AUDIO – VISUAL RESOURCES IN TEACHING AND LEARNING AND THEIR INFLUENCE ON STUDENTS' ACADEMIC PERFORMANCE IN SECONDARY SCHOOLS IN NAIROBI COUNTY, KENYA

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Abstract

Audio Visual Resources have been there for as long as mankind existed with steady evolution over the years. The integration of audio visual resources in curriculum remains a big problem in the quest to provide holistic educational environment to learners in Kenya. This study sought to investigate the extent to which the use of audio visual resources in teaching and learning influences students' academic performance in secondary schools in Makadara Sub County, Nairobi County, Kenya. Using descriptive research design the study deployed qualitative and quantitative techniques. This study utilized questionnaires, class observation and students' examination results in collecting and analyzing data in conjunction with stratified sampling techniques to select 8 schools out of 17 secondary schools to collect the data. The study targeted 32 teachers, and for lesson observation the researcher conveniently picked three classes from one to form three. SPPS version 26 was used to conduct descriptive statistical

analysis. Qualitative data was categorized and analyzed thematically while quantitative data was transcribed, categorized, established, coded and keyed in the computer for descriptive analysis. The study found that integration of audio visual resources in teaching and learning influence students' academic performance at mean score level as well as improves their classroom participation and concentration span hence longer retention of content taught. The study recommends that the ministry of education and the school administration should steer the professional development of teacher's technological skills which will motivate teachers to integrate audio visual resources in classroom.

Keywords: Audio Visual Resources, Teaching and Learning, Academic Performance, Students, Secondary Schools, Makadara Sub County

INTRODUCTION

Audio – Visual Resources (AVRs) usage started with a man's civilization as evidenced in their communication of ideas (Saettler, 1954). Historically, on the evolution of mankind, before man developed speech, human beings communicated by symbols, signals and drawings. Saettler (1954) insinuates that in time of antiquity, human beings conveyed ideas by drawing pictures on rocks. Prostano and Prostano (1982) state that as far as it can be remembered, AVRs were present but not part of educational system. It is until 17th century when John Amos Comenius (1592–1670), brought about pictures as teaching aids. Later libraries started using AVRs in 1960s and made them part of the library resources for use. More recently, the successful use of AVRs by the U.S army in the World War II confirmed the efficacy of instructional tools.

In the evolving technological world, AVRs have grown steadily with multimedia such as power point, television educational series, educational Digital Video Discs (DVDs), laptops, You Tube, social media and other online materials. Akram, Sufiana and Malik (2012) argues in equal conflicting measures that there is great difference between the use of AVRs and when AVRs are not used in Teaching and Learning (T&L). Despite the governments being aware of the AVRs role in education, that has not translated into well organized and financed execution plans. School interviews, review and observations show that many African high schools are affected by variation of ideas about the effect of AVRs in enriching teaching and learning. This causes problems to integrate AVRs into teaching and learning in significant ways. Similarly, secondary schools are rarely given the resources and or funds to acquire for needed software, technical, and maintenance support. Generally, not financing schools so as to support teachers in their training on how to use AVRs and lack of finances for maintenance and refresh AVRs

devices is the core problem in the AVR implementation. The foregoing mentioned gaps continue to haunt AVRs adoption and execution of uniform programs across Africa (World Bank, 2019).

Department for International Development (DFID) in UK that sponsors The Girls' Education Challenge intents to use access to AVRs partially to advance the education of less fortune girls. Caregivers for the girls acknowledge that learning aid quality teaching and materials used for teaching greatly improved and that AVR equipment enabled a better environment for T&L, which boosted instructors' assurance and the overall T&L practice. However, it was noted that schools and teachers faced practical challenges that reduced the utility of the learning content and the equipment making them not as effective (Jigsaw, 2019).

