



## RESEARCH ARTICLE

### SCAFFOLDING INSTRUCTIONAL STRATEGY AND KNOWLEDGE ACHIEVEMENT AND RETENTION AMONG STUDENTS OF LIBRARY AND INFORMATION SCIENCE IN IAUE, RIVERS STATE

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#### ABSTRACT

This research work investigated the effect of scaffolding technique on student academic achievement and knowledge retention among LIS. It employed a quasi –experimental research design using IAUE which comprised of 100 students of 300 level as the population sample. Post-test and pretest were used as an instrument for data collection. At the end of the research, it was discovered that there is a significant difference between the mean achievement scores of students taught library science using scaffolding techniques and those taught traditionally, it was also discovered that there is no significant difference between the mean achievement score of male and female students taught library science using scaffolding techniques and there is also a significant difference between the mean retention scores of students taught library science using scaffolding technique and those taught traditionally. It was concluded that the use of scaffolding techniques is more effective in enhancing academic achievement of students in library science and it was recommended that institution managements and government should make provisions for the use of scaffolding technique in teaching library science.

**Keywords:** Scaffolding, retention, knowledge achievement, instructional strategy.

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## 1.0. INTRODUCTION

Recently, developed and developing nations are going through a vital task of streamlining this education and training systems to meet the developmental requirements in the context of changing environment. The growth and progress of any nation depends upon the quality of education it offers and practices. This idea can only be realized with the kind of learning strategy approach adopted by the curriculum developers' in-charge of the education.

The name scaffolding is an architectural metaphor which draws attention to structures that hold up a building while it is under construction. It's not until the building is stable and able to stand on its own that workers remove the scaffold. When someone first learns a new skill or idea, it helps to have support. For instance, you likely didn't hop on a two-wheel bike your first time riding instead, you use training wheels. Such mechanisms make developing skills easier and less intimidating.

Similar to the scaffolding used in construction to support workers as they work on a specific task, instructional scaffolds are temporary support structures faculty put in place to assist students in accomplishing new tasks and concepts they could not typically achieve on their own (Reigeluth, 2011). Once students are able to complete or master the task, the scaffolding is gradually removed or fades away the responsibility of learning shifts from the instructor to the student. Scaffold learning can bridge learning gaps and help students succeed.

Adelia (2016) stated that there is no hard and fast rule that defines what scaffolding looks like. Instead, you can pick and choose techniques to devise your own strategy, Rso long as you are guiding students toward better reasoning and skills, you are on the right track. Scaffold learning is comprised of many techniques that allow you to provide extra support to your students. Ideally, it will help them bridge learning gaps and achieve understanding they would not be able to on their own.

Library education or library science as the name implies, is a department established with curriculum to produced librarians or library experts that will take care of libraries. The formation of this department in this part of the world was done by the West Africa Library Association which was established by NESCO seminar on the development of public libraries in Africa held at Ibadan University College in 1953. In public library development as well as in library education the seminar was very important. One of the recommendations of the seminar was that some library school of high caliber be established in Africa (NESCO 1954). History of library and information science could be referred as history of library education or history for librarianship. It traces the development in the study principle and practice of acquisition processing and dissemination of information source in school library

It is the realization of the significant role played by information in the process of societal development that library and information schools were set up and these schools are to train and produce manpower for information work. A library school or library and information school is a department in higher education institute (HEI) which specializes in the training of libraries and information workers. It could be classified into University based library school and polytechnic based library school for the training of professionals, paraprofessionals and information workers respectively.

The study program has the aim of transforming society into innovative and adaptive human resources. Therefore, the study program can produce a competent workforce who is ready to face the challenges



of preparing a competent workforce who is ready to face the world of work which is constantly evolving along with technological developments, work skills, adaptability, and an increasingly dynamic mindset. The Library and Information Science Study Program seek to meet the demands of the ever-developing 4.0 industrial revolution so that the existence of this study program is expected to meet the need for professionals in the field of libraries and information.

