

BINDURA UNIVERSITY OF SCIENCE EDUCATION
FACULTY OF SCIENCE
DEPARTMENT OF EDUCATION

**EFFECTIVE STRATEGIES FOR TEACHING COMPUTER STUDIES A CASE
STUDY AT RIDZIWI HIGH SCHOOL, MHANGURA, ZIMBABWE**



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***DESERTATION SUBMITTED TO BINDURA UNIVERSITY SCIENCE EDUCATION
IN PARTIAL FULFILMENT OF THE REQUIREMENT OF THE BACHELOR OF
SCIENCE EDUCATION HONOURS DEGREE IN COMPUTER SCIENCE***

MAY 2017

DEDICATION

I dedicate this thesis and a special feeling of gratitude to my loving brothers Evans, Admore Admire and my twin sister Vimbai for their gratuitous words of encouragement and a push for tenacity. I dedicate them this important professional achievement, because without their presence, support and comprehension I would have not achieved my goal. I love you all.

ACKNOWLEDGEMENTS

I wish to extend my heartfelt gratitude and thanks giving to the Lord Almighty God for allowing me the opportunity to study towards this degree and fulfil my lifelong objective. Special thanks go to my project supervisor Mrs Mukabeta for her countless hours of reflecting, reading, encouraging and of all patience throughout the entire process. My profound gratitude also goes to my aunt for his advice, encouragement and support. I sincerely thank my friends for their support. This product of this research paper would not have been possible without all of them. I also acknowledge the inspiration and blessings of my family members for their moral and financial support which ignited hopes and focus which helped me in successfully completing this dissertation. The researcher extends heartfelt gratitude to the school teachers and heads of Ridziwi High school for allowing me to carry out this research.

ABSTRACT

Advances in technology and changes in educational strategies have resulted in the integration of technology into the classroom. Different teaching strategies have been identified as a way to provide student-centred active-learning instructional material to students. The purpose of this study was to find the effective strategies for teaching computer studies. Students perception on the learning media were also considered. On research methods, the researcher used both quantitative and qualitative research. 28 pupils from form two at Ridziwi high schools were identified as the population of the study. Random sampling method was then employed to choose the pupils who would provide information for this research. Test, interviews, group discussions and questionnaire, were used to gather information from pupils. Data and information obtained from tests, group discussions, questionnaires and interviews were analysed using tables, pie charts and column charts. Discussion and views of the respondents were also made at each finding. Findings from this study revealed that lecture method and group work had no significant in the performance of students However, multimedia with computing technologies, was significantly different from group work and lecture method. It also revealed that videos, animation visual images and hand on practice to be the best teaching strategies for teaching computer studies.

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CHAPTER 1: INTRODUCTION

1.0 Introduction

The purpose of this study is to investigate the effective strategies for teaching computer studies at Ridziwi high school. This chapter starts by outlining the background of the study, statement of the problem, purpose and objectives of the study, research questions, significant of the study, assumption, delimitations (scope) of the study, limitations, definitions of the terms and the concluding summary.

1.1 Background of the study

Many schools in Zimbabwe are taking computers as subject to be taught to all students. Ridziwi high is a school in Mhangura. It is one of these schools which are offering computer studies as a subject to all pupils. The aim of the subject is to give knowledge about computer and application skills in using Microsoft office software. Also its aims are to give knowledge to students so that they may be able to use computers effectively. The students at Ridziwi high school are introduced to computers at form two. Students are given an introduction to computers and software applications package such as word processing, spread sheet, database, PowerPoint, and desktop publisher which they will use in their professional and personal lives.

To be computer literate one need to be able to read, write and speak the language of the computer. Many students acquire basic skills in high school so that they know how to operate a computer. In addition, students learn skills such as sending emails, conducting Internet research, creating word processing documents and creating presentations. These basic computer skills help students achieve success in college when they are utilized for processing and presenting information. To meet the requirement of computer literate student it is vital to determine what constitute desired computer competency and how they should be taught. Because computers are very importance in today's world, the researcher has been prompted to carry out this research study to find effective teaching strategies for teaching computer studies so that pupils will understand how to use computers in their carrier life.

1.2 Statement of the problem

Many researchers have found that pupils learn better when on hands on activities (class activities, video, hand-outs with activities and online learning). These were also considered to be successful in the teaching and learning. Therefore the researcher also felt need to find teaching strategies that are effective in the teaching of computer studies.

1.3 Research questions

The specific research questions to be addressed in this study are as follows:

- 1) What are some of the most effective teaching strategies one can employ to enhance pupil's understanding of computer studies?
- 2) What are student's perceptions on use of different learning media?

1.4 Significant of the study

Computer education is of great importance to the economic and technological development of a nation. Most economic development depends on technology. In the education system, computers are becoming a basic part of the teaching and learning of any subject. Computers stimulate teachers to work as they make work easier. Students will also make useful assistances to the national development and will get better paying jobs found in the IT industry. Technology is the central support for the students learning developments nowadays. They are also the main technology support as a tool for effective learning and teaching process. Davis, (1999) said that Students educated in computer literacy use the computer skills in most of the other courses in their discipline. He also said that computer competency is essential to both academic and career achievement. Nunan (1999) argued that new technologies have the potential to support education across the curriculum and provide an effective link between teachers and students in ways that have not been possible before the advent of computer technology. It is important to say that computers are the main instructional support to the learning and teaching process. Learning with technology has become essential in today's schools. Worldwide, governments, education systems, researchers, school leaders, teachers and parents consider technology to be an important part of a child's education. Furst-Bowe, Boger and Franklin (1995) who postulates that in order to be successful in academic programs and careers, it is essential that university students possess improved computer skills.

According to Ndahi and Gupta's study (2000) on workforce training, the most frequently required computer skills were spread sheet, word processing and the knowledge of database software. Gupta (2006) points out that that basic parts and functions of information systems, system software, security and privacy issues, the use of application software (word processor, using a spread sheet, preparing a presentation) and accessing remote computers should be among the course objectives of a basic computer literacy course. Many faculties expect students to know how they should use a word processor to create and format papers, make use of software for classroom presentations and speeches, use spread sheet software to prepare charts and graphs, navigate the internet for research, and have the ability to learn and participate in online classrooms using various software (Nunan 1999).

There are a lot of factors producing wide variations in the computer skill levels of college students, such as the courses they completed at high school and college, their academic major, their work experience, and their personal interest in computers and computing Furst-Bowe, Boger and Franklin (1995). In other words, the world is changing technologically and it is important that students be prepared to embrace the technology during school so that they prepare themselves for a world that is being driven by computer technology. Computers have a very crucial role in the development of a nation and in the education system, so it is necessary to find the teaching methods that are effective when teaching computer studies so that student will understand how to use computers in their life. Teaching strategies like hands on projects, in class activities, hand outs with activities, use of videos and other teaching strategies will be considered in this research. .This project will act as supplementary guide to teachers who teach computers on coming up with effective teaching strategies and teaching resources

1.5 Assumptions

The research was done under the following assumptions:

- Student will have access to computers in the computer laboratory during their teaching period or during their spare time.
- The students will complete all the research requirements that are tests and questionnaires.

1.6 Objectives

Objectives of this research include:

- To identify the best teaching strategies that can be used in the teaching and learning of computer studies..
- To determine students perception on use of different learning media.

1.7 Limitations of the study

During the research period, the researcher faced a lot of challenges. Some of these include:

Financial constraints: - The researcher had a limited budget. A lot of money was needed to print and photocopy questionnaires and interviews guides

Time constraints: - The researcher did not find adequate time required to fully perform this research. As a full time employee, time to go and collect data was limited and often done at working hours.

Duration of the research project: - The time frame given to carry out the research was very much limited. This research was done from December 2016 to 30 May 2017, which was not adequate due to some problems beyond the researcher's control.

1.8 Delimitation of the Study

The research is confined to one Mhangura Rural school, Ridziwi high school. The target population are form two students doing computer studies will be included in the research. Thus a total of 28 out of 92 students make up the population. Form two pupils who do computers are the respondents in the study.

1.9 Definition of Terms

Computer Bishop (2013) defines computer as digital electronic information processing machine which can be programmed. It is a machine that process data. It takes data in digital form which are processed automatically before being output in some way.

ICT (information and communication technologies) is diverse set of technological tools and resources used to communicate, and to create, disseminate, store, and manage information .

Education has been defined as an act of imparting or acquiring particular knowledge or skills as a profession. (Ogwo Maidoh and Onw 2015)

Computer literacy Gupta (2006) defines computer literacy as the individual's ability to operate a computer system.

Computer Education Nunan (1999) defines computer education as the process of learning or teaching about computers. It is the process of acquiring basic computer knowledge, ideas, skills, and other competencies so as to understand the basic terminologies, weaknesses of computers, potentialities of computers, and how they can be used to solve everyday problems.

Multimedia – The use of a variety of data and file types to present instructional material. This includes the use of text, audio, video, graphics, and animations.

Multimedia Instructional Tools – An instructional computer program or application that is created by applying instructional design techniques to present material for student learning through the use of interactive media (Yamauchi 2008).

