PERCEPTION AND ACADEMIC ACHIEVEMENT OF STUDENTS ON POWTOON SOFTWARE MEDIA INSTRUCTION STRATEGY (PSMIS)

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ABSTRACT

Powtoon Software Media Instruction Strategy (PSMIS) is web-based software that allows the establishment of animated presentations and the manipulation of pre-created objects, inserted pictures, music, and edited voice-overs. The study investigates students' perceptions of PSMIS and the effect of PSMIS on students' academic achievement. The research employed descriptive and quasi-experimental designs. The students' perceptions were obtained with the instrument Student's Perception Questionnaire *Powtoon Software Media Instruction Strategy (SPQPSMIS), while their academic achievement was obtained with a structured Computer Achievement Test (CAT) with 30 items.* A test-retest approach was used for the reliability testing, and a reliability coefficient of 0.81 was achieved using the Kuder-Richardson Formula 20. The sampled population was 85 year three students of computer department FCE(T) Omoku. *The students were taught* with *PSMIS and the traditional lecture method. The obtained data from SPQPSM was* analyzed *via descriptive statistics with percentage estimation or categorization, the* mean *and ANCOVA at* the *.05 level of* significance *was used to test the academic performance. The findings on perception reveal that 87% of the sampled population has a preference for PSMIS to the lecture method. This is in affirmation of the high academic achievement of the students taught with PSMIS when compared with the lecture method. It is advised that lecturers be prepared with the appropriate ability to use Powtoon Software Media Instruction Strategies (PSMIS) in the classroom.*

KEYWORD: *Academic Achievement, Instruction Strategy, Perception, Powtoon*

INTRODUCTION

Education is a critical component that not only instils necessary skills, talents, and information in individuals, but also contributes to the general growth and development of individuals, communities, and nations (Aja-Okorie & Adali, 2013). An educated person is not only capable of achieving his or her desired goals and objectives, but is also capable of making an effective contribution to the well-being of the community. Individuals' academic knowledge, skills, abilities, and proficiency are enhanced through learning and academic performance (Nkechi *et al.,* 2012; Fafunwa, 2018). Educational goals are classified taxonomically as cognitive, affective, psychomotor, and intuitive (Sönmez, 2017). Education is a key tool in the development of human resources with cognitive, effective, and psychomotor dual capacities. Therefore, educational implementation necessitates meticulous planning and execution in order to maximise a nation's predicted growth (Sönmez, 2017; Anigbo & Orie, 2018).

PowToon in Education is a web- ased application that allows you to create animated presentations using a variety of media options, graphics, cartoons, and animated pictures (Sari, 2021; Anita & Kardena, 2021). Powtoon, according to

(2018), is an online presentation creation service with highly fascinating animation capabilities, such as handwritten animation, animated cartoons, brighter transition effects, and very young timeline settings.

PowToon presentations may be exported to other applications such as YouTube and PowerPoint, giving you more options fo r spreading the 'awesomeness.' It is easy to use, so teachers can make their own presentations that meet the needs of their students instead of always looking for good, ready-made videos (Rakhmat *et al.,* 2004; Anita & Kardena, 2021). With the expanding relevance of information technology and the fact that technology is enmeshed in the learners' everyday lives, the endeavour to shift classroom lecture delivery from abstract notions to concept mapping is critical (Semaan & Ismail, 2018). Engaging students who have already established a learned helplessness towards learning a subject in a tertiary institution demands substantial planning in order to reach diverse learning styles and enhance motivation (Rakhmat et al., 2004; Squire, 2005).

PowToon, ideally, provides a choice of media alternatives for creating engaging lesson plans that address visual and aural learners while adhering to a logical schedule (Stone & Glover, 2021). According to Lang *et al.* (2014),

EPRA International Journal of Research and Development (IJRD)

Volume: 7 | Issue: 6 | June 2022   **- Peer Reviewed Journal**

"PowToon may be utilised to teach any topic, regardless of its difficulty." PowToon paves the way for the teaching of higher-order thinking abilities such as critical thinking, summarising, and problem solving, all of which are necessary for a successful global citizen in the 21st century.

The presentation of the display that has been discussed makes it easier for students to grasp learning by using the Powtoon medium. This learning material is thought to be capable of improving student learning results. According to the theory of Kadir *et al.*, (2020), the quality of learning outcomes may be increased if the combination of words and images as a learning medium can transmit aspects of information in a well-organized, particular, and unambiguous manner.

