# Computer-Assisted Instructional Strategies and Learning Outcomes of Pupils in Pre-Basic Private Schools in Southwestern Nigeria

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## ABSTRACT

The study was on the influence of computer-assisted learning instructional strategies on learning outcomes of pupils in Pre-Basic private schools in Southwestern Nigeria. The descriptive survey research design was used in the study. The population comprised 14,266 teachers in Southwestern Nigeria's pre-basic and primary schools. A sample of 378 primary school teachers were selected using a multi-stage sampling procedure. The study used the Management of Computer Assisted Learning, Instructional Strategies and Learning Outcomes in Pre-basic Schools Questionnaire (MACALISLOPS-Q), Teachers' Observation Schedule on CAL Application (TOSCALA) and Test of Skill Acquisition on CAL in Pre-basic Schools (TESACALPS) for data collection. Data collected were analysed using percentages and mean scores for research questions while the hypotheses were tested using Analysis of Variance. The results showed that the types of CAL facilities and equipment used in teaching in the study area were Computer desktop/laptop (81.2%), interactive whiteboard (53.9%), television (75.6%), smartphones 59.4%, Digital Video Disks and Compact Disks (69.4%). Results further showed a significant influence of CAL on children's Literacy and Numeracy ($F-= 4.517$, $p<0.05$), The study concluded that Management of Computer Assisted Learning (CAL) and instructional strategies have a significant influence on learning outcomes of private pre-basic school children in Southwestern Nigeria it was recommended among others that: stakeholders in education and non-governmental organisations should procure CAL facilities and equipment in Pre-Basic schools, the provided CAL technology should be well managed and appropriate instructional strategies should be used in facilitating learning among the children in Pre-Basic Schools in the study area.

***Keywords:*** *Children, Computer software, Computer-assisted learning, Learning outcomes, Skill acquisition.*

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**Highlights of this paper**

- It has been observed that school children, especially in basic schools have a short attention span learning in the class and as such dislike staying in the classroom for long while learning conventionally but can stay for multiple hours watching children's cartoons and mimeographs at home.
- Introducing this method in teaching them in some schools seems to go a long way in their learning this was the crux of our investigation.
- The outcome of the investigation in the study area indicated that children who learn through this method performed better than those who were taught through the conventional method.

## 1. INTRODUCTION

Children can be observed to derive much pleasure in watching a cartoon, playing games, listening to rhymes and songs, watching quiz competitions, debates and other exciting programmes made possible through various technological tools. They are also found to easily regurgitate what is seen or heard and make it part of their lives. This is sending a strong signal that technological tools in form of computer-assisted learning play important roles in educating the young ones if well managed.

Computer Assisted Learning (CAL) is a type of learning or learning process involving the application of modern technology in classroom teaching and learning. It can be defined as the introduction and application of computer software in disseminating educational instructions to facilitate the achievement of educational goals. It can also be described as an electronic device or learning strategy that makes the classroom teaching-learning process interactive, interesting and enjoyable for both the learners and the teacher.

The computer-assisted learning has been defined as tutoring, learning and interaction process facilitated through the use of the computer (Olorunosebi, 2016). Application of computer software in disseminating educational instruction is imperative in making education information available to learners in an easier, more organised, exciting, and encouraging way which is concomitant to the trend in learning being the peculiarity of the current digital age. In other words, global education advancement is majorly responsible for CAL in schools today. Computer Assisted Learning is not without its transformative effects as it enhances learning and helps the users to navigate in-depth knowledge and so helping them in solving complicated problems easier than ever.

Successful application of CAL entails proper selection and application of an appropriate technological tool or computer application/ programme in teaching various subjects in the classroom. That is, the computer application or software to be used during a particular lesson period depends on the subject/topic to be taught. For example, the computer software for teaching the English Language may not be applicable in Mathematics teaching. Plsek and Greenhalgh (2001) in Whatling, Wallace, and Lamb (2001) agrees that it is essential that online materials are well designed and structured, with a clearly defined learning pathway. The implication is that proper planning, careful selection and a well-organized classroom are imperative to CAL usage in schools.

