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Advancing Teaching Professionalism with Instructional Scaffolding to Support Academic Achievement of Learners with Disabilities

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Abstract
In recent past, teachers and psychologists have researched to identify several merits of instructional scaffolding to guide all learner's development and learning in the classroom and specifically learners with special learning needs. Learners with disabilities require every support that can assist them to learn and improve their self-concept and academic achievement in school. Instructional scaffolds are temporal support structures teachers use to assist learners while new lessons are going on in the classroom so they can accomplish new tasks and learn concepts they would not have been able to learn on their own. The theory is based on the understanding that when learners are given needed support while learning something new, they develop the ability to use the knowledge learnt independently. This paper exposed instructional scaffolding strategies and benefits of its usage, present the findings of research studies that used instructional scaffolding to support teaching and learning in the classroom and described different types of instructional scaffolds and scaffolding strategies teachers used to support academic achievement of all learners, especially, learners with disabilities. It is therefore recommended that teachers should endeavour to use different strategies of scaffolding that suit their learners to advance teaching profession in the classroom in effective teaching that provide the needed support learners with disabilities greatly need to navigate learning and achieve the skills and knowledge they require for personal development and to contribute their quota to national development.

Keywords: Teaching professionalism, Instructional scaffolding, Learners with disabilities, academic achievement

Introduction

Originally, a scaffold is any temporary elevated or suspended work surface used to support workers and or materials while working during construction and renovation activities and there are many types of scaffolds such as supported and suspended scaffolds used in construction. Scaffolding theory in education was first introduced in the late 1950s by Jerome Bruner, a cognitive psychologist. The term 'scaffolding' was used as a metaphor to describe the support teacher's offer to learners while teaching and learning is ongoing in the classroom (Dominguez & Svihla, 2023). Instructional scaffolds are specific learning opportunities designed by the teacher to help meet the individual needs of all learners with and without special learning needs, such as challenges with comprehension or the need to acquire more vocabulary, so they can access and understand complex text (Garderen et al., 2021). Instructional scaffolding is similar to the scaffolding used in construction to support workers as they work on a specific task. They are temporal support structures teachers use to assist learners while new lessons are going on in the classroom so they can accomplish new tasks and learn concepts they would not be able to learn on their own. It is a process in which teachers instruct, coach, prompt and demonstrate how to solve a problem or perform a task for learners to learn through his or her support and allow learners practice to do what was demonstrated overtime while the teacher removes the support gradually.

Instructional scaffolding has been in discussions and in research studies for several decades because of its relevance in the provision of learning support by teachers in the classroom (Dominguez & Svihla, 2023). Instructional scaffolding is aimed at providing needed support for learners with disabilities to learn with ease and be able to achieve the instructional objectives by practicing on their own (Garderen et al., 2021). There are different types of instructional scaffolding used to achieve different types of instructional objectives in the classroom namely; sensory, graphic and interactive scaffolding. Sensory scaffolding are instructional support prepared and used by the teacher to appeal to learners senses, support the use of learners senses to learn and perform a task. It could be a technology such as the projector, a phone and a radio, pictures, different types of chart or a practical project, writing and drawing involving manipulatives where learners use their sense of sight, hearing and touch. Graphic scaffolding are instructional support such as graphic organizers, charts diagrams and photography the teacher uses to visually represent an idea or concept, that is they are used to organize learners thinking while learning. Interactive scaffolding involve the method of grouping learners together to discuss, collaborate and learn from each other. This strengthens their listening, speaking and collaborative skills. Instructional scaffolding used to support all learners are generally similar to the ones specifically used to support learners with disabilities except that it requires the teacher to use more time and provide support based on individual learning needs.

