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**WELL-DESIGNED CURRICULUM AND LEARNING SKILLS AS CORRELATE OF SCIENCE STUDENT  
PERFORMANCE IN TESTS AND EXAMINATIONS: CASE STUDY OF SECONDARY SCHOOL STUDENT IN  
AKWA IBOM STATE.**

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**ABSTRACT**

*Academic achievement in tests and examinations for science students is significantly influenced by the connection between an effective learning strategy and a well-designed curriculum. This research examines the relationship between the acquisition of critical learning abilities and the general performance of secondary school students in Akwa Ibom State while using a well-designed curriculum that is adapted to match the cognitive and practical demands of the students. This case study, which draws on educational theories and actual data, demonstrates how a thorough, interesting curriculum gives students the tools they need to succeed in scientific classes by developing their critical thinking, problem-solving, and applied knowledge skills. Additionally, the study looks into how students' active participation in the curriculum, time management, and study habits, among other learning techniques, affect their success on academic tests. The results highlight the necessity for educators and curriculum designers to give integrative approaches top priority in order to promote both material mastery and skill development, which will enhance test results. In conclusion, the study also highlights how important it is to have good learning skills in conjunction with a well-designed curriculum in order to improve scientific education and better prepare students for future difficulties in both academia and the workplace.*

**KEYWORDS:** Well-designed Curriculum, Learning Skills, Science Student performance, Test, Examination, Secondary Schools and Akwa Ibom State.

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**INTRODUCTION**

The development of learning abilities and curriculum design, particularly in the scientific disciplines, have a significant impact on the quality of education. In secondary school, where test and examination results have a substantial influence on students' future academic and professional prospects, this link is especially important. Promoting a thorough comprehension of scientific topics,

encouraging critical thinking, and raising overall academic accomplishment all depend on well-designed curriculum and effective learning strategies. Examining this link might offer important insights into improving scientific education results in the setting of Akwa Ibom State, Nigeria, where educational changes and issues are common.

A well-designed curriculum acts as the instruction's road map, directing educators and learners alike through a methodical learning process. It describes the subject matter to be taught, the pedagogical strategies to be applied, and the techniques for evaluation to gauge the progress of the students. According to Tyler (2014), a curriculum that is logically structured and relevant to students' needs can significantly enhance their learning experiences and outcomes. Furthermore, Wiggins and McTighe (2015) argue that an effective curriculum not only covers essential content but also integrates real-world applications, thereby increasing student engagement and understanding.

On the other hand, learning skills include the methods and practices that students use to gather, organize, and apply information. These abilities include critical thinking, problem-solving, time management, and study strategies. According to Zimmerman (2012), students who develop strong self-regulation and effective learning strategies are better equipped to succeed academically. Within the framework of science education, these abilities are essential for grasping difficult ideas and scoring highly on tests.

In secondary school settings, when students are prepared for examinations that have the potential to decide their academic and career trajectories, the relationship between curriculum design and learning skills is especially important. In Akwa Ibom State, secondary school science education faces unique challenges, including resource constraints and varying levels of instructional quality (Etuk & Edem, 2016). Strategies for enhancing educational practices and results in the area can be informed by knowledge of the effects that strong learning skills and well-designed curriculum have on student performance.

## **CONCEPT OF CURRICULUM**

The notion of curriculum is vast and dynamic, influenced by various theoretical and practical viewpoints. It is viewed as a dynamic process that adapts to social, cultural, and educational demands as well as an organized framework for instruction. The curriculum is essential in determining the nature of educational experiences and results, regardless of its emphasis on learner growth, material delivery, or the integration of contemporary competences. Schiro (2018) defines the curriculum as a structured framework that outlines the educational experiences learners are expected to undergo. It covers the objectives, subjects covered, approaches, and evaluations of learning in official educational contexts and acts as a manual for schools and teachers in matching practice to intended learning results. In addition to pushing students to consider their role in the world, it is an ethical and intellectual engagement with the material that also serves as a tool for critical thinking, self-reflection, and the formation of individual and group identities.

A research by Priestley and Biesta (2020) highlighted that the curriculum is a dynamic and flexible construct that goes beyond the transmission of knowledge, aiming to foster the development of competencies, dispositions, and values in learners. The curriculum is a dynamic process that is formed by educational philosophies, cultural settings, and social requirements rather than just a list of topics. Yates and Millar (2021) also mentioned that the curriculum serves as a platform to engage students in meaningful learning that prepares them for societal challenges, technological advancements, and workforce demands. It entails the choice and arrangement of learning activities and materials to support students' growth as critical thinkers, artists, and global citizens.