Policy makers in Sub-Saharan African are open to AVR for education with knowledge that they can increase educational quality and serve as a remedy of inadequacy in education system. Integration of AVRs in T&L represents progress and modernity as a recognition of the digital literacy, knowledge of AVRs is crucial for higher education and for youth employment and which if opened may not necessarily yield improved understanding of the drawbacks and benefits of AVRs (Dahya, 2016). Many countries in Africa are still fixed on getting learners at least complete primary school in bid to attain Education for All (EFA) and the Universal Primary Enrollment goals of the Millennium Development Goals (MDG). That leaves the high school sector undeveloped and without the focus of national efforts hence this can be a hindrance in considering AVRs. Other countries in Africa, such as Burundi and Sudan, have started integrating AVRs into T&L, with a promising policy environment (Tobor, 2018).

In Kenya, the BRCK finances learners with KioKits a rugged tablet, with software, hardware and connectivity installed. e-Limu, in Kenya provides offline lessons as well as examination purely a Kenyan curriculum in the basis of colorful easy-to-digest activity comparatively at a lower data cost (Shapshak, 2017). eKitabu, also known as e-book contains an electronic library that includes e-Limu resources that can be retrieved both offline and online as well. The online with free books library has a programme that loudly reads ebooks to learners who are blind or have vision problems (Secorun, 2017).

Sub-Saharan African schools' educational technology is still technologically conducted as opposed to pedagogical decisions. Education sectors continue to place a great deal of focus on providing schools with technology, digital content and internet connectivity while placing far less of an emphasis on helping instructors transform and improve teaching through pedagogy. As a result, learners are not equipped with the mentality and abilities necessary to be prepared for employment in the formal as well as informal sectors. This excessive emphasis on technology, as opposed to pedagogy, shapes instructors' abilities to use digital content and technology, which distorts pedagogical practices with technology. As a result, professional

development to support teachers in lesson preparation, design, teaching and learner assessment utilizing AVRs is irregular. Less attention is paid to instructional innovations like Puentedura's SAMR model or TPACK that use technology, such as AVRs (Rose, 2018).

Africa's technological divide is transversally persistent. The present AVRs divide, that is everywhere, and in particular complex in Sub-Saharan Africa bisects ability, economics demography, gender, geography and pedagogy. The biggest difference could be between students with access to teachers with sufficient content knowledge, pedagogical, digital, those who create meaningful technological content as they engage learning activities through AVRs, and those who do not (Thomson, 2018).

Ibe and Abanuche (2019) researched on the effects of AVRs on student's performance in high school in Nigeria and found that groups taught with AVRs contents integrated, scored higher than the group not exposed to AVRs. Tang and Intai (2017) study on effect of AVRs in learning and teaching in secondary school in Miri Sarawak showed that AVRs are effective in improving the performance of students. Whereas many studies have shown positive influence of AV on Academic Performance (AP) some studies are indifferent.

Hall, Lineweaver, Hogan and O'Brien (2020) argue that off-task AV equipment such as smartphones, social media applications and in particular laptop use is disruptive to both the off-task learners and neighboring learners. Other studies have found negative effect of media smartphones and multitasking on AP (Alghamdi, Karpinski, Lepp & Barkley, 2020). Facebook and other social networking sites have a very substantial negative association with academic achievement (Feng, Wong, Wong, & Hossain, 2019). These conflicting findings create conceptual, methodological as well as contextual gaps hence need for more collaborative research.

Statement of the Problem

Audio visual resources in the learning process play roles like to stimulate students' motivation, emphasize the lessons taught, attract students' participation and enhance students' experiences by doing the instruction independently since it contains the source of information as well as creating meaningful learning which thus improves academic performance where integrated in T&L. Despite the improvement in academic performance the use of AVRs in the educational system in Kenya remains a mirage that could be adversely affecting the development and improvement of T&L. Professionally, as much as integration of AVRs in T&L enhance academic performance, poor performance is still witnessed in AVRs environment. Audio visual resources used at one time can yield in dullness hence important if well implemented.

The integration of audio visual in curriculum remains a big problem in the quest to provide holistic educational environment to learners in Kenya. The main problem is that based on available empirical evidence, it is not clear whether secondary schools have embraced AVRs in teaching and learning and if they have whether that integration has any correlation with the student's performance at the mean score grounded on schools' different adaptation of integrated AVRs in teaching and learning. Therefore, this study was to determine how much the usage of AVRs affects secondary school learners' academic performance in Nairobi County.