Interactive Media – The combination of multimedia applications combined with computing and Internet technologies that allows users to individually control their access to and use and manipulation of the content (Chapman 2013).

Learning Strategies – The cognitive and meta-cognitive techniques and management of resources utilized by students to success in a course (Chapman 2013).

HEXCO - Higher Education Examination Council administered Computer Operations and Packages (COP) syllabus.

1.10 Summary

The chapter outlined the background of the study, statement of the problem, purpose of the study. It further outlined the research question, significance of the study, assumption, scope of the study and definition of terms to be used in the study. The next chapter is a literature review on the effectiveness of teaching strategies in the teaching and learning of computer studies, the

best resources needed when teaching computer studies and the perception of pupil on the learning media

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

The purpose of the literature review is to show the researcher's ability to find relevant information and to summarize existing knowledge. This chapter is focused on literature whose main purpose is to help researcher to find the effective strategies for teaching computer studies. The discussion will be based on the following sections: the most effective teaching strategies one can employ to enhance pupil's understanding of computer studies and the student's perceptions on use of different learning media?

2.2 Strategies for teaching computers studies

Computing technology is now being widely used in many fields in the society such as in controlling traffic, diagnosing ailments, prospecting minerals and in education as learning-teaching media. Knowledge in Computer Science therefore, is an important skill which improves problem solving and thinking skills to all students which can be used later in their future work stations. Williams, Sawyer and Hutchison (1997) point out that the use of Information and Communication Technologies (ICT) has brought tremendous progress in the field of education in developed and developing countries and it has also brought revolution in teaching-learning process by changing the roles of teachers and learners. He also said that the new ICT tools have changed the ways the people used to communicate resulting in significant transformation in industry, agriculture, medicine, business, engineering, and other fields. ICT has the potential to change the nature of education, teaching methods, and the role of students and teachers in the learning process. Gaytan & Slate (2002-2003) points out that the integration of technology into the teaching and learning processes has the potential to improve instruction by creating a technology-based, student-centered learning environment that allows students to take charge of their own learning.

When computers are used in education under the right conditions, they can speed up the process of student's acquiring of basic skills such as reading, writing, mathematics and sciences. Technological media motivate students to learn and give the students the will to be responsible for their learning. Computer technology helps speed up lesson preparations, report writing, analysing student's progress and issues relating to attendance and discipline. Moreover,

computer sciences make it easier for students and teachers to collaborate with other teachers and students globally (Baugher 1999). In language, a computer can present words to be spelled, sound to be made, instructions to be followed, images and symbols to be responded to by touching. Computer can be used to evaluate student's performance and direct student backward, forward and sideways for appropriate learning activities.

One significant change is the development of multimedia instructional activities. Multimedia is defined by Zin, Latif, Bhari, Salaiman, Rahman, Mahdi, and Jamain (2012) as a combination of many different types of media communications including text, graphics, audio, video, music, and animation. Eastman, Iyer, and Eastman (2011) states that Interactive media is incorporating multimedia with computing technologies.

Sanchez (1994) postulates that appropriate integration of technology in the classroom through the use of multimedia instructional tools coupled with a focus on student learning by changing to a student-cantered pedagogy results in an increased quality of education without increase in the cost. According to Schilling (2009) technology-based materials offer students on-going practice opportunities that provide immediate, high-quality, detailed feedback. High quality, timely, and frequent feedback can help improve student's work as well as their learning. Twigg (2000) said that Learning opportunities and formative assessments are available through the use of problem-solving activities, simulations, and practice assignments. Available summative assessment activities include computer-based quizzes, capstone projects, and computer graded exams. Research by Gantt (1998) has shown that assessment activities can be used to support student learning.

Computer science integration in the school curriculum fosters student centred learning. This is to say the student will be responsible for initiating his or her own learning while the teacher will act as a facilitator in the student's learning. Furthermore, computer technology provides a multimedia for imparting instructions to the students in the form of texts, audio and visuals. Computers as a media of learning are also suitable for the disadvantaged, whether it is due to disabilities or due to geographic location. It is important that students are provided with productive and relevant learning activities that encourage them to spend appropriate time on task. Multimedia instructional tools can provide students with these opportunities. The use of multimedia applications has been shown to improve student learning by providing meaningful student engagement with their activities (Anderson 2004).

According to Schilling (2009) Multi-modal activities that provide content using multiple modes of representation including text, visual images and simulations have been found to be more effective than traditional classroom activities in terms of learning outcomes and motivation due to their interactivity and perceived relevance. Stegeman and Zydney (2010) postulates that this type of activity provides for equal to significantly improved student learning and retention when compared to traditional instructional techniques.

Presenting materials in multimodal formats, including both auditory and visually, has effectively increased student learning. Research indicated that the use of multimedia materials improves learning and retention as compared to traditional approaches to instruction, including the use of lectures and Power-Point slide shows. Wang (2010) points out that the technology allows teachers to assist students in applying the material presented in textbooks.

Dong and Li, (2011) noted that Multimedia learning platforms encourage student to engage in active learning and allow the student to easily identify the proper learning method and achieve the learning target. Multimedia instruction has also been shown to make classes more vivid and interesting which can increase student learning, motivation, and class efficiency.

Many different levels and types of learning exist. Each learning type requires a specific type of instruction to support effective learning. Gagne, Briggs, and Wager (1991) identified nine instructional events as requirements for learning within the intellectual learning type used as a basis for higher education and often serve as the steps for planning instruction. He said that these nine events include gaining learner's attention, informing learner of the learning objectives, stimulating recall of existing knowledge, presenting new information, providing guidance and direction, requiring learner performance, providing feedback, assessing the learner's performance, and improving retention of the knowledge.

He continued to say that these nine events serve as the foundation for designing instructional materials although each of these events do not need to be provided for every lesson and the events do not always happen in the given order. The role of the instructional events is to stimulate information processing. Some events may be obvious to the learner rendering them unnecessary. One or more of the events may be provided by the learner themselves, especially in the case of self-directed learners. Multimedia interactive tool incorporate instructional

design to support student learning through the incorporation of these nine instructional events into specific components of the multimedia interactive media.

According to Gaytan and Slate (2003) Multimedia, Interactive Media and Virtual Learning Environments Multimedia has been defined as a combination of multiple types of media, including text, graphics, animation, music, sound and effects in communication. Interactive media is created when multimedia is combined with computing technologies. He continued to say that multimedia uses computers to present and combine the different media elements with links and tools that allows for the navigation, interaction, and communication by the users. Multimedia allows for a large range of options to be available for improved teaching and learning . Multimedia successfully increase student learning, especially for those with low achievement levels. Zin et al., (2012) noted that a student's level of understanding the instructional material is higher when multimedia applications are employed.

Additionally, communication between the teacher and student is also increased, which can have an empowering effect on the student. Computers on the network enable students to find information and to communicate with each other quickly. Nunan (1999) students find it easier to refer to the Internet than searching for information in fat books. Computer technology has made it possible for messages and data to be transmitted over the world in minutes or seconds, defying time, distance and space.

Multimedia adds multiple views of the content allowing a clearer picture of the subject matter. This adds richness and meaning to the material by providing additional visual and verbal information to increase the depth of learning (Neo, Neo, and Leow, 2011).

Chen and Sun (2012) Identified four main types of multimedia that are static text, image-based, video-based, and animated interactive. Multimedia has the ability to offer students video and animation that can clearly demonstrate complicated concepts in a way that works with student intuition and visual perception (Milovanovic, Takaci, and Milajic, 2011) .Video is often a significant component of multimedia technology. According to Van der Westuizen, Nel, and Richter (2012) video places the technology in control of the learner's activities that allows students to take a learner-centred independent approach permitting the instructor to spend more time on difficult material . The computer technology allows both the learner and the teacher to work with computer at any time they want. The computer can work 24 hours without rest unlike

the human being who need to rest. Fajola (2001) assets that the computer is diligent and consistent in its mode of operation, as it does not suffer from tiredness or lack of concentration like human beings. The computer systems are even cheaper for the education since they do not need break (work 24 hours a day for 7 days a week), thus it is more beneficial for nations to promote computers in its school curriculum

Chien and Chang (2012) identified three categories of multimedia lessons: static graphics, simple learner-paced animation, and full learner paced animation. Static graphics consists of pictures only. Simple learner-paced animation allows students to control the speed of the animation by stopping, rewinding, and replaying the instructional content. This reduces the cognitive load during the learning process and improves the learning outcomes over the use of static graphics alone. Full learner-paced animation allows students to directly manipulate the individual parts of the presented learning objects, or the entire object as a whole. Students gain full control of the representative process (Chien and Chang, 2012).

Hands-on learning activities provide this type of multimedia instruction. Students are provided authentic learning activities in a simulated Microsoft Office environment. Students are provided with tasks to complete. If they successfully complete the task, they move onto the next task. Students requiring instruction may choose a multimedia show-me video, an interactive step-by-step hints option, or traditional textbook instruction. Students have the ability to choose which activities they complete and how much instruction they obtain for each of these exercises (Chapman 2013).