The curriculum development in the Library and Information Science Study Program is expected to be able to meet the needs of professional librarians for government, private and public libraries which are expected to improve library management in this era. The curriculum can be interpreted as a set of plans and arrangements regarding graduate learning outcomes, study materials, processes, and assessments that are used as guidelines for implementing study programs (According to the Regulation of the Ministry of Research, Technology, and Higher Education Number 44 the Year 2015). Accordingly IFLA World Congress 2004, a proposal of a modular approach is made for LIS with 6 core modules and 1 Elective module. The worked out modules are;

MODULE – 1: Foundations of Library and Information Science

MODULE – 2: Knowledge Organization, Information Processing and Retrieval.

MODULE – 3: Information Sources, Products and Services

MODULE – 4: Management of Library and Information Centres /Institutions

MODULE – 5: Information Technology: Basics and Applications

MODULE – 6: Research Methods and Statistical Techniques

MODULE – 7: Electives: Information Systems

Scaffolding in education, also called ‘Staging is regarded as a process in which teachers model or demonstrate how to solve a problem, and then step back, offering support as needed. Aditi (2017) refers to scaffolding as a series of techniques which are used during learning process aiming to bring maximum achievement, understanding and output. According to him, scaffolding is a temporary planned and progressive support provided by a teacher to his/her students to get a higher acquisition which is not possible for the students on their own without this support when you think about scaffolding, you probably visualize the structure used during building construction to support workers and materials, scaffold instructions are very similar, in that the teacher applies educational techniques to support the thought processes of the students (Education Staff, 2014).

Accordingly, teacher breaks lessons into smaller pieces and provides assistance to allow the students to master the material. Scaffolding offers an approach that is ideal for dissecting complicated material. Instructional scaffolding is a student-centered approach that gives students more ownership of their learning whole gradually decreasing the teacher’s role in the process (Marquis 2018). Marquis maintained that Scaffolding allows students to grasp content in small chunks without being overwhelmed. Scaffolding is supposed to enhance students’ achievement and retention in computer.

On a literal stand, Achievement is simply getting things done as we desired or getting things that we expected (Swasankari, 2015). It can be seen from the point getting thing done as after a set out objective. The main reason for enrollment into higher institutions is to achieve educational development which can be done through adequate teaching and learning processes. Furthermore, Axel, Brian and Stefan (2022) opined that students are achieving when they acquire the knowledge, skills and attitude that will prepare them to live a happy and successful lives.



Academic achievement is commonly measured through examination or continuous assessment (Wikipedia, 2015). It has been emphasized that “the more effectively students are taught the better they will retain” (Philip, 2013). Accordingly, he desired knowledge retention as the ability to remember facts and other information. If a student cannot recall information presented after 24 hours, the information was not permanently stores and thus, can never be recalled.

The significance of retention and transfer of learning as it cuts across all educational domain, curriculum and methods cannot be over emphasized. Therefore for student’s achievement and knowledge retention in computer, teachers should take to the spirit of regular use of instructional scaffolding in the classroom. Scaffolding is characterized by a high responsibility in maintaining the interactional flow and utilization of different strategies. The teachers scaffolding contains listening and inquiring, and thus a teacher serves more as a facilitator of dialogue (Lerkanen, 2016).

The status of library science education in the country leaves much to be desired. The main reason for teaching library science in schools is to enable the students acquire the needed skills, to access information insights, attitudes and values that they will need to be successful in their chosen careers and daily lives.

The persistent poor achievement of students in library and information science has removed a great concern to researchers, lecturers and stakeholders in librarianship. The situation is attributed to a number of factors ranging from lack of interest to the profession, lack of needed library materials and equipments for practices and unsuitable teaching method. Often time’s people ascribe students’ failure in library science to teachers not using proper teaching strategies in these teachings. It is in the light of the above issues and others not mentioned, that researchers are continuing to search for effective way to present library science so that students will find it interest, easy and enjoyable. Therefore, this study was carried out to investigate the effects of scaffolding teaching technique on students’ achievement and knowledge retention in library and information.

### **1.1. Purpose of the Study**

The main purpose of this study is to determine the effect of scaffolding teaching technique on student’s achievement and knowledge retention ability in library science. Specifically, the study determined:

- If the achievement of 300L Students taught library science using scaffolding instructional strategy will differ from those taught using traditional “talk and chalk” approach.
- The retention ability of 300L students taught library science using scaffolding instructional strategy.
- The achievement/retention ability of 300L male and female students taught using scaffolding instructional strategy differ.

