

ASSESSMENT OF COMPUTER- MANAGED INSTRUCTION FOR ABIA STATE POLYTECHNIC,  
ABIA, NIGERIA

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**Abstract**

*This paper was motivated by the fact that Abia State Polytechnic, Abia state, Nigeria is under pressure to deliver a fast, efficient and effective teaching process but constraints on staffing with the increasing number of students have brought about unfavorable situations in most departments such that problem - solving lectures have been an Uphill task. Computer- Managed Instruction (CMI) is an instructional strategy whereby the computer is used to provide learning objectives, learning resources and assessment of learner performance, CMI aids the instructor in instruction management without actually doing the teaching. This paper therefore seeks to investigate whether the use of CMI has an impact on learners. A 5-item questionnaire was used in the study. Two research concerns guided the study. The population consisted of students of Computer and non-Computer courses and Administrative Staff of the Abia State Polytechnic. The result revealed that CMI is an effective aid in the teaching/Learning Process and it also revealed that those who used Computer Managed Instruction (CMI) learnt faster and better than those who did not. Amongst others, it was recommended that Teachers have positive attitude towards instructing learners through computer software such as CMI.*

**Keywords:** Classroom, Computer Managed Instruction (CMI), Computer Assisted Instruction (CAI), Computer software

**Introduction**

Computer Managed Instruction (CMI) is a term employed to designate a system “which uses the computer to help the teacher administer and guide the instructional process. The major features of Computer Managed Instruction are diagnosis and testing, analysis, record keeping, and prescription. Meanwhile according to Ekwonwune (2015), he described a Computer Managed Instruction (CMI) as the use of computer and its software to manage the instructional process. It is a systematic control of instruction by computer; it is also an instructional strategy whereby the computer is used to provide learning objectives, learning resources, and assessment of learner performance. CMI aids the instructor in instructional management without actually doing the teaching. It encourages teaching and tracking process in which the learning environment is enhanced with the use of a computer. It also shows that CMI tools facilitate communication among students, between students and instructors and beyond the classroom students, instructors and experts. The CMI is an effective aid in the teaching/learning process. CMI encourages the teaching and tracking process in which the learning environment is enhanced by the use of computer. The early beginnings of Computer Managed Instruction(CMI ) can be traced back to Stanford University in 1967 with various developments remaining aside stream activity till the late 70s’ and becoming more or less mainstream as part of higher education in the early 90s’. There is no single definition that describes Computer Managed Instruction (CMI) comprehensively. Microsoft Encarta,

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posits that information that helps to teach or encourage interaction can be presented on computers in the form of text or in multimedia formats, which include photographs, videos, animation, speech, and music adding that guided drill computer program poses questions to students, returns feedback, and selects additional questions based on the students' responses. According to Microsoft Corporation, Computers can help students visualize objects that are difficult or impossible to view or display especially in human anatomy, molecular structures or complex geometrical objects. Exploration and manipulation of simulated environments can be accomplished with CMI ranging from virtual laboratory experiments that may be too difficult, expensive, or dangerous to perform in a school environment to complex virtual worlds like those used in flight simulators. CMI tools (word processors, spreadsheets, and databases) collect, organizes, analyzes, and transmits information. They also facilitate communication between students and instructors, and beyond the classroom to distant students, instructors, and experts.

Computer managed instructions system enables trainers/learners to manage multiple networked Authorware training courses, track student enrollment and progress, centrally control course delivery and calculate the courses cost effectiveness. Computer managed instruction is developed by the Aviation Industry Computer Based Training Committee (AICC). Wawasan learning is referred to as a Learning Management System (LMS). Learning Management Systems are not unique to our institutions. It is fairly common in most Malaysian universities and colleges but may not be the case in our school system. The LMS is an example of a Computer Managed Instruction (CMI) system). It has been in existence for a while, gaining popularity in use as sophisticated computer and software to support them become cheaper and easily available. According to Encyclopedia of Multimedia Technology, Computer Managed Instruction (CMI) functions can include a management administration system designed to track students' performance over a period of time, providing information concerning performance trends, recording individual and group performance data, scheduling training, and providing support for other training management functions. CMI systems can be categorized based on who controls the progression of the lesson. Early systems were linear presentations of information and guided drill, and control was directed by the author of the software. In modern systems, and especially with visualization systems and simulated environments, control often rests with the student or with the instructor.

