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Audio-Visual Media Instructional Use and Its Effect on Reading Competences Among Grade Two Pupils in Tharaka Nithi County, Kenya

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ABSTRACT

The main purpose of this study was to evaluate audio visual media instructional use and its effect on reading competences among grade two pupils in Maara sub county, Tharaka Nithi County, Kenya. The study sought to identify the audio-visual resources available for teaching and learning reading competences, investigate extent to which teachers use the available audio-visual media, examine the challenges faced by teachers and learners in use of audiovisual media in teaching and learning reading competences and assess the learners reading abilities. The French Bell system Theory and a descriptive survey design were adopted in this study. Simple random and purposive sampling techniques were used to select 330 learners, 30 head teachers and 30 teachers, making a sample size of 390 respondents. The research instruments were questionnaires, interviews schedules, reading examination for grade two learners and classroom observation. Piloting of the research instruments was done in one public primary schools. The reliability of the research instruments was measured using a Cronbach's Alpha statitistic. The collected data was analyzed using Statistical package for Social Sciences (SPSS) and presented using tables, percentages frequencies and other descriptive statistics. Descriptive statistics revealed that schools have limited computers (average 2.90 per school) with a low student-to-computer ratio (1:10). Tablets are more prevalent (average 19.17 per school), but functionality issues reduce their effectiveness. Projectors and mobile phones are more commonly available but are still not sufficiently utilized in classroom learning. The data on the competence of learners to read appears to be symmetrically distributed with the competence of learners tapering off at the tail ends. This implies that most of the learners on average could read between 21-69 words per minute. However, there are significant disparities in reading abilities among learners, with a notable percentage performing below expectations. This disparity highlights the need for targeted interventions to support learners who are struggling and to bridge the competence gap across different schools. The reliability statistics for variables testing on teacher's attitude in the use of Audio-visual media, for variables testing on challenges in the use of audio-visual media and for variables testing on the classroom observation performance indicators, were 0.969, 0.981 and 0.944 respectively. The reliability statistics on all the research instruments was 0.990. A Cronbach's Alpha of 0.70 (70%) or higher reveals a strong internal consistency of a series of questions integrated to form a single scale measured by the coefficient. The

study recommends the government to integrate digital learning in schools and ensure schools are fully equipped with an access to electricity and network connectivity. Ministry of Education to develop teachers' capacity on the use of digital devices. The study also recommends the Kenya institute of Curriculum Development to develop a curriculum in line with competency based curriculum provided in digital devices. Lastly curriculum support officers and head teachers to support teachers to make use of available audio visual resources for teaching and learning.

Keywords: Audio-Visual Media , Reading Competences , The French Bell System Theory , Descriptive Survey Design, Research Instruments, Piloting, Cronbach's Alpha

1.0 INTRODUCTION

French and Bell systems theory, which was developed in 1999, served as the main guide in this study. The idea acknowledges the interdependence and interconnectedness of the various components of a system in the context of a wider environment. However, in order to accomplish the necessary change in output, the input must change. Teachers, students, teaching and learning resources must interact and rely on one another in order to achieve the intended result in a school system.

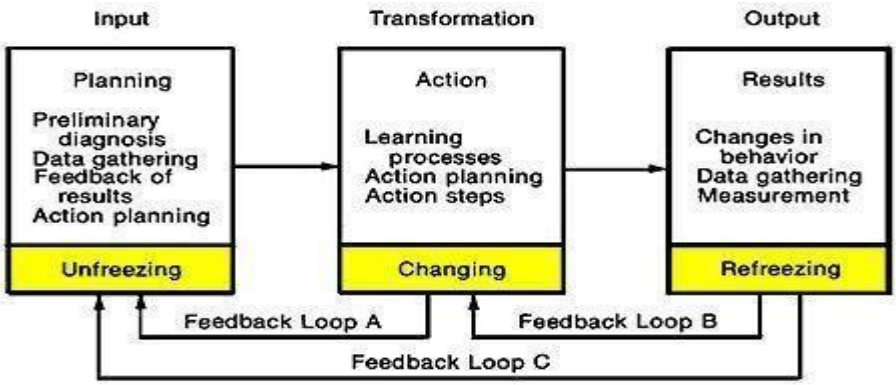

Figure 1.1 French and Bell systems theory

The implementation of a critical component in the environment is made clearer by the open system theory, which also highlights the significance of effort and raw materials. In this research, our environment is the school system, the output is reading competences. For this output to be achieved there must be interaction and interdependence between the audio-visual materials which are the instructional aids, the teachers and the learners. In the classroom environment, the teacher has to use the relevant teaching and learning materials in order to transform or rather bring a change to the learners who have reading difficulties to become better readers. Teachers must provide resources such as audiovisual materials because these help learners to learn and retain concepts better and longer for they use multiple senses (hearing and seeing), help the teacher create an environment that is best for reading instruction, and are the best at helping learners to learn.

Research on reading competency has been done widely in many parts of the world at different levels of learning. the research studies have revealed that the ability to read in lower grades helps the learner to have a better progress in upper classes and in their future educational life. Learners who do not acquire reading skills during early grades are on a lifetime problem since they will have limited education progress and therefore limited economic opportunities. A learner who fails to acquire the skill of reading

in early grades, may find reading boring and fail to achieve in education life (Mondero,2009). Rose and Martin (2012) states that failure to learn and communicate effectively through reading and writing hinders learning hence poor academic performance. Inability to read in lower grades might cause challenges in higher levels of education and one may fail to comprehend concepts, competences and new knowledge during instructions processes hence fail to succeed in school life (Metzner et al, 2017). The UN reports that one among four young people in developing nations is illiterate. This is due to a poor reading foundation in the early grades. An analysis by UNESCO published on Wednesday, January 29, 2014, states that 175 million adolescents do not even possess the most fundamental reading and writing skills. As per the survey, over 75% of the world's illiterate adults are found in ten countries: India, China, Pakistan, Bangladesh, Nigeria, Ethiopia, Egypt, Brazil, Indonesia, and the Democratic Republic of the Congo (DRC). This statistic has remained consistent for decades. This is as a result of inadequate reading competences

According to a global literacy report, 86% of the world's population, or 774 million people, cannot read or write. According to a UNESCO assessment from 2018, 258 million children are illiterate. (Literacy is the capacity to read). Research indicates that in developing nations, one youngster out of every four is illiterate. Due to poor reading abilities, South Asia and Sub-Saharan Africa have the lowest rates of adult and child literacy. Reading challenges are a problem in both developed and underdeveloped nations. Sixty-five percent of fourth grade learners in the US read at or below the basic level. According to the Department of Education in the United Kingdom (UK), one in every five youngsters in England do not read by the time they are eleven years old.

The lowest rates of literacy worldwide are seen in South Asia and Sub-Saharan Africa (UNESCO, 2013b).According to the Uwezo assessment, nearly one-third of adults in Sub-Saharan Africa are illiterate (Uwezo, 2013).The reading efficacy rate in African schools is the lowest globally (UNESCO, 2013b), in both primary and early grade reading performance is not achieved across the board (Trudell et al.2012b).According to African countries curricula, African learners lack the most important abilities of reading and numeracy (Uwezo, 2013). Early Grade Reading Assessment (EGRA) findings in Africa demonstrate a relatively low level of fundamental reading ability in grade two and three. The first EGRA was held in Mozambique in 2010. It was reported that nearly 59% of grade three students could not read a single word correctly (Aldeman et al,2011).

In 2014, Kenya, Malawi, Mozambique, South Africa, Tanzania, Uganda, and Zambia were among the fourteen nations that the South and Eastern Africa Consortium for Monitoring Educational Quality (SACMEQ) assessed. The only countries where more than 10% of sixth-grade students achieved pre-reading proficiency were Malawi, South Africa, and Zambia. Tanzania and Kenya had the lowest percentages of pre-reading scores compared to all other nations. During Literacy Boost Program (LBP) in 2009-2010, research conducted in Malawi revealed that 85% of learners in grade two could not read a single word in a sentence accurately.