### **1.2. Research Questions**

The following research questions have been formulated to direct the study.



- i. What is the difference between the mean achievement scores of 300L Students taught library science using scaffolding techniques and those taught using traditional talk and chalk' approach.
- ii. What is the difference between the mean achievements scores 300L Male and Female students taught library science using scaffolding technique.

### **1.3. Hypotheses**

This study is guided by the following hypotheses

- i. There is no significant differences between the mean Achievement scores of 300L taught library science using scaffolding strategy and those taught using traditional “talk and chalk” approach.
- ii. There is no significant difference between the mean achievement scores of 300L Male and Female students taught library science using scaffolding techniques.

### **2.0. Significance of the Study**

The result of the study is hoped to be beneficial to many groups if it runs out to be positive. The student who may be taught topics in library science, and in addition will improve in his/her knowledge retention ability.

The teacher will see the need to develop skills in the use of scaffolding instructional strategy in teaching library science. The society will benefit from the result. This will have a multiplier effect in the development of the society.

### **3.0. METHODOLOGY**

The study adopted a quasi-experimental design. The type of the design was the comparison group pre-test and post-test design. The study used two groups, comprising one control group and the experimental group that was tested to scaffolding strategy, while the control group was taught using the conventional method, to see if there will be significant difference in their achievement and knowledge retention in library science. The population of the study comprised of all undergraduate students of library science of IAUE with the size of 100 (50 for experimental group and 50 students for control group).

### **4.0. PRESENTATION OF RESULT AND DISCUSSION**

#### **4.1. Presentation of Result**

The instrument used for data collection were pretest and posttest constructed by the researcher with the help of the supervisor. Lesson notes for both the control and experimental classes were also approved by the supervisor.

**Research Question One**

What is the difference between mean achievement scores of 300L student taught library science using scaffolding strategy and those taught using tradition talk and chalk approach.

**Table 1: summary of Student Achievement**

| Group      | N  | Pretest |       | Posttest |       | Mean Gain | Mean Diff |
|------------|----|---------|-------|----------|-------|-----------|-----------|
|            |    | Mean    | S.D   | Mean     | S.D   |           |           |
| Experiment | 48 | 25.28   | 9.91  | 78.88    | 11.26 | 51.60     | 26.40     |
| Control    | 50 | 27.20   | 10.90 | 52.40    | 11.46 | 25.20     |           |

Source: Authors' Analysis (2026).

Table 1: shows that the experimental group had a mean achievement scores of 25.28 and a standard deviation of 11.26 in the post test, these gave a mean gain of 51.60. While the control group had a mean achievement scores 27.20 and a standard deviation of 10.90 in the pretest with a mean achievement scores of 52.40 and a standard deviation of 11.46 in the post test which gave a mean gain of 25.20.

These gave mean differences of 26.40 in favour of the experimental group.

**Research Question two**

What is the difference between the mean achievement scores or the mean retention ability of 300L male and female students taught library science using scaffolding strategy.

**Table 2: Summary of male and female Students achievement using scaffolding techniques**

| Gender  | N  | Pretest |      | Posttest |      | Mean Gain | Mean Diff |
|---------|----|---------|------|----------|------|-----------|-----------|
|         |    | Mean    | S.D  | Mean     | S.D  |           |           |
| Male    | 20 | 26.4    | 8.4  | 77.2     | 14.1 | 50.8      | 1.4       |
| Control | 30 | 24.5    | 10.9 | 76.7     | 92   | 52.2      |           |

Source: Authors' Analysis (2026).

Table 2 shows that male students had a mean achievement score of 26.4 and a standard deviation of 8.4 in the pretest with a mean, achievement of score of 77.2 and a standard deviation of 14.1 in the protest which gave a mean gain of 50.8. While the female student had a mean achievement score of 24.5 and a standard deviation of 10.9 in the mean pretest with a mean achievement score of 76.7 and a standard deviation of 9.2 in the protest which gave a mean gain of 52.2.

These gave a mean difference of 1.4 in favor of the female students.

**Test of Hypothesis****Hypothesis One**

There is no significant difference in the mean achievement score of 300L students taught library science using scaffolding techniques and those taught tradition talk and chalk method.