Fajola (2001) point out that multimedia using video and animation does however, require additional computing resources for viewing and storage as video files and presentations typically produce large data files. Computers enable storage of data in the electronic format, thereby saving paper. Memory capacities of computer storage devices are in gigabytes. This enables them to store huge chunks of data. Moreover, these devices are compact. They occupy very less space, yet store large amounts of data. He continued saying that, Presentations, notes and test papers can be stored and transferred easily over computer storage devices. Similarly, students can submit homework and assignments as soft copies. The process becomes paperless, thus saving paper. Van der Westuizen, Nel, and Richter (2012) although text based information is cheaper, easier to develop, and has minimal computing requirements, audio and video has

the potential to improve student's knowledge, technological skills, and academic performance

Many researchers have found that technology-based instruction can be more effective than traditional instruction. Gantt (1998) reports that people retain 20% of what they hear, 40% of what they see, and 75% of what they see, hear and do. The use of multimedia allows for people to learn more naturally and more spontaneously using the modes they prefer. MMT allows users to pause, branch off into various directions, as well as to stop for further explorations (Stegeman and Zydney 2010). Therefore MMT increases flexibility and can improve the effectiveness of individual and collaborative learning while promoting self-directed learning. Multimedia instructional materials provides an improved learning performance as it can positively impact learners with different learning styles including visual and verbal learners (Chen and Sun 2012).

Zin et al., (2012) noted that one-way communication, chalk and talk by the instructor, often causes students to be passive recipients of information. This increases boredom and inattention by the students. Students need more visualization. He continued to say that student want more hands-on active learning assignments and edutainment. Edutainment are the new methods and practices that promote faster and more efficient learning through the use of entertainment methods that include gaming, interactivity, and multimedia (Rajendran, Veilumuthu and Divya 2010)

Limniou and Smith (2010), states that traditional instruction methods, including lectures with PowerPoint presentations, provide students with little motivation. This instructional approach has very little interaction. He also said that students are often bored and inattentive causing frustration, poor performance, and possibly withdrawal from the course. Multimedia can make the content more interesting and enjoyable for the students, increasing their motivation for learning. Dong and Li (2011) students are more successful in mastering required academic standards when they are immersed in hands-on technology-integrated projects that provide them with additional learning experiences. These activities engage the students in their own learning while making learning more relevant and useful.

An almost similar research carried by Jonassen (1996) was carried at a private senior secondary school in Botswana. He found out that Students and instructors indicated that in-class activities

designed to develop practical skills were the most helpful instructional strategy. He also found that, the least helpful teaching strategies were monthly tests and exams followed by readings from textbooks. PowerPoint presentations were rated the second most useful instructional strategy by the instructors but were rated as one of the least useful instructional strategies by students

Martin *et al.*, (2004) in their surveys found that, all the student focus groups mentioned that the in-class activities were the most helpful strategies and four focus groups thought that hands-on projects were helpful. He also found that, Instructors agreed with the students and mentioned that hands-on projects and in-class activities were the most helpful strategies used. The well-designed Power Point lectures and the online quizzes were also thought to be helpful by some of the instructors.

Martin *et al.*, (2004) Students and instructors thought that the readings from the textbook did not help in reaching the course objective. The coordinator also mentioned that the labs should be upgraded with the latest technology and students should also be taught more online and Blackboard skills. On his class observation he revealed that students seemed to dislike long PowerPoint presentations that instructors used to deliver lectures. He found again that the students liked the in-class activities and hands-on projects. He went on to say that students did not like the online quizzes and midterm, but the instructors felt that this strategy was useful to measure student learning. Students liked the hands-on finals that tested their skills.

Jonassen (1996) states that in order to achieve computer proficiency, tend to collaborate on classroom projects and work on annual inquiry projects by using the Internet and demonstrating their computer presentation skills. He also concluded from his research that whatever type of computer system used (such as desktops, laptops, or tablets) and wherever the computer is used (in a lab, on a wireless cart, or on a bedroom desk), students desire to have one-to-one access and consider computers as learning tools, as essential as a pencil or calculator.

Most frequently used methods by ICT teachers are demonstration, practice, question and answer, and lecturing methods. Problem solving, group discussion, and team work are other frequently used methods. He continued to say that ICT teachers do not prefer project method so often and inadequate duration of the lesson is the main reason shown to that. The teachers, in varying percentages, indicated that they draw student's attention, stimulate recall of prior

learning, summarize the topic and provide feedback in order to maintain learning. Also some teachers indicated that they helped students one to one. In terms of teaching materials, ICT teachers most frequently use course book. They also prefer written instructions prepared by themselves or by other teachers. Other sources such as web sites, animations, or videos are less often used (Lankshear and Knobel 2003).

It can be concluded that computer technology is a fundamental part of the student's educational life and it is therefore important to find the effective methods on how to teach computers to student. Students should be exposed to the field of computer sciences as early as possible. Moreover, students exposed to computer technology think differently from those not exposed and have better chances of getting better jobs after school. It was found that technological instructional media are more effective in the teaching and learning computer studies. Computer science education is based on the higher levels of Bloom's cognitive taxonomy since it involves design, creativity, problem solving, analysing a variety of possible solutions to a problem, collaboration, and presentation skills. Students can apply these skills to solve real world problems be it at home or their future workstations.

Hoon Chong and Ngah (2010) found no significant learning difference for high achieving students based on the use of multimedia instructional strategies. However, there were significant differences for low achieving students. (Hoon et al., 2010) Carefully and well-designed multimedia instructional tools can deliver content to students in ways that can increase their learning and improve the learning of previously covered material. The multimedia instructional tools should be interactive, student-centred, and engaging. The tool should create a structured, student-centred, student-paced, interactive environment that allows for the development of critical thinking and decision making skills in a safe educational environment. This allows students to have an increased ability to retain the material while allowing instructors to cover the content at a deeper level (Stegeman and Zydney 2010).

Some research has indicated improvement with the use of technology and computer-based instruction. Gaddy (2007) results of a study with seventh grade students showed the use of technology improved their achievement and perceptions towards science. The use of instructional technology has changed the educational process. The use of instructional technology combined with effective teaching strategies has huge potential for positive changes in the teaching and learning process (Hoon et al., 2010). Carefully, well-designed multimedia

instructional tools can deliver content to students in a manner that can increase and improve their learning.

2.3 Student's perceptions on use of different learning media

Effects of instructional methods also have been measured by assessing student's attitudes toward the instruction. Barlett and Strough (2003) noted that most of the studies reported that student's attitudes toward instruction were becoming more favourable after they were exposed to new technology-based instructional material. They said that students displayed more positive attitudes toward PowerPoint lectures. They claimed that when PowerPoint was used, the lectures were more organized and their main points were emphasized more. Students also believed learning was more effective when PowerPoint accompanied lectures. They showed improvements on self-efficacy concerning note taking capabilities.

Price, Lukhard and Postel (2005) assessed educational outcomes among students learning with traditional lecture versus CD-ROM. Although they found students preferred traditional lecture instruction, they suggested that when given the option of total self-instruction, students who knew they learned well using this type of instruction chose it but there were always students who preferred the traditional lecture method of instruction. To satisfy the diverse learning needs of students and enhance computer skills, the researchers concluded that it would be beneficial to offer courses that combine traditional lecture methods of instruction with computer-assisted self-study.

Milovanovic et al., (2011) noted that students prefer using modern approaches to learning including multimedia, educational software, and the Internet. Multimedia impacts student learning by allowing students to identify the relevant components from the material and internally organize them into meaningful visual and verbal representations that the students can then create internal connections between;

Rajendran et al. (2010) found that students preferred the multimedia instructional tools and computer assisted tools over the use of traditional teaching methods and textbooks. In his results of the study showed that 90% of the students recommended the use of the multimedia instructional tools and computer-based learning over the textbook. The technology increased the student's learning potential by allowing them to complete active learning exercises on their

own instead of simply watching and/or listening. This allowed the students to improve their knowledge and learning and allowed the instructor to explain the concepts more fully (Rajendran et al., 2010). Multimedia can add multiple views of the content, adding richness and meaning to the material, to increase student's understanding of the subject matter.

Perry and Perry (1998) surveyed 109 college students enrolled in two classes: computer information systems and teacher education. They concluded that students preferred to attend classes using multimedia presentations and that they found class more interesting and more enjoyable with multimedia.

The Yamauchi (2008) stated that multimedia could affect learning in a positive manner. In his survey it showed that, when multimedia materials were utilized, students found more material was covered. Students considered they learned and retained course material better, and they indicated they understood difficult concepts better. Moreover, Kim and Kim (2005) found that, when comparing a set of five teaching resources course Website, didactic lectures in class, laboratory activities, assignments, and textbook for teaching sanitation principles, students perceived the technology-mediated instruction as the most effective teaching resource to improve student's knowledge, followed hand on activities, and assignment.