The management of Computer Assisted Learning, therefore, refers to the judicious use of Computer software to communicate educational instruction during the classroom teaching-learning process towards accomplishing the set education objectives. This, therefore, entails designing and structuring the computer-assisted learning software in a well-defined manner that makes its application easier and more profitable during the classroom teaching-learning process.

The introduction of CAL to classroom teaching is a way of improving the quality of education given to learners. Teaching with CAL has also been found very relevant in teaching children as it makes use of different software and application which makes learning highly interesting to kids. Researchers have reported that computer technology is becoming more prominent in educating children nowadays unlike what was in operation. Children

now grow up immersed in technology to a level that keeps surprising earlier generations (Read & Markopolos, 2012). Proper application of CAL software goes a long way in enhancing learning among children. This, therefore, calls for teachers to apply wisdom and teaching experiences in choosing appropriate pedagogy, especially in respect of the technology applied while teaching these young minds to achieve the set education objective without distorting the lesson content.

Instructional strategies are the channels through which teachers' knowledge, intentions, ideas, thoughts and desires are communicated to learners through the application of proven pedagogical skills and such that are tailored towards the achievement of the expected learning outcomes. They are the techniques teachers employ in helping learners to comprehend educational instruction for them to become academically more competent and independent in future. In a nutshell, instructional strategies refer to the techniques used by the teacher to enhance the teaching-learning process toward the achievement of the set education objective. Richar (2014) defined instructional strategies as the techniques or methods that a teacher can adopt to meet various learning objectives.

Proper management of Computer Assisted Learning in line with instructional strategies is a criterion for its successful application in the classroom. A competent teacher should be able to select instructional strategies in relation to the type of technology he/she intends to use based on the subject matter. A well-strategised instruction with the aid of computer software can lead to the all-round development of a child, that is, the cognitive, affective and psychomotor domains. According to Alber (2015) meta-cognitive strategies allow students to plan and organize, monitor their work, direct their learning and self-reflect along the way. Alber further explained that the provision of learners with time and space to be aware of their knowledge and their thinking (which is most possible with CAL usage) increases learners' ownership.

Learning outcomes, on the other hand, can be referred to as specific knowledge, skills and behaviour a learner acquires for partaking in a teaching-learning process or engaging in a specified training activity within a period. It could also be regarded as the intellectual ability, skills and attitudes demonstrated by the learners at the end of a teaching-learning process. In other words, 'learning outcomes (are) specific measurable achievement' (Eurydice, 2004).

Children learning outcome is as important as the use of CAL itself since its achievement forms the basis for teaching and the use of technology in the classroom. In the contemporary time, many teachers (especially in developed countries and urban cities in developing countries) have been glued to CAL usage because they have found its application most appropriate in achieving the required learning outcomes among their subjects since it affords them the opportunity of exploring and accessing information as well as acquiring knowledge in its advanced form which is the current trend in education. Therefore, matters relating to children learning outcomes in terms of literacy, numeracy, behavioural pattern and other skill acquisition require serious handling and teachers' rapt attention as it also attracts keen interest and ardent curiosity from virtually everyone around (education stakeholders inclusive). This is partly because it serves as evidence or proof of a successful (or otherwise) classroom teaching-learning process and can be used to give a verdict on what transpires between the teacher and the learners in the classroom. Besides, there is a paradigm shift from the traditional teaching modes to the modern techniques and technology which is becoming more prominent in teaching young children globally. The model, focus and role of learning (through technology) have been changed drastically from traditional instruction to a virtual learning environment and so schools are now striving to integrate curriculum with technology to make teaching children-centred (Julbani, 2014; Majumdar, 2006). Computer Assisted Learning embraces various kinds of software which serve as educational tools at the disposal of both the teacher and learners to enhance learning. The following are types of CAL software depending on what the user is intending to achieve.