Shiu *et al.* (2020) and Rahmawati *et al.* (2020) revealed that businesses utilise Powtoon to create engaging, inventive presentations that attract attention; it may also be used for educational material delivery and educational assessment. Users interact with PowToon in the same way as they would with Powerpoint, Impress, or even Prezi. It gives slides to which text and images may be added, but it also allows for animation and the editing of sound or music, which can be found in the same programme or from an external source.

Perception is an individual observation or process that gives meaning as a result of observations about an object, event, or through his five senses, which is obtained by inferring information and interpreting messages so that someone can provide feedback about the good or bad or the positive and negative (Harrison et al., 2007; Ames & Fiske, 2015). Perception is defined by Pamungkas and Adi (2020) as "how humans receive inputs from the environment around them *via* sensory receptors." What is experienced consciously is not necessarily the same as what is experienced auditorily, visually, or strategically. The way people perceive the environment around them influences their perception. As a result, people's interpretations of sensory stimuli will be influenced by their own beliefs (Harrison et al., 2007). Perception plays an important role when data is collected from students to determine how they perceive and experience instructional methods.

Academic achievements refer to the extent to which a student, teacher, or institution has met their short-term or long-term educational objectives (Delfino, 2019). It is commonly measured through examinations or continuous assessments, but there is no general agreement on how it is best evaluated or which aspects are most important— procedural knowledge such as skills or declarative knowledge such as facts (Maiyo & Siahi, 2015; Alalwan *et al.*, 2019).

Furthermore, there are conflicting findings regarding whether individual characteristics successfully predict academic performance; components such as perception, test anxiety, environment, motivation, instructional media, and emotions must be taken into account when creating models of school achievement (Hill *et al.,* 2015; Delfino, 2019).

Students' low academic performance and lack of enthusiasm in computer courses at the Federal College of Education have posed a danger to the quality of computer education graduates. Strategic stakeholders in higher education institutions have linked such a failure to how instruction is delivered. Among academic professionals, the conventional lecture delivery method using textbooks and a chalkboard has been the most commonly employed (Alalwan et al., 2019). There is a need for a paradigm shift in the mode of lesson presentations, having realised the necessity of applying more effective teaching strategies. The same students that were awesome in their academic achievement, having higher grades in pre-secondary basic computer courses, are now unable to pass semester examinations in higher levels of computer courses in tertiary education. This could probably be attributed to the methods of instruction.

Numerous research has found that students' academic achievement in computer science is plagued by low performance (Sönmez, 2017; Anigbo & Orie, 2018). Researchers relate this perception of poor performance to lecturers in Nigeria's College of Education's continued use of uninspired instructional methods. Some novel approaches have been proposed, such as Programmed Instruction Strategy (PIS), Concept Mapping Strategy (CMS), Microsoft Office Power Point Instruction Strategy (MOPPIS), and Powtoon Software Media (PSM) (Bender & Bull, 2012). Hence, the research intends to investigate the perception of students and the Powtoon Software Media Instruction Strategy (PSMIS) on students' academic achievement in colleges of education in Rivers State, Nigeria.

PURPOSE OF THE STUDY

The main purpose of this study is to investigate the perception of student on Powtoon Software Media Instruction Strategy (PSMIS) and the effect of Powtoon Software Media Instruction Strategies (PSMIS) on students' academic achievement in computer Science in colleges of education in Rivers State, Nigeria. Specifically the study sought to:

1. Determine the perception of student on Powtoon Software Media Instruction Strategies (PSMIS)
2. Determine students' mean academic achievement score in computer science (computer maintenance and troubleshooting) when taught with Powtoon Software Media Instruction Strategies (PSMIS) and lecture method

RESEARCH QUESTION

The study provided answers to the following research questions:

1. What is the perception of student on Powtoon Software Media Instruction Strategies (PSMIS)
2. What is the pretest and posttest mean achievement scores of students in experimental and control group in computer science (computer maintenance and troubleshooting) when taught with Powtoon Software Media Instruction Strategies (PSMIS) and lecture method respectively?

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HYPOTHESES

The null hypothesis was formulated and was tested at 0.05 level of significance.

H01: There is no significant difference between the mean achievement scores of students Taught computer maintenance troubleshooting with Powtoon Software Media Instruction Strategies (PSMIS) and that of those taught with lecture method.

METHODOLOGY

The research employed descriptive and quasi-experimental designs. The descriptive is aimed at finding the perceptions of students. According to Arigunto *et al.* (2006), descriptive research aims to describe things related to the state or status of a phenomenon. The approach used is a quantitative type of approach with data analysis through questionnaires. The researchers used a questionnaire with the name ''Student's Perception Questionnaire Powtoon Software Media Instructional Strategy (SPQPSMIS). The scores obtained were tabulated and analyzed using descriptive statistics that were estimated in percentages or categorization. The pre-test, post-test, control group quasi-experimental design with the subject of the study assigned to experimental and control groups. A pre-test was conducted to determine the entry equivalent of the two groups. The experimental group (EG) received treatment using Powtoon Software Media Instruction Strategies (PSMIS), while the control group was taught the same maintenance and troubleshooting using the lecture method. The quasi-experimental designs are represented in table 1.