Social justice and educational equity are issues that are greatly impacted by curriculum. Zeichner (2018) highlights the importance of including culturally responsive teaching practices and content that reflects the diverse backgrounds of students. A curriculum that is socially fair promotes justice, diversity, and tolerance for differing viewpoints. Moreover, political processes frequently impact curriculum creation since governments and officials choose what is taught in schools. Scott (2022) points out that the curriculum reflects the values and priorities of those in power, making it a contested space where debates about knowledge, power, and ideology play out. Research and evidence-based methods form the foundation of any successful program. Research demonstrating what is effective in education is driving more and more curriculum revisions. Research indicates, for example, that the integration of inquiry-based learning, tailored instruction, and formative assessments improves student learning outcomes.

### **CONCEPT OF WELL DESIGNED CURRICULUM**

An orderly and intentional educational plan that guarantees successful teaching and learning is known as a well-designed curriculum. It consists of precise goals, pertinent information, interesting learning opportunities, suitable teaching strategies, and techniques for monitoring student development. Such a curriculum's design is informed by pedagogical advancements, learner requirements, social expectations, and educational aims. Kraft et al. (2021) describe a well-designed curriculum as one that is continuously informed by data and research-based feedback mechanisms. In order to ensure that teachers and students remain in alignment with the intended goals, it incorporates formative evaluations to guide instruction and makes adjustments to enhance learning results. Beane (2018) characterized a well-designed curriculum as a constructivist framework that integrates real-world issues with academic content, facilitating meaningful learning experiences. It should be created in a way that makes connections between the curriculum and the interests and experiences of the students, encouraging participation and relevance. Its framework incorporates formative assessment procedures. It should also offer ongoing feedback that informs both instruction and learning, making sure that the latter is sensitive to students' needs and aids in the former's achievement of the latter's goals.

The curriculum needs to include 21st-century competencies like digital literacy, critical thinking, teamwork, and creativity in addition to being in line with national or worldwide educational standards. Fadel et al. (2023) assert that a well-designed curriculum equips students with the competencies needed to navigate the complexities of the modern world, ensuring they are prepared for both higher education and the workforce. A well-designed curriculum also considers the varied requirements, backgrounds, and cultures of its pupils as it encourages diversity and guarantees that all students' experiences and viewpoints are reflected in the course materials. Villegas and Lucas (2021) advocate for culturally responsive teaching practices, where curriculum design integrates students' diverse cultural contexts to make learning more relevant and meaningful. Furthermore, a well-designed curriculum is an essential instrument for accomplishing learning objectives. Its foundation is made up of specific learning objectives, pertinent information, inclusive and interesting learning activities, efficient evaluation procedures, and adaptability to meet the various requirements of students. A curriculum like this promotes diversity and inclusion in education while guaranteeing that students are ready for difficulties in the classroom and in the workplace in the future.

### **CONCEPT OF LEARNING SKILL**

The skills that people acquire to effectively acquire, process, and retain knowledge are known as learning skills. These skills include cognitive, metacognitive, and socioemotional abilities that support learning and personal development both in formal education and in everyday life. Students that possess learning skills are better equipped to think critically and independently and to adjust to new

information and challenges. Hattie and Donoghue (2018) defined learning skills as the cognitive, metacognitive, and motivational processes that learners use to manage and regulate their own learning. Also, Zimmerman and Moylan (2019) describe it as self-regulation strategies that allow students to take control of their own learning processes. These abilities include goal-setting, self-awareness, and adapting actions to succeed academically. Acquiring knowledge and abilities is crucial for both individual and scholarly growth, as it provides learners with the means to be successful in many learning and work environments. These abilities are frequently categorized into many groups that facilitate lifelong learning, problem-solving, and critical thinking.

A person's collection of cognitive and motivational self-regulation techniques, as well as their ability to persevere in the face of adversity, are collectively referred to as their learning skills. Winne & Hadwin (2022) emphasized that learning skills are the internal and external strategies that learners use to acquire new knowledge and skills. These abilities include self-regulation practices like monitoring and modifying learning tactics in addition to cognitive strategies like summarizing and elaborating. The capacity of students to monitor and manage their cognitive, motivational, and behavioral processes in the pursuit of academic goals is known as self-regulated learning, and it is closely related to learning skills. These are the metacognitive and cognitive techniques that improve knowledge application, retention, and acquisition. Learning skills can be divided into two categories: cognitive strategies, which helps in processing information and metacognitive strategies which aid in regulating ones learning process (Pintrich, 2021).

