; **Accepted**: December 29, 2022; **Published**: August 10, 2023

Abstract: The purpose of this study was to investigate the role of technological instructional methods employed by teachers in improvement of pre-primary children's understanding of curriculum content. Teaching through technology approaches is among the new methods emphasized in Tanzania education following its adoption of competence-based curriculum in 2005. In order to achieve the objectives of competence-based education which is to obtain quality education and produce comprehensive competent students and graduates, the issue of students' understanding of curriculum content is placed at forefront. Competence development and learning to understanding are the desired criterion for educational quality in all levels in schools. The study was conducted in two different regions in Tanzania; Dar es Salaam and Coastal region specifically, Kinondoni and Bagamoyo districts respectively. The study followed a mixed method approach and adopted a descriptive survey and quasi-experimental research design. The targeted population comprised of 8 pre-primary school teachers and 80 pre-primary school children. Data analysis involved thematic for qualitative and descriptive statistics for quantitative. Direct observation, documentary review and interview to teachers' were data collection methods. Findings indicated that teacher-made instructional materials when used through videotaped based approach improves students' understanding of curriculum content more easily than teaching without videotaped. Also, improve performances more quickly than when use instructional materials alone. Quasi-experimental results revealed that the teaching of curriculum content in the areas such as pronunciation of words, tracing of numbers, remembering of concepts, imitating of words correctly, writing, drawing, modeling and painting improved faster when teacher's instructions accompanied with video tapes of related activities than when given alone. Averagely, the performance range from 50% to 98% showed great improvement and within short period in a class used videotape based approach than the one without video tapes. The study conclude that instruction-based video tapes is a good teaching method for pre-primary children learning than other methods. Children learn more by watching and observing coloured pictures of real world materials. It is therefore recommended that technological instructional materials should be employed by all teachers in pre-primary classes for them to understand the curriculum content taught by their teachers.

Keywords: Instructional Materials, Pre-primary Children, Videotape

1. Introduction

The Tanzania government set out its Development Vision 2025, overarching policy and strategic objectives for its education sector. In order to achieve its vision, in 1997 the government established a five year Education Sector Development Plans (ESDP) which was from 2016-17 to 2020-21 [1]. Moreover, the key policy initiatives of ESDP among others were committed to provide quality education to all learners at all levels from pre-primary education [2]. This were expected to be achieved through greater investment in the teaching profession and adaption of modern pedagogical principles [2]. In response, the pre-primary curriculum was revised alongside development of teachers' guide and textbooks focusing on preparing pre-primary school children with pre-requisite reading, writing and basic mathematics skills Numeracy) [2]. The curriculum content was made competence-based to pre-primary school children for them to

attain quality knowledge, skills and positive attitude [3].

The pre-primary education curriculum in Tanzania is considering the child's community needs including economic, socio-cultural and technological needs in the curriculum content which is therefore believed to produce quality education [2]. One of the strategy proposed in the curriculum to contribute in the giving of young children knowledge and skills related to various experiences and competences, include designing of instructional materials based on technology [4]. The construction of instructional materials by teachers' based on technology respond to the advocated adaption of modern pedagogical principles stated in the ESDP policy plan. Modern pedagogical strategies involves teaching methods and techniques that can enable children to be attracted by taught curriculum content [5]. This approach help children build understanding and interest of taught curriculum content. Technological instructional practices such as videotapes was among other methods pre-scribed in the pre-primary school curriculum in Tanzania [4]. Videotape-based strategy as one of the instructional materials has been pointed in many studies as an important material that improves faster pre-school children learning and understanding [6]. As it was stated in various studies, well planned videotape with content that reflect on certain knowledge and skills can be much better source of developing children thinking, creativity and understanding of taught curriculum content [7, 8]. Videotape was pointed in the pre-primary curriculum to be among the recommended instructional materials [4]. The study by [9] pointed videotape as technological instructional materials which promote young children learning. [9] further pointed on the importance of such instructional strategic materials to include: It support curricula goals, support components of learning which are active engagement, participation, frequent interaction and feedback. The videotape material provides classroom with more interesting, diverse and current learning techniques [10].

Apart from videotape, findings from the study by [6] indicated that the provisional and utilization of teacher-made instructional materials promote the intellectual ability of children. Moreover, the instructional materials act as the driving force or incentive for children to explore and discover already stated objectives in the curriculum. However, [10] noticed that pre-primary school teachers in their implementation and practices of instructional materials had challenges since in the visited schools there were no materials. This findings means that teachers were teaching children theoretically with no instructional materials that contribute to learning by doing. In the other words, videotapes of real world materials attract children mind and make them remember and understand well. Videotape that is prepared well show reality basing on pre-scribed objectives of the curriculum. Despite the importance of videotape as technological instructional materials which can be prepared and recorded by teachers in schools [10] are limited. The author established that there are inadequate and total absent of technological materials like computers, projectors in pre-primary schools. Teachers were also lacking knowledge and skills on recording videotape.