Computer Managed Instructions (CMI) has a special value for learning, teaching and administering activities. "Good tools do not make a good teacher, but a good teacher makes use of good tools". While the teachers of yesterday had blackboard, chalk, flipcharts, and overhead projectors, today's teachers have available arsenal of tools that help to increase productivity, save time and relieve overburdened teachers with some leisure time. Computer Assisted Instruction (CAI) According to Microsoft Encarta, Computer Assisted Instruction (CAI) Terminology, and the use of computer in education is referred by many names such as: Computer Assisted Instruction (CAI) • Computer Aided Instruction (CAI) • Computer Assisted Learning (CAL) • Computer Based Education (CBE) • Computer- Based Instruction (CBI) • Computer Enriched Instruction (CEI) and Computer Managed Instruction (CMI). This has culminated into New Terminologies of: • Web Based Training • Web Based Learning and • Web Based Instruction. Computer-Based Education (CBE) and Computer Based Instruction (CBI) are the broadest terms and can refer to virtually any kind of computer use in educational settings. Computer-Assisted Instruction (CAI) Computer Aided Instruction (CAI) is a narrower term and most often refers to drill-and-practice, tutorial, or simulation activities. CAI programs use tutorials, drill and practice, simulation, and problem solving approaches to present topics, and they test the student's understanding.

Typical CAI provides: (a) Text or multimedia content (b) Multiple-choice questions (c) Problems (d) Immediate feedback (e) Notes on Incorrect responses (f) Summarizes students' performance (g) Exercises for practice and (h) Worksheets and tests.

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Advantages of CMI include :

- i.Flexibility: Online learning offers a tremendous opportunity to learn without the limitations of time or location
- ii.Interaction with Faculty/Schools and students: A variety of communication tools support synchronous interaction (fixed meeting times with web conferencing) and asynchronous interaction (no fixed time for contribution as with discussion board). Online learning offers students a chance to become competent in electronic communication. The experience promotes lifelong learning as it empowers individuals with the knowledge that they can research and find information, interprets it and share it with others. It also provides students opportunity to network with a global community of interesting people.

Disadvantages of CMI include :

- i.Flexibility: Sometime flexibility can be a disadvantage. Students must be able manage their learning, interpret written instruction and communicate effectively in writing
- ii.Requires more self discipline and time management: Many students have the misconception that because the course is online, they can wait until the last minute to participate. This is not the case. To be successful in an online course students must login and participate at least three times a week
- iii. Less social interaction with other students: Some students enjoy the face- to –face interaction with other students that traditional classes provide
- iv.More reading and writing required: Reading and writing increases. For instance, instruction given verbally in schools

One obvious use of computers to manage instruction is to ensure that there is more regular and intensive re-training provided to our teachers. Thousands of software applications have been developed over the years. Many for free, to meet specific educational objectives, including: Strengthening subject matter competence. Providing drill and practice activities for different subjects, Enhancing logical thinking and problem solving subjects, Enriching research and writing activities, Simulating complex or dangerous processes that enable students to change variables and visualize how processes are changed, Providing opportunities for students to extend learning beyond the scope of classroom activities.

### **Problems of teaching and learning with computer**

There are five (5) cardinal points of teaching and learning with computer. These are

- i.Computer Assisted Instruction (CAI),
- ii.Computer Managed Instruction (CMI),
- iii.Computer Aided Design (CAD),
- iv.Computer Assisted Language Learning (CALL), and
- v.Programming and problem solving software.