The greatest way for children to learn is by seeing and imitating how their parents, teachers, and other adults behave .Therefore, it is evident that improving sensory experiences enhances learning. Picture, slide, video, and other audio-visual tools enhance sensory experience.. Audio visual has both a sound and a visual component. Since Audio-visual presentations are intended to promote comprehension and learners' ability to recall, Audio visuals instructional use enhances a successful lesson and provide learners additional ways to absorb subject information. (Kunari, 2006).

Despite increasing school access and enrolment, literacy roles in elementary schools in Kenya are much lower than projected. Kenya's educational system is making an effort to improve student learning results through the use of better teaching techniques, more financing for teacher preparation, and the creation of instructional resources that support multilingual literacy_Despite the effort made by the MOE, research has shown that reading abilities of pupils in primary schools is still low ,Njabani (2016..Reading competences would lead to better performance in other subjects given that the basic instructional language in the country is English, "KNEC 2023".A pertinent question one would ask at this juncture ,would be how best teachers teach reading to pupils in lower primary. It would then be cost effective for the studies to be conducted in this area. This study therefore investigated how teachers use media, specifically in audio visual for instruction of reading competences by the pupils in lower public primary schools in Tharaka Nithi County, in Kenya. . Rresearch that was carried out by Njabani (2016) in the same county on reading abilities showed that some learners could hardly read and understand materials of their level and recommended further studies on methods of teaching reading in lower grades

The conceptual framework depicted in Figure 2 demonstrates how the variables under consideration in this study relate to and influence one another. When the learners and teachers interact with AVs during reading, learners achieve more reading competences than when using a resource with one sense.

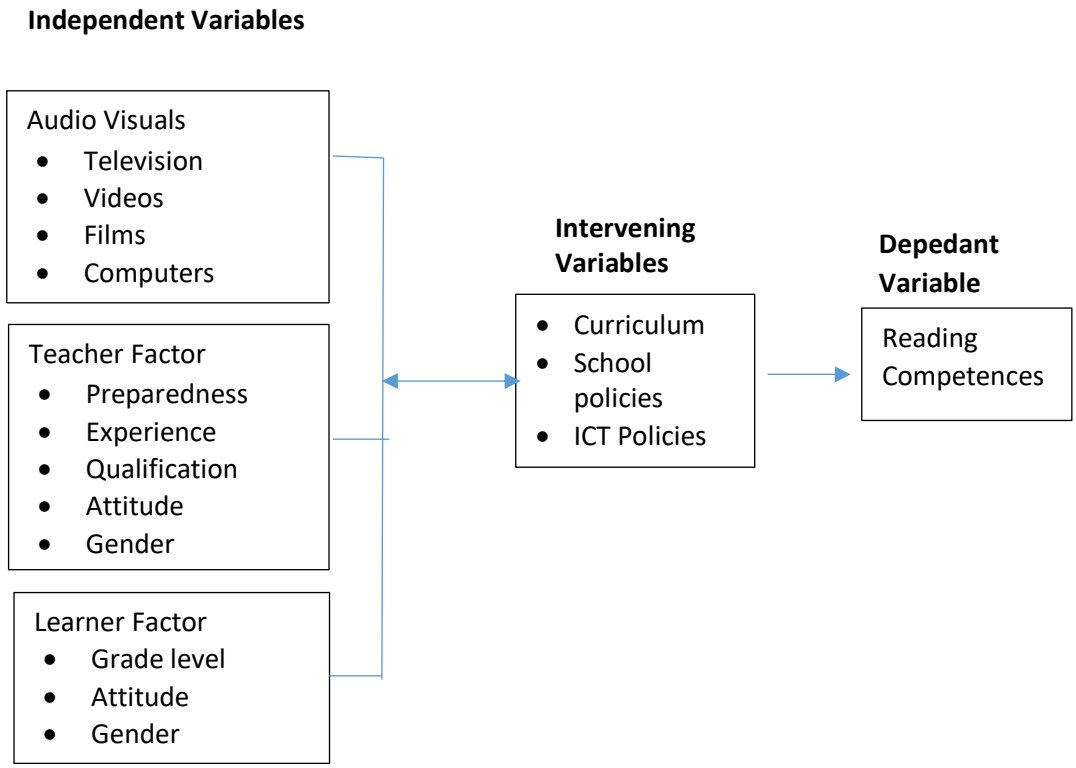

Figure 1.2: Illustration of how the variables under consideration relate to and influence one another

The broad objective of this study was to investigate audio-visual media instructional use and its effect on reading competences among grade two pupils in Maara Sub County,Tharaka Nithi County.The research study was guided by the following specific objectives;

1. To establish the audio-visual resources available in schools for teaching and learning reading competences in Maara sub county,Tharaka Nithi County

2. To determine the extent to which the teachers use audio visual resources in teaching and learning reading
3. To find out the challenges faced by teachers and learners in use of audio-visual resources in teaching and learning of reading in schools.
4. To examine the reading abilities among grade two pupils

2.0 MATERIALS, EQUIPMENTS AND METHOD

2.1 Materials and Equipments

Questionnaires, Reading test, Classroom observation forms, Observation checklist and Head teacher, Grade 2 teachers and Grade 2 learners..

2.2 Research design

This study adopted a descriptive survey design. Descriptive survey is a method of collecting data that entail interviewing a sample of people or distributing a questionnaire to them (Orodho 2003). Kothari (2004) states that describing a person or group's characteristics is the aim of descriptive research studies. The descriptive survey approach was effective for this study because allowed it enabled the researcher to gather data from individuals who are firsthand experience with the issue under investigation .Additionally, the survey design made it feasible for the researcher to cover a vast area with representative sample that was generalized to the entire population, something that would not have been possible otherwise due to its intensiveness.

By carefully selecting a sample of the population, who are all regarded as informants., survey design is used to gather data and extrapolate the respondents' responses to the entire population (Krathwohl, 1997). The researcher chose to employ the survey approach for the current investigation due to its flexibility in addressing problems. Furthermore, the descriptive design was used in this study because of its appropriateness in establishing relationships between variables and making the collection of information easier for determining the population parameter. Data was gathered using both quantitative and qualitative methods, including closed- and open-ended questionnaires.

2.3 Target Population

Maara Sub County has a total of 105 public primary schools. This consists of 100 day public schools with both lower primary and upper section and five (5) primary boarding schools without lower primary section, but have upper section only. The target population for this study was 3100 grade 2 learners (1895 girls and 1205 boys), 110 grade 2 teachers (88 females and 22 males) and 100 head teachers of all the 100 public day primary schools with both lower and upper primary in Maara Sub county.

2.4 Sampling Technique and Sample Size Determination

This research used various methods /techniques to sample the respondents. First, the researcher used simple random technique. For the purpose of the learners test (short passage), the research used class list to pick eleven learners randomly from each of thirty selected schools, making a total of 330 learners representing 10% .All schools had one stream except two schools that had double streams. Purposive sampling was done to select 30 grade two teachers only, because they are information reach which is equivalent to 27 %.Simple random sampling was done by blindfolding and selected 30 schools (28%), whereby names of the schools were written on each paper, then folded and picked randomly 30 paper bearing names of the schools. Likewise, Thirty head teachers (30%) were purposively sampled. According to Gay's (2003) recommendations, educational research should have a minimum sample size

of 10% when the target audience is large or small (more than 1000 members), and 20%–30% when it is tiny. The above information is presented in the table 2.1

Table 2.1: Sample Size

Categories	Target population	Sample size
Grade 2 teachers	110	30
Grade 2 learners	3100	330
Head teachers	100	30
Total	3310	390

2.4 Research Instruments

In this study the instruments used to collect data were: the teachers' and headteachers questionnaires, reading test, direct classroom observation, observation checklist and Head teachers' interviews.