Video-based technology is thought effective strategy in making sense of learning to students especially young children. The importance of science and technology in our modern world cannot be overstated if modern pedagogical principles based on technological instructional materials for supporting teaching are left behind. The importance of technology in implementing curriculum content is of paramount. Right from pre-primary school level, learning processes need to be supported by teachers' attractive pedagogical instructional practices. The appropriate instructional materials prepared by teachers either technologically or hands-on activities if well planned help children to build interest, creativity and clear understanding of taught curriculum content [5]. However, [11] revealed that in pre-primary schools in Tanzania teachers lack appropriate and adequate instructional materials which can enable children learn and understand curriculum content successfully. This study therefore, investigated on the type of implemented instructional materials in pre-primary schools and establish the integration of technological teacher-made videotape in teaching pre-primary school children.

2. The Purpose of the Study

To investigate the role of technology in teacher instructions to improve pre-primary children's understanding of curriculum content, the case of Kinondoni and Bagamoyo district, Tanzania.

3. Problem Statement

Studies conducted on pre-primary education in Tanzania has shown that pre-primary teachers employ limited teaching instructional materials where some are inappropriate in enabling children quick understanding of taught curriculum content [5, 13]. Teacher's instructional practices are not holistic or developmentally appropriate to support young children quick understanding of curriculum content. Available studies have so far concentrated on instructional materials for teaching of primary school children but not for pre-primary children [12]. Other studies focused on teaching learning materials which provide limited opportunities for children to participate, engage and attracted in the learning activities of the curriculum content taught [7]. Little or no attention has been given to technological instructional materials in improving children's learning and understanding of curriculum content as in this study. This study is important in establishing and ascertaining that teacher-made instructional materials inform of videotape is appropriate tool in improving understanding of curriculum content. It is in the light of this view that this study is embarked upon guided by three specific objectives as follows:

3.1. Specific Objectives

1) To investigate on the classroom instructional practices employed by teachers in pre-primary school classes.
2) To identify the strength and weakness of technological

instructional practices employed by teachers in relation to pre-primary school children's understanding of curriculum content.

3) To identify challenges of technological instructional materials employed by teachers in classrooms and its influence on children understanding of curriculum content.

3.2. Significance of the Study

Study findings will benefit the curriculum developers and textbook authors on the importance of including technology content into the curriculum. Pre-primary children will benefit in getting clear understanding of taught content.

4. Materials and Methods

The study employed a mixed method approach with both qualitative and quantitative methods carrying equal weight. The study employed two type of design namely descriptive survey and quasi-experimental design. The study conducted a pre-test post-test quasi-experiment by exposing a total of eighty pre-primary school children to 8 treatments. Four schools were from one district and the other four were from another different district. On each district, one school was taught by integration of instructional materials from downloaded video of the internet, the other school taught with instructional materials of recorded video of teacher's prepared lesson, the third taught by integration of instructional materials of teacher hand-on prepared materials together with audio only and the fourth taught with no any material. Each school from each district was observed and assessed four times in different learning activities including reading, pronouncing words, counting, drawing and arithmetic.

The study was conducted in Kinondoni district in Dar es Salaam region and in Bagamoyo district in Coastal region all in Tanzania. A sample consisted of purposively selected 8 pre-primary classes four from each district. Among selected schools two were government and the other two private pre-school from each district. Almost every school visited had one pre-primary female teachers and therefore a total of 08 teachers participated in the study. Ten children from each class were sampled randomly to participate in the study. Thus, the study had a total population of 132 respondents. Data were collected using self-administered questionnaire with a Likert scales, interview schedule, tests and classroom observation checklist all designed by a researcher. An intervention study was conducted using instructional material, a Video-based technology to allow e-learning to pre-primary children. A questionnaire has a list of items that assessed teachers' knowledge on instructional practices experienced in teaching pre-primary school children, technology-based teaching and on demographic.

5. Results

The implementation of pre-primary school curriculum content to children were found to be influenced by various factors. Basing on the level of qualification of teachers and the professionalism ethics of teaching young children was a challenge. Some teachers were treating children as grown up pupils of primary schools. The observation made in visited classes showed that some teachers were teaching without following syllabus instead they were just doing effort of helping children in writing. In 8 visited schools only one had computer others were depending on traditional teaching approaches. The weakness of traditional methods for young children was learning many misconceptions and difficult in understanding content taught. When asked through interview any challenges they encounter in their teaching according to the curriculum and syllabi recommended by the government, one teacher was quoted saying:

Myself I have more than four years teaching pre-school children so I have experience and I like my work. Though I'm not a professional teacher but I have ability to enable children know how to read and write faster than those who were trained in teaching.