**Table 3:** Test of Differences in the mean achievement score of 300L students taught library science using scaffolding techniques and those taught tradition talk and chalk method

| Source          | Type III sum of square | DF  | Mean square | F       | Sig  | Partial square | Etta |
|-----------------|------------------------|-----|-------------|---------|------|----------------|------|
| Corrected model | 16786.1179             | 4   | 4196.529    | 36.734  | .000 | .0607          |      |
| Covariate       | 99399.057              | 1   | 99399.057   | 350.128 | .000 | .787           |      |
| Pretest         | 811.018                | 1   | 811.018     | 7.099   | .009 | .070           |      |
| Gender          | 333.492                | 1   | 333.492     | 2.919   | .091 | 0.30           |      |
| Method          | 13142.097              | 1   | 13142.097   | 115.038 | .000 | .548           |      |
| Gender method   | 505.171                | 1   | 505.171     | 4.422   | .038 | .044           |      |
| Error           | 10852.923              | 95  | 114.241     |         |      |                |      |
| Total           | 445472.000             | 100 |             |         |      |                |      |
| Corrected total | 27639.040              | 99  |             |         |      |                |      |

R Squared = .607 (adjusted R squared = .591) Significant at p (0.050)

Source: Authors' Analysis (2026).

From table 3 above (ANOVA), It has shown that F calculated value (115.038) is greater than the table value 0.591 also P value (0.000) is less than 0.05 ( $p < 0.05$ ). Based on the result, the null hypothesis is rejected and alternative hypothesis accepted. This implies that there is a significant difference between the mean achievement scores of 300L students taught library science using scaffolding technique and those taught using traditional talk and chalk approach.

**Hypothesis Two**

There is no significant difference in the mean achievement scores or retention ability of 300L male and female students taught library science using scaffolding instructional techniques.

**Table 4:** Test of differences in the mean achievement scores or retention ability of 300L male and female students taught library science using scaffolding instructional techniques

| Source          | Type sum of square | 111 Df | Mean square | F       | Sig   | Partial Eta squared |
|-----------------|--------------------|--------|-------------|---------|-------|---------------------|
| Corrected model | 31772.2899         | 4      | 7943.072    | 75.704  | 0.000 | 0.761               |
| Covariate       | 44656.704          | 1      | 44656.704   | 425.613 | 0.000 | 0.818               |
| Pretest         | 39.724             | 1      | 39.724      | 0.379   | 0.540 | 0.004               |
| Gender          | 285.690            | 1      | 285.690     | 2.723   | 0.102 | 0.028               |
| Method          | 24410.327          | 1      | 24410.327   | 232.649 | 0.000 | 0.710               |
| Gender method   | 1191.820           | 1      | 1191.820    | 11.359  | 0.000 | 0.107               |
| Error           | 9967.711           | 95     | 104.923     |         |       |                     |
| Total           | 380464.000         | 100    |             |         |       |                     |
| Corrected total | 41740.000          | 99     |             |         |       |                     |

Source: Authors' Analysis (2026).



R square = 761 (adjusted R squared = -75, from table 4 above (ANCOVA) it has shown that F calculated value (2.723) is greater than the table value 0.751; also P value (0.000) is less than 0.05 ( $p < 0.05$ ). based on the result, the null hypothesis accepted. This implies that there is a significant difference between the retention ability of 300L students taught computer using scaffolding technique and those taught using traditional talk approach.

## 4.2. Discussion of Findings

The information extracted from the test items were revealing and interestingly one of them proved a point not highlighted in the study. The particular glaring case is related to student's academic achievement and knowledge retention. It was found that most of the relatively few students who scored highest marks in academic achievement test maintained leading positions in retention test. For example, it was found that there were force students among the responsible who were the first force in the retention test. Interestingly three out of the five were girls.

In general, from the result of the test, all respondent that scored high marks in the academic achievement pretest performed creditably well in the post test on academic achievement. However, the result on the retention test did not follow the same trend, through the mean scores of the experimental group both in the pretest and post test in knowledge retention were given high. Now, analysis of the student's scores on both the pretest and post test on academic achievement shown from the tables clearly indicated significant difference between students taught cataloguing in library science using scaffolding techniques and the taught the same topic using conventional talk and chalk method. This difference is in favour of the experimental group.