2.4 Computer competency

The name computer literacy marks knowledge, abilities, skills, which the person needs to his job (Anderson 1994). Requirements for computer literacy vary, but may include an understanding of the basics of hardware, computer systems and ethics as necessary skills. Hoon, Chong, and Ngah (2010) determined that graduates should be proficient in word processing, presentation graphics, spread sheet analysis, database management, technical graphics, Internet use and electronic mail. Burns (2010) reveals that Word, PowerPoint, Excel, and Internet and World Wide Web were highly rated as useful topics by both instructors and students. He also found out that Microsoft Office skills are required for many jobs these days and have become a part of everyday life. These skills also assist students in their other classes.

Gupta (2006) basic parts and functions of information systems, system software, security and privacy issues, the use of application software (word processor, using a spread sheet, preparing a presentation), and accessing remote computers should be among the course objectives of a

basic computer literacy course. According to Ndahi and Gupta's study (2000) on workforce training, the most frequently required computer skills were word processing and the knowledge of database software.

Further graduates should be comfortable enough with computer and information technologies so that they could continue to learn new computer skills throughout their careers. Researchers at the University of Wisconsin-Stout also found that abilities in these same areas were important for both academic and career success for students in a wide range of majors (Furst-Bowe et al., 1995).

This shows that to be computer literate as stated by some researcher's one need to acquire skills such as application packages that is word processing, presentation graphics, spread sheet analysis, database management and technical graphics,.

Other requirements to be computer literate found by researcher's are electronic gaming, synchronous and asynchronous communication, weblogs, webpages, and multimedia text. Andrews (2004) researched the new literacies in computer technologies including the environment in which students learn how to read and write with multiple modalities (graphics, animations, video, audio, hyperlinks, and print). These other requirements are achieved when the student want to continue with computer studies at A level or want to go to university.

2.5 Summary

It has been observed that computers have a very significant role to play in education and national development. To be computer literate one need to acquire skills like word processing, spread sheet, database and other important application packages. These skills can be understood very well if the teacher uses the appropriate strategies when teaching computes. The uses of technological tools provide many benefits for students and instructors. Multimedia appeals to students of all ages It encourages self-expression, allows for better communication between students and faculty, provides a sense of ownership to the student, and creates an active-learning environment that provides authentic learning experiences (Gaytan and Slate, 2002-2003). Technology provides opportunities needed by today's student population. Students like the flexibility and convenience provided by the multimedia instructional tools. They find they are better able to manage their work and school life, can set their own self-

directed pace, and determine how much time they need to spend on their schoolwork. Technology, including multimedia instructional tools, has the potential and promise to improve education; however, this potential has not been proven as reality by existing research

CHAPTER 3: METHODOLOGY

3.1 Introduction

This study is aimed at finding the effective strategies on how to teach computer studies in rural areas at Ridziwi secondary school. In this research, student's opinions will be sought in order to establish the effective strategies for teaching computer studies. This chapter will go on to highlight the theoretical underpinnings to data collection and processing, location of study, ethical considerations, participant's selection and analysis procedure. The chapter will be rounded off by a discussion regarding the authenticity of the process of this research and its outcome.

3.2 Research Design

The researcher's study was based on the descriptive survey method. Descriptive survey involves describing of concepts and findings, recording of data, data analysis, and interpretation of data and inferences of research data. Descriptive survey is one of the most preferred methods because of its appropriateness in yielding reliable and accurate results.

3.3 Research subjects

The population under survey was Ridziwi high school form two students. The total population of students doing computer studies course at Ridziwi School was 92. Students who participated in this study were selected from this group. The sample size is described below.

3.4 Sample size

The sample had a total of 28 participants in form 2b comprising 15 girls and 13 boys. Small groups are easy to control, manage and work with. The researcher used simple random sampling. The percentage sample was 30% of the population. The researcher chose 30% because it was a large sample size which produced more reliable and valid results. A sample size of 30% can be relied upon to make valid and reliable conclusions regarding the population.

3.5 Sampling technique

Simple random sampling was the sampling technique which was used for the selection of the sample. Selection was random and it was done by placing cards with student number in a container and each volunteer randomly picked a card till the sample was enough. The researcher chose this method because it was easy to implement.

3.6 Instrumentation used

The research instruments used were tests after delivery of lesson using each of the teaching techniques under review. After writing the test students were interviewed using a structured questionnaire to determine how their perceptions on the teaching methods used.

The test method is operated in schools to determine student attainment and they give educators a sense of how well their students are learning, the concepts presented to them in the classroom. Tests provide information about pupil's performance and as a result give the researcher more room to evaluate pupil's understanding of the concept. This is the reason why the researcher used tests to collect data.

3.6.1 Disadvantages of test

Test cannot measure all that the child learns. This means to say that the effectiveness of tests is limited. Some pupils are slow and may fail to finish the test. Absenteeism by other pupils can give inaccurate information. The researcher overcame the problem by allowing those pupils who were not there to write the test and added more minutes to those who could not finish the test.

3.6.2 Questionnaires

A questionnaire was used to gather information from participants. The study includes both open and closed ended questions. The open ended questions enhanced the opportunity to gather rich and in-depth information as respondents were at liberty to express their feelings and experiences. A questionnaire was used because respondents had greater feelings of anonymity thus were more comfortable in expressing their real feelings on even personal or sensitive topics. It also provided a large amount of information in a relatively short time, hence was a

very efficient means of collecting data at a low cost. Moreover, it permitted greater uniformity on how the questions were presented thereby ensuring greater comparability in the answers.

However, a questionnaire had the possibility of getting misinterpretations about the questions. In addition, the questionnaire was dependent on the ability and willingness of the respondents to provide the information needed and the researcher had no way of developing respondent's ability or interest nor in determining the extent of his/her ability and willingness. Solutions to the disadvantages were attempted. The researcher made use of clear and simple language. Again Open-ended questions generated large amounts of data that took a long time to process and analyse. One way of limiting this would be to limit the space available to respondents on their concise or to sample the respondents and survey only a portion of them.

3.6.3 Semi-structured interviews

Semi-structured interviews were also used to collect data from the respondents. Face to face interviews were conducted. More so, the interaction between the researcher and respondents enabled the researcher to establish relationship with respondents, clarifying misunderstood training issues as well as further probing to collect valid and reliable data. Furthermore, interviews allowed the researcher to pick up nonverbal expressions from respondents. That is, any discomforts or stresses could be detected. The instrument's flexibility allowed the researcher to gather in depth information.

However, interviews had their own weaknesses. Interviewees may felt uneasy about the presence of the researcher and might have been tempted to give biased information. In an attempt to confirm the veracity and the authenticity of the interviews, the researcher undertook a pilot study, to ensure content and predictive validity.

3.6.4 Pilot study

The pilot study was done using 10 students. The purpose of the pilot study was to test the validity and applicability of questionnaires and to check whether all instructions and questions were clear. The questions were revised prior to being administered to the respondents. The researcher gave the first group of 5 student's questionnaires. The researcher randomly selected students who were put into free room and were asked to complete the questionnaires individually in the absent of the researcher. Questionnaires were collected after the completion.

The other groups were asked to complete the questionnaires individually whilst the researcher was monitoring. This helped the researcher to correct the mistakes which were made.

3.7 Teaching methods used

The teaching methods used were:

- (a) Traditional method (lecture method and power point slide show)
- (b) Group work
- (c) Multi-media with computing technology (video, animation, visual images, hands on practice)

3.7.1 Traditional method (lecture method, textbook and power point slide show)

The researcher contacted the first lesson on topic computer application software (spread sheet). The materials used in the teaching were text Book, white-board, board markers and exercise books. Teacher gave instruction to the students through traditional method, that is, by delivering lectures from the textbook, and regularly using the white board and power point slide show. The researcher introduced the lesson by asking the pupils types of application software. The researcher explained to pupils on the advantages of using spread sheet. The researcher presented charts and explained to them on how to install and create a spread sheet and how to insert column and row as well as to delete them. The researcher also explained on how to format numbers and words. The researcher explained to pupils how to calculate numbers using the required formulas used in excel. The pupils were given work cards with some questions to calculate numbers using the required formulas used in excel. . After the pupils had done the calculations by designing the required formulas, they presented their work and the researcher found out that pupils had difficulties on designing the required formulas. Questions were invited from the pupils during the lesson. After the coverage of the topic, the researcher gave the pupils a test. The pupil's performance was not pleasing. The 21% pass rate was not pleasing at all. Therefore, the researcher resorted to another method of teaching. Group work and explanatory method was used to try and correct the problem.

3.7.2 EXPLANATORY METHOD AND GROUP WORK

The researcher employed this problem solving method because of its several advantages. It assists pupils understand the topic easily since there will be pupil to teacher interaction and also pupil to pupil interaction.

During the lesson development the researcher ordered the pupils of mixed ability to sit in groups of 3. Work cards were distributed to the groups. Pupils were tasked to answer the given questions in groups. The researcher provided the pupils with enough media such as text Book, white-board, board markers, so as to promote understanding. The researcher invited pupils to present their works and some changes were made where necessary. By the end of the lesson a test was given. The pass rate improved from 21% to 39%.