But another teacher also was quoted saying:

The big challenge I'm facing is to write lesson plan and follow what the syllabus requires me to do. I normally go in schools to ask professional teachers. I can't follow it, after all I don't have a syllabus instead I use teachers guide but not much. I use my book. These quotes of two teachers reveals that some pre-primary teachers are not professionals. This is a problem which contribute to difficult in children's understanding of curriculum content. Such teachers lack pedagogical skills and techniques of how to interpret curriculum content and teach children appropriately.

The results in Table 1 shows that majority 8 (100%) pre-primary school teachers were all females. This implies that at family level the issues of child care is dominated by women to the extent of proceeding with rearing at pre-primary school level. Through interview teachers established that, men cannot teach young children because the task need much motherly care. Young children still need mother closeness and lovely care which cannot be given by men. This perception on the other side form basic problem of gender inequality to children. Furthermore, results shows that among 8 teachers, only 1 was a professional one with grade 'A' certificate in teaching. Many 3 (37.5%) teachers had CSEE certificate which means that they were form four leavers who had no any profession. Similarly, the rest teachers also had no teaching profession. Results shows that more pre-school teachers in visited schools had more experience from 2 years to 4 years. This implies that teachers found in selected schools were able to teach pre-school children.

Table 1. *Pre-primary school teachers' characteristics.*

Gender	Level of qualification	Pre-primary school teacher	Years of experience
All were female	Grade A certificate	1	2
	CSEE certificate	3	1

Gender	Level of qualification	Pre-primary school teacher	Years of experience
	ACSEE certificate	1	3
	Diploma (Secretarial)	1	2
	Bachelor (in Sociology)	1	9 month
	Others	1	4

Source: Field Data

Further information concerning selected schools and studied pre-primary school children were as in Table 2. Results shows that the selected government pre-primary classes had more children in both districts Dar es Salaam and Bagamoyo than private school classes. For example, pre-primary children in government schools in Dar es Salaam had a total of 102 and 137 and private school classes had 68 and 75 children. In Bagamoyo government schools had 153 and 91 children and private schools had 89 and 52 children. These results implies that the implementation of the instructional materials were influenced by classroom environment due to class size.

Table 2. *Categories of Pre-primary classes and Number of Children Sampled.*

S/N	Pre-primary class	Pre-primary children in Government schools	Pre-primary children in Private schools
	A	10/102= (19.6%)	
	B	10/137= (14.6%)	
	C		10/68= (29.4%)
	D		10/75= (26.7%)
	e	10/153= (13.1%)	
	f	10/91= (22.0%)	
	g		10/89= (22.5%)
	h		10/52= (38.5%)
	Total	40/483= (16.6%)	40/284= (28.2%)

Source: Field Data
Key: Capital letters: Represent pre-primary classes from Kinondoni district
Small letters: Represent pre-primary classes from Bagamoyo district

The assessment of children learning and performances of the curriculum content was done and the obtained findings were as in Table 3. The result shows that, in the area of pronunciation of words, tracing letters, repetition of sentences and retrieving and remembering of colour, children performed higher in a class which employed technological instructional materials prepared by teachers and recorded as video than in other classes. The followed good performances were in the class of instructional materials of video downloaded from internet. The class with instructional materials prepared by teachers which were not in video form showed medium performance and finally classroom where teachers used only blackboard, conversations, books and repetition of words several times for children to imitate were the last in performances.

Table 3. *Number of Children Performed Well in Tested areas of Curriculum Content (N= 80).*

S/N	Employed Instructional Materials	Tested areas of Curriculum Content			
		Pronunciation of words: (i) Goodmorning (ii) Father (iii) Bicycle (iv) Umbrella	Imitating tracing of letters (i) Letter a, b, g and e; C, H, K and M	Repetition of sentences" (i) Goodafternoon mother (ii) Please teacher, may I go out. (iii) I am standing up	Watching, hiding and retrieving knowledge on colours: (i) Blue shirt (ii) Black cup (iii) Red flower
1	With downloaded video as instructional materials	68 (85%)	66 (82.5%)	60 (75%)	70 (87.5%)
2.	With class teacher-made and recorded video as instructional materials	78 (97.5%)	73 (91.3%)	71 (88.8%)	69 (86.3%)
3.	With class teacher hand-made instructional materials, audios lessons but not recorded video	43 (53.8%)	65 (81.3%)	48 (60%)	36 (45%)
4.	With class teacher without instructional materials	32 (40%)	34 (42.5%)	39 (48.8%)	30 (37.5%)
5.	Sum	221	238	218	205
6.	Average	55.3	59.5	54.5	51.3

