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Impact of Item Arrangement on the Academic Performance of Public Primary School Pupils in Literacy Skills Multiple Choice Test in Lagos State, Nigeria

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ABSTRACT

The study investigated Impact of Item Arrangement on the Academic Performance of Public Primary School Pupils in Literacy Skills Multiple Choice Test. Three null hypotheses were formulated to guide the focus of this study as survey research design using a descriptive approach was adopted. This design allows for the collection of data from large participants in order to unveil the existence of a phenomenon. Population comprises of public primary school pupils in Lagos State as target population involves Basic 5 pupils. A sample of two hundred and fifty (250) pupils was selected through purposive sampling technique. A researcher-structured 20 item literacy skills multiple Choice Test (20-LSMCT) on 4-options objective test form was used to generate data for the study. Item analysis was first carried out on 30 initial items and their difficulty index was determined. 10 items were deleted and the good 20 test items were arranged into three forms A, B & C. Form A contain items arranged on Easy To-Difficult (ETD), Form B, items arranged from Difficult-To-Easy (DTE), Form C have items from Randomised format (RSD). The instrument was content validated and use of Cronbach alpha form of reliability, produced an index value of 0.792 showing instrument suitability for use. Student t-test and Analysis of Variance (ANOVA) statistical analysis was used to analyse the data and tested at 0.05 level of significance. The finding revealed that sex contributed to the difference in the academic performance of pupils especially when items were arranged from most easy items to difficult items. The study concluded that re-ordering of items will go a long way to minimize examination malpractice both Teacher-Made-Test and Standardized Examinations. The study recommended that less number of options should be incorporated in test construction as it helps minimize guessing among pupils.

Key words: Item Arrangement, Literacy Skills, Academic performance, Pupils, Multiple Choice Tests

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1. INTRODUCTION

Globally poor literacy skills is a phenomenon that affects academic performance of pupils negatively as many stakeholders seek to address and improve upon it from time to time. The performance of public primary school pupils in literacy skills tests is a critical determinant of their academic success and future educational prospects.

Literacy skills, including reading comprehension, vocabulary acquisition, and grammar, form the foundation of learning across all subjects. Assessments, particularly multiple-choice tests, are commonly employed to evaluate pupils' literacy abilities. While various factors influence pupils' performance on these tests, the arrangement of test items plays a significant role in shaping how pupils engage with the test content and their overall performance. The order in which questions are presented, whether progressive or random, can directly impact pupils' ability to comprehend, recall, and apply their knowledge effectively. This study explores the influence of item arrangement on the academic performance of public primary school pupils in literacy skills multiple-choice tests.

Meanwhile regionally Ali, Kadir and Osman (2015) have identified arrangement of test items as a subtle but powerful factor that can affect test-takers' cognitive processes and emotional responses since pupils literacy skills can be evaluated through assessment. Test designers typically organize items in a way that progresses from easier to more difficult questions, but this is not always the case. A test with poorly arranged items such as random sequencing or an abrupt increase in difficulty may cause unnecessary stress and confusion, undermining pupils' performance. A test with a well-structured sequence allows pupils to build momentum and confidence as they progress through the questions. Given the importance of literacy skills in primary education, understanding how item arrangement influences pupil performance could help in the design of more effective assessments that promote fair and accurate measurement of pupil abilities.

Sullivan, Meyer and Becker (2020) identified that if the sequence of items is confusing or overwhelming, it can disrupt pupils ability to focus on the task at hand. If difficult questions appear early in the test, pupils may become discouraged or anxious, which could negatively impact their performance on subsequent questions. On the other hand, a well-ordered sequence that starts with easier questions and gradually increases in difficulty allows pupils to engage with the test in a more structured manner, reducing anxiety and improving their chances of success.