However, the researcher discovered that group work method has its own challenges. As she was moving around each group to monitor the group work, pupils were noted making noise, it was also noted that others were passive while a few dominated the group discussion. As the researcher was marking it was noted that some students were not able to calculate numbers using the required formulas because they were not give chance to write what they discover in their exercise books. Hence, the researcher recognized that the group work method had some limitations and opted for other methods

3.7.3 Media with computing technologies (video, animation, visual images, hands on practice)

The researcher went on to conduct a lesson on application software. The researcher used hands on practice, hands on technologies, visual images to finish the topic. Cds flash and USB loaded with practical notes and video notes, software/programs were also given to them, and were told to install application soft wares and other programs in their computers. The researcher discuss with the pupils using videos, visual images and hands on practice. At the end of the topic the researcher then gave the pupils a test to write on which they did well with highest scoring and lowest.. The performance results were recorded. These then compared to the results of the previous test, traditional methods and group work. After the test pupils were inter viewed and given questionnaires.

3.8 Data Collection Procedures and Analysis

Permission was sought from the headmaster of Ridziwi high school to execute the research. Arrangements of the date of the interview were made. A cover letter accompanied the questionnaire and the questionnaires were hand delivered to participants. To remind respondents of the date of submission, reminders were sent and the questionnaires were collected after 24 hours.

Data from test was analysed using Univariate Anova in SPSS 21. The dependent variables were the test scores while the teaching method was the independent variable. Data from questionnaires were analysed using Microsoft excel package. It was used as the major tool for tabular and graphical presentations.

3.9 Summary

The chapter outlined the research methodology, target population, pilot study sampling techniques, research instruments. It further outlined research instrument which are questionnaires. The chapter concluded by outlining data collection procedures and data analysis procedures. The next chapter will look at data presentation and research findings.

CHAPTER 4 DATA PRESENTATION, INTERPRETATION AND DISCUSSION

4.1 INTRODUCTION

The purpose of this study was to examine the effective strategies for teaching computer studies and their perceptions of the learning media. Test scores of student's performance grades were computed and analysed. Results of this study are presented in the following parts: description of respondent's analysis of tests scores, analysis of student's performance grades, analysis of perception responses, and the findings are linked to the literature review to try to help the student understand computer studies. Tables and bar charts were used for presentation.

4.2 Effects of teaching strategies in teaching computer studies.

Lecture method and group work had no significant different ($p=0.364$) in the performance of students (Fig 4.1). However, multimedia with computing technologies, was significantly different from group work ($p<0.001$) and lecture method ($p<0.001$). Chong and Ngah (2010) found no significant learning difference for high achieving students based on the use of multimedia instructional strategies. However, there were significant differences for low achieving students (Hoon et al., 2010). He then concluded that carefully and well-designed multimedia instructional tools can deliver content to students in ways that can increase their learning and improve the learning of previously covered material. This is also in line with Gaddy (2007) who propound that some research has indicated improvement with the use of technology and computer-based instruction. In his study the results of a study with seventh grade students showed the use of technology improved their achievement and perceptions towards science.

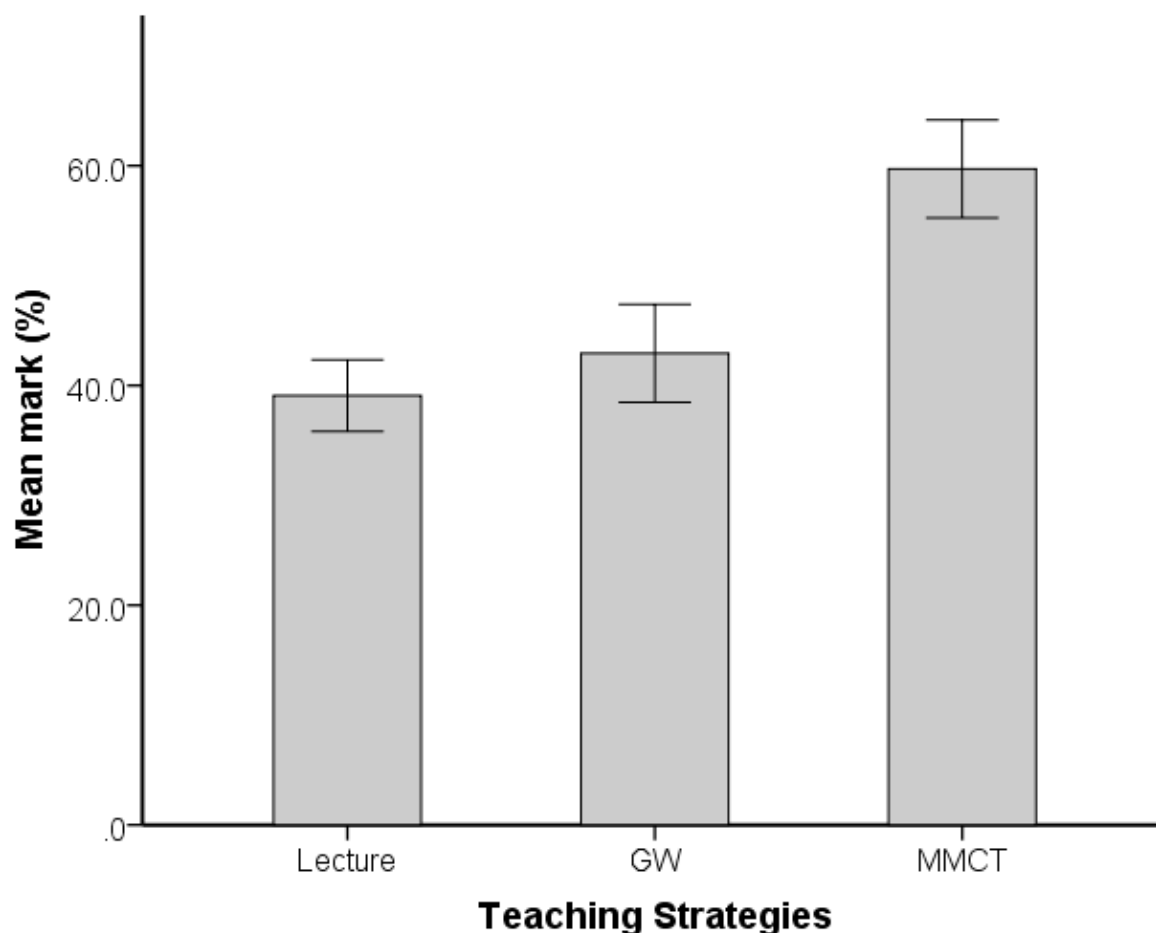


Fig 4.1 shows student performance under different teaching methods. Where GW is Group Work and MMCT is Multi-media Computing Technology teaching strategies (video animation , visual images and hands on technology).

From fig 4.1, shows the performance of pupils after the traditional method (lecture method and power point slide show) .The performance of the pupils was poor. Only six pupils passed the test. The performance of pupils in this test was not pleasing and very few were able to score more than 50%. This shows that the topic application software was not understood well. This is confirmed by Limniou and Smith (2010) who states that traditional instruction methods, including lectures with PowerPoint presentations, provide students with little motivation. This instructional approach has very little interaction. He also found that students are often bored and inattentive causing frustration, poor performance, and possibly withdrawal from the course. The study noted that six pupils who passed the test, four were new comers from other schools. They said that they did this topic from their previous secondary school and they started

learning computers at primary level. Most pupils got 30% to 40%. The mean score was 39.1% and the pass rate was 21%.

From the gathered data in fig 4.1 above there was an improvement in the pass rate of pupils after the pupils and the researcher used the group work and explanatory method. There was 39% pass rate. Although the pass rate was high, there was little different in their marks from traditional methods to group work. The researcher's aim was to get a pass rate which was better than the one presented above so some further research was done. Multimedia with computing technologies and interactive media such as image based, video based and animated interactive were used. Hands on practice, were also used to further the research progress in order to meet the research objectives.

Pupils were then given a series of tests after being retaught using the explanatory method and group work. From one method to the other pupils showed an improvement in performance, especially after being retaught using the hand on activities. The performance by 39% of the pupils was pleasing and 61% failed on the second test. Their marks were below the average 50%.

The interactive method and multimedia with computing technologies (videos, visual images, hands on practice and in class activities) showed to be the best method of teaching the topic application software. After the researcher gave the third test, she noted some improvements by pupils. Pupils did very well. The 75% pass rate indicates a clear improvement. This is in line with Chen and Sun (2012) who found that multimedia instructional materials provides an improved learning performance as it can positively impact learners with different learning styles including visual and verbal learners, This also confirmed by Dong and Li (2011) who found that students are more successful in mastering required academic standards when they are immersed in hands-on technology-integrated projects that provide them with additional learning experiences. These activities engage the students in their own learning while making learning more relevant and useful. Student's level of understanding the instructional material is higher when multimedia applications are employed.