Specific Objective

To assess the extent to which audio – visual resources influence academic performance of students.

Research Question

What extent does audio-visual resources influence students' academic performance?

THEORETICAL FRAMEWORK

The study was grounded on two theories Visual, Auditory, Reading and Kinesthetic (VARK) theory proposed by Fleming (2006) and Dual – Coding theory proposed by Paivio (1991). VARK theory suggests that the more the learners learn through a mixture of all the possible AVRs the more integrated the learning will be. VARK is used in classrooms, as well as work environments. Considering different learning needs and use, VARK theory can be adapted for individual use and will be of help to educators to developing lesson plan design and building around various resources that are appealing to all learners' preferences that is visual, auditory read or write and kinesthetic learners.

Theorem by Pavio (1991) Dual coding postulates that the visual and verbal processing hemispheres of human mind are separate. The verbal hemisphere processes linguistic information, whereas the visual processes graphical information. Paivio continued by suggesting that if the information to be processed is coded both verbally and visually, the acquisition chances for learners would be doubled because the information is physically presented as a whole, and the more pathways learners use to remember information, the more learners can recall that information in the future. Dual coding theory guides teachers in classroom when giving the students verbal and visual illustration at the same time as it helps them process the information in different ways as well as boost their learning and help them retain information over time. Natoli (2011), in justification of AVR, asserts that what a leaner hears they forget,

what they see they remember and what they do they know wraps up the two theories as the best fit anchoring theories of the study.

REVIEW OF RELATED LITERATURE

According to Raja and Nagasubramani (2018) technology has altered our living by influencing diverse facts of life. A number of complicated and crucial processes take place easily and efficiently with the help of present-day technology. Shamsideen (2016) asserts that T&L activities are captivating when there is effective and efficient application of AVRs in classroom. Ekanem and Obodom (2017) investigated the influence of AVRs on the students' AP in science in high schools. 100 students were sampled from a population of 1015 respondents. The study showed that AVRs significantly impact students' performance in science. It was advised that science teaching teachers should constantly use AV facilities in their teaching to bring about improvement in the AP of science students.

Bawa and Fakamogbon (2021) studied the effect of AVRs on AP of nursery school learners in Sokoto Metropolis. The researcher adopted a survey design and by purposive sampling identified two schools in Sokoto to participate in the study. The researchers developed an achievement test instrument and to ensure its reliability, a pilot study was conducted. The findings showed that the treatment positively affected the pupils' AP. There was a distinct variance between the AP of the learners taught using AVRs and those who were not. The study concludes that pupils' poor AP could be caused by inadequate instructional media or underutilization. The study recommends that schools administration to avail AVRs for effective delivery as well as urge teachers to efficiently make use of the AVRs in classroom.

Ajogbeje, Osuntuyi and Awodun (2021) investigated the impact of AVRs on students' AP in physics in high schools in Nigeria. A descriptive research design was adopted and a population of all senior secondary school physics students. The schools that participated in the study were randomly selected. The sample was composed of four schools and one hundred SSS 2 students participated in the study. This study showed that when AVRs are appropriately assimilated into the curriculum to supplement the conventional method, better and or higher scores would be achieved during learning. AVRs significantly improved performance in physics and the overall achievement of students was also significantly improved by the use of AVRs.

Olagbaju and Popoola (2020) study majored on the impact of AV social media resources on learning outcomes in reading comprehension. Grade 11 classes in Gambia from two educational provinces were randomly selected to participate. Quasi-experimental research design was adopted. The study revealed a significant difference on retention and achievement in reading comprehension as well as learners' interest for those under treatment. Participants

could remember what they had learnt as well as improved interest and better performance in reading comprehension than their counterparts. Adamu and Ibrahim (2018) study on use of AVRs in T&L of grouping of living things among high school learners in Sabon Gari LGA also found that the utilization of AVRs is effective in learning and reading since it gives opportunities for observation, modelling as well as feedback in the course of teaching.