(a) Word Processing: This is an application package that can be used for the classroom teaching-learning process. It is useful in creating, editing and printing documents such as reports, memos, letters, programmes of events and other vital documents. Word processing is the most common computer software used by many users the computer. Users can make amendments using word processing without having to retype the entire document. Examples of word processing software include Microsoft word, Notepad, Word pad and so on.

(b) Spreadsheet: This is a computer programme that is used mainly for calculation. A spreadsheet consists of a table of values arranged in rows and columns which is used for calculation during mathematics periods and also for financial and project calculations. It could also be useful for computation during the accounting period and other subjects that require calculation. This application can also be used by the teacher to prepare results for the students. This is easy in that the teacher just need to enter the data in rows and column while the programme does the calculation and give the concluding scores based on the command issued into the system.

(c) Graphic software: These are software used for drawing, designing and printing. They can be used to draw pictures or objects, paint, design and print them. It could also be used to draw and design programmes or even books. Such graphic software includes CorelDraw and Photo-shoot. This is most appropriate for creative and cultural Arts and other related subjects.

(d) Games: This is computer software used mainly for entertainment and relaxation. Games afford the opportunity of emphasizing certain skills through activities that arouse the children's interest and that can help them remember what has been learnt with ease. Games can also enhance learners' cognition through logical thinking. Games software often creates a contest to achieve the highest score and either beat others or beat the computer (Sharma, 2017).

(e) Drill and practice: This is another computer software used in Computer Assisted Learning. It is often used through repeated exposure of the learners to certain information the teacher intends to teach within a stipulated time. Drill and practice are powerful tools which the teacher can employ to teach students with low retention capacity. The computer provides enough practice as well as feedback for the teacher and the pupil. Drill and practice programmes also have a tracking device so that students (and teachers) are aware of their progress (Sharma, 2017). This helps the users in assessing their progress and intensifies efforts on their weak areas. Different skills that facilitate knowledge acquisition are learnt through this medium. For example, reading, spelling, pronunciation and the like.

(f) Tutorial software: This is computer software useful in presenting new ideas and skills to be taught to students in the classroom. The technique behind this is that after the presentation of a new concept, the teacher then allows the student to practice on their own. There are two types of tutorials;

i) Linear tutorial which moves students from the first to the second and so on.

ii) Non-linear tutorial which permits the users to branch into several directions.

This can make learning to be comprehensible when the application is properly done.

Another advantage of tutorial software is that it is highly interactive. It as well encourages individualized instruction.

### *1.1. Conditions for Effective Management of Computer Assisted Learning*

The following are some of the conditions indispensable for managing computer-assisted learning in the classroom;

a) Availability of computer systems and other technological tools.

b) Adequately trained personnel in Computer Technology.

c) The ability of the teacher to develop programmes or create websites for collaborative learning among learners.
d) Internet connection.
e) Regular power supply.

Learning outcomes depicts the learner's behaviour, knowledge and skills measurable at the end of a learning process. It can be referred to as what the learner can produce as evidence of engaging in a teaching-learning process. Learning outcomes as defined by Suvin (2019) are any measurable skills, abilities, knowledge or values that the students demonstrate as a result of completing a given course or class. BCIT Learning and Teaching Centre (2010) said, learning outcomes specify what a learner's new behaviours will be after a learning experience. According to the writer, it states the knowledge, skills and attitude that the students will gain through /her course.

In another way round, learning outcomes is a compass which gives direction to the students as well as the teachers as to what to take the learners through, bearing in mind the set education objective. This is in line with Mahajan and Singh (2017) who opined that learning outcomes are guiding tools which guide the students to the desired result of the planned course. They also show and help the teacher the path to be followed and make the students aware of what they will be able to achieve at the end of the course of study or training exercise.