The theory of scaffolding in teaching is based on the understanding that when learners are given needed support while learning something new, they develop the ability to use the knowledge learnt independently. One of the benefits of scaffolding is that it bridge the gap between what learners know and what they need to know, supports them as they develop new skills and breaks down unfamiliar skills into smaller ones that are easy to learn and practice. Secondly, it creates a supportive classroom environment where learners are free to ask questions, make mistakes and build confidence. Scaffolding also encourages learners to take a more active role in their learning as the teacher slowly phases out the initial support. Instructional scaffolding is a pedagogy used by the teacher in the classroom where the teacher does what the learners cannot do, that is, the learners does with assistance what they could not have done without the teacher. The teacher and the learner are active participants in the in the teaching and learning process which is fashioned to make the learner progress gradually to achieve the instructional goal. Scaffolding strategies are applied in different ways in teaching depending on the learner, the content of the lesson being taught and the learning situation to support academic achievement of all learners.

Academic achievement represents performance outcomes that indicate the extent to which a learner has accomplished specific goals that were the focus of activities in instructional environments, specifically in school, college, and university (Steinmayr et al., 2015).In another statement, Barowski and Carter (2021) define academic achievement as the amount of academic content a learner learns in a specific time period to achieve short or long term goals within an academic setting and is determined through testing and assessment. These definitions explains the target of instructional scaffolding that is aimed at supporting learners to achieve academic goals easier and of more quality. Dominguez and Svihla (2023) see learning as a movement from unknown information to known that is seen through the accuracy of a learner's task performance that results in the academic achievement of the learner after assessment. This concept of learning is similar to Vygotsky (1978) as cited in Dominguez and Svihla (2023), zone of proximal development, which describes the range in which a learner can complete a task with assistance, in other words, instructional scaffolding, which is provided by a teacher to support the academic achievement of all learners.

Research have shown that there are many concepts and lessons that require teachers use of instructional scaffolding in teaching, especially, to support learners with disabilities. For instance, complex science texts have been observed to be a barrier to learning of science for many learners at the basic and secondary school levels, especially, students with disabilities because it uses unfamiliar and technical vocabulary, compact statements to explain compacted science concepts, contain abstract words and ideas involving unfamiliar text structures different from those seen in other subject texts (Garderen et al., 2021). In another research study, Unugo (2021) studied the effect of scaffolding teaching strategy on the academic achievement of students in Social Studies for value orientation and national development and found that scaffolding teaching strategy improved the achievement of students. The purpose of this review study is to expose instructional scaffolding strategies and benefits in its usage, present the findings of research studies that used instructional scaffolding to support teaching and learning in the classroom and describe different types of instructional scaffolds and scaffolding strategies teachers should use to support academic achievement of learners with disabilities.

Review of Related Literature

Steinmayr et al. (2015) opined that academic achievement represents performance outcomes that indicates the extent to which a person has accomplished specific goals that was the focus of teaching and learning in schools, colleges and universities. Several research studies on scaffolding strategy used during teaching and learning

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observed that it increases learner's academic achievement. Osikomaiya (2021) deployed survey design and quasi experimental research design of 2x2 factorial matrix to examine the impact of scaffolding strategy in the teaching of English language writing skill among senior secondary school students in Ogun State. Findings showed that instructional scaffolding improved students reading, writing and spoken skills and there was a significant difference in the performance of students between the pre-test and post-test. Based on the findings, it was recommended that teaching-learning activities can be improved upon with the use of scaffolding strategy and that teachers at all levels should be encouraged to use innovative techniques such as scaffolding while teaching diverse learners in the classroom. To buttress the findings above, McLeskey et al. (2017) included instructional scaffolding as one of the high-leverage practices in Special Education.

According to Giustolisi et al. (2022), research carried out previously before theirs has hypothesized that human sequential processing may be dependent upon hearing experience. This is referred to as auditory scaffolding hypothesis, which could mean predicting that sequential rule learning abilities may be hindered by congenital deafness. To test this hypothesis, Giustolisi et al. (2022) compared two group of students, congenital deaf students who learn with sign language and hearing students' abilities to acquire rules of different computational complexity in a visual artificial grammar learning task using sequential stimuli as instructional scaffolding. Finding revealed that deaf students group succeeded at all levels of the task. Secondly, Bayesian analysis indicates that they successfully acquired each of several target grammars at ascending levels of the formal language hierarchy. Therefore, the results do not support the auditory scaffolding hypothesis rather it indicates that there is no significant difference between congenital deaf students who learn with sign language and hearing students' abilities to acquire rules of different computational complexity in a visual artificial grammar learning task using sequential stimuli as instruction scaffolding.