Agada and Sam- Kayode (2022) studied the effect of AVRs on student's mean score in biology and its hypothesis in the school of education in Oyo. The researcher used quasi-experimental design and randomly selected 196 Level NCE learners found that learners taught using AVRs scored better than those who are not. These findings support the view of Ojetade, Aregbesola, Ekele and Aiyedun (2020) who studied the impact of AVRs on teaching science in high schools in Nigeria and found that AVRs significantly affect learner's achievement. Ebere and Joy (2019) study on the impact of AVRs on learners' attainment and attentiveness in biology also revealed that learners exposed to lesson with AVRs integrated achieved better scores than those who were not exposed to AVRs.

Oviawe and Uddin (2020) study on effect of AVRs as instructional strategy to improve students' AP in geometry used a quasi-experimental design. A sample of 123 learners were drawn from secondary schools in Edo State, Nigeria and found that utilization of AVRs as instructional strategy was positively correlated with students' performance and increased students' interest in geometry. The study concludes that AV instructional method is better than legacy lecture method. Ode (2014) in their study of the effect of AVRs on T&L in private secondary schools in Markudi found that the use of AVRs had significant impact on T&L in secondary schools.

METHODOLOGY

The study adopted a descriptive research design to investigate effect of AVRs in T&L and their influence on students' academic performance of secondary schools in Nairobi County. The study collected qualitative and quantitative data. Makadara Sub County has twelve (12) public and five (5) private secondary schools. The eight (8) schools selected for sampling were a representative of five (5) public and three (3) private secondary schools. Simple random sampling method was utilized to select sample from each stratum. The researcher purposively sampled, selected schools based on gender with the view to select three (3) mixed secondary schools, three (3) girls' schools and two (2) boys' schools from the eight (8) selected secondary schools. The researcher conveniently selected four teachers per each selected school to participate in the study. The lesson observation included three classes that is form one, two and three.

Data Collection Instrument

The study used a questionnaire and lesson observation guide to collect data. Questionnaire for the teachers (See Appendix One) provided questions on the extent to which AVRs influence students' academic performance. The questionnaire employed a four– point likert interval rating scale ranging from (strongly agree, agree, disagree, strongly disagree). The researcher conveniently picked four teachers, one teacher from each department and gave out the questionnaires, which were picked after two days. The researcher went through each questionnaire to ensure that all sections were filled then proceeded to record to the number of dropped and picked questionnaire.

Data Collection Procedure

First, the researcher sought an introduction letter from Graduate School Kenyatta University to take to the Director General, NACOSTI in order to get the research permit. The permit was used to obtain authorization from the Director of Education Makadara Sub-County to conduct research in the selected secondary schools. After authorization from the Sub County Education office, the researcher proceeded to the 8 sampled secondary schools where she met the deputy principal academic who gave permission to proceed with the research and aided in meeting the respective research participants. The researcher booked appointment to visit each school within the school timetable.

Data Analysis

Descriptive statistical analysis was used in the analysis which was aided by SPPS version 26. Qualitative and quantitative data was collected. The quantitative data from the sampled secondary schools using teachers' questionnaire was pre- coded, coded, keyed in the computer and thereafter run a descriptive analysis. The qualitative data was obtained from lesson observation guide. It was transcribed, categorized, established, coded and transferred to the computer for descriptive analysis. Further analysis was based on the objective of the study involving the working out of the mean, standard deviation and percentage. After analyzing the data, it was presented in the form of graphs and frequency distribution tables to describe and explain the study findings per the research objective.

RESULTS

The objective was to access the extent to which AVRs influence students' academic performance in secondary schools in Makadara Sub County. The study depended on teachers' questionnaire, lesson observation and students KCSE results to access whether AVRs'

integration in teaching and learning positively or negatively influences learner's academic performance. Table 1 shows the descriptive findings.