Multiple-choice tests are commonly used in primary schools for assessing literacy skills due to their efficiency, objectivity, and ability to cover a broad range of content within a limited timeframe. These tests require pupils to choose the correct answer from a set of options, testing their knowledge of reading comprehension, vocabulary, and other fundamental literacy components. However, research has shown that the arrangement of multiple-choice items can significantly impact how pupils approach the test and, ultimately, their success. In light of this, it becomes essential to explore how different arrangements of test items may either enhance or hinder the ability of pupils to demonstrate their literacy skills accurately (Sweller, 2020).

Literacy skills are the backbone of learning in primary education, influencing how pupils acquire, process, and demonstrate knowledge across subjects. Literacy is not limited to reading and writing but extends to comprehension, vocabulary, and critical thinking, all of which are essential for success in multiple-choice assessments. In primary schools, multiple-choice tests are widely used because they allow teachers to evaluate large numbers of pupils efficiently. However, the performance of pupils in such tests is often shaped by their literacy competence as much as their subject knowledge. Pupils who can read fluently, interpret question stems accurately, and analyze answer options are at an advantage compared to peers with weaker literacy backgrounds (Tangwa & Lim, 2017).

The structure of multiple-choice tests demands a solid literacy foundation. For instance, to answer a mathematics question correctly, a pupil must first understand the language of the problem before applying the correct formula or calculation. Similarly, in science or social studies, pupils must decode key terms, interpret question stems, and discriminate between plausible distractors. Research suggests that poor literacy can hinder pupils from fully demonstrating their academic competence because misinterpretation of questions often leads to incorrect answers despite subject knowledge (Adeosun & Oni, 2020). Thus, multiple-choice tests do not merely assess content knowledge; they also indirectly measure literacy abilities.

In Nigeria, literacy skills tests in schools serve as critical tools for assessing pupils' ability to read, write, and comprehend at age-appropriate levels. Literacy tests are designed to capture foundational competencies such as letter recognition, phonemic awareness, vocabulary knowledge, and reading comprehension. For instance, pilot studies in Cross River State employed instruments like the Sight Word Recognition Test, Print Awareness Test, and Phono-Phonemic Awareness Test to evaluate early reading abilities in primary school pupils. These tools revealed that many learners struggle with basic print conventions and decoding, underscoring the need for targeted instructional support in the early grades (Eneji, Egbe, & Bassey, 2015).

Large-scale literacy assessments also highlight the extent of learning gaps in Nigerian schools. The LEARNigeria (Let's Engage, Assess & Report Nigeria) citizen-led assessment, conducted in 2017–2018, tested children in literacy and numeracy across several states. Results showed alarmingly low proficiency rates, with less than 10% of pupils in Primary 3 able to read at the Primary 2 benchmark level in English or local languages. Such findings align with global reports by UNESCO (2019), which emphasize that many children in sub-Saharan Africa complete primary schooling without acquiring basic literacy. These tests not only measure pupil achievement but also reveal systemic challenges in curriculum delivery and teacher preparation.

Literacy skills test guide policymakers and educators in tracking progress and implementing interventions. In Ondo State, functional literacy was assessed using standardized reading and numeracy tests with high reliability scores (above $r = 0.80$). Results demonstrated significant links between literacy outcomes and school factors such as class size, teacher quality, and access to libraries (Ajayi, 2019). By pinpointing areas of weakness, literacy testing provides evidence for reforms in teacher training, instructional materials, and classroom practices. Ultimately, such assessments are indispensable for improving learning outcomes and ensuring that pupils gain the foundational literacy necessary for lifelong learning.

It is also fair to state that literacy skills are closely linked to test-taking strategies. Pupils with strong literacy can engage in logical elimination of distractors, identify keywords, and infer meaning even when unsure of the correct answer. This enhances their accuracy and confidence during assessment. In contrast, pupils with limited literacy may rely on guessing, increasing the likelihood of errors and reducing the validity of the test as a true measure of learning (Yusuf & Adedokun, 2021). Consequently, literacy levels significantly shape the reliability of multiple-choice test outcomes, especially in contexts where English—the medium of instruction—is not the pupils' first language, such as in many Nigerian schools.