CMI is used for instructional management in a webagogical and pedagogical environment.

The main objective of this study is to compare the outcome of two teaching strategies, CMI versus the traditional lecture method. The learning objectives are based on specific content from an educational assessment. Nigeria is faced with the problem of assessing and using some of these ways or styles of teaching and learning with computer, due to the obstacles briefly listed below:

- i.Inadequate or lack of fund for the procurement of the computer system.
- ii.Inadequate or lack of computer specialists or personnel to train students on the uses of computer for learning.
- iii.Lack of training workshop and seminars for teachers on the use of computer for instruction.
- iv.Instability of power supply.
- v.Poor attitude of teachers and learners to the learning of computer.
- vi.Incompatibility of the use of computer for instruction to Nigeria.

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vii.Low level of technology.

viii.Poor system or method of school management.

ix.Poor infrastructure which hinders the conducive environment of teaching and learning.

This paper therefore seeks to investigate whether the CMI has made any significant impact on the teaching/learning process.

### **Research Methodology**

The population consisted of all Computer and non-Computer students and Administrative Staff of the Abia State Polytechnic. The sample size was 200 respondents. Respondents were selected using a combination of a cluster and purposive sampling method.

### **Research Concerns**

1<sup>st</sup> : The first research question was posed to ascertain if actually the students are aware of such educational Software and with its effect in the teaching/learning process and also to ascertain benefits students derived in the course of using the software.

2<sup>nd</sup>: Question two tests was to ascertain whether this Software enhances the learning process, otherwise, no need for CMI in Abia state Polytechnic and also to find if there is a significant impact of this educational software after the learning process. It was anticipated that where the results show that there is no significant impact, then a negative influence would have been established but if otherwise a positive influence would have been substantiated.

### **Measuring instrument**

This impact study used was the questionnaire since the sample size was large and covered most departments in Abia State Polytechnic. A 5 – item questionnaire, containing closed end options was used after a pilot study in the institution confirmed reliability and validity of measuring instrument.

### **Summary of findings**

Decisions: For all the research questions posed to the respondents as regards the respective Subject matter, they were in agreement to the research question raised. That is, they all agreed that: Computer Managed Instruction is effective in teaching and learning process in which both Staff and Students benefit this initiative. Also, there was a significant impact of this Educational software on Knowledge transfer to the users. Students and users understood faster and better using CMI tool than Conventional classroom' Face me, I Face you' method of learning. However, constraints on staffing, which affects many Tertiary institutions in Nigeria in general and Abia State Polytechnic in particular meant that resources devoted to teaching have been severely stretched. CMI has been applied in other Institutions most especially National Open University of Nigeria (NOUN) and other Tertiary Institutions such as University of Ilorin, and Private Institutions like Covenant University and results have proven that the software is effective.

### **Conclusion and Recommendations**

Following a say that “where there is a will, there is always a way”, the problems of teaching and learning with computer such as CMI in Abia State Polytechnic in Nigeria can be solved if the concerned individuals or group consider the below suggested recommendations:

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i. Teachers should have positive attitude towards instructing learners through computer software such as CMI, CAD etc. Also, teachers and learners should be trained on how to develop programs that can solve their educational problems.

ii. Government should provide effective and efficient infrastructure that can enhance effective teaching and learning tasks.

iii. The computer managed instruction is the label for a broad category of computer based tool applications designed to assist the teacher or school administration in the management of the instructional process. Good instructional management decisions are based on accurate and up to date information on the performance and Progress of each student. Applications of computer managed instruction can be used to gather data, store, update, retrieve, analyze, and report such information. Most computer managed instruction applications are special - purpose data management tools. Applications of Computer Managed Instruction vary from simple student grade record book programmes to sophisticated diagnostic and prescriptive systems. These can help sustain to improve CMI in Abia state Polytechnic so as to foster teaching and learning process for students and staff in the Institution.

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