Table 1. Means and Standard Deviations for Teachers' scores on Influence of
Audio Visual Resources on Teaching and Learning scale

Statement	N	Mean	SD	Skewness		Kurtosis	
				Statistic	SE	Statistic	SE
Learners enjoy a lesson where a teacher teaches using a computer or power point	32	1.22	.491	2.259	.414	4.773	.809
Learners comprehend content taught using charts and maps.	32	1.47	.507	.131	.414	-2.119	.809
Learners enjoy listening to radio or television lessons	32	1.31	.535	1.506	.414	1.519	.809
Television and videos are exciting and interesting to obtain and use in the classroom	32	1.28	.634	.508	.414	.714	.809
Audio - visual resources increase student participation in lessons	32	1.19	.397	1.681	.414	.877	.809
Audio - visual resources enable students learn faster than traditional methods	32	1.50	.672	1.020	.414	-.050	.809
Audio - visual resources lead to better retention of taught content by students	32	1.31	.471	.849	.414	-1.368	.809

Per table 1, teachers were asked various questions regarding the effects of AVRs on learners' academic performance. The teachers strongly agreed that AVRs when used in teaching and learning increase student's participation (M=1.19, SD= 0.397). This indicates that AVRs ignite student's urge for learning by appealing visually and interactively while presenting the content. Videos for instance, creates excitement among students making learning more enjoyable hence increased participation. Bulelwa and Ntando (2022) study also found that use of AVRs cultivated learner's English-speaking skills and increased learner participation in classroom. Therefore, teachers should leverage AVRs environments that improve students' understanding and participation.

The use of AVRs lead to better retention of taught content to the students as agreed by teachers (M= 1.31, SD= 0.471). This suggests that with so many distractions surrounding the learners, it can be challenging for students to stay focused in class, however, an AVR like video that presents information in an engaging way with memorable visual and sound effect can help students retain and recall information better. This dynamic nature of AVRs ensures that the classroom experience is more captivating and stimulating for learners. Tang and Intai (2017) study showed that the use of AVRs aids learners to recall content taught, facilitates their learning and understanding the topic of interest. Olagbaju and

Popoola (2020) study also revealed a significant difference on retention and achievement in reading comprehension as well as learners' interest for those who used AVRs. Participants could remember what they had been taught and their interest in reading comprehension improved. Teachers ought to combine both visual and auditory segments to enable a deeper understanding and the reinforcement of the material for long-term retention.

Learners also comprehend content taught using charts and maps (*M*=1.47, *SD*= 0.507). Meaning that visual AVRs help to visualize concepts which increases understanding and develops critical thinking abilities, hence an instrument to a more comprehensive understanding of the material. Visual resources can be viewed again, emphasizing the content by repetition and leaving a lasting impact. repetition and creating a lasting impression. Altamimi and Ogdol (2023) results of their study indicate that the use of AVRs in the classroom can significantly improve students' comprehension of academic concepts and knowledge.

Students enjoy radio and television lessons (*M*=1.31, *SD*= 0.535) implying that when teachers incorporate visual and aural features, students can hear and see real world examples, which enhances their understanding and make the content more memorable. If the lesson is enjoyable, then the learner's concentration span is increased therefore making the classroom experience more interesting. Lari (2014) posits that AVRs plays a crucial role in today's pedagogy by drawing student's attention hence increasing the concentration span therefore effective learning is enhanced.

Teachers concurred (*M*=1.28, *SD*= 0.634) with the fact that AVRs are exciting and interesting to obtain and use in classroom and that they enable students to learn faster than traditional methods (*M*=1.50, *SD*= 0.672). This implies that teachers realise the benefits learners rip from AVRs as they enjoy an AVR integrated lesson than chalk and board mode of teaching or lecturing and dictation. Traditional learning is not adaptive to students' needs and it is teacher-centered and prioritizes the preferences of the teachers over the student. In that regard, the teacher may follow a methodology thought is best for students leaving no space for improvisation. Audio visual resources breaks the monotony and therefore learning is based on a range of instructional strategies that take into account the preferences of the learners hence personalizing the learning process. Oviawe and Uddim (2020) found that AV instruction method is better than lecture method of instruction. Therefore, schools should invest in AVR and motivate teachers to integrate technology in classroom and shun from traditional modes of delivery. The researcher further wanted to follow the opinion of teachers on whether learners enjoy a lesson where the teacher teaches using a computer or PowerPoint as shown in Figure 1.