In another research study, Garderen et al. (2021) observed a Science teacher who used instructional scaffolding to teach a science class that included students with disabilities. The teacher first identify the learning needs of the students that may not learn without additional instructional support in three specific ways: (1) development of background knowledge and vocabulary to understand the anchor text; (2) skill development to identify claims and evidence in the anchor text; and (3) knowledge of scientific text structures as a way to find information and, subsequently, build knowledge about the content in the anchor text. Then she planned, prepared and use three types of instructional scaffolds to support students while teaching and learning is ongoing in the classroom. The following are additional three types of instructional scaffolding developed by Fisher and Frey (2014) and cited in Garderen et al. (2021):

1. Previewing - Prior to the science lesson, the teacher uses previewing as an instructional scaffold which is useful to build background knowledge and vocabulary. Texts, videos, simulations, and other resources such as those found within the content scaffolds of the subject or concept is used as preview scaffolds to build students background knowledge and support students' vocabulary development.
2. Skill development - Skill development instructional scaffolding is focused instruction on building necessary skills. The teacher uses a photography that shows a scenario and ask questions like, 'What is going on in this picture?' and 'What makes you say this?' The photography and the questions are instructional scaffolds used as a support to elicit reasoning, provide evidences for student's answers during discussions in the classroom, so they can develop thinking, reasoning, deductive, inductive skills, etc.
3. Extension instructional scaffold – Extension instructional scaffold is used as a way to improve and increase the understanding of the content for students and support their textual analysis of complex texts. Strategies such as reading texts in groups where each student in a group reads, games designed for the whole class to help learners understand the text structure and features of the text and questions asked to help learners identify and achieve the instructional objectives of the lesson.

A simplified process of instructional scaffolding for teachers use was broken down into six strategies by a teacher, Alber (2014) who uses the method in teaching her students. The six strategies are highlighted below:

a. **Show, demonstrate and tell learners while teaching in the classroom**. The teacher guide learners through each step of the process showing them the finished model of what she wants the learners to do and by demonstrating what she expect them to do. Teachers can ask a learner or some learners to demonstrate what she is teaching or what she wants them to do.
b. **Tap into prior knowledge**. Ask learners questions to help them talk about the experiences they have relating to what you are about to teach. Ask them to relate to their lives or some ones else's life using hints, suggestions and probing questions to support them to learn what is being taught.
c. **Allow time to process the new idea and lesson**. Give some time for the learners to absorb the new idea and knowledge. Do not be too much in a hurry to finish the lesson without ensuring that the objectives

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of the lesson is achieved by asking learners questions like, 'Explain the process of water turning to a liquid and a gas'. 'Describe the States of Matter?'. 'What do you understand by metamorphoses?

d. **Start with teaching important and unfamiliar vocabulary**. The teacher should identify new words in all the lessons to be taught, write them out on the board and give their meaning. That is pre-teach unfamiliar vocabularies with pictures, video and things they are interested in and let the learners talk about them.
e. **Use visual aids.** Attractive visual aids attract the attention of all learners, teacher should use them as scaffolding tools such as pictures, charts, graphic organizers. Graphic organizers help learners learn concepts of sequencing, cause and effect and processes by organizing information in the lesson for better understanding and for visual representations.
f. **Pause, allow think time, and ask questions, pause again and review**. This should be in the teacher's lesson plan. Plan the time to pause ahead, prepare the questions to be asked ahead of the lesson which should be more of open-ended questions.

In a study of effects of scaffolding teaching strategy on the academic achievement of students in Social

Studies, Unugo (2021) observed that in order to carry out scaffolding strategy the teacher must first identify and determine the following:

a) What students can accomplish independently;
b) What students can accomplish with guidance (in other words, teacher determines the students' zone of proximal development; and
c) Teacher then provides the instructions that are just enough to support the learner in task beyond reach without teacher's support.
d) Then determine the level of support each learner require.