### **CONCEPT OF STUDENT PERFORMANCE**

The quantifiable results of a student's academic work, which indicate how well educational goals are being accomplished, are referred to as student performance. In terms of the academic standards and expectations established by teachers, institutions of higher learning, or national systems, it includes the information, abilities, and attitudes that students exhibit. According to Fredricks et al., (2020) student performance is a reflection of students' academic achievement, engagement, and behavioral aspects. However, student performance centers commonly on the following activities; grant and award administration, fellowships, showcases; workshops and courses of various lengths, course and curriculum (re)development projects, dissemination initiatives, production and customization of e-learning tools, teaching innovation, evaluation, and support services, learning in professional practice communities, consultations and collaboration on scholarship of teaching and learning (Nwachukwu & Ohalete, 2023). Academic performance, participation in class, and the application of skills in many situations are used to gauge performance. Boekaerts and Corno (2022) defined student performance as the result of student's efforts to achieve academic goals, which includes their ability to manage learning processes, adapt to challenges, and apply knowledge in various contexts. However, studies have showed that effective management of school facilities must of necessity take cognizance of the changes in teaching methods, the grounds and school environment, school curricula, designs and systems, ages and numerical strength of the children, personnel and expected outcomes (Fuller & Dellagnelo, 1999 cited in Nwachukwu, Orih & Iheanaetu, 2021).

Furthermore, Evans and Martin (2024) describe student performance as the academic and behavioral outcomes of a student's engagement in a learning process, measured through personalized learning assessments and differentiated instructional methods. They contend that a student's talents and development may be more accurately reflected through personalized learning. The development of these abilities can improve knowledge application and long-term memory. In addition to reflecting individual aptitudes, peer relationships, learning materials, and quality of instruction all have an impact on students' success. Socio-economic factors and family backgrounds play a substantial role in shaping performance outcomes (Smith & Brown, 2018), Similarly, Jones et al. (2019) highlight that

motivation and self-regulation are critical factors in student performance. They contend that children often perform better academically when they have intrinsic drive and use useful self-regulation techniques. According to research, students who create goals for themselves perform better academically. To ensure that children receive the assistance and interventions they need to realize their full potential, parents, legislators, and educators must have a thorough understanding of student performance.

## **CONCEPT OF TEST**

Tests may be thought of as standard operating procedures that ask a series of questions in order to methodically measure a sample of behavior. Tests are intended to compare a sample's quality, aptitude, skill, or knowledge to a predetermined standard, which is often used to determine whether or not the sample is considered acceptable. Tests are a tool used in education to assess students' performance on assignments, show mastery of a concept, or assess topic knowledge. There are two types of tests: weekly spelling bees and multiple choice exams. A test is a procedure used to measure one or more ideas under pre-set circumstances. They serve as a gauge for pupils' degree of learning.

In order to gather information for a judgement or assessment on certain qualities like abilities, knowledge, and values, it also entails using a specific instrument or carrying out a process to ask students for their replies. A test is a specific kind of evaluation that assigns a task or series of activities to pupils in order to encourage them and reinforce what they have learnt. Bevans (2023) explained that, test is a statistical test that is used to compare the means of two groups. It is frequently employed in hypothesis testing to ascertain whether two groups are distinct from one another or whether a procedure or treatment genuinely affects the population of interest. Test is the name given to a collection of guidelines and procedures used in the social sciences to quantify and examine test-derived information. It includes a range of approaches, including measurement theory, probabilistic measurement frameworks, and classical test theory. It is also a set of procedures used to gather and examine data in order to improve the comprehension of a subject or problem. However, the practice of testing a new product or service concept with its target market prior to its introduction into the market is known as testing.

A test in an educational setting is an examination, evaluation, trial, or use of the material, product, or system to determine and record the capabilities, characteristics, effectiveness, reliability, and suitability, of a student's ability, aptitude, behavior, skill level, knowledge, or performance. One kind of inferential statistics is the test and it is employed to ascertain whether the means of two groups differ significantly from one another. By eliminating a large amount of time lost on mistaken attempts and identifying faulty ideas early in the development process, testing prolongs the timeframe for product development. Ideas that are not well received by the intended audience might be eliminated completely instead of continuing through the process and perhaps being launched (a costly error).