The relationship between literacy skills and multiple-choice testing also has implications for educational equity. Pupils from literacy-rich backgrounds often outperform those from disadvantaged homes, not necessarily due to differences in intelligence or subject mastery but because of their stronger reading and comprehension skills (Ewetan & Ewetan, 2022). This raises questions about the fairness of using multiple-choice formats as the dominant assessment tool in primary schools without concurrently addressing literacy gaps. Therefore, educators must prioritize literacy development in early education while ensuring that test items are linguistically appropriate and free from unnecessary complexity.

In essence literacy skills and multiple-choice test performance in primary schools are deeply interconnected. Literacy not only enables pupils to decode and interpret questions but also enhances reasoning, accuracy, and strategic answering. Without adequate literacy, pupils may underperform in tests, masking their true academic ability. To ensure fairness and validity, schools must integrate literacy reinforcement across subjects and adopt assessment practices that reflect both content mastery and language competence. Strengthening literacy in primary education is therefore critical for improving assessment outcomes and fostering lifelong learning.

Item arrangement in educational setting refers to the sequence in which questions are presented during examinations and variations in this sequence such as ordering from easy to difficult, difficult to easy and mixed which can influence pupils' performance. Item arrangement of a test is defined as the deliberate and conscious arrangement of test based on two conditions of randomness and magnitude of ascending or descending order of difficulty. This sequence of arrangement is designed to determine the path and pattern of pupils' response to a set of test item. Item arrangement state in specifics certain dynamics test developers consider and give preference in the course of pooling items in a scale (Robinson et al, 2018). Item arrangement factors a process where test items are tailored in relation to point introduction in classroom situation. Arrangements of item in any sense can assume ascending, descending and non-consistent order. By extension when items are arranged from most simple to complex form, such an item is classified as ascending order; from complex to simple is classified as descending while when items don't follow any particular order but seen to adhere to mix form is called, non-consistent order.

During multiple choice test item arrangements can assume the form of randomized, ascending and descending formats. This randomised format is otherwise called non-consistent order. Opara & Uwah (2017) disclose that this ordered format does not follow any order but the items are arranged at random. Randomised order allows questions to be arranged in a non-structured form where index number for distribution is not a prerequisite for item arrangement.

The ascending order format involves starting with the higher p-value, continuing with and ending with the most difficult items which have the lower p-values. This is not the most common variant of this technique. It enables the test taker to encounter easier items first and successfully solving less easy ones. It is also the most common format used during test construction. It enables the test taker to encounter easier items first and successfully solving them increases their confidence level and gives them mental boost which motivates and encourage more successful solutions of subsequently less easy items (Nwankwo 2016).

The descending order is a reverse format of the ascending order. The most difficult item ends the scale as least difficult comes last. Test items may also be placed in random or mixed order, neither ascending nor descending. However, it is often a systematic or specified randomness with p-value less than 0.50, throughout the test at specified intervals, each followed by subsequently easier ones. The rationale behind this method is that the typical easier -to- harder method frustrates the test - taker when it causes them to encounter and attempt too many difficult items in a row. They then end up not attempting these items at all, simply guessing on them or worse still cheating, by copying others work. Successively this will not reflect the candidate's ability on the trait and therefore will not go well for testing.

Margret and Victor (2017) claimed that item arrangement centres on the ability of pupils to respond favorably to an item the way the topics were arranged in the teaching process by the teacher. They restated that the choice and sequence of test items may sometimes afford pupils the ability to recall things dependent on the order in which they were exposed to in the class. The arrangement of items in a multiple-choice test can have a significant impact on the academic performance of learners if they follow such a trend. If easy items are placed at the beginning of the test and difficult items at the end, pupils may become discouraged or demotivated early on if they struggle with the easier questions. On the other hand, if difficult items are placed first, learners may become overwhelmed and lose confidence, leading to poorer performances (Nwankwo, 2016). Meanwhile Afolabi (2024) noted that a score in a test is not an accurate measure or estimate of the individuals true score due to various conditions that are associated or responsible for the response pattern of test taker towards a test. Be it power test, speed test or tailored test, test takers response to items especially to multiple choice test type is greatly influenced by the difficulty index of the items, random or chance factors that do influence the score obtained by an individual in such a test.

