

ICT as an Innovative Tool in Sharpening Students' Creative Skills

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ABSTRACT: *The study sought to sharpen the creative skills of students in the use of ICT. Pre-test and Post-test was used for the study. The pre-test determined the knowledge and skill level before the intervention was implemented. The post-test assessed the efficacy of the intervention. The study made use of second year students at Kumasi Senior High Technical School. In all, 50 students were selected by simple random sampling to participate in the study. Operational sheet was used to implement the intervention. Students were asked to come out their own drawings, reproduce a given drawing and to draw the front view of the school. A pre-test and post-test observations was carried out during the intervention and at each level of the intervention, students' performance in the post test outweighed the pre-test. It was concluded that the intervention was effective. It has sharpened the creative skills of students in using the ICT. The recommendation, though numerous, have one perspective that indicates that the teacher should relate the teaching and learning of computer programs to subjects taught in school to enhance students understanding in the use of ICT to solve the day to day problems in the society.*

KEYWORDS: *Operational sheet, ICT, students' skills, drawing tools*

I. INTRODUCTION

The contribution of academic knowledge and more especially Information and Communication Technology (ICT), to economic and social development of societies is widely emphasized. This recognition has raised attention to the role of ICT and its relevance in education. As pointed by Mikre (2011), ICTs are exerting impacts on pedagogical approaches in the classrooms.. This is to the advantage of advances in Information Technology (IT) that have changed ways of communication in education and delivery of knowledge to society (Patricia & Robert, 2013). According to Dabla & Dabla (2013), the delivery of knowledge using ICTs has influenced the design of various educational programmes nationally and globally, in launching of different educational programmes.

In view of the research, the term ICT is referred to drawing tools in Microsoft Word application which is now part of the second year Senior High Schools education in Ghana. According to Williams, Sawyer and Huchinson (1999) word processing software allows you to use computers to format, create, edit, print, and store text material, among other things. Popular word processing programs are Microsoft Word, Corel WordPerfect, Word Pad, Note Pad and WordPerfect. Microsoft Word processing software is designed to make the creation of professional-quality documents fast and easy. Unlike a typewriter, word allows users to edit; delete, insert, cut, copy and paste and, even add graphics to document (Loudon, Rosenblatt, Domis, 2000).

This study is more concern with the drawing tools in word processing application. Drawing is a form of visual art that makes use of any number of drawing instruments to mark a two-dimensional medium. Instrument used include graphite pencils, pen and ink, inked brushes, wax colour pencils, crayons, charcoal, chalk, pastels, various kinds of erasers, markers, styluses, and various metals such as silverpoint. An artist who practices or works in drawing may be called a draftsman or draughtsman (Edwards, 2001).

Students normally draw objects with pencils and sketch pad. To test their understanding in the use of ICT using MS Word processing application, the Senior High School (SHS) 2 students of Kumasi Senior High Technical School were asked to draw some objects with the MS Word application. This is part of their ICT second year syllabus. However, they found it difficult to draw meaningful objects with MS Word processing application. It was observed that, they do not know how to use the drawing tools with the help of the mouse and keyboard to design meaningful objects.

The study intends to find out how ICT tools which involves operational sheet can effectively help refine the creative skills of second year students of Kumasi Senior High Technical School. The objective is to use operational sheet to guide students, drawing simple and complex objects using MS word application drawing tools.

A. Research Question

The following was the research question raised by the researchers that aid in achieving their stated objective;

How will the use of intervention guide students to draw simple and complex objects using ICT?

B. Significance of the Study

The need to refine the creative skills of Second Year students to effectively use the drawing tools in MS word application for drawing, especially at Kumasi Senior High Technical School is worth it. This study demonstrates to teachers, students and all users of MS word processing application how to effectively use of the drawing tools in MS word processing. Particularly, it will help students to use the drawing tools in the MS word processing application which could increase their productivity. Most often when using MS word processing application, users switch between programs when they want to draw object. The study will guide ICT teachers when teaching students on how to use the drawing tools in MS word processing application.