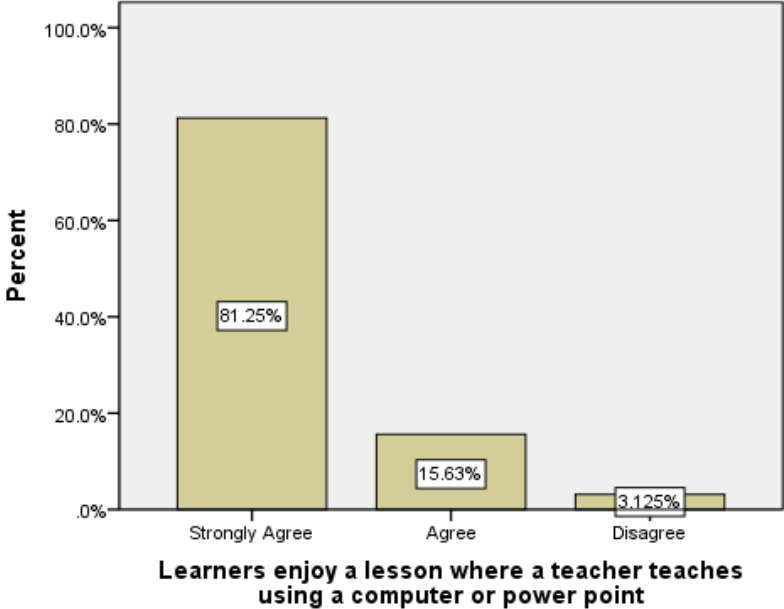Figure 1. Use of Computers and PowerPoint Slides on Teaching and Learning

Figure 1 describes the teacher's response when asked whether learners enjoy a lesson where a teacher teaches using computer or PowerPoint 81.25% of the teachers strongly agreed, 15.63% agreed while 3.125% disagreed. This means that the use of AVRs like computer ignites learners' interest in classroom and their attention and participation is increased. For example, PowerPoint presentations use graphics, charts, graphs and text to create visually appealing slideshows. To complement their explanations and present material in an orderly and visually appealing way, educators can use multimedia components like audio clips or films. Also, all the content is saved as softcopy hence saving on paper and for ease of reference in the future.

Figure 2. Influence of Audio-Visual Resources
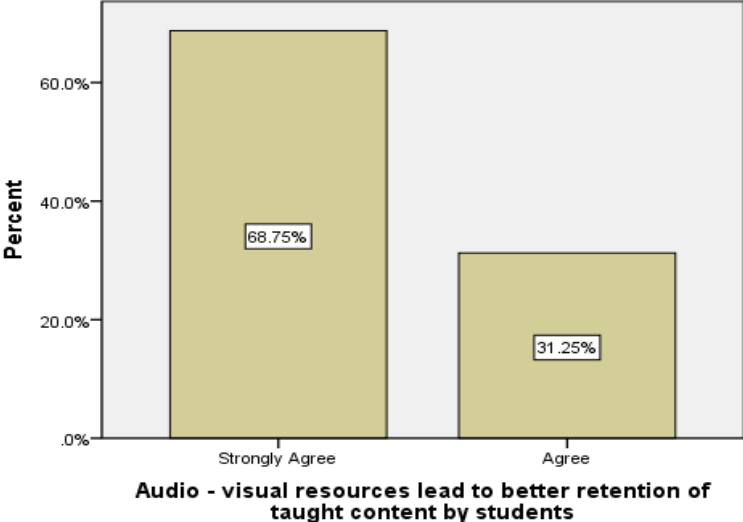
In figure 2, on the influence of AVRs, all teachers agreed that AVRs lead to better retention of taught content by students meaning that the traditional methods of teaching are incomparable to use of AVRs since they ignite learner's interest and even complex content, learners can easily understand with aid of AVR. Therefore, teachers should strive to integrate AVRs in teaching. Table 2 illustrates lesson observation made by the researcher on the integration of AVRs in classroom.