Teacher support using instructional scaffolding vary from one level to another Unugo (2021). The first could be a great deal of support, when the teacher models the targeted task, giving individual verbal explanations of the lesson content and strategy to perform the task. The next could be average support is provided using prompting questions and verbal explanations of the lesson content and strategy to perform the task. Then a little support would be when the teacher only provides cues to some aspects of the task in response to what students have already mastered. Beed, Hawkins and Roller (1991) in Unugo (2021) described the average level of support as; First, assisted modelling, when learners are encouraged to participate in the completion of the task. Second, element identification, when the teacher identifies the elements of the intelligent behaviour as the learner's complete the task. Thirdly, strategy naming: the teacher mention the name of the strategy the learner should use to complete task and they employ it on their own.

Instructional Scaffolding Strategies to Support Learners with Disabilities in the Classroom.

In the view of Alber (2014), using instructional scaffolding as a teaching strategy takes more time to teach but it greatly support and increase the quality of the academic achievement of learners and provides much more rewarding experience in the teaching and learning process in the classroom. In their work with learners with disabilities in an inclusive setting, Vasquez et al. (2022) observations are similar to the view expressed by Alber (2014) above, that additional time is part of scaffolding for learners with disabilities. Vasquez et al. (2022) observed that when teachers support learners with disabilities with instructional scaffolding strategies, it is essential to consider the specific learning needs of each learner which could include receptive and expressive language, processing speed and memory. They suggested teachers can use the following strategies to support learners, that is, plan lessons little by little and teach step by step, use guided instruction and practice and use repetition while teaching.

In addition to the six strategies above, there are some other strategies in the use of instructional scaffolding for learners with specific disabilities. These include, read out instructional objectives of the lesson to be taught, activate and build upon learner's prior knowledge, ask prompting questions, make suggestions, provide model assignments or templates, provide manipulatives (stones, shapes even paper that is cut or folded), give practice opportunities, give feedback, encourage questions from the learners, gradually release responsibility to do the task required in the lesson to the learners, adjust to the learning style of the learners, establish success criteria and learning objectives, apply multi-modal instruction (audio, visual, multi-media), model the skills and strategies you want learners to use and acquire and finally, provide activities just above the learners ability(Vasquez et al., 2022; Alber, 2014). In an inclusive classroom, additional strategies in the use of instructional scaffolding for learners with hearing impairment include:

1. Arrange seating position to suit the learner with hearing impairment. Students with hearing impairment should be made to seat in front seats in the classroom or where they can see and hear the teacher better.

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2. Minimize background noise as much as possible: This is to allow for students with hearing impairment to hear better with their residual hearing when the teacher is teaching.
3. Use an FM system to improve hearing where necessary.
4. Teachers should face students when teaching to allow for lip reading and possibly hearing with their residual hearing.
5. Use lots of pictures, graphics, and text labels to enhance visual learning.
6. The use of technology often make learning easier such as the computer.
7. Develop a plan for students with hearing impairment when they miss instruction, assignments, and testing.

Conclusion

This paper exposed instructional scaffolding strategies and benefits of its usage, it presented the findings of research studies that used instructional scaffolding to support teaching and learning in the classroom and described different types of instructional scaffolds and scaffolding strategies teachers used to support academic achievement of all learners, especially, learners with disabilities. Instructional scaffolding involve the use of teaching strategies teachers have been using to support academic achievement of learners with disabilities to meet the diverse learning needs of all learners in the classroom. Reviewed research studies have shown that instructional scaffolding can support learners with disabilities while learning and contribute to improved academic achievement in subjects offered in school. It was therefore recommended that teachers should endeavour to use the different strategies of scaffolding that suit their learners to advance teaching profession in the classroom in effective teaching that provide the needed support learners with disabilities greatly need to navigate learning and achieve the skills and knowledge they require for personal development and to contribute their quota to national development.

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