2.4.1 Questionnaire for Teachers

A questionnaire designed for teachers of second grade was utilized by the researcher. The questionnaire can gather a lot of data in a manageable amount of time (Orodho, 2009). According to Kathuri (2004) questionnaire are low cost, freedoms from the interviewer's bias as well as answers come from respondents. The researchers used closed and open-ended questions weighed on Likert scale. The four (4) questions comprised of content based on the objectives of the study.

2.4.2 Interview Schedule

An interview schedule is "a set of questions that an interviewer asks when interviewing respondents," according to Orodho (2009). It is feasible to get the information needed to accomplish the particular goals of a study with the use of an interview schedule. The researcher used the interview schedule to collect data from head teachers regarding the audio-visual media available for teaching and learning reading

2.4.3 Observation Checklist

The quantity and variety of audiovisual resources accessible in the school were ascertained by the researcher through direct observation of the school inventory. The researcher obtained a list of all types of Audio-Visual resources that would be used to teach pupils in lower primary schools. The instrument was structured in a way that the researcher would just take in various sections which included the types, number available, those in functioning order and those in non-functioning status. The aim was to collect information about the types that were available and the adequacy of the resources based on the resource and the user ratio.

2.4.4 Grade two (2) Reading Test

Grade two reading exam was administered by the researcher and marked following the given marking scheme to test on the reading level of the learners. Learners were given a short simple passage to read within one minutes to check the number of words the learner can read in one minute and fluency according to their level.Thereafte,r they answered five questions orally from the passage to assess their level of comprehension

2.4.5 Classroom Observation Schedule

The research used direct observation schedule The researcher assumed a low profile so as not to unduly

influence observation. The observation was done to get a clear picture of how the teacher and learners use AV resources in teaching and learning. The instrument was structured in a way that it will give clear information on how effective AV resources were used in introduction of the lesson, content delivery, teaching methods, learner participation, classroom organization and in the conclusion of the lesson.

2.5 Pilot Study

The goal of a pilot study is to test the instruments and use the responses to refine them for the main research (Muus & BakerDemaray, 2007). It helps to discovers and addresses flaws in the research design and instrumentation, as well as any challenges discovered prior to administering the instruments to the targeted respondents. In this study, the pilot study was conducted in one public day schools within the sub county. The school was purposively selected because it had large population and located within the urban setting. This pilot study helped the researcher to improve on the face validity. To validate the test items further, the researcher submitted the research instruments to the experts for corrections and comments, suggestions and eliminate items that may bring out irrelevant responses in order to improve the content validity.

2.6 Data Collection Procedure

2.6.1 Administration of the Questionnaireand Reading test

The questionnaires were administered to the grade two (2) teachers and headteachers in their relevant schools. The teachers and headteachers responded to questions about some of the challenges they go through while using the media and extent to which teachers use audio visual aids. The researcher gave the learners the reading examination to read for one minute and then answer five questions orally in order to examine the reading abilities of learners in their level.

2.6.2 Conduction of interviews and Observations

The researcher interviewed the Head teachers on audio visual media available in the school. The researcher also carried out an observation of grade two (2) teachers as they do their teaching on grade two learners on reading in their classes and checked the audio-visual aids available from the inventory. This helped to cross check and affirm the information obtained from the questionnaires and interviews schedule.

2.3 Data Analysis

Quantitative analysis of the data collected was done by summarizing the data using descriptive statistics. The raw data was analyzed using computer software known as SPSS (Statistical Package for Social Sciences) in line with the following procedure: first each set of the three research instruments was given a serial number from the first to the last. Then for every set, a code was developed and consequently applied in coding all the research instruments. The findings were presented using descriptive statistics like mean, median, mode, percentages, frequency tables and bar charts.

Descriptive statistical analysis was carried out to determine the use of audio-visual media in teaching and learning reading competences in Maara Sub County from the perspectives of the respondents' feedback.

Qualitative analysis was carried out on open ended responses. Microsoft Excel was used to facilitate coding and interpretation of qualitative data.

3.0 RESULTS AND DISCUSSION

3.1 Response Rate

The study targeted to gather information from 30 head teachers and 30 teachers. Questionnaires and interview schedules were distributed to the respondents and all the instruments were filled in and returned. The study's response rate is as shown in table 3.1

Table 3.1 Response rate

Strata	Sample Size	Sample Response	Response Rate %
Head teachers	30	30	100
Teachers	30	30	100
Total	60	60	100

The review was done considering the consistency and legibility, and all the questionnaires and interview schedules were completely and correctly filled, showing overall response rate of 100%.

3.1.1 Demographic Data of Respondents

The demographic data of the respondents who participated in the study were sought from grade two teachers and their head teachers. Teachers filled the questionnaires while the head teachers responded to the interview and a questionnaire. The demographic data sought from the respondents was their age, gender, work experience and level of education.

3.1.1.2 Demographic Data of Teachers

Data on Table 3.2 shows there were 26 female teachers who made up 87% of participants, while there were 4 male teachers who made up 13% of participants. The finding shows that majority of the teachers were female are consistent with the observation that most schools had more female teachers than male teachers. This shows there is gender imbalance in the number of teachers teaching young learners in lower grades. There has been a disparity in the proportion of male and female elementary school instructors. It has been like an history that female teachers have dominated the teaching profession at the early grade levels and high school levels (BLS,2013). The results of the study corroborate the findings of the Bureau of Labor Statistics (BLS), which for 2013 reported that 81% of elementary and middle school teachers were women and just 19% were men.

The study's results from McGrath and Sinclair's (2013) survey indicate that parents and learners think men give male students "good role models" (p. 538). More research (Cushman, 2008; Gibbs, 2012; Gosse, 2011; Martin & Hartsh, 2005) revealed that there is a desire among kids, educators, parents, and community members for an increase in the number of male primary school instructors. There is need for more male teachers to be recruited in teaching profession. This will bring gender balance in early grades levels and middle school hence improvement in learners achievement because learners interest will be met. According to Cushman (2008), "young learners, especially boys, need male role models in their lives" (p. 123), hence more men should teach in elementary schools.

The study also sought to assess the age distribution of teachers. From Table 3.2 it can be observed that 11 teachers are between 21-30 years making up 36.7% of participants, 13 teachers are between 31-40 years making up 43.3% of participants, while six teachers are between 41-60 years making up 20% of participants. This is in agreement with Okolo (2009)who argued that younger university workers tend to be full of energy and vigor to carry out their academic duties without feeling fatigued than older counterparts. From the data it is clear that majority of grade two teachers are between 31-40 years

suggesting that schools depend on them for better teaching since they are young, energetic and well equipped with the current competency based curriculum.

The researcher also sought to understand how many years the teachers have been teaching in lower grades in the current school. The results show that four teachers who made up 13.3% of participants had taught for less than five years in lower grades in current school. There were 13 teachers who made up 43.3% of participants who had taught for between 5-10 years in lower grades in current school. Eleven teachers who made up 36.7% of participants had taught in lower grades in current school for between 11-15 years. There were two teachers who had been teaching in lower grades in current school for between 16-20 years and there was none for over 20 years. This concurs with the study done by Owalabi and Adebayo (2012) who discovered that the experience of the teacher significantly impacts the students' performance. These data suggest that all the teachers have adequate experience to deliver effectively teaching in lower grades to bring up learners who can read fluently and correctly.

Considering the level of education, 13 teachers who made up 43.4% of respondents had P1 level of education. There were 10 teachers who had a diploma level of education and they made up 33.3% of participants. There were six teachers who had a degree level of education and they made up 20.0% of participants. There were no teachers with a PGDE or PHD level of education and there was one teacher with a master's level of education. These data suggest that all the teachers are fully equipped with knowledge, skills and attitudes to teach learners the skill of reading and thereafter learners will have reading competences.