## **CONCEPT OF EXAMINATION**

The fact that the data gathered from examinations is put to many uses means that examinations are essential to the educational system. Examination results provide data that is used to make important choices including placement, selection, and evaluating a program's instructional effectiveness. Zhang, Liu & Zang (2014) affirmed that, Examination is a form of testing is often used in teaching. In addition to evaluating students' academic achievement and encouraging them to acquire information and skills in a methodical manner, the role also entails monitoring the effectiveness of instruction and supporting educators in their efforts to enhance it. Examining pupils is a methodical way to gauge their performance and talents in the classroom. It measures an individual's or a group's knowledge, skills, sentiments, intellect, or aptitude through verbal or nonverbal behaviors.

Examinations are essential component of college instruction because they provide teachers feedback on how well they are doing their jobs and motivate students to take initiative and be enthusiastic about their studies.

Rasul & Bukhsh (2024) holds that, Examination is a process for testing the abilities or achievement of the student in any area of academic program. Examinations are a necessary component of the educational system, which has goals. They are helpful because they track students' advancement towards preset goals. It is also defined as a formal assessment used to gauge an individual's proficiency in a given topic. It evaluates the student's aptitude, learning, physical fitness, and other relevant abilities in addition to their topic knowledge. Examinations are used to evaluate each of these attributes in students depending on the responses they turn in. They are mostly used to determine a student's personality, memory, and revision abilities. In addition, it also inspires pupils to advance their education and knowledge. Liu (2023) holds that, examination is one of the ways that could test students' knowledge and ability, including written, oral, practical, and other abilities.

Examinations are educational evaluations used to gauge a test-taker's knowledge, ability, aptitude, level of physical fitness, and categorization in a wide range of other areas. The examination concept is essential for establishing a test-based framework for teaching reform as it acknowledges the significance of the examination, which not only directs educational activities but also serves as a foundation for assessing and enhancing teaching, which is the primary means of developing innovative talents in students. Additionally, examinations serve as a vital tool for encouraging students to learn actively and creatively. Examinations at school or college are characterized as oral or practical tests, particularly those that are significant and must be completed to receive a qualification. In order for children to grow, assessment is essential. It is also used to assess a student's readiness to advance to the following grade. Governments all over the globe rely on public examination systems to evaluate students' readiness for the next level of education in order to attain a certain degree of standardization.

### **INFLUENCE OF LEARNING SKILL ON STUDENTS' PERFORMANCE IN TEST AND EXAMINATION IN SECONDARY SCHOOL STUDENTS IN AKWA IBOM STATE**

Learning skills have a substantial and wide-ranging impact on how well students do on tests and examinations. A variety of aptitudes and approaches are included in learning skills, which support students in efficiently gaining, processing, and applying knowledge. A closer look at how these abilities affect performance is provided below:

- **Effective Study Techniques**

Effective study strategies include spaced repetition, active recall, and elaborative questioning. These strategies help students retain material better and perform better on examinations. These techniques help in deepening understanding and improving memory recall, which are crucial for test performance (Pevery, Ramaswamy & Andrew 2014).

- **Time Management**

Students that possess strong time management abilities are able to schedule and allot enough time for practice, revision, and study. It helps students avoid last-minute cramming and lower their stress levels, which improves test performance.

- **Note-Taking Skills**

Students who take notes effectively, utilizing techniques like mind mapping and the Cornell system, are better able to organize and evaluate their material. It is simpler to study and find knowledge during an exam when notes are well-organized.

- **Critical Thinking and Problem-Solving**

Students who improve their critical thinking and problem-solving abilities will be able to approach exam problems more critically and use what they have learnt in new contexts. This skill is especially crucial for examinations that measure comprehension as opposed to rote memory.

- **Self-Regulation and Metacognition**

Setting objectives, keeping track of results, and modifying tactics as necessary are all part of self-regulation. Thinking about one's own learning processes, or metacognition, aids students in assessing their comprehension and making the required corrections. Both abilities help students study more efficiently and do better on tests.

- **Stress Management**

Performance may be greatly impacted by managing test-related stress through methods including deep breathing exercises, encouraging self-talk, and sufficient preparation. Stress-resilient students are more likely to maintain attention and do well during exams.