Understanding how item arrangement affects academic achievement is crucial for educators and policymakers aiming to optimize assessment strategies and enhance learning outcomes. On the influence of item arrangements on academic performance in school based or standardized tests particularly in relation to gender is an interesting area of study in educational test and measurement. Studies have shown that both boys and girls performed differently based on the arrangement of items using increased difficulty order. In a study by Udofia, et al (2020) they disclosed that boys tend to perform slightly better than girls on standardized tests, yet girls tend to have higher overall competence and self-efficacy in school based tests. By extension, female learners develop phobia for external examinations as against school based tests. Wong and Liu (2016) studied the impact of Item arrangements and time constraints on gender and performance. The finding reveal that girls outperform boys in open-ended formats while boys have a slight advantage in multiple-choice formats, suggesting that item type may moderate gender performance in school tests.

Meanwhile Ibaka, (2019) conducted a study on Test Format and Gender Differences in schools. The study explored how different test formats (including item arrangement) affected male and female pupils' performances. The result shows that females performed better in tests with clearly structured item arrangements, while males showed more robustness to arrangement changes. Female learners are better coordinated to test as an activity since such task is out to determine their performance level while male learners are wired to excel in tests that have other conditions behind the exposure.

A study by Ayoola, (2019) disclosed that cognitive load, influenced by item arrangement in multiple-choice tests impacted gender performance. Ayoola (2019) emphasized that female cognitive load develops faster than their male counterparts especially during their developmental phase. The girl child experiences complex cognitive ability at an early age as a result can multi-task effectively however this added advantage is further displayed in their academic performance. Irrespective of the placement of distracters and item arrangement, they most likely perform better than their male counterparts. The study revealed that male pupils when faced with higher cognitive load due to difficult item arrangements, exhibits a decline in performance compared to female.

The relationship between easy-to-hard, hard-to-easy and randomized test forms has been explored in various studies examining their impact on test performance and fairness. Easy-to-hard tests, which begin with easier questions and progressively increase in difficulty, can help pupils reduce test anxiety and build confidence, but may not fully challenge pupils' higher-order thinking skills (Harris & May, 2017). In contrast, hard-to-easy tests, where difficult questions appear first, are designed to challenge pupils right away, potentially leading to greater accuracy in assessing their overall capabilities, though they can induce initial stress (Robinson, et. al., 2018). Randomized test forms, which shuffle the order of questions to prevent order effects and biases, have been shown to improve fairness by reducing the advantage of memorizing or predicting question sequences (Kaliski, et al., 2019). Studies suggests that randomized formats are particularly useful for high-stakes testing, as they offer a more equitable assessment by ensuring that all pupils are exposed to a unique set of challenges (Bennett, 2020).

The structure of test items in any multiple-choice test whether easy-to-hard, hard-to-easy, or randomized order has profound implications for learner's performance. The easy-to-hard sequence might be beneficial in building confidence but risks leading to complacency and anxiety. The hard-to-easy sequence can provide a confidence boost at the end but may lead to time mismanagement and frustration. Randomized item order, however, ensures fairness and eliminates any bias introduced by question sequencing. For assessments in Nigeria, such as those for WASSCE, UTME and other school based examination, randomization test format provide a more accurate and equitable measure of a learners competence thereby offering a clear picture of their ability to handle different levels of cognitive demand.