This finding is in agreement with the findings of Manko (2016) and Ugwuda (2008) who found significant difference in favor of the experimental group taught library science using scaffolding technique. It should be noted with delight that a situation such as been revealed in this study whereby students from the experimental going who academically achieved high also need not be surprising to us. It should be so in order to support statements in literatures showing that knowledge retention ability affect achievement in library science positively. For instances, it was said that the subject library science is diversified in content and learning experiences that requires high level of knowledge retention ability. Again it was declared that computer stores up him who is by nature dull and sleepy, and make him shrewd with retentive ability and hence develop his reasoning ability. These statements and like them imply that those who have the ability to understand and also perform reasoning well in computer will in general do the same in other subjects.

Another important result from this study was the case of gender academic achievement and knowledge retention ability. Analysis of data showed that male and female 300L students benefitted evenly in the academic achievement and knowledge retention ability when taught using scaffolding technique in learning library science. Table 3, showed this very clearly where is was observed that, there is no significant difference in the mean achievement scores and the retention ability of male and female 300L student taught library science using scaffolding technique. Table 3 for instance displayed the use of ANCOVA test statistics and showed that the F-calculated value of 2.723 is greater than the table value of 0.751, and that the p-value of 0.102 is greater than 0.05. This there gave the researcher the needed confidence to assert that the use of scaffolding technique in teaching library science benefited male and female students alike in academic achievement and knowledge retention ability.



In this context, it is very pertinent to look at the hypotheses specifically.

The first hypotheses was presented in table 3 and showed the result of ANVOCA test of the hypotheses. This table showed that the F-calculated value is 155.005 which is greater than the table value of 0.591. Also the p. value of 0.005 is less than 0.05. it was then concluded that there is a significant difference between the mean academic achievement score of 300L students taught library science using scaffolding technique and the students taught library science using the conventional approach. This finding establishes the fact that scaffolding techniques is an effective method of teaching library science.

The second hypothesis was analyzed in table 4. It was hypothesized that there is no significant difference in the retention ability of 300L students taught library science using scaffolding techniques and those taught using traditional talk and chalk method. The ANCOVA statistics was used to analyze the hypothesis. Based on the result, the null hypothesis was rejected, which implied that there is a significant difference between the knowledge retention ability of 300L students taught library science using scaffolding techniques and those taught library science using traditional talk and chalk approach. This result is expected and again confirms that scaffolding techniques is very effective in improving the knowledge retention ability of students. This supports literature and the findings of Manko (2016).

## **5.0. CONCLUSION**

### **5.1. Conclusion**

From the discussions of the analysis of data, the result has shown that the hypothesis were proved to be conceived correctly. In short the result of the study would be seen to have said that student of IAUE, RIVERS STATE in 300L taught library science using scaffolding technique achieve better and also have greater knowledge retention ability of library science than their counter parts taught using the conventional method. It is therefore pertinent to assert that scaffolding is a very effective techniques of teaching library science.

The much talked about students poor achievement and knowledge retention of library science will be a thing of the past, if scaffolding techniques is adopted in teaching/learning of library science. It is therefore no surprise to realize that the study supported earlier research by scholars as shown in the related literature.

### **5.2. Recommendations**

Considering the outcome of this study, the researcher feels it necessary to give some suggesting that may help stakeholders especially curriculum designers to improve library science curriculum in relation to scaffolding techniques as an effective method of teaching and learning.

1. Teachers: This study has shown that students of library science in IAUE achieve higher in library science, when target with scaffolding technique, therefore the researcher recommends to library science teachers to use scaffolding techniques in their teaching.
2. Curriculum Designers: Curriculum planners should in co-operate scaffolding techniques in their planning of teacher activity in library science curriculum.



3. Library science textbook writers should use scaffolding techniques in the development of library science content/concepts in their books.
4. Ministry of education in collaborations with library science HODs should organize enrichment programmes for library science teachers on the use of scaffolding techniques in teaching library science.
5. Organizations like NLA and LRCN should teach their members how to apply scaffolding techniques in library science lesson delivery and hence improve student's performance in library science.
6. Government and ministry of education should provide schools and teachers facilities and enabling environment to make application of scaffolding technique library science lesson delivery possible and easy.

### Conflict of Interest

The authors declare that no conflict interest exist in this manuscript.

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