Table 1: Quasi-Experimental Designs for Powtoon Software Media (PSM)

Groups	Pre-test	Treatment	Post-test
Experimental Group	Q1	X1	Q2
Control Group	Q1	X2	Q2

Where Q_1 represents the pre-test score and Q_2 represents the post-test score, X_1 is Powtoon Software Media Instruction Strategies (PSMIS) Treatment, and X_2 is the lecture method (as a control treatment).

Sample and Sampling Techniques

The study was carried out at the Federal College of Education (Technical) Omoku in Rivers State with 85 students, out of which were those offering computer maintenance and troubleshooting at NCE and B. Ed. in computer education was sampled. The participating students were selected from level 300 using the conventional sampling method with an intact class. The sample for the study consisted of the entire students in the two intact classes because the two classes offer computer education. The two levels were randomly assigned to serve as the experimental group and the control group. The experimental group consisted of 45 students, while the control group was made up of 40 students. The experimental group was taught computer maintenance and troubleshooting using Powtoon Software Media Instruction Strategies (PSMIS), while the control group, on the other hand, was taught the same computer maintenance and troubleshooting using the lecture method.

An Instrument for Data Collection

The instruments for data collection were the Student's Perception Questionnaire Powtoon Software Media Instructional Strategy (SPQPSMIS), and the Computer Achievement Test (CAT). The Student's Perception Questionnaire Powtoon Software Media Instructional Strategy (SPQPSMIS), contains 20 items with the options of "Very Good," "Good, "Fair, and "Poor." The Computer Achievement Test (CAT) contained different questions selected from all aspects of computer maintenance and troubleshooting. The researcher-made instrument contained 30 multiple-choice questions selected from various sections and was used for pre-test and post-test within a week interval for both control and experiment.

The Method of Data Collection

The Student's Perception Questionnaire A Powtoon Software Media Instructional Strategy (SPQPSMIS) was used to assess students' perceptions of Powtoon Software Media Instructional Strategies (PSMIS).The Computer Achievement Test (CAT) was conducted to determine the effect of Powtoon Software Media Instruction Strategies (PSMIS) on the students' academic achievement. A pre-test of the Computer Achievement Test (CAT) was conducted for both experimental and control groups one week before the commencement of the treatment sessions of the study. The experimental group was taught computer maintenance and troubleshooting using Powtoon Software Media Instruction Strategies (PSMIS), while the control group was exposed to the same concepts using the lecture method. A post-test was given to both groups to determine the students' academic achievement performance in the maintenance and troubleshooting two weeks later.

The Method of Data Analysis

The data obtained from the Students' Perception Questionnaire Powtoon Software Media (SPQPSM) was tabulated and analyzed using descriptive statistics with percentage estimation or categorization. The pre-test and post-test scores of the students were analyzed using a statistical package for version 20 of the SPSS (Statistical Package for the Social Sciences).The significance of the statistical analysis was tested at a 0.05 alpha-level. The mean was used in answering the research questions, while the ANCOVA statistical technique was used to test the null hypotheses.

The instrument was validated by three experts from the Department of Computer Education, Federal College Education (Technical) and Omoku Rivers State, who are

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experienced in educational test and measurement. Reliability testing was carried out with the use of the test-retest technique and a reliability coefficient of 0.81 was obtained using Kuder-Richardson Formula 20.

RESULTS AND DISCUSSION
Research Question 2; What is the perception of student on Powtoon Software Media Instruction Strategies (PSMIS)

Table 2: Perception of Student on Powtoon Software Media Instruction Strategy (PSMIS)

S/No	Categories	Number of Student	Percentage
1	Very Good	36	41.3%
2	Good	39	45.8%
3	Fairly Good	8	9.4%
4	Poor	2	3.5%
5	Total	85	100%

Table 2 shows the results of students' perceptions of Powtoon Software Media Instruction Strategies (PSMIS). From a total of 85 students who were given the questionnaire on their perception towards Powtoon Software Media Instructional Strategy (QPSMIS), 41.3% of the students affirmed the method to be very good, 45.8% said the method was good, 9.4% of the students said the method was fairly good, and 3.5% of the students were of the perception that the method was poor. Based on the percentage of students at 41.3% and 45.8%, the sampled students were in affirmation that the Powtoon Software Media instructional strategy (QPSMIS) was a good strategy for lecture delivery. It is a point of emphasis that students who learn with the Powtoon Software

Media instructional strategy (QPSMIS) are very happy or respond positively. Students feel much helped by this learning medium. Students also do not feel bored studying computer maintenance and troubleshooting, which requires a lot of memorization of the names of computer parts and their functions during the instructional period.