II. LITERATURE REVIEW

With numerous global advancements in ICT it is essential that educators have a thorough working knowledge of these media and their influence on the performance and engagement of their students (Zhang & Martinovic, 2008). Previous studies had shown that ICT is an effective means for delivery education to a wide audience of persons, but involves the students adapting to some creative skills in their learning process. Information technology has been developing fast and of late, many have tried to tie education in with it (Shuang & Buhari, 2010), whereas bringing out creativity among students. Creativity is bringing out the ability in student's skill in providing solution to problems. The integration of ICT in teaching and learning has changed the way curriculum is designed, the way we learn, and changing the way we communicate (Azizan, 2010). Students are now expose to technological tools due to

curriculum change that aid them in learning which better explain abstract contents, this involve for example the use of drawing tools in Microsoft Word (MS) Application. The use of drawing tools in MS word processing is one of those tools that assist student in drawing with their task schedule in an operational sheet which are components of duly scheduled tasks related to a particular process to adapt. The drawing tools are added features to Microsoft Word (Linda & Linda, 2000).

A. Integrating ICT in Schools

The speed with which the revolution of Information and Communication Technology (ICT) has taken place is phenomenal (Jo, Geert, Mieke, Johan and Martin, 2009). Effective integration of Information and Communication Technology (ICT) into teaching and learning is becoming an essential competency for teachers (Qiyun Wang, 2008), who have to be trained on various ICT skills. The general assumption is that once hardware and software are readily available in schools, ICT integration will automatically follow (Cher & Myint, 2006). But integrating ICT in schools is more than having available hardware's and software's. This will also involve teacher's awareness, skills and readiness in using ICT. To some extent, students' ability to cope with the new trend is also a consideration. While some teachers are willingly to implement the use of ICT in their curriculum, others are of the view that it might slow the pace of learner because of the struggling digital migrates. However, ICT curriculum integration is neither valued neutral nor universally understood (Romina, Paul, Glenn & Glenice, 2006) as schools tend to initiate the use of ICT in their curriculum. In many countries, information and communication technology (ICT) has a clear impact on the development of educational curricula (Jo, Johan & Martin, 2007). The primary motivation for integrating ICT in education is the belief that it supports students in their own constructive thinking, allows them to transcend their cognitive limitations, and engages them in cognitive operations that they may not have been capable of otherwise (Salomon, 1993).

III. MATERIALS AND METHOD

Action research approach was adopted for the study. The rationale for choosing this design is to help in improving pupils’ learning, because of its high impact on classroom practice. The intended population was all 2 year students in Senior High Schools in Kumasi. Due to the large number sampling, simple random sample was used to identify the respondents. Data were collected using tests, project works, and observations. Observation: this was done using informal observation method. Under this method, students were made to work with the computer to draw simple objects. Observation

was made without the students’ knowledge. Simple objects were drawn on the chalkboard for pupils to draw with the computer as the pre-test and those objects were converted to complex objects which were also drawn on the chalkboard for students to draw with the computer as the post-test. Again, students were given five objects to draw, two of these objects were used for tests and three were used for project work. This was to test the students’ understanding after the intervention. The results from the data were gathered, analysed and cumulated into tables and charts. Tables and charts are descriptive statistics.

A. Intervention Design and Implementation

Figure 1 below shows the object in which the students were asked to draw while the observations is taking place. Steps to take while drawing are indicated in Table 1 below.