4.3 Student perceptions on computer studies.

Table 4.1 Percentage response rate for questionnaire

Instrument	Targeted number	Actual	Success %
Questionnaires	28	28	100%
Total	28	28	100%

A total number of 28 questionnaires were distributed to form 2 pupils and of these all questionnaires were successfully completed and returned. The questionnaire response rate (100%) was high enough to enable generalisations of the research findings of the study. A response rate of at least 80% for questionnaires enables researchers to make reasonable conclusions about the research. This meant the sample was a representative of the population. The high response rate was attributed to the fact that the researcher had direct contact with respondents on a daily basis and the respondent had a better understanding of the subject.

Table 4.2 Percentage response rate for interview

Instrument	Number targeted for interviews	Interviews Conducted	Success %
Questionnaires	28	28	100%
Total	28	28	100%

The results in Table 4.2 above indicated that the students initially earmarked for interviews were successfully interviewed giving a response rate of 100%.

4.3 Response on gender

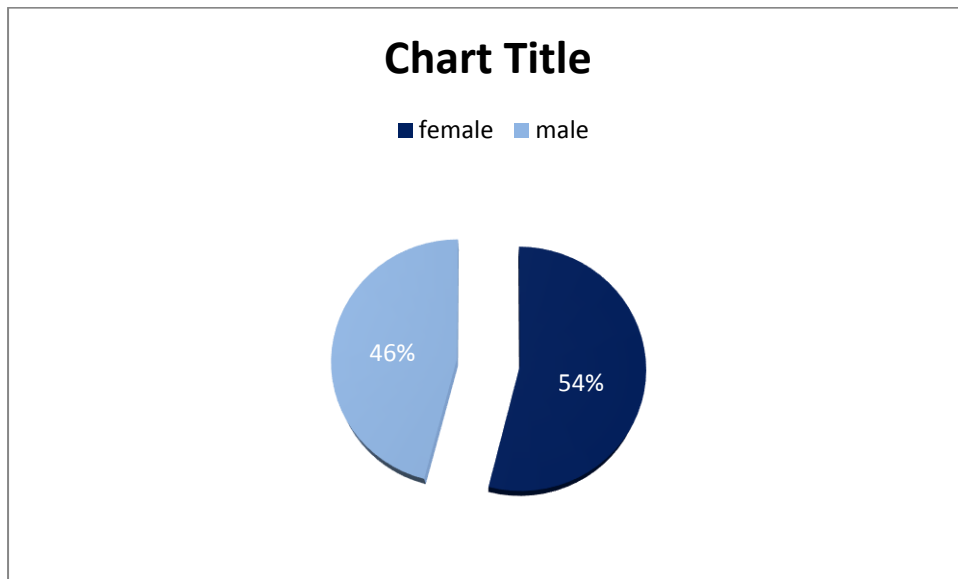


Fig 4.2 Percentage response rate on respondents by gender

4.3.1 Which is your favourite practical subject offered at your school? Give reasons

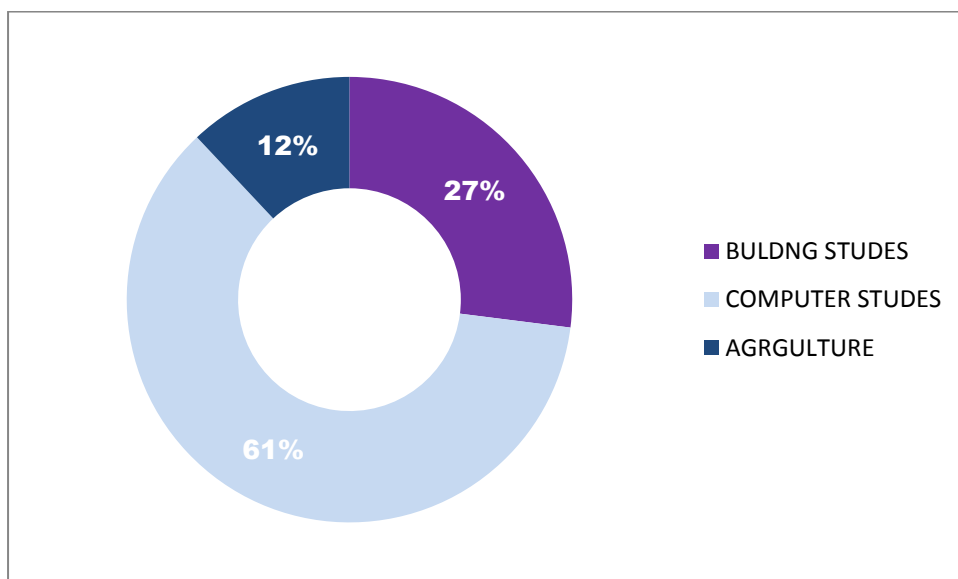


Fig 4.3 Percentage response of favourite practical subject

Fig 4.3 results above showed that 75% of the responded like computers. This results improved from the previous results of the test which showed 69% respondent who like computers. The results increased after the pupils were introduced to multimedia with computing technologies

which made them to understand the topic better. They gave the reasons that learning by video and visual images is a funny way of learning things and also you can replay and stop the video so as to understand the topic. This is line with Chien and Chang (2012) who found that simple learner-paced animation allows students to control the speed of the animation by stopping, rewinding, and replaying the instructional content. Full learner-paced animation allows students to directly manipulate the individual parts of the presented learning objects, or the entire object as a whole. Students gain full control of the representative process

4.3.2 Do you like the way the topic application software was taught using the given media?

The researcher to have a light if pupils understood the way the topic application software was taught. Fig 4.4 shows the results.

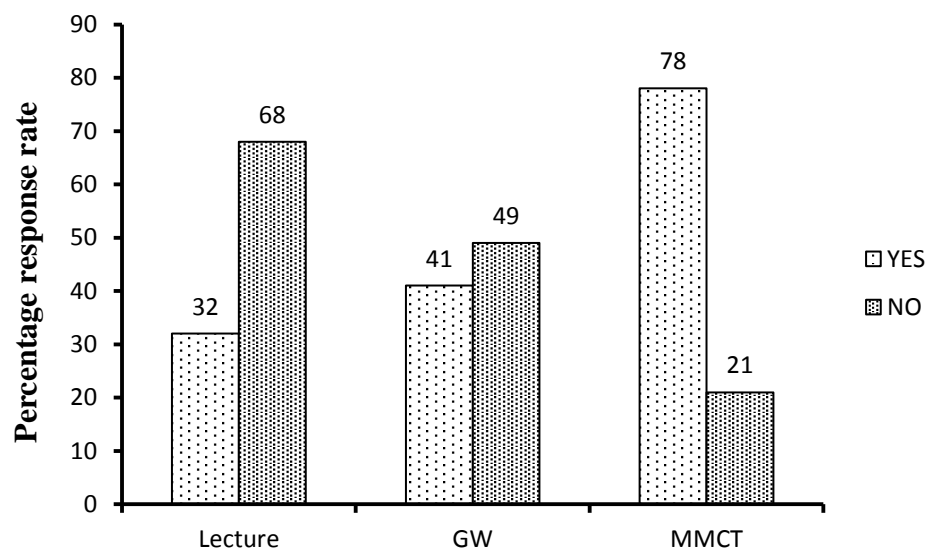


Fig 4.4 percentage response rate on the way the topic was taught. Where lecture is lecture plus power point presentations, GW is group work and MMCT is multi-media with computing technologies (videos, visual images animation).

The data above shows that 78% of the pupils like the way they were taught using the multimedia with computing technology. The reason why they felt they liked the way it was taught was that they had understood the topic very well. They actually hinted that they understood everything during learning but need more practice in practical lessons so as to

understand the topic The other 68% did not like lecture method and power point slide show. They said the topic could be taught in a better way. They also said that they do not understand how to design formulas in excel. They asked if there are better ways to teach the topic. Martin et al., (2004) found that students and instructors thought that the readings from the textbook did not help in reaching the course objective.. On his class observation he revealed that students seemed to dislike long PowerPoint presentations that instructors used to deliver lectures. He also found that the students liked the in-class activities and hands-on projects.

4.4.4 Is it important for the pupils to learn this topic computer application? Give reasons?

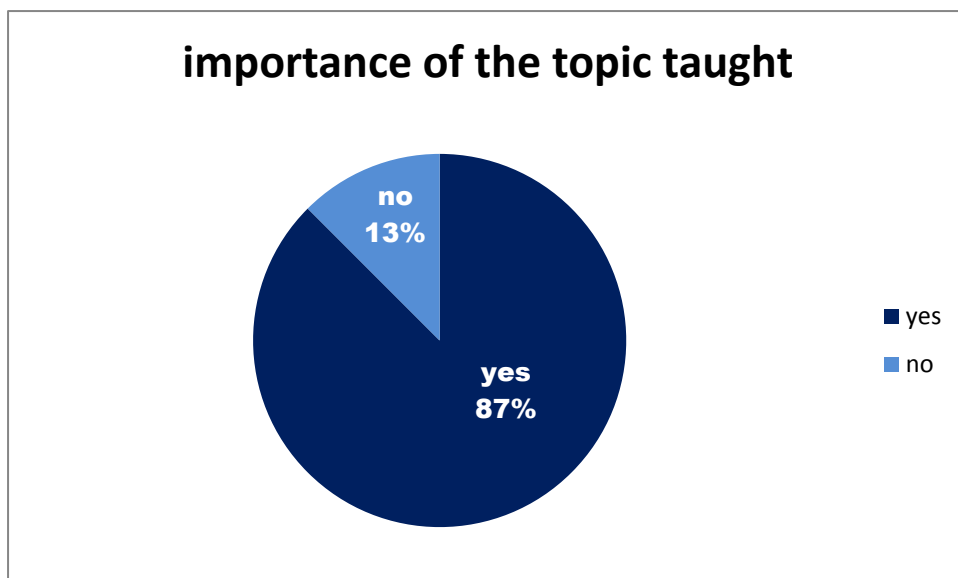


Fig 4.5 Respond rate on the important of the topic.