Learning outcomes can also be defined as specific knowledge, skills and behaviour a learner acquires for partaking in a teaching-learning process or engaging in specified training activities within a period. It could also be regarded as the behaviour, skills and attitudes demonstrated by the learners at the end of a learning process. Learning outcome refers to the acquired knowledge, skills, value, attitude and new behavioural patterns learners can exhibit at the end of the teaching-learning process. Shirley (2000) described learning outcomes as statements that describe significant and essential learning that learners have received and can reliably demonstrate at the end of a course or programme.

The importance of learning outcomes can be weighed through the following points:

a) Good learning outcomes can serve as quality assurance to intending learners who would like to follow suit as well as heads of an organization who desire to engage the products profitably in various possible means. According to Suvin (2019) learning outcomes is a quality assurance given to a chosen framework of the study.
b) Learning outcomes are capable of putting confidence in the providers of education/education stakeholders especially the teachers and school authorities concerning their products, making them proud of them. Learning outcomes are the key element used by programme designers to validate and explain to their external bodies, prospective students and colleagues what is expected of a successful graduate on a particular course of study Suvin (2019).
c) Learning outcomes can serve as proof of the attainment of the set education objectives.
d) Learning outcomes serves as an indicator of the worth of the learning process and resources, the education standard level of the school and the success or failure of a course of study or programme undertaken. According to Mahajan and Singh (2017) learning outcomes are indicators of the success of an academic course or programme.
e) Another importance of learning outcomes is that they can help the learners understand clearly the purpose of learning and the specific expected result of participating in the teaching-learning process. In other words, the expected concluding result of a programme can be determined right from the outset. This is supported by Mahajan and Singh (2017) who students understand clearly beforehand what they are going to learn from the programme/course. This can in turn develop in the learner's positive learning attitude such as hard work, seriousness, determination and other acts of discipline.

So also learning outcomes are important as they may depict the:

i) Expected knowledge and academic achievement stated before the teaching-learning exercise.

ii) Anticipated learning experiences students are to gain at the end of a course of study.

iii) Behavioural changes and attitudes achievable through the course of teaching and learning.

iv) Acquirable skills to be demonstrated by learners at the end of the teaching-learning process or a programme of study.

According to BCIT Learning and Teaching Centre (2010) learning outcomes are essential because they:

a) Define the type and depth of learning students are expected to achieve.

b) Provide an objective benchmark for formative, summative and prior learning assessment.

c) Communicate expectations to learners and so forth.

The concept of learning outcomes is also important when measuring a person's ability and level of knowledge and skills acquired by him/her. Therefore, as opined by Kinta (2013) learning outcomes could be used to clearly describe an individual's knowledge, skills and competence.

Also, Computer Assisted Learning has been rated by researchers as the most appropriate medium for upgrading the conventional instructional teaching method toward improving the learning outcomes of students. This is because the system encourages maximal response (interaction) of students to (with) the technological tools and as well provides prompt feedback which was the weakness of the traditional method. Drawing an inference from Adeyemi and Olaleye (2013) the introduction of CAL as a teaching medium is to improve the conventional instructional method and facilitate learners' comprehension

### *1.2. Barrier to CAL Usage in Schools*

Computer Assisted Learning, with its transformational influence on the teaching-learning process, is not without limitations.

According to Rock and Akubugwo (2016) Teachers have a strong aspiration to integrate computer education into teaching but they are impeded by many barriers like lack of competency and confidence, inadequate funds, lack of access to resources like hardware, software, computer peripherals, lack of professional development, insufficient technical support and the likes.

Barriers to CAL application in Nigerian primary to secondary schools can also be accessed from the area of limited/poor information, lack of adequate CAL facilities and equipment in schools, irregular electricity supply, poor perception of CAL among teachers and the government's poor attitude towards computer technology integration in the school system. The integration of computer education which involves the provision of computer facilities, power supply, updated textbooks, and trained and proficient teachers is inadequate in schools (Rock & Akubugwo, 2016).