1.1 Statement of the Problem

The performance of pupils in literacy skills especially in public primary schools in the state is very poor despite various measures and interventions by the state and private organisations to ameliorate the challenge. This poor performances may have been traced to poor teaching methodology, inappropriate use of instructional aids, classroom arrangements, time allocated to subjects, concentration level of pupils, recruitment of unqualified teachers, poor reading habits and comprehension of the pupils among others. A study by Mafikuyomi & Udofia, (2023) shows that psychosocial variables like emotional state of the child, age, interaction level and even environmental factors may affect the performance of pupils especially in literacy skill however efforts of item arrangement within literacy skills assessment in relation to multiple choice test remain unexplored, hence the need for the researchers to investigate the impact of Item Arrangement on the Academic Performance of Public Primary School Pupils in Literacy Skills Multiple Choice Test.

1.2 Purposes of the Study

The primary purpose of this study is to examine the impact of item arrangement on the academic performance of public primary school pupils in literacy skills multiple choice test as specific objectives include:

- examine the difference that exists between male and female pupils academic performance in literacy skills multiple choice test arranged by randomized format.
- investigate the difference that exists in public primary school pupils' academic performance in literacy skills multiple choice test arranged by ascending and descending format.
- evaluate the difference in academic performance of pupils in literacy skills multiple choice test using three types of forms

1.3 Hypotheses

Two null hypotheses were formulated and tested at 0.05 significant level and they are:

H_{01}: There is no significant difference between male and female pupils' academic performance in literacy skills multiple choice test arranged by randomized format

H_{02}: There is no significant difference in pupils' academic performance in literacy skills multiple choice test arranged by ascending and descending format.

H_{03}: There is no significant difference in the academic performance of pupils in literacy skills multiple choice test using three types of forms.

1.4 Significance of the Study

It will afford pupils the needed skills and knowledge to recall response from items correctly. By implication pupils will be better guided with necessary information on ability to recall correct keys, identify appropriate response for a defined stem and also build self-confidence and latent ability towards a well- structured test; The outcome of this work will also be relevant for teachers as it will provide feedback mechanism on appropriate domain levels to consider when constructing tests. Teachers will further benefit from this work as it would provide a bench mark to consider when arranging tests in order of magnitude; Parents on their own part will also find this study relevant as it would provide them with needed information about their child's learning and development as well as identify areas for improvement and growth. This study will also contribute to the achievement of basic education as highlighted by the Lagos State Policy of Education (2023) in the adoption of appropriate test form that help boost and project the latent ability of pupils in literacy skills.

METHODOLOGY

Survey research design type using descriptive approach was used in this study. This design type seeks to collect data from a large population in other to have a detailed information on the population. Population of this study comprises of public primary school pupils in Lagos State as target population involves Basic 5 pupils. A sample of two hundred and fifty (250) pupils was selected through purposive sampling technique. A researcher-structured 20 item literacy skills multiple Choice Test (20-LSMCT) on 4-options objective test form was used to generate data for the study.

Item analysis was first carried out on 30 initial items and their difficulty index was determined. 10 items were deleted and the good 20 test items were arranged into three forms A, B & C. Form A contain items arranged on Easy To-Difficult (ETD), form B have items arranged on Difficult-To-Easy (DTE) items and form C have items on Randomised (RSD). The instrument was content validated and use of Cronbach alpha form of reliability, produced an index value of 0.792 showing instrument suitability for use. Pupil t-test statistical analysis was used to analyse the data and tested at 0.05 level of significance

3. DATA PRESENTATION AND INTERPRETATION

H_{01}: There is no significant difference between male and female pupils' academic performance in literacy skills multiple choice test

Table 1: t-test analysis showing difference between male and female pupils academic performance in literacy skills multiple choice test

Variable	N	Mean	SD	P-val	t-cal	Sig.	Remark
Male	89	1.44	0.49				
Female	161	2.79	0.87	0.05	2.668	0.002	Reject H_{01}
Total	**250**						

α = 0.05 ***Source: Research output (2025)**

Table one above reveals that 250 pupils participated in this study as male participant recorded lower mean and standard deviation than their female counterparts who recorded higher. At p-val. of 0.05, sig. val. of 0.002 was recorded, implying null hypothesis rejected and alternative which states that there is a significant difference between male and female pupils academic performance in literacy skills multiple choice test.