Source: Field Data

More assessment was done on the learning by doing activities through various instructional materials and a control without any material. The obtained results in Table 4 shows that children performances were higher in classes where teachers prepared instructional materials and recorded inform of video than in the rest classes. Classes with downloaded video followed and those without instructional materials was the last. Obtained results were as in Table 4 below:

Table 4. *Number of Pre-primary School Children Performance in Doing Activities (N=80).*

S/N	Tested areas	With downloaded video of instructional materials	With class teacher-recorded video of instructional materials	With class teacher hand-made and audio instructional materials	With class teacher hand-made instructional materials
1	Drawing of Cat and Tree	54 (67.5%)	72 (90%)	36 (45%)	18 (22.5%)
2	Modeling house	64 (80%)	73 (91.3%)	42 (52.5%)	22 (27.5%)
3.	Painting drawing of a Hare	76 (95%)	66 (82.5%)	46 (57.5%)	37 (46.3%)
4.	Molding of a Car	78 (97.5%)	76 (95%)	64 (80%)	34 (42.5%)
5.	Matching (i) An egg (ii) Moon (iii) Mushroom	51 (63.8%)	56 (70%)	38 (47.5%)	12 (15%)
6.	Sum	323	343	226	123
7.	Average	64.8	68.6	45.2	24.6

Source: Field Data

Pre-primary children performances in arithmetic learning activities were done in the same procedures as previous test. Results in Table 5 shows that performance was higher in classes where teacher prepared recorded video (64.8), followed by downloaded video (59.2) than in the rest two with teacher hand-made instructional materials (47.6) and in classes with no materials (24) in average.

Table 5. *Performance of children in Arithmetic's (N= 80).*

S/N	Tested areas	With downloaded video of instructional materials	With class teacher-recorded video of instructional materials	With class teacher hand-made and audio instructional materials	With class teacher hand-made instructional materials
1.	Counting 1 to 10	62 (77.5%)	60 (75%)	42 (52.5%)	28 (35%)
2.	Tracing numbers 5 to 10	76 (95%)	64 (80%)	48 (60%)	16 (20%)
3.	Writing numbers 0 to 10	44 (55%)	58 (72.5%)	38 (47.5%)	20 (25%)
4.	Relating numbers from the cards	54 (67.5%)	68 (85%)	52 (65%)	34 (42.5%)
5.	Imitating choosing right numbers 1 to 10	60 (75%)	74 (92.5%)	58 (72.5%)	22 (27.5%)
6.	Sum	296	324	238	120
7.	Average	59.2	64.8	47.6	24

Source: Field Data

Three groups of children in each school were assessed in their learning and understanding in three subject areas namely: Reading, Counting and Numeracy. Teachers were allowed to integrate technology in the teaching of mentioned subjects. Instructional material consisted of Video-based games with content of reading, counting and numeracy related to curriculum content were administered in pre-school classes. Three classes were considered: The first class (control) children were taught without instructional material; the second classes were taught with instructional material that comprised of Video-based games downloaded directly from the internet and the third classes were taught with instructional materials that comprised Video-based games that were planned, designed by pre-primary teachers in cooperation with a researcher by using Tanzania pre-primary school curriculum. The average of the obtained learning outcomes in three classes in each school were as shown in Table 5.

More assessment was done by setting pre-test and post-test to pre-primary school children in both Kinondoni and Bagamoyo districts. Areas tested included: Reading words, pronouncing, counting, drawing and writing of words. Teachers taught in the selected classes with instructional materials in some classes and without materials as can be seen in Table 6. The obtained results shows that pre-primary school children in classes where instructional materials were not used performed higher in Kinondini than in Bagamoyo districts. Also in classes where recorded instructional materials prepared by teachers were not used performances were higher in Kinondoni district than in Bagamoyo. But where instructional materials downloaded were used performances averagely were higher in Bagamoyo than in Kinondoni district. Performances were also higher in Bagamoyo district than in Kinondoni in classes where recorded instructional materials were employed by teachers.