Table 3.2 Demographic Data of Teachers

Variable	Frequency	Percent
Sex		
Male	4	13.3
Female	26	86.7
Age		
21-30 years	11	36.7
31-40 years	13	43.3
41-60 years	6	20.0
Level of education		
P1	13	43.4
Diploma	10	33.3
Degree	6	20
Masters	1	3.33
PGDE	0	0
Period taught in lower grades in this school		
Less than 5 years	4	13.3
5 to 10 years	13	43.3
11-15 years	11	36.7
16-20 years	2	6.7
Over 20 years	0	0

3.1.1.2 Demographic Data of Head Teachers

The study sought to determine the headteacher's age, gender, work experience and educational attainment. Table 3.3 presents the results.

As presented in Table 3.3, 18 respondents representing 60% are male and 12 representing 40% are female. The findings show that there are more male head teachers leading primary schools than female head teachers. This can be attributed to the prevalence of males being considered as the heads of schools in our country hence there is gender disparity in favor of male in regard to headship of schools. The findings are in agreement with Researchers Cushman, 2008; Gibbs, 2012; Gosse, 2011; Martin & Harvey, 2005 discovered that community people, parents, teachers, and pupils desire more male instructors in primary school. The findings show that 12 of the head teachers representing 40% are between age 46-55 years, 10 of the head teachers representing 33 % are between 36-45 years and only 3 of the head teachers representing 10% are above 55 years. None of the sampled primary schools was headed by a head teacher of less than 36 years of age. This is in agreement with Oyeike and Jaja(2015) who discovered that the issue of realistic age limit for academic staff is irrelevant issue which has little or no effect on the standards of teaching ,learning and research in Nigerian universities. This implies that most schools are depending on school heads that are mature enough to manage the school set up.

Further, the researcher sought to find the level of education of the head teachers and found out that 10 teachers representing 33.3% are P1 holders,7 teachers representing 23.4% are diploma holders,10 teachers representing 33.3% are degree holders and 1 teacher representing 3 % is a holder of Masters degree. This indicates that all head teachers from the sampled primary schools had a formal qualification to head an institution and have knowledge expected of teachers in teaching as a career. This is in agreement with Rajovi and Radulovic (2007) who emphasized that undergraduate qualification does not necessarily increase a teacher's competency. It also concurs with Hamalick (2005), who explained that professional teachers are those who have taken teacher education program and have attained state certificate and have been experienced in teaching. Majority have higher education qualifications, this means they have professional knowledge and can come up with teacher professional support plan to improve teaching and learning hence bring up learners who have the skill of listening, speaking, reading and writing.

The study also considered finding out the teaching experience of head teachers in Maara sub county. As represented in table 4.3, most of head teachers have practiced teaching for more than 15 years. About 15 of head teachers representing 50% fall under the range of 11-16 years of experience,10 of head teachers representing 33% are in the range of 17-22 years and 5 of head teachers representing 17% are in the range of 23 years above. This is in agreement with Nwangwu (2006) who suggested that experience assists in developing the required social and intellectual skills. The findings clearly show that all head teachers have enough experience to manage the teachers and learners for learning to be smooth and effective

Table 3.3 Demographic Data of Head Teachers

Description	Frequency	Percent	Percentage Cumulative
Sex			
Male	18	60	60
Female	12	40	40

Total	30	100	100
Age			
Below 25 Years	00	00	00
26-35 Years	00	00	00
36-45 Years	10	33	33
46 -55 Years	12	40	40
Above 55 Years	8	27	27
Total	30	100	100
Level Of Education			
P1 Teacher	10	33.3	33.3
Diploma	7	23.4	23.4
Degree	10	33.3	33.3
Masters	3	10	10
Total	30	100	100
Teaching Experience			
Less Than 5 Years	00	00	00
6-10 Yrs	00	00	00
11-16 Years	15	50	50
17-22years	10	33	33
23 Years And Above	5	17	17
Total	30	100	100

3.3 Audio-visual Resources Available for Teaching and Learning Reading Competences

The study sought to identify the audio-visual resources available in schools for teaching and learning reading. The availability, functionality, and ratio of number of devices to number of pupils are shown on Table 3.4. The average number of computers per school was 2.90 with the highest number of computers available as 5 and the lowest number as 1. Among the available computers the average number of functioning computers was 2.47 and the average number of non-functioning computers was 0.43. The difference between the average number of available computers and the average number of functioning computers is marginal. This suggests most of the computers that have been availed to schools are functional. The average ratio of devices to users is 0.10 meaning one computer is shared by 10 pupils. This is a reasonable ratio but there is a need for additional resources to ensure teachers can provide personalized learning. In contrast, experts consider that 4 to 5 students per computer is an acceptable threshold for the successful use of computers inside the school, according to the Presidential Committee of Advisors on Science and Technology (1997, 21). In the US, the trend of the student-to-computer ratio is increasing to 1:1 (Maninger & Holden, 2009).They contend that this ratio allows for the optimal use of technology when each youngster has equal access to a technological device on a constant basis. This disagrees with 4 to 5 learners per computer. The ratio of 1:1 is the best ratio because learners learn at different pace and are of different abilities.This promotes differentiated learning

Availability of graphic organizers and smart boards was non-existent as none of the schools included in this study had a graphic organizer or smart board. This suggests policy makers do not consider graphic organizers and smart boards as an important audio-visual resource for learning. All the schools had a

single projector and most of these projectors were in a functional state. The average ratio of a projector to number of users is 0.04 meaning one projector is shared by an average of 25 learners. This is a reasonable ratio because a single projector can effectively serve such a large number of learners, considering that most of classes had between 35-45 learners. This is in line with Kenya's Education Act Cap 211, which stipulates that classes in elementary schools may have up to 50 students, secondary schools may have up to 40 students, and teacher colleges and intermediate colleges may have up to 30 students.

In some schools' computer games and software were available while in other schools they were not available. All the computer games and software availed to schools were in a functional state. The average ratio of users to computer games and software is 0.006 meaning on average 6 games and software are used by 100 students. This ratio is very low and there is need for additional computer games and software to be availed to schools in Tharaka-Nithi County.

Some schools had video tapes available while other schools did not have as shown by an average of 0.10 video tapes. All video tapes available were in a functional state. The average user ratio is 0.005 meaning 5 video tapes are used by an average of 1000 learners. This ratio is very low and there is a need to avail more video tapes to schools. An average of one mobile phone indicates each school had been provided with one mobile phone. An average of 0.17 televisions indicates some schools had a television while other schools did not have a television.

The average number of available tablets per school is 19.17 and the average number of functional tablets per school is 17.67. The noticeable difference suggests although schools have been provided with tablets, some are not functional for various reasons. This suggests a need for technical support to be availed to schools to ensure faulty devices are either repaired or replaced to ensure learning is not interrupted by technical hitches. The average user ratio is 0.68 meaning on average 68 tablets are used by 100 learners. This suggests there could be up to two learners that share a tablet and there is a need to additional tablets to be availed to ensure a 1 tablet to 1 student ratio. This is in agreement with Maninger &Holden (2009) who suggested that the capacity to fully utilize technology is attained when each youngster gets regular, equitable access to a technological gadget and therefore recommended the ratio of 1:1. Although some schools had as many as three radios, an average of 0.33 radios indicates most of the schools had one or no radio. All the radios availed to schools were in a functional state. The average user ratio is 0.01 which means on average one radio is used by 100 learners.

Comparison of various audio-visual resources revealed tablets had a high availability while computers had a low availability. Video tapes, television, graphic organizers, computer games and software, and projectors had a very low availability. Similarly, Nyambura, Khamadi,& Shinali (2019) found computers, projectors, television, radios and video tapes had a low availability in public schools in Kajiado North sub county. This can partially be attributed to lack of government initiative to supply these resources to schools. There is need for provision of more computers in schools.