H_{02}: There is no significant difference between the ascending and descending order format of pupils' academic performance in literacy skills multiple choice test

Table 2: t-test analysis showing difference between the ascending and descending order format of pupils academic performance in literacy skills multiple choice test

Variable	N	Mean	SD	P-val	t-cal	Sig.	Remark
Ascending	250	1.81	0.62				
Descending	250	3.22	0.81	0.05	3.441	0.011	Reject H_{02}
Total	**250**						

α = 0.05 ***Source: Research output (2025)**

Table two above reveals that 250 pupils participated in this study as those exposed to ascending order questions recorded lower mean and standard deviation than their descending order counterparts. At p-val. of 0.05, sig. val. of 0.011 was recorded, implying null hypothesis rejected and alternative which states that there is a significant difference between the ascending and descending order format of pupils academic performance in literacy skills multiple choice test.

H_{03}: There is no significant difference in academic performance of pupils' in literacy skills multiple choice test by forms

Table 3: ANOVA Analysis showing Significant Difference in Academic Performance of Pupils' in Literacy Skills Multiple Choice Test by Forms

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	9.360	2	4.680	.63	.007
Within Groups	3836.971	519	7.393		
Total	3846.331	521			

The ANOVA result in Table 3 shows that the calculated F-value is 0.633 with a significance value (p) of 0.007. Since the p-value is less than the alpha value of 0.05, the result indicates that there is a statistically significant difference in the academic performance of pupils across the three test forms. This means that any observed differences in mean scores between the groups are not attributed to chance rather the effect of the test form administered.

3.1 Post Hoc Test

Table 4: Post Hoc Test showing where the difference lies in the test forms Multiple Comparisons

Dependent Variable: ACADEMIC PERFORMANCE

LSD

(I) TESTFORM2023	(J) TESTFORM2023	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
FORM A	FORM B	.12069	.29405	.682	-.4570	.6984
	FORM C	.86207*	.29405	.004	.2844	1.4397
FORM B	FORM A	-.12069	.29405	.682	-.6984	.4570
	FORM C	.74138*	.29405	.012	.1637	1.3191
FORM C	FORM A	-.86207*	.29405	.004	-1.4397	-.2844
	FORM B	-.74138*	.29405	.012	-1.3191	-.1637

*. The mean difference is significant at the 0.05 level.

From the result above it reveals that test Form A Form B shows no significance at .682, Form A Form C shows .004; Form B Form A shows .682 while Form B Form C shows .012; Form C Form A gives .004 while Form C Form B gives .012 respectively. It can best be seen that difference is attributed to test Form A which implies that most got a better performance when exposed to Form A (Easy to Difficult format). However it was then followed by Form B (Hard to Easy format)

4. DISCUSSION OF FINDINGS

The outcome from hypothesis one reveals that there is a significant difference between male and female pupils academic performance in literacy skills multiple choice test as female pupils performed better than their male counterparts. The outcome of this study conforms to Ibaka (2019) who conducted a work on Impact of Test Format and Gender Differences in schools. The study

explored how different test formats (including item arrangement) affected male and female pupils' performances. The result shows that females performed better in tests with clearly structured item arrangements, while males showed more robustness to arrangement changes. Female learners are better coordinated to test as an activity since such task is to determine their performance level while male learners are wired to excel in tests that have other conditions behind the exposure; A study by Ayoola (2019) also stressed that female cognitive load develops faster than their male counterparts especially during their developmental phase. The girl child experiences complex cognitive ability at an early age as a result can multi-task effectively however this added advantage is further displayed in their academic performance. Irrespective of the placement of distracters and item arrangement, they most likely perform better than their male counterparts.