The assessment of pre-school children performances in both districts Kinondoni and Bagamoyo when comparing averages, the result shows that children taught with the integration of downloaded instructional materials inform of video scored higher in Kinondoni district (59.6) than class without material (32.8). Also in classes with downloaded instructional materials in Bagamoyo performance was high (63.2) than class without materials (37.6). The same trend for recorded instructional materials in Kinondoni was high (69) than without materials (42.6). In Bagamoyo recorded instruction material classes showed high performances (73) than classes without recorded instructional material (37.6). In general results of pre-test average performance showed to be low (32.8, 19.6, 42.6 and 37.6) if compared with post-test average performances (59.6, 63.2, 69 and 73) in both Kinondoni and Bagamoyo district pre-primary school classes. The results implies that instructional materials when integrated in the teaching learning processes to children increases their understanding and performances.

Table 6. *Performances of Pre-primary School Children in Various Learning Activities (N=80).*

Instructional materials employed								
Pre-test Post-test								
Areas tested	**Without downloaded video Kinondoni schools**	**Without downloaded video Bagamoyo schools**	**Without recorded video Kinondoni schools**	**Without recorded video Bagamoyo schools**	**With downloaded video Kinondoni schools**	**With downloaded video Bagamoyo schools**	**With recorded video Kinondoni schools**	**With recorded video Bagamoyo schools**
Reading words	36 (45%)	20 (25%)	33 (41.3%)	27 (33.8%)	44 (55%)	68 (85%)	71 (88.8%)	77 (96.3%)
Pronouncing	28 (35%)	14 (17.5%)	37 (46.3%)	39 (48.8%)	62 (77.5%)	54 (67.5%)	68 (85%)	65 (81.3%)
Counting	50 (62.5%)	26 (32.5%)	43 (53.8%)	35 (43.8%)	70 (87.5%)	74 (92.5%)	73 (91.3%)	74 (92.5%)
Drawing	24 (30%)	24 (30%)	49 (61.3%)	37 (46.3%)	76 (95%)	62 (77.5%)	66 (82.5%)	79 (98.8%)
Writing	26 (32.5%)	14 (17.5%)	51 (63.8%)	50 (62.5%)	46 (57.5%)	58 (72.5%)	67 (83.8%)	70 (87.5%)
Sum	164	98	213	188	298	316	345	365
Average	32.8	19.6	42.6	37.6	59.6	63.2	69	73

Source: Field Data

The analysis of obtained results in classrooms where instructional materials were used with those where materials were not used in the same districts showed that averagely the performance was higher in class with teacher prepared recorded videos. In Kinondoni for instance, downloaded video had (59.6) while recorded video had (69). In Bagamoyo, downloaded had (63.2) while recorded video had (73). These results implies that pre-school primary children learn and understand more in a class where teachers prepared, recorded instructional materials inform of video were used than in the rest classes. That is, children believe and imitate what they experience to their teachers than other people or materials. Also results shows that there is a difference in performances between classes taught without instructional materials and those taught with materials. For example, in Table 6 Kinondoni classes without downloaded and downloaded materials were (32.8) and recorded (59.6). The performance was high where materials were used. Classes without recorded video had (42.6) and those with recorded video had 69. The differences in performances confirm the contribution of instructional materials in the learning processes of pre-primary school children. The same was obtained for Bagamoyo district where classes without downloaded instructional materials had (16.9) and those with downloaded materials had (63.2). Classes without recorded video had (37.6) while those with recorded materials had (73). The findings in Table 7 reveals the need of integrating instructional materials in teaching-learning processes.

Table 7. *Comparison of the average (arithmetic mean) performances in Kinondoni and Bagamoyo.*

Instructional materials used	**Without downloaded video Kinondoni schools**	**With downloaded video Kinondoni schools**	**Without downloaded video Bagamoyo schools**	**With downloaded video Bagamoyo schools**	**Without recorded video Kinondoni schools**	**With recorded video Kinondoni schools**	**Without recorded video Bagamoyo schools**	**With recorded video Bagamoyo schools**
Sum	164	298	98	316	213	345	188	365
Average	32.8	59.6	19.6	63.2	42.6	69	37.6	73

More analysis of pre-school children learning and performances in Table 8 shows that in both districts Kinondoni and Bagamoyo pre-school children had different performances in the teaching-learning processes of curriculum content. Analysis of obtained averages shows that Bagamoyo pre-primary school children performed higher than Kinondoni children. Results in Table 8 shows that Kinondoni pre-primary school children performed lower if compared with those in Bagamoyo in both classes with downloaded and recorded instructional materials. For instance, in Kinondoni with downloaded video they performed (59.6) while in Bagamoyo with downloaded video they had (63.2). In Kinondoni with recorded materials they had (69) while in Bagamoyo with recorded materials they had (73). These results implies that children understand well through classrooms where teachers prepared materials and recorded inform of video.