Table 3.4: Available Audio-visual Resources

Types of Audio-visual media	Numbers Of media	Functioning	Non functioning	Ratio of User
Computers				
Minimum	1	1	0	0.05

Maximum	5	5	2	0.24
Mean	2.90	2.47	0.43	0.10
Graphic organizers				
Minimum	0			
Maximum	0			
Mean	0			
Projectors				
Minimum	1	0	0	0.02
Maximum	1	1	1	0.06
Mean	1.00	0.77	0.23	0.04
Computer games and software's available				
Minimum				
Maximum	0	0	0.000	0.000
Mean	1	1	0.048	0.048
	0.17	0.17	0.006	0.006
Video tapes				
Minimum	0	0		0.000
Maximum	1	1		0.048
Mean	0.10	0.10		0.005
Mobile phones				
Minimum	1			0.024
Maximum	1			0.056
Mean	1.00			0.036
Televisions				
Minimum	0			
Maximum	1			
Mean	0.17			
Tablets				
Minimum	18	13	0	0.44
Maximum	20	20	5	1.11
Mean	19.17	17.67	1.53	0.68
Radios				
Minimum	0	0		0.00
Maximum	3	3		0.14
Mean	0.33	0.33		0.01
Smart boards				
Minimum	0			
Maximum	0			
Mean	0			

An interview with headteachers was used to further investigate use of audio-visual resources. Qualitative responses revealed the resources were not effectively used. The major challenges to effective use were identified as: poor attitude of teachers, low availability of resources, poor internet connectivity, and knowledge and skill gaps among teachers. Besides ineffective use, low usage of audio-visual resources that are currently available in schools was noted. Headteachers revealed three challenges to acquisition of audio-visual resources. They are: high cost of purchase, high cost of spare parts, and lack of financial support from the board of members and parents.

To mitigate challenges faced by teachers', the headteachers suggested that four measures need to be put in place. They are: providing internet access, ensuring good storage and repair of devices, providing digital training opportunities to teachers, and encouraging teachers to use digital devices.

To mitigate ineffective and low use of audio-visual resources, the headteachers suggested four measures. They are: availing technicians to repair non-functional devices, encouraging parents to provide digital devices for use at home, provision of internet in schools, and more provision of digital devices by the government to improve pupil to device ratio.

3.7 Extent to Which Teachers Use Audio-visual Resources in Teaching and Learning Reading

The second objective of this study was to investigate the extent to which teachers use the available audio-visual resources in teaching and learning reading. The study findings are as shown on Table 3.5. The study findings reveal that 20.0 % representing less than one quarter respondents (head teachers) reported that computers were never used during reading lessons. More than half of the respondents represented by 56.7 % reported that computers were sometimes used during reading lessons and 23.3 % of respondents reported often use of computers. These figures suggest low and inconsistent use of computers during reading lessons.

The findings further show 70 % representing more than two thirds of respondents reported projectors were sometimes used 13.3 % representing less than one fifth of respondents reported often use of projectors and 16.7 % representing less than a fifth of respondent's computers were never used. These figures suggest a low and inconsistent use of projectors. The use of projectors is lower than the use of computers. The findings reveal almost two thirds respondents representing 66.7 % reported graphic designs were never used in teaching and learning, a quarter representing 26.7 % of respondents reported that graphic designs were sometimes used and less than a tenth representing 6.7 % of respondents reported often use of graphic designs. This suggests that integration of graphic designs in teaching and learning was very low. The findings further revealed a lower use of graphic designs as compared to the use of computers and projectors.

The study findings show that a quarter representing 26.7 % of respondents reported there was often use of mobile phones, less than fifth representing 16.7 % respondents reported that mobile phones were very often used in teaching and learning. These respondents made up 43.4% of participants. Almost half representing 46.7 % of respondents reported sometimes use of mobile phones and one tenth of respondents representing 10 % reported that the teaching and learning process never made use of mobile phones mobile phones. This suggests there is moderate usage of mobile phones for instruction in the classroom. The use of mobile phones is higher than the use of graphic designs, projectors, and computers. This is consistent with Mark's (2012) research, which indicates that approximately 6 million people own smartphones and have access to the internet, which may directly benefit schooling. Mobile phones are more affordable, portable and can use anytime and anywhere than other technology devices

and therefore mobile learning may stand a chance to be the most used audio visual device for teaching and learning.

The findings indicate that 90% of respondents reported television was never used for teaching and learning while 10 % reported the sometimes use television in the learning process. This suggests there is a very low usage of television for instructional use. These findings agree with Ternholm (2011) who argued that television were more commonly used before the introduction of internet. Therefore, teachers should the readily available digital devices in the schools as medium of instruction. The study findings further show less than one tenth representing 13.3 %, 16.7%, and 13.3% of respondents reported often use, very often and sometimes respectively used computer games software. More than half representing 56.7 % of respondents reported computer games software was never used. These findings suggest a low use of computer games software in teaching and learning.

The study findings in table 3.5 reveal more than three quarters representing 83.3 % of respondents reported videotapes were never used in teaching. This reveals a very low use of videotapes in teaching. Less than one quarter of teachers reported often use of computer games software for learning, computers, projectors, and internet connection. Use of graphic designs, television, and videotapes was very low use. Comparing the audio-visual resource use revealed television was least used since over 90 % of respondents reported they never used television. This is consistent with the earlier observation of low use of digital learning. The Information Communication and Technology Authority (ICTA) lists Digischool programme devices braille embosser, digital content server and wireless router, learner digital device (tablet), teacher digital device (laptop), and projector (Atambo, 2020). Use of these devices in Maara sub county, Tharaka-Nithi county was found relatively high in the case of tablets and projectors but to be low in the case of teacher digital device, braille embosser, and digital server. This is despite the Digischool programme reporting a 99.92% of installation in schools within the county and having provided 12,000 learner devices and 822 teacher devices (Digischool, 2023).

Table 3.5 Extent to which teachers use available resources

	Frequency	Percent
Computers are used during reading lessons for teaching and learning		
Never	6	20.0
Often	7	23.3
Sometimes	17	56.7
Projector is used in teaching and learning reading		
Never	5	16.7
Often	4	13.3
Sometimes	21	70.0
During reading lessons graphic designs are used in teaching and learning of reading competences effectively		
Never	20	66.7
Often	2	6.7
Sometimes	8	26.7
Mobile phones are used in teaching and learning reading		
Never	3	10.0

Often	8	26.7
Sometimes	14	46.7
Very often	5	16.7
Television is used for teaching and learning in the school		
Never	27	90.0
Sometimes	3	10.0
Computer games software are employed in teaching and learning of reading competences		
Never	17	56.7
Often	4	13.3
Sometimes	4	13.3
Very often	5	16.7
Reading competences are taught and learnt via videotape		
Never	25	83.3
Often	1	3.3
Sometimes	4	13.3

3.5 Challenges Faced by Teachers and Learners in Use of Audio-visual Resources in Teaching and Learning of Reading in Schools.

The study lso sought to understand challenges encountered by teachers and learners. The various challenges are illustrated on Table 3.6. A scale of 1) Strongly Agree, 2) Agree, 3) Moderate Extent, 4)Disagree, 5) Strongly Disagree was used to assess the level of agreement. The average rating on non-availability of audio-visual is 3.2 suggesting on average participants were neither in agreement or in disagreement that audio-visual media are not available. This implies there is lack of clarity on if non-availability is a challenge. The average rating on lack of expertise among teachers is 2.87 suggesting on average participants were neither in agreement or in disagreement that teachers lack the required expertise to use audio-visual media. This implies there is lack of clarity on if lack of expertise among teachers is a challenge. The average rating on lack of electric power is 3.2 suggesting on average participants were neither in agreement or in disagreement that lack of electricity is a challenge. This implies there is lack of clarity on if lack of electricity is a challenge.

The average rating on lack of internet connectivity is 3.57 suggesting on average participants were in disagreement that there is lack of internet connectivity in school. This implies lack of internet connectivity is not a challenge. The average rating on poor accessibility of the media due to management bureaucracy is 3.5 suggesting on average participants were in disagreement that there is poor accessibility of media due to bureaucracy. This implies poor accessibility of the media is not a challenge. The average rating on poor maintenance of devices is 3.2 suggesting on average participants were neither in agreement or in disagreement that there is poor maintenance of audio-visual devices. This implies there is lack of clarity on if poor maintenance of audio-visual devices is a challenge. The average rating on high cost of audio-visual media is 2.73 suggesting on average participants were neither in agreement or in disagreement that there is a high cost of audio-visual media. This implies there is lack of clarity on if high cost of audio-visual media is a challenge. Similarly on average participants were neither in agreement nor in disagreement there is an inadequate storage facility in the school, lack of

administration support, and insufficient policy on media implementation implying there is lack of clarity if these could be considered challenges.