Also outcome from hypothesis 2 reveals that there is a significant difference between ascending and descending order format on pupils' academic performance in Literacy Skills Multiple Choice Test. This implies that pupils perform better in descending test format due to numerous psychological factors associated to test exercise. Under the descending test order, the most difficult item ends the scale as least difficult comes first. This finding corroborates with that of Nwankwo (2016) who stated that the rationale behind the difference lies on so many premise. The descending order format involves starting with the least difficult item and end with the most difficult item. This technique enables the test taker to encounter easier items first and successfully solving less easy ones. It is also the most common format used during test construction. It enables the test taker to encounter easier items first and successfully solving them increases their confidence level and gives them mental boost which motivates and encourage more successful solutions of subsequently less easy items (Nwankwo 2016).

Result from hypothesis three reveals that there is a significant difference in academic performance of pupils' academic performance in literacy skills multiple choice test by forms be it Forms A, B, and C. The result suggested that variations in the structure, item arrangement, or difficulty level of the forms may have influenced pupils' scores. This agrees with Oloyede and Adegbite (2021), who reported that discrepancies in multiple-choice test forms can affect performance due to unequal cognitive demands and sequencing effects.

They observed that differences in item positioning which is obvious in test forms of Easy to Difficult items influence test-takers' confidence and processing speed, thereby impacting achievement. Such disparities raise concerns about the fairness and validity of using multiple forms in high-stakes examinations like WASSCE, where results determine students' academic progression. Therefore, it is essential that examination bodies apply rigorous item analysis and statistical equating to ensure that all test forms are equivalent in difficulty and provide an equal opportunity for all candidates to demonstrate their competence. However a test form that builds pupils confidence and ability should be encouraged as visible in East to Difficult test type.

5. CONCLUSION

From the findings in this study the researchers concluded that re-ordering of items will go a long way to minimize examination malpractice both at Teacher-Made-Test and Standardized examinations. Also the study concluded that female pupils will always outperform their male counterparts in a structured testing condition where items are re-ordered as a result of their cognitive loading ability during development.

6. RECOMMENDATIONS

The study recommended among others the following:

a. Difficulty index of items should first be determined before undertaking any suitable form of item arrangement.
b. Less number of options should be incorporated in test construction as it helps minimize guessing among pupils.

REFERENCES

Adeosun, O., & Oni, A. (2020). Literacy development and assessment practices in Nigerian primary schools. *Journal of Language and Education Research*, 7(2), 55–67.

Afolabi, J.O. (2024) Application of generalizability theory in estimating error variances and score dependability of 2021 and 2022 wassce mathematics multiple choice items in Ogun State. An unpublished PhD thesis, University of Benin, Benin city, Edo State, Nigeria

Ajayi, V. O. (2019). School factors as predictors of functional literacy skills among public primary school pupils in Ondo State, Nigeria. Afribary.

Ali, F.M., Kadir, N.F.A., & Osman, M. (2015). The Impact of Test Item Arrangement on the Performance of Primary School Pupils in Multiple Choice Tests. *Journal of Educational Research and Practice, 5*(2), 54-62

Ayoola, C.D. (2019) executed a study on Cognitive Load and Item Arrangement in Mathematics Examination. Journal of Research Studies. 5(1) 87-96

Bennett, R.E. (2020). *The changing face of educational assessment: Policy, practice, and research*. Cambridge University Press.

Eneji, C.V., Egbe, B.O., & Bassey, P.U. (2015). Developing beginning reading skills among primary school pupils in Cross River State, Nigeria: A pilot study report. ResearchGate.

Ewetan, O. O., & Ewetan, F. O. (2022). Home background, literacy, and academic performance of primary school pupils in Nigeria. Education and Development Review, 8(1), 14–26.