Table 8. *Pre-primary school children performance basing on the learning environment and instructional materials.*

Instructional materials used	**Without downloaded video Kinondoni schools**	**Without downloaded video Bagamoyo schools**	**With downloaded video Kinondoni schools**	**With downloaded video Bagamoyo schools**	**Without recorded video Kinondoni schools**	**Without recorded video Bagamoyo schools**	**With recorded video Kinondoni schools**	**With recorded video Bagamoyo schools**
Sum	164	98	298	316	213	188	345	365
Average	32.8	19.6	59.6	63.2	42.6	37.6	69	73

Source: Field Data

The overall findings in pre-test and post-test indicates that children who were in classes without instructional materials performed lower and took long time to understand taught content, while children who were in classes with video-based technology performed high and within short time. But children who were in classes where teacher prepared and recorded instructional materials inform of video performed higher than all other classes. Children in Bagamoyo district performed higher than those in Kinondoni district. These findings revealed that technological instructional materials are vital tool to foster students' learning for understanding.

Teachers responses from questionnaire on the experiences instructional materials in their daily to daily teaching reveals that, teachers were not implementing materials related to technologies. Results shows that, only 1 (12.5%) out of eight teachers agrees to have used to download video for teaching purposes. Majority, 8 (100%) strongly disagree that they had not used video tape of their own prepared lesson to teach their classes. Moreover, only 2 (25%) agreed that they used television in teaching but the rest were not. Many of them 5 (62.5%) agrees that they use books, charts, cards in teaching. All teachers 8 (100%) participated in this study strongly agreed that they normally teach by using various materials. These findings implies that pre-primary school teachers employ materials which are not related to technology but mostly they use books and cards which are recommended in the syllabus.

Table 9. *Teachers' experienced instructional materials in pre-primary classes.*

Items	Strongly agree	Somewhat agree	Neither agree or disagree	Somewhat disagree	Strongly disagree
I normally teach by using various materials	8 (100%)				
I use materials prescribed in the syllabus		1 (12.5%)	7 (87.5%)		
I use materials from around environment	1 (12.5%)	1 (12.5%)	5 (62.5%)		
I used to download video and use in teaching		1 (12.5%)	1 (12.5%)	2 (25%)	4 (50%)
I used video tape of my own prepared lesson to teach I classroom					8 (100%)
I used television in teaching		2 (25%)	2 (25%)		4 (50%)
I used radio to allow my learners listen and learn		3 (37.5%)	2 (25%)	3 (37.5%)	
I use books, charts, cards in teaching	5 (62.5%)	1 (12.5%)	2 (25%)		
I know to search content from internet for my class		1 (12.5%)	2 (25%)	3 (37.5%)	2 (25%)
I used to take my class outside to observe materials and learn	1 (12.5%)	2 (25%)	3 (37.5%)	2 (25%)	
Total	15	12	24	10	20

Source: Field Data

6. Discussion

The emphasis of pre-primary education in Tanzania is for teachers to help children develop various competencies from the curriculum content they teach them [4]. The Tanzania government through its educational officials requires pre-primary school teachers to enable pre-primary school children meet their physical, intellectual, emotional and socially develop, become curious, inquisitive, creative and participate fully in learning processes [4]. In order to achieve these directives, teachers are required to employ instructional materials of various type they have in place including those recommended in the pre-primary school curriculum.

This study explored on the implementation and implication of technological instructional materials and learning environment used by teachers in improving pre-primary children understanding of curriculum content taught. It is stated in the Tanzania pre-primary teachers guide that teachers were to interpret and implement the pre-primary curriculum and syllabus effectively [4]. Findings obtained in schools showed that lack of teaching qualifications among pre-school teachers influence their role in teaching. The quotes made to a teacher who said that had no syllabus and can't prepare lesson plan, that teaching practice is danger professionally. A teacher of this nature can hardly interpret curriculum language and guide children into development of competencies as it is recommended by the government. Findings in Table 1 reveals that many 4 (50%) pre-primary school teachers had no teaching professional they were just applying experience. Others were direct from schools without any profession. To support this evidence, [11] noticed that the pre-primary school children in Tanzania are not conversant with the newly developed competence-based curriculum. Teacher's knowledge of interpreting curriculum tools and therefore lack effectiveness of teaching pre-primary education.

Findings from Table 2 shows that pre-school classes were overcrowded especially in government schools. As one teacher noticed through open ended questions from questionnaire that, she was unable to integrate instructional materials because of the class size. She said that she used much time in directing children on how to write, read and count one by one hence materials were used according to what you intend to one child.