Table 3.6. Challenges in Use of Audio-visual Media

Resources Factors	Minimum	Maximum	Mean	Median
Non-availability of the audio-visual media	1	5	3.20	3.00
Lack of expertise on how to use the media on the part of the teacher.	1	5	2.87	3.00
Lack of electric power in the school;	1	5	3.20	3.50
Lack of internet connectivity in the school	1	5	3.57	4.00
Poor accessibility of the media by the teacher due to the bureaucratic school management.	1	5	3.50	3.50
Poor maintenance of the Audio-visual devices.	1	5	3.30	3.00
Learners' negative attitudes towards the use of Audi-visual media	1	5	2.47	2.00
High cost of the media	1	5	2.73	2.50
Some teachers discourage others and even pupils from using of the media	1	5	3.10	3.00
Inadequate Storage facilities in the school	1	5	3.40	3.50
Lack of administration support in the planning and use of the media	1	5	3.31	3.00
Insufficient policy on media implementation.	1	5	3.83	4.00

The researcher also sought to understand whether the teachers use audio visual resources and if they were trained on how to use them. The qualitative responses revealed that most respondents used audio-visual media in teaching while few respondents reported they did not use audio-visual media for teaching .The respondents gave the following reasons as to why they don't use AVs; lack of knowledge and skills on how to use the, inadequate support from headteachers ,inadequate time for preparation, some feel it's tedious to use them and poor connectivity of internet This suggests there is a high level of use of audio-visual media for teaching. Although the use of audio-visual media was high, training on use was relatively low. More than half of the respondents said they were not trained how to use them and very few reported having received little training on usage. This training did not take more than one month and others reported they received training organized by Ministry of Education for one week .

These findings illustrated the low level of training among teachers and there is need to provide more training to teachers on how to use these resources effectively.

3.6 Teachers Attitude to Use of Audio-visual Media

The researcher further sought to understand teachers attitude towards audio visual media instructional use on reading competences since attitude can also be a challenge to teaching and learning.

A scale of 1) Strongly Agree, 2) Agree, 3) Moderate Extent, 4) Disagree, 5) Strongly Disagree, was used to assess teachers attitudes to the use of audio-visual media and the results are presented on Table 3.7. On average of 4.17 reported that use of audio-visual resources is tedious, suggesting on average participants were in disagreement that the use of audio-visual resources is tedious. This implies teachers do not consider use of audio-visual resources as tedious and the extra effort required is not considered a challenge. The average rating of pupils who get interrupted when using media is 3.3, suggesting participants were neither in agreement or in disagreement that use of media interrupts pupils. This implies there is lack of clarity on if pupil interruption when using audio-visual devices is a challenge.

Similarly on average of 3.17 (median =3.0), 3.45(median =3.0), 3.21(median =3.0) and 3.17 (median =3.0) participants were neither in agreement or disagreement that use of media leads to interesting and effective learning, use of media wastes a lot of teachers time, use of audio-visual is inevitable, and every smart teacher knows how to use audio-visual respectively. This implied that it was unclear if these were considered challenges by teachers. On average 3.55 (median = 4.00) participants disagreed audio-visual media were unnecessarily costly, on average 3.55 (median = 4.00) participants disagreed that there was no serious effect of audio visual-media on reading competence, and on average 3.52 (median = 4.00) participants disagreed on the feeling that the media is not useful to lower primary children.

Three implications emerge from these findings. First, teachers feel that the cost of audio-visual media is reasonable and there is need for the government to scale up provision of these resources. Second, teachers feel that audio-visual resources do not have any significant effect on reading competence of pupils. This is in agreement with Hew &Brush (2007) whose findings show that most teachers attitudes,beliefs,and fearing to use new technology hinders them to teach effective. It is better for teachers to embrace the new technology in our daily learning to improve their performance. The implication of this finding is there is a need for further investigation of benefits of audio-visual resources and development of a standardized framework that can be used for evaluation of value of using audio-visual resources. In the absence of a standardized framework, it is unclear the criteria that is looked at in evaluating benefits and comparison across schools and groups of learners is difficult. Third, teachers feel audio-visual resources are beneficial to lower primary pupils. The implication of this finding is audio-visual resources are beneficial to lower as well as upper primary students.

Qualitative responses revealed other challenges faced are: a) inadequate resources, b) a low ratio of number of devices to students, c) there is inadequate time as MOE guidelines only provide for 35 minutes yet more time is required for preparation, d) teacher resistance to use of audio-visual media, e) poor handling of devices by learners, f) inadequate training on use of audio-visual devices. To mitigate these challenges participants proposed provision of more resources by MOE and community to ensure a minimum ratio of device to learner of 1:2, increasing time available for use of audio-visual media, and increasing teacher awareness and training on audio-visual media.

The Executive Office of the President (2022) notes there exist school level and system level barriers to successful implementation of DLP. School level barriers are capacity deficit in teachers and schools,

lack of relevant content, and challenges in device and internet access. Many teachers feel they have a skill gap and the content on devices is aligned with CBC curriculum. System level barriers are few learning hours for grades 1-3, teachers lack of skills to use learner devices in supporting teaching, and high cost of device connectivity and maintenance. School level barriers evident in this study are inadequate resources (resource factor), inadequate manpower, and inadequate commitment by teachers (human factors). System level barriers revealed in the study findings are maintenance and lack of spare parts (supporting factors).

Atambo (2022) notes lack of trained personnel and some schools not having electricity connection are major challenges in implementation of DLP. In this study power supply instability was not found to be a major challenge but still there could be schools facing this challenge. Usawa Agenda (2020) notes electricity problems in schools can manifest as frequent outages or no connection to grid. In rural areas network connectivity can pose a challenge to dissemination of learning materials. From this findings, there are some challenges hindering effective use of audio visual as media of instruction and they need to be addressed by the school management, government, teachers, parents and community for effective utilization of these resources on instructional use. When these challenges are addressed, there might be a significant improvement on implementation of digital literacy as one of the 21st C skills in Kenyan schools.

Table 3.7: Teachers Attitude to Use of Audio-visual Media

Extent & type of attitude	Minimum	Maximum	Mean	Median
Use of audio-visual resources is tedious	3	5	4.17	4.00
Pupils often get interrupted when the teacher use the media.	1	5	3.30	3.00
Use of the media leads to interesting and effective learning.	1	5	3.17	3.00
Use of the media waste a lot of the teacher's time.	1	5	3.45	3.00
Use of Audio-visual media is inevitable especially in a large class.	1	5	3.21	3.00
Audi-visual media are unnecessarily costly.	1	5	3.55	4.00
Every smart teachers knows how to use Audio-visual media in teaching .	1	5	3.17	3.00
I would like to learn more about how to use the media.	1	5	3.17	3.00
For the time I have taught I have not observed any serious effect of Audio-visual media on reading competence.	1	5	3.55	4.00

The media should be used in upper primary and secondary classes since it is not useful to small children.	1	5	3.52	4.00

3.7 Reading abilities of Learners Across 30 Schools.

The fourth objective of the study sought to investigate the reading competence of learners in schools under investigation. Figure 3.1 shows the performance indicators as follows; Those learners who read within one minute a range of 1-20 words indicated they are below expectation, 21-45 words are approaching expectation, 46-69 words have met expectation and 70-80 or more are exceeding expectation. From the findings it can be observed that 21 % representing (n= 69) of the respondents (learners) were able to read between 1-20 words meaning they are below expectation, 93 of the respondents (28%) read between 21-45 (approaching expectation), 31.3 % representing (n=103) of the respondents read 46-69 words (met expectation) and 19.8 representing (n=65) read between 70-80 words (exceeding expectation). This suggests there are wide disparities in reading abilities which comprises of phonics, phonological awareness, pronunciation, vocabulary, fluency and comprehension) among learners.