The challenges facing the implementation of CAL are not limited to schools but also groups and organizations that could be resourceful to schools. For instance, an education material published by UNESCO (2016) on *"Harnessing the Potential of Computer Literacy and Numeracy Programmes using Radio, T.V, Mobile Phones, Tablets and Computers"* revealed that limited technical capacity, in particular an inadequate infrastructure to support technology implementation, is a problem facing many groups. Securing an adequate supply of electricity and accessibility of technology, and poor governance among others were the challenges observed limiting the usage of the above-mentioned technological tools.

The greatest challenge of using CAL as a tool for knowledge acquisition in all schools and development in Nigeria is that of providing adequate funding by the government.

The difficulties experienced in accessing the internet, especially in rural areas are also posing a challenge to the implementation of CAL in many Nigerian schools today.

Generally, the following are the major challenges facing CAL usage in Nigerian classrooms today;

i. Poor funding.
ii. High cost of CAL facilities and equipment.
iii. Irregular power supply.
iv. Lack of sufficient trained personnel.
v. Lack of internet or slow connectivity.
vi. Wrong perception of some educational stakeholders about the use of CAL in schools.
vii. Lack of technical know-how necessary for using CAL by the teacher.

By extension, Barber, Donnelly, and Rizvis (2013) identified the following as some of the challenges facing the full implementation of Information and Communication Technology (ICT) (CAL inclusive) at Stellenbosch University among others:

i. Compliance with all criteria for a good assessment, practice and particularly security aspects.
ii. Competence and perceptions of staff regarding ICT - based assessment.
iii. Integration of pedagogy, technology, curriculum content.
iv. The development as well as integration of e-assessment design, programme outcomes and student needs.

Most developing countries are currently facing similar challenges as stated above, including Nigeria. Successful implementation and full integration of CAL into Nigerian classrooms require breaking through the hurdles of the challenges highlighted above.

Going by the current global education advancement and increasing knowledge acquisition resulting in exceptional performances among children nowadays in many parts of the world, it is generally observed that the traditional strategies employed by teachers during the classroom teaching-learning process yield limited learning outcomes among children and this is currently becoming an issue of concern. The current paradigm shift involving the application of Computer Assisted Learning, therefore, requires empirical study through investigation in the Southwestern Nigeria Pre-basic Schools.

### *1.3 Research Questions*

The following research questions were raised to guide this study.

(i) What type of CAL facilities and equipment are used in managing instruction in the Pre-basic School in Southwestern Nigeria?

### *1.4. Research HypothesIs*

One hypothesis was formulated and tested at a 0.05 significant level.

*Ho: The use of CAL facilities and equipment has no significant influence on children's literacy and numeracy in pre- basic private schools in Southwestern Nigeria*

## 2. METHODOLOGY

The study adopted the descriptive survey research design quantitative type. The population of the study comprised all 14,266 private school teachers in Southwestern Nigeria. The study sample comprised 378 teachers drawn from 63 private pre-basic schools who were selected using purposive sampling. Purposive sampling technique was used in selecting three states (Ogun, Ondo and Oyo) from the six states that make the Southwestern

geo-political zone, based on their congruity; three Local Government Areas (LGA) from the three senatorial districts existing in each sampled state (that is, one LGA from each senatorial district) based on their location at the metropolis while simple random sampling technique was used in selecting seven private schools from each sampled LGA and six teachers from each sampled school. Furthermore, a teacher was randomly selected from the nursery classes of each sampled school to teach with Computer Assisted Learning (CAL) tools for observation. Lastly, the nursery two class of each sampled school was purposively selected for the Test of Skill Acquisition on Computer Assisted Learning in Pre-basic Schools (TESACALPS) based on their knowledge of CAL application.