Fig 4.5 above indicated that 87% of the respondent indicated the topic taught is important. They gave the reasons that the application software (micro soft word, excel database and publisher) are application that they will use to write assignments when they go to university. This is in line with Furst-Bowe, Boger and Franklin (1995) who said that in order to be successful in academic programs and careers, it is essential that university students possess improved computer skills. This is confirmed by Ndahi and Gupta (2000) who propound that the most frequently required computer skills are spread sheet, word processing and the knowledge of database software. Furthermore Lahore (2008) noted that many faculties expect students to

know how they should use a word processor to create and format papers, make use of software for classroom presentations and speeches, use spread sheet software to prepare charts and graphs, navigate the internet for research, and have the ability to learn and participate in online classrooms using various software.

4.4.5 Which method of teaching strategies do you prefer in learning this topic?

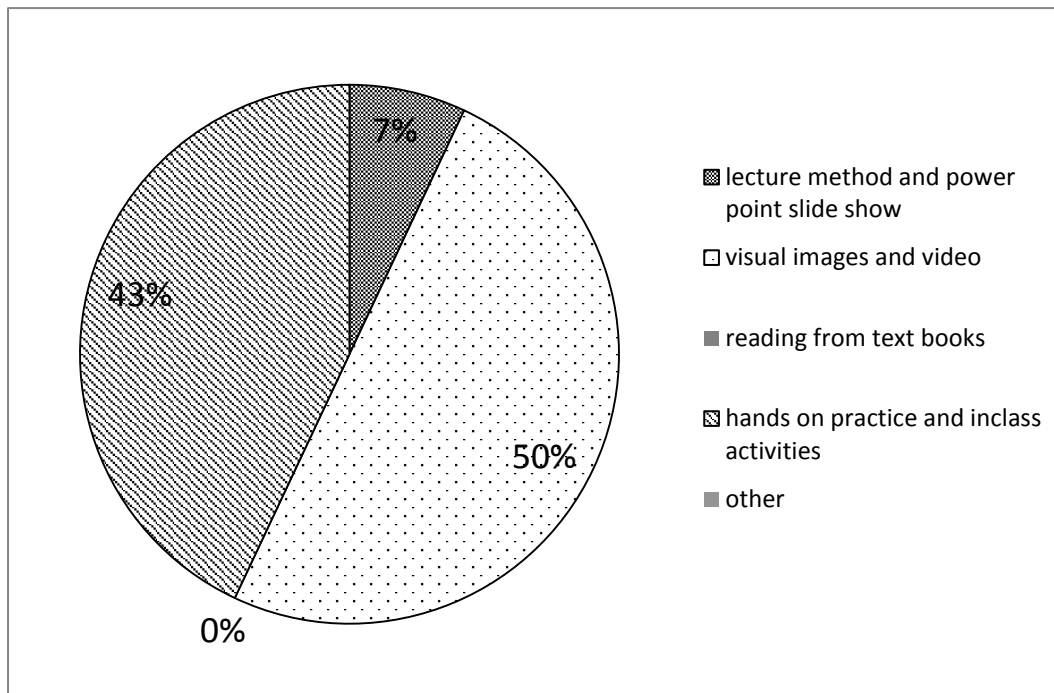


Fig 4.6 Response rate on the teaching strategies.

The results in fig 4.5 showed that most of the respondent 50% prefer visual images and video. They gave reasons that learning by visual images and video is a funny way of learning. They also said that they can replay the video so as to understand the topic. These findings are confirmed by Milovanovic et al., (2011) who found that students prefer using modern approaches to learning including multimedia, educational software, and the Internet. These results are also consistent with the findings of Stegeman and Zydne (2010) who conclude that the use of multimedia allows for people to learn more naturally and more spontaneously using the modes they prefer. Videos allow users to pause, turn off into various directions, as well as to stop for further explorations. 43% of the respondent indicated that they prefer hands on practice. They said that learning by doing enable them to understand topic and they will not forget what they learnt in hands on way in their life. This is also confirmed by Gantt (1998)

who found that people retain 20% of what they hear, 40% of what they see, and 75% of what they see, hear, and do. This showed that pupils understand computer studies better when doing practical. Something they have done practically they will not forget it. Pupils stated that that they still remember some off the concepts taught practically at primary school. These pupils encouraged for individual practical and other motivational teaching methods. Pupils also stated that all the topics in computer studies they enjoy them as long as they do practical 7% like lecture method and no respondent prefer reading from text books. They gave reasons that some text books use words that are difficult to understand. This is confirmed by Zin et al., (2012) who found that that one-way communication, chalk and talk by the instructor, often causes students to be passive recipients of information. This increases boredom and inattention by the students. He continued to say that student want more hands-on active learning assignments and edutainment. This showed that technology-based instruction can be more effective than traditional instruction.

4.4.6 To what extend did you enjoy use of the following teaching strategies in learning the topic application software

Table 4.3 Percentage distribution of respondents' perception on the teaching strategies

Teaching strategies	RESPONSES (%)					Total
	Most helpful	somewhat most helpful	Neutral	Somewhat lesser helpful	Lesser helpful	
lecture method and power point slide show	0	11%	4%	43%	42%	100%
reading from textbook	0%	7%	10%	46%	37%	100
hands on practice and in class activities	50%	34%	12%	4%	0%	100
Visual images videos and animation	57%	36%	0%	7%	0%	100%
Group work	24%	21%	0%	33%	22%	

The findings in Table 4.3 Above revealed the following perceptions

Media one: Lecture method and power point slide show

Findings in media one indicated that the majority of the respondents (85%) indicated that Lecture method and power point slide show are less helpful. This is in line with Baliyan, (2012) who propound that PowerPoint presentations were rated the second most useful instructional strategy by the instructors but were rated as one of the least useful instructional strategies by students

Media 2: Reading rom text books

Findings in media two indicated that the majority of the respondents (83%) indicated that readings from text book are also less helpful. These findings are confirmed by Martin, Gulikers and Bastiaens,(2004) who found that Students and instructors thought that the readings from the textbook did not help in reaching the course objective

Media 3 Hands on practice and in class activities

Findings in media three indicated that the majority of the respondents (84%) indicated that hands on practice and in class activities are helpful. This is in line with Hirschbuhl and Faseyitan (1994) in his survey results showed that all of the three hands-on strategies (Hands-on projects, In-class activities, Hand outs for activities and projects) were helpful. He also found that the overall rating of hands-on strategies was much higher than the overall rating of other strategies. This result is consistent with student questionnaires that indicates that skills are learned through hands-on practice

Media four: Visual images and animation

Findings in media four indicated that the majority of the respondents (93%) indicated that visual images and videos are helpful. They gave reasons that videos and animations allowed them to learn at their own speed Chien and Chang (2012) simple learner-paced animation allows students to control the speed of the animation by stopping, rewinding, and replaying the instructional content

Group work

The majority of the respondent indicated that group works (55%) are less helpful. Schilling (2009) said that in order to give students more attention in class, the class size should be small enough for the instructor to provide individual assistance