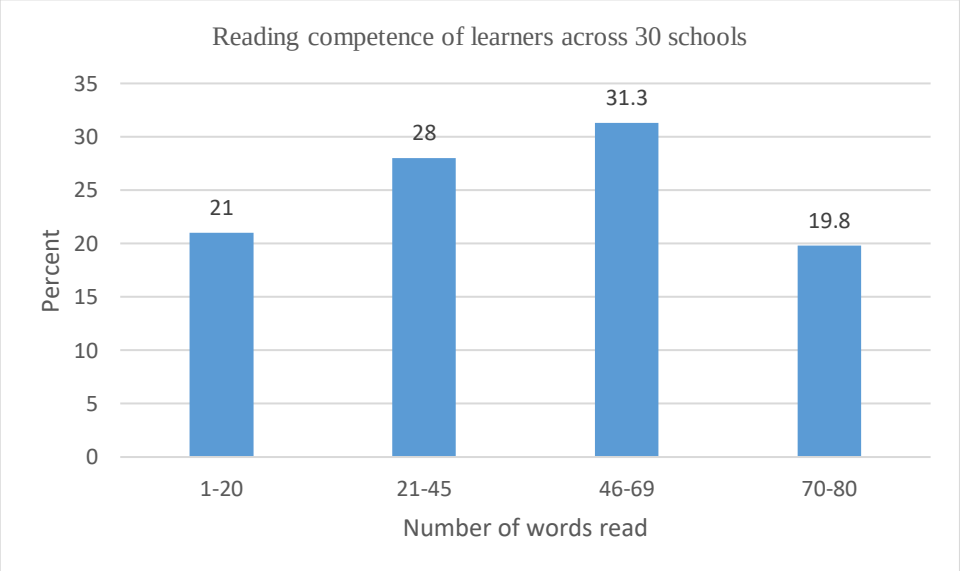

Figure 3.1 Reading competence of learners across 30 schools

The bar chart represented in figure 3.1 visualizes the ability of the learners on the competence to read words. The data on the competence of learners to read appears to be symmetrically distributed around a center where most of the learners lie, with the competence of learners tapering off at the tail ends. This implies that most of the learners on average could read between 21-69 words per minute.

The study also sought to investigate the disparities in the reading skills among the learners. The box-plot in the figure 3.2 represents the disparities in the reading skills among the learners.

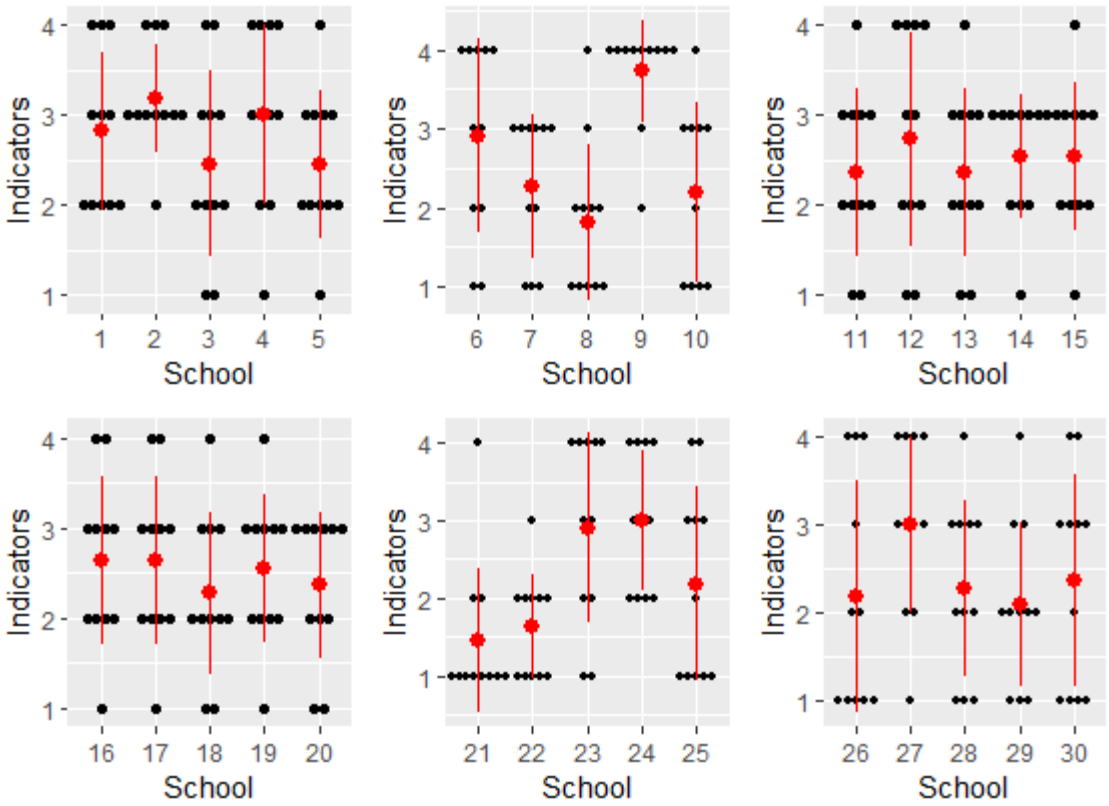

Figure 3.2: Box-plot comparing Reading Skills of Learners in 30 Schools

From the box-plots it is evident there are wide disparities in reading skills of learners in the 30 selected schools. For example, school 9 had almost all learners reading 70 or more words while school 21 had almost all the learners reading a maximum of 20 words. Other disparities that are not as wide as this example are evident. However, it is evident from the plots that most of the learners are able to read between 21-69 words within a minute. This suggests there are significant differences in reading abilities across schools.

3.10Comprehension Competence

Five questions were used to assess comprehension of learners and the results are shown on Table 3.8. The table reveals that there were 50 learners who could not comprehend a single sentence (15.5%). There were 135 learners who could either comprehend one or two sentences (40.8%). The cumulative percentage of learners who could comprehend two or less sentences was 56.3%. Slightly less than one third of learners could read three sentences. The cumulative percent of learners who could read four or five sentences was 16.5%

Table 3.8: Comprehension Performance Indicators

Score	No. of Learners	Percent
0	50	15.5
1	47	14.2
2	88	26.6
3	90	27.2
4	30	9.0

5	25	7.5

From the findings in table 3.8, it is evident that more than half of the learners had less than average comprehension. Slightly less than one third of learners could read three sentences suggesting they had an average performance. Only a small portion (16.5%) of learners who could read four or five sentences suggesting a few learners had exceptional comprehension. These findings are in agreement with Njabani (2016) who argued that some learners in grade four could hardly read and understand materials of their level. Therefore, there is a lot to be done by all education stakeholders to improve reading competences in lower grades.

3.9 Classroom Observation

Further, the study sought to observe the classroom performance as the teachers were teaching and the observations were ranked on a four-point rating scale (1-poor, 2-average, 3-good, 4-very good). From the table 3.9, it can be observed the median and modal values of all performance indicators were 2 with the minimum and maximum assigned scores between 2 and 3. This suggests the areas observed had an average performance in teaching and learning reading in almost all schools The results concurs with Stark,Snow,Eadie,Gonfeld (2015) who argued that most teachers have inadequate content and pedagogical knowledge on early beginning reading instruction. . Teachers need to improve on content delivery ,introduction of the lesson, teaching methods, learner participation ,class organization and conclusion to enable learners to perfom well in all learning areas.