Three research instruments were used to collect data in the study. A self-designed questionnaire titled "Management of Computer Assisted Learning Instructional Strategies and Learning Outcomes in Pre-basic Schools Questionnaire (MACALISLOPS-Q)" for pre-basic teachers. This was constructed on a four-point Likert scale rating as Strongly Agree (SA), Agree (A), Disagree (D), and Strongly Disagree (SD) for the teachers to tick the right alternative. This was used by the researcher to elicit information about the bio-data of the respondents (teachers) as well as the type, usage and influence of CAL on children learning outcomes in Pre-basic Schools in Southwestern Nigeria.

The second research instrument was "Teachers' Observation Schedule on Computer Assisted Learning Application (TOSCALA)" adapted from the Faculty of Education, Obafemi Awolowo University Ile-Ife, Nigeria. This was used to observe and rate teachers as they taught using computer-assisted technology in the classroom. Data obtained was used in assessing teachers' ability to appropriate instructional strategies with the use of computer-assisted learning tools and as well manipulate these when the need arises in the course of teaching.

**Table 1.** Types of CAL facilities and equipment used in teaching the Pre-Basic school children in private schools in Southwestern Nigeria.

| S/N | Computer-Assisted Learning Tools | CODE | Available % | Not Available% |
|---|---|---|---|---|
| 1 | Computer desktop / laptop | CAL 1 | 250 (81.2) | 58 (18.8) |
| 2 | Projector | CAL 2 | 85 (27.6) | 223 (72.4) |
| 3 | Powerpoint slide | CAL 3 | 87 (28.2) | 221 (71.8) |
| 4 | Digital camera | CAL 4 | 82 (26.6) | 226 (73.4) |
| 5 | Ipad | CAL 5 | 121 (39.3) | 187 (60.7) |
| 6 | Interactive whiteboard | CAL 6 | 166 (53.9) | 142 (46.1) |
| 7 | DVDs and CDs | CAL 7 | 215 (69.8) | 93 (30.2) |
| 8 | Radio | CAL 8 | 157 (51.0) | 151 (49.0) |
| 9 | Video Recorder | CAL 9 | 142 (46.1) | 166 (53.9) |
| 10 | Television | CAL 10 | 233 (75.6) | 75 (24.4) |
| 11 | Touchpad | CAL 11 | 135 (43.8) | 173 (56.2) |
| 12 | Microphone | CAL 12 | 172 (55.8) | 136 (44.2) |
| 13 | Keyboard and mouse | CAL 13 | 239 (77.6) | 69 (22.4) |
| 14 | Audio speakers | CAL 14 | 183 (59.4) | 125 (40.6) |
| 15 | Printer | CAL 15 | 225 (73.1) | 83 (26.9) |
| 16 | Flash disc | CAL 16 | 191 (62.0) | 117 (38.0) |
| 17 | Scanner | CAL 17 | 127 (41.2) | 181 (58.8) |
| 18 | Satellite | CAL 18 | 56 (18.2) | 252 (81.8) |
| 19 | Digital recorder | CAL 19 | 82 (26.6) | 226 (73.4) |
| 20 | Smartphones | CAL 20 | 183 (59.4) | 125 (40.6) |
| 21 | IPod | CAL 21 | 88 (26.6) | 220 (71.4) |
| 22 | MP3 players | CAL 22 | 140 (45.5) | 168 (54.5) |
| 23 | Electronic toys that produce rhymes and ringtones | CAL 23 | 175 (56.8) | 133 (43.2) |
| 24 | Tablet | CAL 24 | 127 (41.2) | 181 (58.8) |
| 25 | Electronic musical instrument | CAL 25 | 163 (52.9) | 145 (47.1) |
| 26 | Others (signify) | CAL 26 | 127 (41.2) | 181 (58.8) |

The instruments were validated before they were used. Percentages and mean scores were used in answering the research questions raised while Analysis of variance was used in testing the hypothesis formulated at 0.05 level of significance.

## 3. RESULTS

Research Question One: What type of Computer Assisted Learning (CAL) facilities and equipment are used in teaching the Pre-Basic Schools children in Private Schools in Southwestern Nigeria?

To answer this research question, Percentage Scores were used.