The results in Tables 3 to 8 revealed that instructional materials which were inform of video were appropriate to children learning. The classes where instructional materials inform of video used children performed higher in various learning activities of the curriculum content than in other classes without video. For instance, Table 3 shows that children were able to pronounce words, tracing words, repeating words pronounced by teachers, retrieving and remembering words easily in video showing classes than in

audio and non-material classes. The same observed in Table 4 and 5 were children were able to draw, modeling, painting, molding, matching items and counting, tracing numbers, writing, relating objects, imitating respectively. In the experiment of pre-test and post-test in Table 6 of teaching without and with instructional materials inform of video downloaded and teacher made also showed the same trend that teacher-made lesson and recorded as video was the best tool to increase children understanding of content than downloaded video. In general findings shows that instructional materials which were prepared by professional teacher and recorded as video were found to be more appropriate than downloaded though both seemed to be appropriate materials for teaching young children.

It is pointed in the Tanzania pre-primary school teacher guide that when appropriate teaching-learning materials are used in teaching young children, the child easily grasp the concept being taught, arouse interest in learning, become curious and inquisitive [4]. Moreover, the guide pointed on the qualities of such good instructional teaching-learning materials that include: should be developmentally appropriate to children's age and abilities, should be clean and safe to children, should be attractive, should enhance children's curiosity and inquisitiveness, should be firm and durable, should promote the development of the intended concepts and should be sizeable and visible [4].

Basing on the qualities pointed in the teacher guide and relate with the videotaped as an instructional materials for teaching young children it is with no doubt that it fulfils the mentioned needs if it is well planned. The video tape as an instructional material is effective if it is planned by a professional teacher who can follow all principle of teaching, ethics, methodology and theories of child development [2, 11, 15] pointed that technology has the potential to increase the quality of learning and teaching process however, the barriers among others has been teachers attitude of integrating technology because majority lack pedagogical skills. Findings and results in this study showed that teacher prepared and recorded videotape was superior tool than downloaded video. This is because the pre-primary school teacher who planned the lessons used in this study employed examples and activities from children own environment. Children were able to understand easily because they watched video showing things they experienced in their environment. This was different with downloaded video which were good but the examples and activities watched were from different environment they didn't experience before. So, instead of grasping knowledge and skills, some children were amazing of what they watched as were new to them. Some were enjoying pictures and some teachers were using fluent English which they were not familiar with. Probably, it was the reason why teachers prepared and recorded videotape was the best material to increase children understanding.

The Tanzania pre-primary curriculum among other instructional teaching learning materials pointed on the videotape to be employed by teachers. In relating with audio tapes of the same curriculum content taught through video tapes, findings in this study shows that was not so good in increasing children understanding. Results in Tables 3 to 8 reveals that children when learn by listening without observing they take long time to build understanding. However, when accompanied with hands-on teacher made materials improve children activeness and participation in the learning processes though not to such extent as video tapes do. These findings agrees with what was observed by [6] who explored the perceived efficacy of teacher-made instructional materials in promoting learning among mathematics disabled children in the primary schools. Findings of their study indicated that pupils prefer visual aids. The visual instructional materials increases pupils ability in recalling, learn faster, achieve more and prefer contact with teacher-made instructional materials among other items [5]. Visual aids are like videotaped learning materials and activities which are watched direct by children as in this study. Videotaped is good even for disabled children especially those with visual impairment as they can listen audio and get the concept.

The study realized that video tape is good but because children cannot touch the watched things the participation and activeness was somehow down compared to the class where teacher used real materials. But all in all, the good colour of the video, varied materials that showed reality, directives given by teachers to all class and activities directed to whole class found appropriate to increase children understanding. Also among other teacher-made instructional materials videotapes was found to be above the rest materials used by teachers in this study. Classes which teacher taught without instructional materials showed slowness, difficult in understanding, low participation, noisy, much shouting in repeating teachers' taught words and hardly understand curriculum content. This finding was similar to what was found by [8] that teaching methods ad material employed by teachers impact of children's' understanding of taught knowledge.

More evidence from teachers themselves in Table 9 shows that teachers were using much effort to teach pre-primary school children various content of the curriculum. Obtained teacher responses in Table 9 shows that they lacked knowledge and skills in implementing instructional material materials appropriate to pre-primary school children, This finding agree with what [10] pointed that pre-primary teachers in Tanzania had little knowledge regarding early childhood education and the instructional practices they experienced were unsatisfactory. Teacher's responses showed that many 5 (62.5%) use books, charts and cards in teaching curriculum content. Children need materials which are attractive like colours of the videotape, varied activities which can be displayed easily through video than manila card or books. Teachers response in Table 9 reveals the hard task teacher have in enabling children understand how to write, read, count, draw and other activities.