4.4.7 What suggestion do you have to improve the learning of the topic?

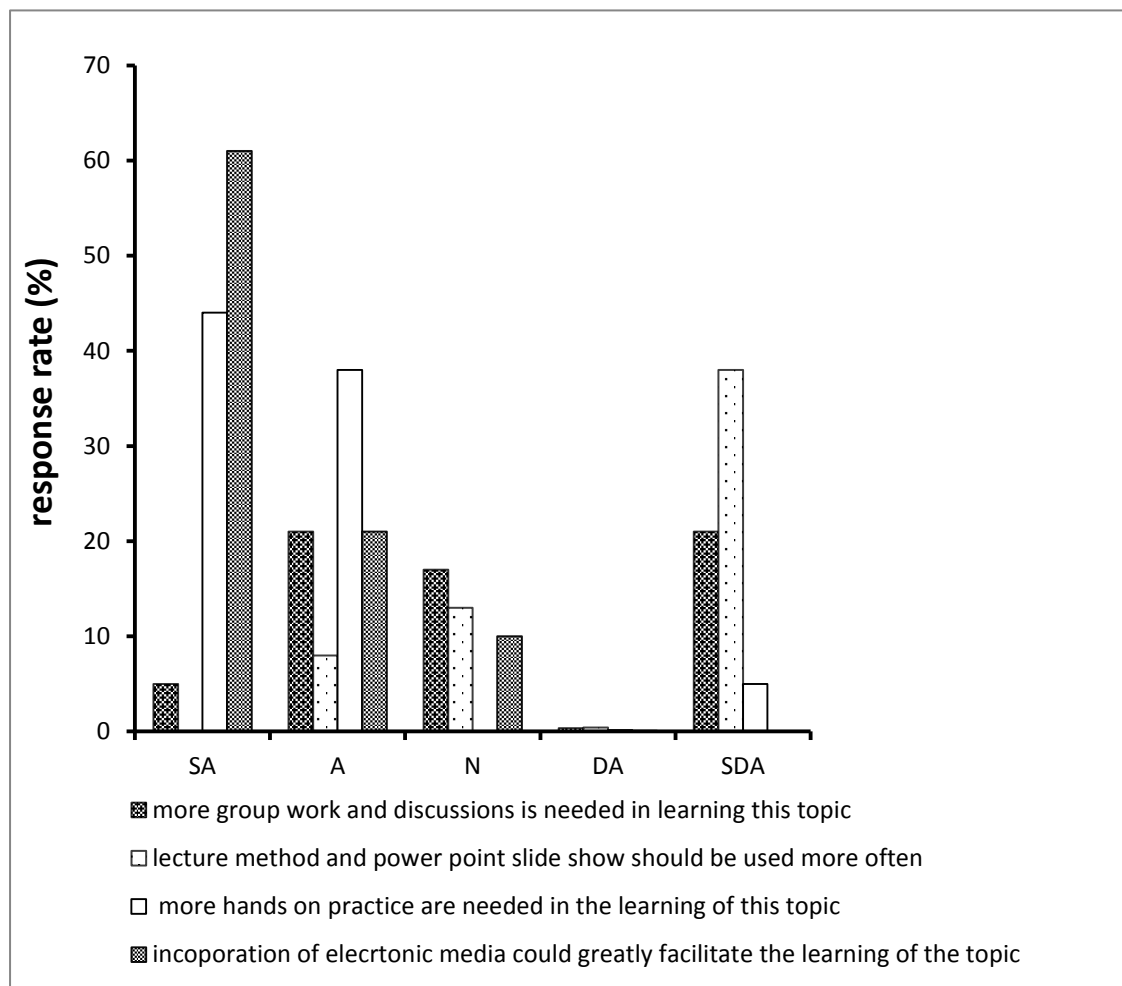


Fig 4.7 Response rate on suggestions for improving the learning of computer studies Where (i)SA- Strongly agree, (ii) A-Agree, (iii) N-Neutral (iv) DA-Disagree and (v) SDA-Strongly disagree.

The fig 4.7 above indicates that the majority of the respondent (88%) agree that incorporation of electronic media could greatly facilitate the learning of the topic .80% off the respondent

agreed that hands on practice are needed in the learning of computer studies.79% of the respondent disagree that lecture method and power point slide show should be used more often.55% respondent disagree that more group work and discussions is needed in learning this topic. Zin et al., (2012) found that students need more visualization. He continued to say that student want more hands-on active learning assignments and edutainment.

4.4 Summary

This chapter presented, analysed and discussed collected data in relation to the research questions. Tables, graphs and pie charts were used to present research findings and this revealed the effective strategies for teaching computer studies at Ridziwi high. An attempt was also made to link respondent views to the literature review. The next chapter will present research findings, conclusions and recommendations, and even highlight future studies to be carried out in the research area.

CHAPTER FIVE: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.0 Introduction

This chapter rounds off the research study by first summarizing the whole study, clearly bringing out what has been actually done during the research period. This is followed by conclusions that have been made after analysing research findings. Lastly, recommendations are provided so that measures will be taken to introduce effective teaching strategies for teaching computer studies at Ridziwi high

5.1 Summary of findings

The study sought to analyse on the effective strategies for teaching computer studies. The researcher had to answer a few research questions during the study period. These are

- What are some of the most effective teaching strategies one can employ to enhance pupil's understanding of computer studies?
- What are student's perceptions on use of different learning media?

A number of assumptions were also taken into consideration during the research study. The researcher assumed that, when collecting data from respondents, they gave honest answers. However, there were a number of limitations that were encountered during the research study. For example, the researcher had financial constraints, time constraints, and transport problems. The researcher had to then find literature related to the study area. This information was obtained from textbooks, and from the internet, on what other authorities say about the effective strategies for teaching computer studies.

On research methods, the researcher used both quantitative and qualitative research. 28 pupils from form two at Ridziwi high schools were identified as the population of the study. Random sampling method was then employed to choose the pupils who would provide information for this research. Test, interviews, group discussions and Questionnaire, were used to gather information from pupils. Data and information obtained from tests, group discussions, questionnaires and interviews were analysed using tables, pie charts and column charts. Discussion and views of the respondents were also made at each finding.

5.2 Conclusion

On the first objectives it has been found that most respondent prefer visual images, videos and hands on practice. The researcher recognized that multimedia with computing technology such video, animation and visual images play an important part in learning computer studies. Through using these aids, pupils can understand the topic application software. The researcher found out that pupils were motivated by using multimedia with computing technologies. The researcher also discovered teaching methods such as hands on practice played an essential role in correcting the problem faced by pupils in understanding the concepts on the topic application software. Pupil's attention was drawn when various teaching methods were used. The Multimedia with computing technologies showed to be very effective after pupils were given tests. The researcher realised that through employing teaching methods and varied motivational teaching aids pupil's benefits from the lesson such that at the end they yield better grades. Pupils accomplished high marks after the third post because the researcher used various motivational methods. This showed that the objectives of the researcher were met.

On the second objective the researcher found out that most respondent like the subject computer studies. She also found that the topic application software is an important topic as it helps the pupils to carry out their tasks.

5.3 Recommendation

The use of multimedia with computing technologies such as video helps pupils to understand the topic. Teachers should use motivational teaching aids effectively in the teaching and learning of computer studies. The aids used should motivate the pupil's to learn the topic computer studies. Teachers must use practical media and videos so that pupils will be able to understand the topic more. Teachers must work to determine the best use of the tools within their specific course and for their students. Different instructional approaches should be included to provide flexibility of instruction and to appeal to students with different learning styles.

5.4 Areas of further study

Lastly, the study recommends that a similar study be executed on a wide scale in other schools in rural areas in order to generalise the findings from this case study. Also the study recommends finding the different between girls and boys performance on computer studies.

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RIDZIWI HIGH SCHOOL

P O BOX 13

MHANGURA

Dear Sir

**RE: REQUEST FOR PERMISSION TO CARRY OUT A RESEARCH AT RDZIWI
HIGH SCHOOL**

I am a student at the Bindura University of Science Education, studying Bachelor of Science education (Honours) Degree in Computer Science. It is a requirement of the university that all students on attachment carry out research projects in partial fulfilment of the degree's requirements. I am therefore kindly seeking permission to carry out a research at this school on the effective strategies for teaching computer studies.

Your reply and assistance will be greatly appreciated.

Yours faithfully

Vongai Mureva

Student Registration Number (B1026094)

APENDIX 2

Questionnaires for respondent

1. Please respond by ticking a box

Gender

☐

Male

Female

☐

2. Do you like the way application software was thought

Yes

☐

No

☐

3. Which of the following is your favourite practical subject offered at your school. Give reasons

Building

☐

Agriculture

☐

Computer studies

☐

Reasons

4. Is it important for the pupils to learn this topic computer application? Give reasons.

Yes

☐

No

☐

Reasons

.....

.....

5. Which method of teaching strategies do you prefer in learning this topic? Give reasons

Lecture method and power point slide show

☐

Visual images, animation and video

☐

Reading from text book

☐

Hands on practice and in class activities

☐

Reasons

6. To what extent did you enjoy use of the following teaching strategies in learning the topic application software

Teaching strategies	RESPONSES (%)					
	Greater extend	somewhat greater extend	Neutral	Somewhat lesser extend	Lesser extend	Total
visual images and videos						
lecture method and power point slide show						
reading from textbook						
hands on practice and in class activities						

7. What suggestion do you have to improve the learning of the topic?

Statement	SA	A	N	DA	SDA	TOTAL
more group work and discussions is needed in learning this topic						
lecture method and power point slide show should be used more often						
more hands on practice are needed in the learning of this topic						
incorporation of electronic media could greatly facilitate the learning of the topic						

APPENDIX 3: INTERVIEW GUIDE FOR PARTICIPANTS

INTERVIEW GUIDE FOR INTERVIEWEES

1. Is computer studies your favourite subject
2. What benefits do you think one can get from learning computers
3. Is it important for the pupils to learn the topic application software? give reasons
4. Which method of teaching strategies do you prefer in learning this topic
5. To what extent did you enjoy use of the following teaching strategies
6. What difficulties did you encounter in learning this topic