In Table 1, respondents indicated that the following facilities and equipment were available and used in teaching in private pre-basic schools: computer desktop / laptop (81.2%), interactive white board (53.9%), DVDs and CDs (68.8%), radio (51.1%), television (75.6%), microphone (55.8%), keyboard and mouse (77.6%), audio speakers (59.4%), printer (73.1%), flash disc (62.0%), smart phones (59.4%), Electronic toys such that produce rhymes and ringtones (56.8%) and Electronic musical instrument (52.9%) while other CAL tools like projector (27.6%), power point slide (28.2%), digital camera (26.6%), iPad (39.3%), video recorder (46.1%), touch pad (43.8), scanner (41.2%), satellite (18.2%), digital recorder (26.6%), ipod (26.5%), MP3 player (45.5%), tablet (41.2%), and others (41.2%) were found to be moderate in usage. A study by Sharma, Grandhar, Sharma, and Seema (2011) aligned with the present study and showed that Information and Communication Technology (majorly in form of Computer Assisted Learning) in education is simply the use of technological tools which include browsing the internet in search of information for lesson preparation, e-mailing to communicate with students and fellow teachers, downloading and storing of data for educational purposes, using power points to prepare the presentation, using Interactive White Board, and many other educative activities during the teaching-learning process.

### 3.1. Hypothesis

*Hypothesis Ho The use of CAL facilities and equipment has no significant influence on children's literacy and numeracy in pre-basic private schools in Southwestern Nigeria*

To test the hypothesis, data collected on CAL facilities and equipment were subjected to Analysis of Variance (ANOVA).

**Table 2.** Analysis of variance (ANOVA) of the influence of the use of CAL facilities and equipment on children's literacy and numeracy in Private Schools.

| Model | Sum of Squares | Df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Regression | 13.541 | 1 | 13.541 | 4.517 | 0.034 |
| Residual | 917.264 | 306 | 2.998 | | |
| Total | 930.805 | 307 | | | |

Table 2 showed the results of the Analysis of Variance (ANOVA) conducted to determine the influence of the use of CAL facilities and equipment on children's literacy and numeracy in private schools. Results showed that there was a significant influence of the use of CAL facilities and equipment on children's literacy and numeracy in private schools ($F = 4.517$, $p < 0.05$). Thus, the use of CAL facilities and equipment had a significant influence on children's literacy and numeracy in the study area. The result is in tandem with the submission of Akamca, Ellez, and Hamurcu (2009). Who posited that the provision of computer-assisted learning in schools by the government enhanced children learning. however, the findings negate Fashiku , Olofinniyi, Fashiku, and Adewumi (2014) and Fashiku (2019) submitted that provision of computer tablets for students in Osun and Ondo State secondary schools negatively influenced their academic performance.

## 4. CONCLUSION

Computer Assisted Learning is about the introduction and application of computer software in disseminating educational instruction to facilitate the achievement of educational goals. CAL has a contributing influence on the achievement of children learning outcomes as it encourages easy delivery of educational instructions in pre-basic schools. The study, therefore, concluded that the application of well-managed computer-assisted learning with appropriate instructional strategies has a significant influence on children learning outcomes in the private pre-basic school in South-Western Nigeria

## 5. RECOMMENDATIONS

Based on the findings of the study, the following recommendations are made:

i. stakeholders in education and non-governmental organisations should procure CAL facilities and equipment in Pre-Basic schools.
ii. the provided CAL technology should be well managed and appropriate instructional strategies should be used in facilitating learning among the children in Pre-Basic Schools in the study area.
iii. a regular and uninterrupted source of power should be provided in Pre- Basic schools in other for it to achieve its aims.
iv. trained personnel in computer technology should be recruited by the government to teach in the schools;
v. workshops, seminars and conferences should always be organized for the Pre-Basic teachers for their effectiveness and efficiency.
vi. parents should be encouraged to procure good learning materials for their children or wards to facilitate and complement the children learning in the school among others.

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