Table 2. Lesson Observation on Influence of Audio Visual Resources in Teaching and Learning

N= Number of Respondents

Observation	N	Poor	Average	Good	Excellent
Selection of appropriate delivery infrastructure	24	17	0	2	5
Operation of the machines	24	19	0	3	2
Manipulation of digital content	24	18	1	3	2
Allowing students participation in lessons	24	0	7	14	3
Collection of feedback from learners	24	0	0	24	0
Student Attentiveness	24	0	3	18	3
Student Concentration span	24	0	13	11	0
Student Quality of participation	24	0	16	5	3
Student Seriousness with digital lessons	24	15	4	4	1
Student Confidence in manipulating resources	24	17	2	3	2

The student attentiveness was good in eighteen classes while eleven had good concentration span with thirteen being average. The student attentiveness and concentration span was geared by the use of AVRs in class and manipulation of digital content by the teachers. The teachers allowing learners participation was good in seventeen classes and average in seven classes. Selection of appropriate delivery infrastructure and student confidence in manipulating resources only seven classes had good delivery infrastructure. Most teachers relied only on textbooks, whiteboards, charts and pictures. This indicates that when teachers integrate AVRs in classroom, it creates a dynamic and interactive learning environment and caters for all learning styles hence promoting active participation and stimulate students' curiosity and engagement.

Operation of machines was poor in nineteen classes and good in five classes as most teachers could not use AVRs and some relied on learners to help them with certain machines hence delaying the lesson. It is an indication that teachers are not equipped with skills to navigate through AVRs. In fifteen classes students' seriousness with digital lessons was poor while four average and five classes good. In the use of videos, the learners would be distracted and only focus on the background music rather than pay attention to the content being delivered

via the video. If the teacher begins teaching using the video the learners would get disoriented since they would want to continue watching the video rather than the lesson hence there would be no time to ask questions and exercise their critical thinking. Therefore, teachers should come up with ways to integrate AVRs in classroom as a tool to enhance students' engagement in the learning process and not to delay or distract the learning process. The collection of feedback from the learners on whether the lesson was interesting or complex was good in all the classes observed. This would happen by asking the learners questions in line with what they have been taught. Table 3 shows school academic performance for years 2020 to 2022. This was to enable the researcher conclude whether the academic performance at mean score level attests the responses from principal, teacher, students as well the availability of AVRs in schools that indeed AVRs improves the academic performance.

Table 3. School Academic Performance (KCSE Results): 2020 - 2022

School Name	Public/Private	School Category	KCSE Mean Grade		
			2020	2021	2022
School A	Private	Girls	7.73	7.2	7.54
School B	Public	Girls	6.4	6.2	5.8
School C	Public	Girls	5.43	5.41	5.1
School D	Public	Boys	5.87	6.14	6.05
School E	Private	Boys	8.4	7.71	7.67
School F	Public	Mixed	3.35	3.39	3.53
School G	Public	Mixed	2.68	2.27	2.52
School H	Private	Mixed	4.77	4.29	4.44

School E scored a KCSE Mean grade of 8.41 in the year 2020. In the year 2021, the school scored a KCSE Mean grade of 7.71 while in the year 2022, the school scored a KCSE Mean grade of 7.67. This is a better performance compared to other secondary schools in Makadara sub-county, Nairobi County. While school A which is also a private secondary school in the year 2020 had a mean grade of 7.73, 2021 7.2 and in 2022 7.54, the two private secondary schools seem to perform well compared to the public secondary school whereby the highest score in public secondary school was school D with a mean of 5.87 in 2020, 6.14 in 2021 and 6.05 in the year 2022. The three mixed secondary schools sampled, school H which is also a private secondary performed better than the public mixed secondary school with a mean of 4.77 in 2020, 4.29 the year 2021 and 4.44 in 2022.

This is an indication that private secondary schools are doing much better than public secondary schools regardless of the availability or non-availability of AVRs. Further this it is evident that the use of AVRs in teaching and learning influences student's academic

performance at mean score level. The principals' interview also concurred as all the eight principals agreed on the audio visual program in the schools has tremendously improved the instructional program and the mean score has improved since the introduction of AVRs in classroom. These findings are supported by Agada and Sam- Kayode (2022) whose study found that students taught using AVRS scored better than those who are not. Ebere and Joy (2019) study also revealed that learners exposed to lesson with AVRs integrated achieve better scores than those who were not exposed to AVRs. In any case, education continues to evolve as the strategic utilization of AVRs stands as a proof to transforming and shaping today's students' educational experiences hence schools should strive to invest in resources so as to match the evolution.