Research Question 2: What is the pretest and posttest mean achievement scores of students in the experimental and control groups in computer maintenance and troubleshooting when taught with Powtoon Software Media Instruction (PSMIS) and the lecture method respectively?

Table 3: The Achievement Performance for Student on Powtoon Software Media Instruction Strategy (PSMIS) and Lecture Method

GROUP	N	PRETEST SCORES	POSTTEST SCORES	MEAN GAIN
MEAN		**X**	**X**	
EXPERIMENTAL	45	17.70	25.85	8.15
CONTROL	40	11.16	16.85	5.69

Table 3 shows the mean of the achievement performance for the experimental and control groups of the achievement performance for student on powtoon software media (psm) instruction strategy and lecture method. The mean achievement score of students taught computer maintenance and troubleshooting with Powtoon Software Media Instruction Strategy (PSMIS) was 25.85 and the lecture method was 17.70, respectively. These gave a mean gain score of 8.15. Similarly, for the control, the mean achievement score of students taught computer maintenance and troubleshooting using the Powtoon Software Media Instruction Strategy

(PSMIS) was 16.85, with a mean gain of 5.69. The result indicates that students taught computer maintenance and troubleshooting with a Powtoon Software Media Instruction Strategy (PSMIS) performed better than students taught with the lecture method.

Hypothesis 1:
There is no significant difference in the achievement score of students taught computer maintenance and troubleshooting with Powtoon Software Media Instruction Strategies (PSMIS) and the lecture method.

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Table 4: Analysis of Covariance (ANCOVA) of the Achievement Performance for Student on Powtoon Software Media Instruction Strategy (PSMIS) and Lecture Method

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.	Decision
Corrected Model	5.864[a]	1	5.864	2.462		
Intercept	579.432	1	579.432	243.280	.000	H0$_1$ Rejected
CG	5.864	1	5.864	2.462		
Error	59.544	25	2.382			
Total	16741.000	27				
Corrected Total	65.407	26				

Table 4 shows the ANCOVA result with the calculated significant probability value at intercept (0.000) being less than 0.05. This implies that there is a significant difference between the mean achievement scores of students taught with the Powtoon Software Media Instruction Strategy (PSMIS) and those taught with the conventional lecture method. Thus, the null hypothesis is rejected. Discussion in Table 4 shows the increase in the value of achievement performance in the experimental class was statistically significant, with a significance value of 0.000. Thus, the result suggests that the Powtoon Software Media Instruction Strategy (PSMIS) is more effective than the traditional lecture method for improving students' writing skills. Consistent with this result is the findings of Ukuma (2008) on the effect of videotaped instructional strategies on auto mechanic students' academic achievement and retention, where he found that the experimental group's performance score was higher than the control group's. This is an indication that animation enhanced students' retention of computer graphics better than conventional learning aids. This finding reveals that the stumbling block posed in traditional classrooms, opined by Idoko (2007) that hinders students' retention, and observed by Ukpebor and Ozobokeme (2007), can be eliminated by the use of animation instructional technique.

CONCLUSION

Powtoon Software Media Instruction Strategies (PSMIS) is web-based software that allows its users to establish animated presentations by manipulating pre-created objects, inserting pictures, music, and editing voice-overs. The study centred on the perception of students on Powtoon Software Media Instruction Strategies (PSMIS) and the effect of Powtoon Software Media Instruction Strategies (PSMIS) on students' academic achievement reveals that 86% of the sampled populations were of the perception that the method was better than the traditional lecture method. This is on the basis that it contains animated pictures, music, and pre-created objects that can sustain the interest of the learner and create a lasting retention in the memories of the students. It creates in the learner the ability to utilize all the domains of learning because of the animated demonstrations aligned with music and voice. In affirmation with the perception, the academic achievement of students taught with Powtoon Software Media Instruction Strategies (PSMIS) was better than the conventional lecture method.

The study recommended, among others, that the use of Powtoon Software Media Instruction Strategies (PSMIS) is capable of transforming students from passive receptacles of knowledge into active learners, and should be used to teach computer science courses in federal colleges of education. Lecturers and software developers should be encouraged to collaborate to develop relevant Powtoon Software Media Instruction Strategies (PSMIS) for teaching, especially complex concepts like those taught in computer sciences and applied sciences.

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