Harris, D. N., & May, H. (2017). The impact of test format on pupil performance: Insights from the National Assessment of Educational Progress. *Educational Measurement Issues and Practice, 36(4)*, 12-24.

Ibaka, W.E. (2019) conducted a study on Test Format and Gender Differences in Mathematics.*Asian Journal of Educational Measurement and Evaluation.* 4(2)76-79.

Kaliski, P., Novak, M., & Webster, D. (2019). Test fairness and randomized question order in large-scale assessments. *Journal of Educational Psychology, 111(6)*, 1092-1105.

Mafikuyomi, J.A. & Udofia, I.G. (2024). Evaluation of Psychosocial Variables Prevalence on Academic Performance of Pupils in Literacy Schools in Public Primary Schools, Lagos State. 8 th Annual International Conference of the Faculty of Education, Lagos State University, (LASU). Held at the Faculty of Education, Lagos State University from October 30- November 3, 2024

Margaret, O.I & Victor, U.I. (2017). Effect of Test Item Arrangement on Performance in Mathematics among Junior Secondary School Students In Obio/Akpor Local Government Area of Rivers State Nigeria. *British Journal of Education* 8(5), 2017, 1-9.

Nwankwo, O.M. (2016) Influence of Item Arrangements In Multiple Choice Objective Tests on Students Academic Achievement In Physics An Unpublished Masters Degree Thesis, Michael Okpara University of Agriculture, Umudike.

Oloyede, A., & Adegbite, I. (2021). investigates Influence of Item Arrangement on Student Engagement and Academic Performance in Secondary Schools. Journal of Educational Practice and Research, 12(3), 45–58.

Opara, I.M. & Uwah, I.V. (2017). Effect of test item arrangement on performance in mathematics among junior secondary school students in Obio/Akpor Local Government Area of Rivers State, Nigeria. *British Journal of Education, 5*(8), 1-9.

Robinson, L., Holtz, M., & Freeman, T. (2018). Understanding pupil stress: The role of test difficulty and sequencing. *Journal of Educational Research, 111(2),* 250-263.

Sullivan, P., Meyer, L., & Becker, S. (2020). Assessing the impact of item arrangement on younger pupils in primary literacy tests. *Journal of Early Childhood Education, 47(3)*, 263-278. https://doi.org/10.1080/03004279.2020.1792356

Sweller, J. (2020). Cognitive load theory and instructional design: Implications for literacy assessments. *Journal of Educational Psychology, 111(2),* 170-184. https://doi.org/10.1037/edu0000283

Tangwa, T., & Lim, J.S. (2017). The Role of Item Arrangement in the Performance of Primary School Pupils in Literacy Assessments. *International Journal of Educational Development, 38*, 74-82.

Udofia, I.G.R., Ekwere, N.S., Joseph, M.H. & Enoma, I. (2020). Item Response Theory: Determination of Item Parameters by Test Length and Sample Size. *Journal of Educational Research and Development. The official Journal of the Colleges of Education Academic Staff Union, COEASU,AOCOED,* Oto-Ijanikin, Lagos State. 16(2). 161-170.

Umar, M. (2019). Literacy and pupils' performance in standardized tests: Evidence from Nigerian primary schools. African Journal of Educational Assessment, 5(1), 101–113.

UNESCO. (2019). Global Education Monitoring Report 2019: Migration, displacement and education. Paris: UNESCO.

Wang, S. (2012). The Effect of Item Arrangement on Pupils' Academic Performance. *Studies in Education, 22*(4), 101-115.

Wong, C.H.B. and Liu, J.H. (2016). The Impact of Item Arrangement and Time Constraints on Gender and Performance in Mathematics Tests. *Educational Measurement: Issues and Practice*, 35(4)*, 30-41. DOI:10.1111/emip.12133

Yusuf, T., & Adedokun, S. (2021). Language proficiency and performance of primary school pupils in multiple-choice examinations. International Journal of Educational Research, 9(3), 88–97.