Table 3.9 Classroom Observation Performance Indicators

	Mean (SD)	Median	Mode	Minimum	Maximum
Introduction of the lesson and organization	2.48(.51)	2.00	2	2	3
Content delivery	2.38(.49)	2	2	2	3
Teaching methods	2.17(.38)	2.00	2	2	3
Learner participation	2.38(.49)	2.00	2	2	3
Classroom organization and conclusion	2.24(.44)	2.00	2	2	3

To further investigate possible causes of low learning competence observed, aspects such as content delivery, teaching methods, learner participation, and classroom organization were investigated through observing the classroom set up. Anthony (2007) reported that learner performance is a logic metric measure of a teacher preparedness. Teacher preparedness comprises of qualified teachers, appropriate documents, well communication and effective learning resources. Almost all teachers introduced the lesson by reviewing the previous lesson, but did not state the objective of the lesson, only few stated the objectives of the lesson. On introduction part, only two teachers used mobile phones to lead a song related to the lesson objectives.

Most of the teachers had good mastery of the content. Eight of the teachers had prepared lesson plan and the rest of the teachers did not have the lesson plan. Out of the 30 teachers, only five teachers had well prepared lesson notes and the rest had only textbooks. The teachers were audible enough, the discipline of the learners was good but five teachers were not able to take full control of the learners. All the teachers who used audio visual resources did not keep time, they used almost two lessons because they took much time to connect them, but those who did not use the audio-visual resources completed the lesson on the stipulated time. This suggests that an ICT integrated lesson need more time allocation

than the ordinary lesson that is not integrating an ICT. Five teachers used projectors to teach, twelve teachers used tablets, while two teachers used mobile phones, and one teacher used radio. The ratio of the tablets to learners in most schools was 1: 2 and others 1:3. Teachers spent much time on instructing learners on what to do and also some teachers required assistance from other teacher on how to use them because they have little knowledge on usage.

Learners shared the gadgets and the slow learners could not follow effectively. There were few teachers who did not use any audio-visual resource. This is in agreement with Hattwig et al (2013) who argued teacher preparation programme must prepare well qualified teachers capable of addressing the needs of 21st Century learners. The few teachers with inadequate know how on use of digital devices should take in-service courses to acquire these skills for effective delivery of content equipping learners with 21st Century skills one of them being digital literacy.

Most of the teachers used guided instruction and guided discussion. The learners participated actively in observation of projected materials, listened carefully to the instructions given on talking about pictures displayed using the tablets and mobile phones. Most of the teachers lacked creativity in their work and seemed as if they are not fully aware of how to go about teaching using audio visual aids. The teachers who did not use audio visual resources used lecture method which is more of teacher centered rather than learner centered.

Learners participated on learning by answering the questions asked by the teacher, observing the learning materials displayed on the audio-visual aids and answering questions on what they have observed. Most teachers could not control the learners when using the audio-visual resources because they were excited to use the gadgets. Most of the teachers arranged learners in groups since they had to share the available resources. Others arranged learners in a semicircular setup. Sharing of resources like tablets was good because the slow learners were assisted by the fast learners. At least five classes had talking walls while all other classes had no teaching and learning resources on the walls.

3.10Reliability of the Research Instruments

The reliability of the research instruments was carried out using the SPSS statistical package and the output presented in tables 3.10, 3.11, 3.12 and 3.13. Internal consistency was assessed in this study by calculating Cronbach's alpha.

Table 3.10: Reliability statistics on teacher's attitude in the use of Audio-visual media

Cronbach's Alpha	Number of Items
.969	10

The findings in the Table 3.10 reveal that the reliability statistics for variables testing on teacher's attitude in the use of Audio-visual media is 0.969. This reveals a high correlation implying that the instrument testing of teacher's attitude in the use of Audio-visual media has a high internal consistency.

Table 3.11: Reliability statistics on challenges in the use of audio-visual media

Cronbach's Alpha	Number of Items
.981	10

The findings in the Table 3.11 reveal that the reliability statistics for variables testing on challenges in the use of audio-visual media is 0.981. This reveals a high correlation implying that the instrument testing of on challenges in the use of audio-visual media has a high internal consistency also.

Table 3.12: Reliability Statistics on the classroom observation performance indicators

Cronbach's Alpha	N of Items
.944	5

The findings in the Table 3.12 reveal that the reliability statistics for variables testing on the classroom observation performance indicators is 0.944. Similarly, this high correlation implies that the instrument testing of on the classroom observation performance indicators has a high internal consistency.

Table 3.13: Reliability Statistics on all the research instruments

Cronbach's Alpha	Number of Items
.990	25

Table 3.13 gives the reliability statistics on all the research instruments as 0.990. According to Kothari (2008), a Cronbach's Alpha of 0.70 (70%) or higher should be adopted for the purpose of study evaluation. A 0.990 (99.0%) internal consistency of a series of questions integrated to form a single scale measured by the coefficient alpha represents a strong homogeneity of the population under this study.

4.0 Conclusion and Recommendations

4.1 Conclusion

The study aimed to assess the availability and use of audio-visual materials for reading competences, understand the extent of their use by teachers, identify challenges faced, and assess the reading competence of learners in Tharaka-Nithi County. The research yielded the following conclusions:

(i) Schools have limited computers (average 2.90 per school) with a low student-to-computer ratio (1:10). Tablets are more prevalent (average 19.17 per school), but functionality issues reduce their effectiveness. There is a stark lack of graphic organizers, smart boards, and adequate computer games/software. Projectors and mobile phones are more commonly available but are still not sufficiently utilized. Televisions and Video Tapes are extremely limited, with an average of 0.17 televisions and very few video tapes available. This suggests a gap between availability and effective utilization of these resources in enhancing reading competences.

(ii) Despite availability, the use of these resources is inconsistent. Computers and projectors are used sometimes but not regularly, and graphic designs are rarely used. Mobile phones have the highest usage but still face limitations. Teachers report that using audio-visual resources requires more time and technical know-how, which they often lack. This leads to less frequent and effective use of these tools in teaching reading.

(iii) Schools are facing Technical and Resource Constraints such as insufficient devices, lack of technical support, and inadequate training for teachers. On Management and Policy Issues, there is a lack of clarity on the availability and cost of audio-visual media, insufficient policy support, and inadequate storage facilities. While teachers generally view audio-visual resources positively, they also report a need for better training and support to integrate these tools effectively into their teaching

practices. Additionally, systemic issues like insufficient learning hours and high maintenance costs further complicate the effective integration of audio-visual resources in the teaching process.

(iv) There are significant disparities in reading abilities among learners, with a notable percentage performing below expectations. The majority of learners read between 21-69 words within a minute. This disparity highlights the need for targeted interventions to support learners who are struggling and to bridge the competence gap across different schools.

4.2 Recommendations

The study recommended the following based on its findings:

1. To address the gap in resource availability, it is essential for stakeholders in education and policymakers to increase the provision of imperative audio-visual resources.
2. Comprehensive training programs should be implemented to equip educators with adequate skills they need to use audio-visual resources in an efficient manner. This training should cover not only the technical aspects but also innovative pedagogical methods that integrate these resources into daily teaching practices.
3. Establishing a robust technical support system to maintain and repair audio-visual equipment will ensure continuous functionality. Regular maintenance schedules and the availability of spare parts are essential to prevent interruptions in the teaching process.
4. Developing standardized frameworks for evaluating the impact of audio-visual resources on learning outcomes will provide clear metrics for assessing their effectiveness. Such frameworks will help in making data-driven decisions and tailoring interventions to maximize the benefits of these resources.
5. Policy and Infrastructure Enhancement: Educational policies should be revised to support the integration of audio-visual resources, including increased learning hours and reduced bureaucratic barriers. Additionally, improving the infrastructure, such as stable electricity and internet connectivity, will support the seamless use of these resources.
6. To address the disparities in reading competence, targeted programs should be designed to support learners who are below expectations. Personalized learning plans and additional tutoring can help these learners catch up with their peers.

By implementing these recommendations, schools can significantly enhance the teaching and learning of reading competences, ensuring that all learners have access to quality education supported by effective audio-visual resources

CONFLICT OF INTEREST

The authors declare no conflict of interest

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