- **Feedback Utilization**

Students can pinpoint areas for growth and enhance their study techniques by actively seeking out and utilizing criticism from classmates or professors. Better learning outcomes and test scores are a result of this ongoing feedback and adjustment process.

- **Motivation and Engagement**

Higher levels of intrinsic motivation and participation in the educational process can result in more efficient study methods and improved test scores. Pupils that have a sincere interest in the topic will probably put in more time and effort in their coursework.

- **Adaptability**

It is essential to be able to modify one's study methods according to the exam's format or topic matter. When taking multiple-choice examinations as opposed to essay-based exams, for instance, a student may employ distinct study techniques.

Student performance on tests and examinations can be greatly impacted by a well-designed curriculum. Below is the method:

- **Alignment with Learning Objectives**

Clear learning objectives and standards are aligned with instruction through a well-structured curriculum. Students may concentrate their efforts more efficiently and score better on tests when they are aware of what is expected of them.

- **Engaging and Relevant Content**

Content that is captivating and relevant to the students is included into effective curriculum. When students are interested in what they are learning, they are more likely to retain information and perform better in tests (Brusilovsky & Millán 2017).

- **Sequential Learning**

Students can improve on their existing knowledge with the aid of a curriculum that follows a logical sequence of themes. Students find it simpler to comprehend and apply what they have learnt in tests because to this sequential learning approach, which reinforces ideas and abilities.

- **Variety of Assessment Types**

Blended learning curriculum frequently incorporate both formative and summative evaluations. Formative assessments, such as quizzes and in-class exercises, assist both teachers and pupils in determining understanding and modifying the curriculum as necessary to boost performance on official examinations.

- **Incorporation of Study Skills**

The learning process is integrated with study techniques and tactics in quality curriculum. Teaching students how to organize their study time, take effective notes, and use test-taking strategies can directly enhance their performance on exams (Freeman, 2014).

- **Feedback and Improvement**

A well-designed curriculum offers chances for evaluation and modification. Students frequently score better on future assessments when they are given the opportunity to improve their work and get constructive comments.

- **Differentiated Instruction**



Effective curricula are created to accommodate students' various demands. Through differentiated teaching, all students, regardless of their learning preferences or skill levels are able to access the information in a way that optimizes their comprehension and performance on tests.

- **Integration of Critical Thinking and Problem-Solving**

Students are better equipped to handle challenging problems on tests and exams when they are taught critical thinking and problem-solving techniques. High-stakes tests frequently require students to apply their knowledge in a variety of scenarios, and this method assists them in doing so.

- **Consistent Review and Reinforcement**

Learning is reinforced when a curriculum incorporates frequent review and reinforcement of important topics. Better exam performance and long-term retention are facilitated by this regular reinforcement.

- **Supportive Learning Environment**

Students may perform to their best ability and have less test anxiety when they are in a supportive and inclusive learning environment created by a well-designed curriculum. In summary, a well-designed curriculum not only organizes content effectively but also incorporates strategies that support student learning and assessment preparation. This thoughtful design can lead to improved student performance on tests and examinations by ensuring that students are well-prepared, engaged, and supported throughout their learning journey. In final analysis, a well-designed curriculum integrates techniques that enhance student learning and assessment readiness in addition to efficiently organizing knowledge. This careful planning makes sure that students are well-prepared, involved, and encouraged throughout their learning process, which can result in better student performance on tests and examinations.

## CONCLUSION

In conclusion, a well-designed curriculum and effective learning skills are crucial determinants of science student performance in tests and examinations, as demonstrated by the case study of secondary school students in Akwa Ibom State. A curriculum that is structured, relevant, and engaging supports deeper understanding and retention of scientific concepts, while robust learning skills such as effective study techniques, time management, and test-taking strategies enhance students' ability to apply their knowledge successfully. Integrating these elements into educational practices can lead to significant improvements in student achievement. Therefore, focusing on curriculum development and skill-building is essential for elevating academic performance and ensuring better educational outcomes.

## RECOMMENDATIONS

- Ensure that the science curriculum reflects the local context and addresses the specific needs and interests of students in Akwa Ibom State. Incorporating local examples and case studies can make learning more engaging and applicable.

- Employ active learning techniques such as group projects, experiments, and hands-on activities to enhance student engagement and comprehension of scientific concepts.
- Offer workshops and seminars on effective study techniques, including time management, note-taking, and retrieval practice. Equip students with strategies to improve their study habits and test preparation.

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