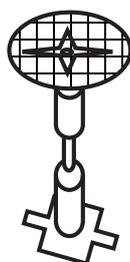


Figure 1: Object for students to reproduce

Table 1: Indicating the Steps for Drawing the Object in Figure 1

STEP	OPERATION	DEVICES
1	Click on AutoShapes from the drawing toolbar.	Computer, Mouse
2	Select Basic shapes	Computer, Mouse
3	Select oval. Click, hold and drag to draw circle	Computer, Mouse
4	Repeat steps 1 to 2 and select can to draw cylinder under circle.	Computer, Mouse
5	Repeat step 4 to draw a smaller cylinder under the first one	Computer, Mouse
6	Repeat step 4 to draw another cylinder almost same as the first one under the small cylinder.	Computer, Mouse
7	Repeat steps 1 to 2 and select cross and draw it under the bottom cylinder. Use the rotate handle to till it to show isometric.	Computer, Mouse
8	Repeat step 1 to 2 and click on 4-point star to draw the star in the circle.	Computer, Mouse
9	Select an oval from the drawing toolbar and draw a small circle in the star as nut.	Computer, Mouse
10	As the small circle is selected click on fill colour from the drawing toolbar and select a colour.	Computer, Mouse
11	Select the bigger circle and click the fill colour arrow.	Computer, Mouse
12	Click on the fill effect from the fill colour menu. Fill effect dialog will appear.	Computer, Mouse
13	Click on the Pattern Tab, select the square pattern and click OK.	Computer, Mouse
14	Select the 4-point star and repeat steps 12 to 13.	Computer, Mouse
15	Click on select object button to select all the objects	Computer, Mouse
16	Right click on the object, select group from the menu and click group.	Computer, Mouse
17	Click on the object, select line style and increase the line width of the object.	Computer, Mouse

IV. RESULTS AND DISCUSSION

The data for the study was gathered from second year students of Kumasi Senior High Technical School. The observations carried out during the intervention were pre-test and post-test and at each level of the intervention, students’ performance in the post test outweighed the pre-test. The results are shown below.

A. Pre-intervention Result

This stage deals with data collection results before the intervention was implemented. The pre-intervention used were test, project works and observations. The data collected and how they relate to the research questions are explained below:

B. Research Question:

How will the use of operational sheet guide students to draw simple and complex objects using MS word application drawing tools?

Under this, students were made to reproduce an object drawn on the board by the instructor with the computer. Observation was made without the students’ knowledge and scores were awarded and put into chart. Table 2 shows the scores obtained from a test after the second pre-intervention before the use of operational sheet.

Table 2: Scores obtained from a test after the second pre-intervention before the use of operational sheet

Marks (%)	Frequency	Percentage
0 - 10	22	44.0
11 - 20	18	36.0
21 - 30	10	20.0
Total	50	100.0

Table 3: Scores obtained from test after the use of operation sheet

Marks	Frequency	Percent age
61 - 70	16	32.0
71 - 80	18	36.0
81 - 90	12	24.0
91 - 100	4	8.0
Total	50	100.0

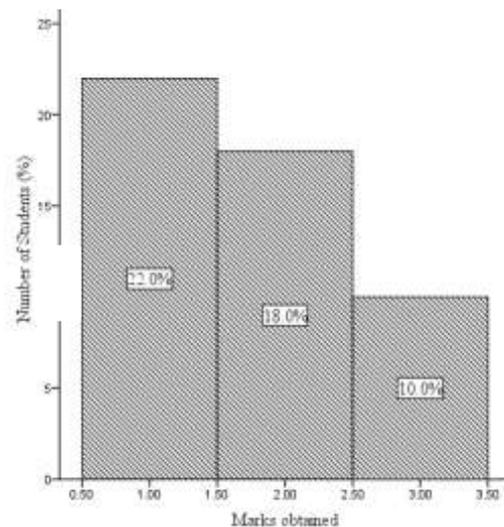


Figure 2: Test scores for Pre-intervention before the use of operational sheet

Histogram representing scores obtained after second pre-intervention

From Table 2 and Figure 2 above, majority of the students obtained marks between 0 – 10 representing 44.0% and the highest marks obtained were obtained by 10 students representing 20% of the students’ population who wrote the test. There is an indication that students performed poorly.