Learning environment is also the factor related with children learning for understanding. [6, 13] established that

learning is a change in behavior of a learner due to environmental and developmental influence. In other words, the interaction of an individual with the environment lead to the change of behavior either positively or negatively. The response to positive and negative environment can be fostered by presence of supporting instructional materials. [6, 14] added that teacher-made instructional materials act as motivator to children learning processes. In this study children from Bagamoyo district showed to perform higher than those in Kinondoni. The two district are located in different geographical areas. Kinondoni is in Dar es Salaam city were children are very familiar with many things including watching videotapes. Bagamoyo is somehow in peripheral where some children do not get such opportunity of watching video and their environment are local. The lesson prepared by teachers and taped and the downloaded video showed higher performances in Bagamoyo because to children everything was almost new thus they built more interest in learning than those in Kinondoni who experienced the observed content through video. [5] Established that children grow and develop in the most natural way to obtain holistic development hence there is a need to find appropriate support of their learning process.

7. Conclusion

The results from this study have shown that teacher hands-on prepared and recorded instructional materials inform of video was highly useful in improving pre-school children learning skills for understanding. Videotape technology when integrated in the teaching as instructional material it makes children use all sense organs in learning and therefore through visualizing, watching, listen children build interest, become active, engaged, participate fully in learning, become curious, creative thinker and understand curriculum content faster. Therefore, videotape is the appropriate instructional materials for young children learning for understanding.

References

[1] Education and Training Policy [ETP], (1995). Education system in Tanzania. Dar es Salaam.

[2] United Republic of Tanzania [URT], (2017). Pre-primary, primary and secondary education statistics in brief Dar es Salaam: Presidents' Office, Regional Administration and Local Government. Dar es Salaam.

[3] Ministry of Education and Vocational Training, (MoEVT), (2005). Ministry of education, science and technology: Education sector development plan. Tanzania Mainland.

[4] Tanzania Institute of Education [TIE], (2016). Teacher's guide for pre-primary education. Ali Hassan Mwinyi Street. Dar es Salaam. Tanzania.

[5] Achola, R. O; Owino, C. G & Benson, O. (2016). Implications of instructional materials on oral skills among early childhood learners in central zone, Kisumu County, Kenya. International Journal of Educational Policy Research and Review. Vol. 3 (2), pp. 20-28.

[6] Igbo, J. N., & Omeje, J. C. (2014). Perceived efficacy of teacher-made instructional materials in promoting learning among mathematics-disabled children. April-June: 1-6 DOI: 10:1177/2158244014538431 SAGE OPEN.

[7] Shukia, R. (2014). Learning and teaching to read in Kiswahili in pre-primary classes in Tanzania: Teachers beliefs and institutional practices. Lnnaeus University Dissertations No 191/2014. ISBN: 978-91-87-925-18-4.

[8] Shofoyeke, A. D. (Ed.). The impact of teaching methods on pre-primary school pupils learning achievement in protection issues in selected Nursery and primary schools in Ondo West Local Government. Journal of Elementary Education. Vol. 25, No. 2 Pp 45-60.

[9] Davis, J. (2014). Children's learning and technology. https://www.learning4kids.net/wp-content/uploads/2014/04children-learning-and-technology.jpg

[10] Mabagala, D & Shukia, R (2019). Pre-primary education in Tanzania: Teachers' knowledge and instructional practices in rural areas. Open University of Tanzania and University of Dar es Salaam Tanzania. Huria Journal Vol. 26 (1), 2019.

[11] Mtahabwa, L & Rao, N. (2009). Pre-primary education in Tanzania: Observations from urban and rural classrooms. International Journal of Education Development. Elsevier Ltd.

[12] Cubukcuoglu, B. (2013). Factors enabling the use of technology in subject teaching. International Journal of education and development using ICT, 9 (3): Open Campus, The University of the West Indies. Retrieved Dec. 27, 2022 from https://www.learntechlib.org/p/130273/.

[13] Hopper, S., & Rieber, L. P. (1995). Teaching with technology. In A. C. Ornstem (Ed), Teaching: Theory into practice (pp. 154-170). Needham Heights, MA: Allyn and Bacan.

[14] Killinc, E., Kilinc, S., Kaya, M., Baser, E., Er Turkuresin, H. & Kesten, A. (2016). Teachers' attitudes'toward the use of technology in social studies teaching. Research in social science and technology, 1 (1); Retrieved Dec, 27, 2022 from https://www.learntechlib.org/g/187550

[15] Becky, S; Stephanie, C; Lawrence, L; Jennifer, A; Nicholas, L & January, A. (2000). Teachers' tool for the 21st C: A report on teacher's use of technology statistical analysis report.