SUMMARY OF FINDINGS

The study findings showed that AVRs increase student's participation hence igniting the student's urge for learning by appealing visually and interactively presenting the content. Learners also comprehend content taught using charts and maps which help to visualize concepts as well as enhances comprehension and fosters critical thinking skills, hence an instrument to a more holistic understanding of the subject matter. The study findings revealed that AVRs leads to better retention of taught content to the students and they are able to recall information better. From the study findings, AVRs are exciting and interesting to obtain and use in classroom and that they enable students to learn faster than traditional methods. Further, this study also gives evidence that the use of AVRs in teaching and learning influences student's academic performance at mean score level.

CONCLUSION

The study findings confirm the theoretical perception of Fleming (2006) and Paivio (1991) on the VARK and Dual- Coding theory which suggests that the more the learners learn through a mixture of all the possible AVRs the more integrated the learning will be. The study avers that AVRs influence students' academic performance at mean score level. Whereas secondary schools in Makadara sub county have inadequate AVRs, those that are using the available AVRs for teaching and learning are performing better than those schools that do not use AVRs as well. Learners enjoy lessons taught using a computer or PowerPoint and listening to television lessons. The learners' concentration span and participation increase when the teachers use AVR. It can also be concluded that students are more attentive and could learn faster resulting to better retention of taught content using AVR.

RECOMMENDATIONS AND SCOPE FOR FURTHER STUDY

The recommendations are based on the study findings and conclusion obtained and will help address the gaps arising from the study. The school management should encourage the integration of AVRs in classroom to improve academic performance among other benefits of integration of AVRs in classroom. The school should provide materials and encourage learners and teachers to improvise cost effective AVRs to cut costs on expensive AVR which in turn may motivate learners to tap into their creative skills and analytical thinking. This study also recommends that schools should come up with committees to assist in formulating plans and policies for the development and operation of audio visual program. This study also recommends that the Ministry of Education should hold regular training sessions for teachers who are already in the field to be updated on the recent discovery regarding the use of AVRs as well as refresher courses for those who have not been practicing the skills acquired during training. This will motivate the teachers to put more effort in integrating AVRs in teaching and learning.

This study was limited to Makadara sub county, Nairobi County, a similar study should be conducted in other counties for comparison.

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APPENDIX ONE: TEACHER'S QUESTIONNAIRE

Kindly tick in the appropriate bracket in answering to the following questions

1. Select your gender

Male ( ) Female ( )

SECTION A

To what level do you agree with the statements below on the influence of audio-visual resources on students' performance?

Key: 1 Strongly Agree, 2 Agree, 3 Disagree, 4 Strongly Disagree

(Put an X as appropriate)

Statement	1	2	3	4
Learners enjoy a lesson where a teacher teaches using a computer or power point.				
Learners comprehend content taught using charts and maps.				
Learners enjoy listening to radio or television lessons				
Television and videos are exciting and interesting to obtain and use in the classroom				
Audio - visual resources increase student participation in lessons				
Audio - visual resources enable students learn faster than traditional methods				
Audio - visual resources lead to better retention of taught content by students				

APPENDIX TWO: LESSON OBSERVATION GUIDE

(The researcher to fill the guide while observing the lesson proceedings)

This instrument will help find out the availability of AVRs, their integration in classroom, and whether their use stimulates the interest of the students.

School category……………………………………………

Number of students per classroom…………………………………………………

Class (form)…………………………………………………………..

	Area	Observation to make	Remarks
1	Presentation of content	Teacher's competence in undertaking the following: • Appropriate content selection • Selection of the right delivery infrastructure • Equipment and machines operation • Modification of digital content • Allowing students participation in lessons • Feedback collection from students • Lesson Assessment	
2	Students	Observe the students' reception digital lessons in respect of their: • Attentiveness • Concentration span • Participation • Confidence in using the learning resources	