C. Post intervention Results

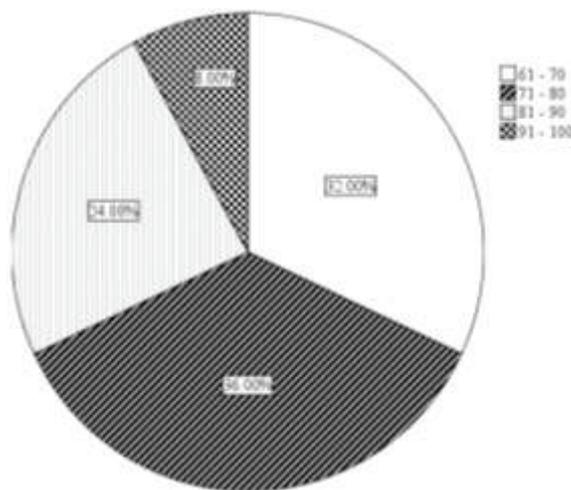
This stage deals with the analysis of results after the interventions have been implemented. Tests, observation and project work were used to collect data for the post-intervention analysis.

D. Research Question

How will the use of operational sheet guide students to draw simple and complex objects using MS word application drawing tools?

Table 3 above gives an account of the test conducted.

Table 3 and Figure 3 above; show the results from a test of students after the implementation of the operational sheet. Students were given operational sheets to guide them reproduce an object. 16 (32%) students scored 61 – 70%, 18 (36%) students scored 71 – 80%, 12 (24%) students scored 81 – 90% and 4(8%) scored students 91 – 100%. The outcome of these results, it has revealed an increased in the number of students who scored 61 – 70%. No students scored below 60%.



Pie chart indicating scores obtained after the use of operation sheet

Figure 3: Test scores obtained after the use of operational sheet in teaching

A detailed listing of all components related to a particular process, often includes elements like design, manufacturing and distribution as indicated in standard operational sheet. In view of this, the result indicates the impact of using operational sheet for drawing, because it has reflected an increase in students’ ability to draw.

V. CONCLUSIONS

To sharpen the skills of students in drawing objects with the drawing tools in word processing application through operational sheet, students were tested to assess their performance before the implementation of the intervention. At the end of the intervention, students’ performance has increased tremendously as compared to their previous performance before the intervention. The word processing drawing tools had made it possible for students to drawing complex objects in word without switching in between programs when using the word processing application. Students’ active participation in instructional

process using MS word processing drawing tools, results in better learning achievement.

A. Recommendations

From the results and findings of this study, the following recommendations are drawn;

- **Recommendations for Government**
 1. Government should establish computer laboratorial for each department and install relevant programs that will promote the development of subjects-based-knowledge in the school.
 2. Government should also establish ICT and other various subjects’ synchronization centres in various institutions such as Ghana Education Service, ICT in Education Planning Unit, Curriculum Research and Development Centres and Education Universities. These departments may conduct researches and make efforts to synchronize ICT and other subjects.
- **Recommendations for Teacher Education**
 1. Personnel with expertise in pedagogy and computer programming are needed if students are to benefit from word processing application. Hence teacher education institutions should introduce courses to prepare teachers equipped with pedagogy and computer programming skills.
 2. Teacher education institutions can start new programmes to produce computer programmers, engineers and analysts equipped with pedagogic skills.
 3. Teachers should be given computer literacy training through refresher courses. It is necessary to develop a culture for better utilization of computer in teaching and learning processes.
 4. Teacher should relate the teaching and learning of computer programmes to subjects taught in school to enhance students understanding in the use of computer to solve day to day problems in the society.
- **Recommendations for Further Research**
 1. Further researches should undertake researches to determine the efficacy of

using drawing tools in word processing application in other subject area to deepen students' understanding.

2. Researchers should also research into other application programs that will enhance the subjects taught in the Senior High Schools.

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