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FOREWORD

The last 41 years of my life has been to the service of humanity, particularly in research and teaching. With all sense of modesty, I can say I came, I saw and I conquered. Hence, I owe lots of gratitude to Almighty God whose grace sustained me thus far. He alone is worthy of praise and adoration for the rare privilege of being one of the foundation staff of this great University. My sojourn in the United States of America in the early 80s in search of knowledge and rise to the position of a Professor of Mathematics Education in October, 1995 were not necessarily based on merit but act of God's mercies which He said He would show to whom He chose. I therefore cannot deny God's goodness towards me and my household.

This special edition of Journal of Curriculum and Instruction therefore presents me the opportunity to thank the University of Ilorin for appointing me a lecturer and, providing enabling environment to rise through the ranks. My colleagues, old and young, friends and research students are appreciated for making the journey worthwhile.

As I retire from the service of University of Ilorin, it important to reiterate the need to keep the good works and sustain the legacy of hardwork, integrity and self-reliance which our older colleagues bequeathed on us when we joined in 1976. The likes of Profs A. Abiri and A. Abdullahi taught us the rudiments of academic writing, integrity, loyalty to and respect for the system.

It is in this light that I like to encourage the upcoming colleagues to pay attention to details of academics works. The truth is, the more we grow, the more the challenges. We must therefore avoid these two vices: the rat race leading to bogus publications that have made many victims of predatory journals and, becoming rich too quick in the name of being academics. The ultimate goal aside contributing to knowledge is to sustain the tradition of prestige and integrity for which academia are highly reputed.

I am convinced that as a Mathematics Educator, some of my contributions reported in this journal and those of other contributors would be of help to readers and future researchers. Besides article publications, I have to my credit various services to the nation in areas of training of teachers, curriculum design, textbooks writing and assessment of different forms in the sphere of academia. The list is long and could not be totally reflected in this journal.

In putting together papers from various fields of study, I know it is not an easy task. I therefore thank the proponents of the idea for sparing time to coordinate this. I am particularly grateful to Head of Department, Dr. Mulkah A Ahmed and Editor-in-Chief, Prof. Esther O Omosewo for providing quality leadership in this direction.

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The Department of Science Education, University of Ilorin, Nigeria, journal titled Journal of Curriculum and Instruction publish papers that report results of research, as well as descriptive, interpretative and persuasive articles related to curriculum and instruction which includes:

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- b) Instructional theory and practice;
- c) Educational technology and
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EDITORIAL

A business philosopher and author, Jim Rohn said that the legacy we leave behind is part of the ongoing foundations of life. Everybody is a steward of this world and has a calling to leave the world better than how he/she found it. Professor Olubusuyi Fajemidagba came, he saw and he conquered. What will never fade away about Prof. Michael Fajemidagba are the lessons of life he has bequeathed onto lives he has touched. He has helped many people to navigate the road so that life can be forged ahead. He has passed lessons of humility and modesty to many of us. For these and many other reasons, it was thought worthwhile to dedicate a special edition, specifically, volume 10, number 2 of the Journal of Curriculum and Instruction to him. In this edition, articles are written by scholars from various Universities in Nigeria. They include a review of Fajemidagba's contributions to development of mathematics education in Nigeria; An analysis of text message related errors in the written English of senior secondary school students in Kwara State; Gender, socio-economic status and self-concept as determinants of senior secondary school students academic performance in mathematics; lecturers' perceptions of the challenges of development of courseware for open and distance learning in Nigeria; quality of university education: An agent of national integration and development in Nigeria; a comparative analysis of the philosophy and curricula of physics teacher education of selected southwestern Nigerian universities; an assessment of the socio-economic relevance of the senior school chemistry curriculum in Lagos State; undergraduate students' perception towards the effectiveness of the use of e-learning in the university of Ilorin and many more. Happy reading.

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**COMPARABILITY OF SSCE MULTIPLE-CHOICE ECONOMICS
ITEMS USING IRT APPROACH AMONG SENIOR SECONDARY
STUDENTS IN KWARA STATE, NIGERIA**

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Abstract

This study was conducted on three-parameter comparison of WASSCE and NECO multiple-choice Economics items among Senior Secondary School students in Kwara State, Nigeria. Students' abilities and item parameters (item difficulty, discrimination and guessing) of WASSCE and NECO Economics items were investigated. Descriptive survey research design was adopted. Twenty-four randomly selected public Senior Secondary Schools were sampled and 768 Senior Secondary School students were sampled using multi-stage sampling technique. 2015 WASSCE and NECO multiple-choice Economics items were used as the instrument. The data obtained were scored dichotomously. Students' abilities and item parameters were generated using WinGen IRT software package. The t-test statistic was used to test hypotheses postulated at 0.05 level of significance. One of the findings revealed that: the examinees sampled were of medium ability in WASSCE but higher in NECO. The WASSCE Economics items had more difficult items than NECO Economics items, that NECO Economics items discriminated more than WAEC. Economics items in 2015 had negative discrimination and as such excluded from calibration. More items were prone to guessing in NECO than in WASSCE Economics test items. It was also found that significant difference did not exist in the difficulty, discrimination and guessing indices of WASSCE and NECO multiple-choice Economics items. One of the recommendations was that in WASSCE and NECO should properly review their items so as to detect items with negative discrimination and reduce the guessing tendency of each item.

Keywords: IRT, Comparability, Item Difficulty, Item Discrimination, Item Guessing, Multiple-Choice items, Senior School Certificate Examinations (SSCE), Three-parameter, WASSCE, NECO.

Introduction

Assessment of learners is a regular practice in education and it is used to determine how far learners have learnt or mastered an educational task or how

well an educational process has addressed its set objectives. Assessment as an integral part of teaching and learning is a crucial aspect of the teacher's task since its outcome is employed in making key decisions that may make or mar a student (Onjewu, 2007). Test as one of the assessment techniques is a means of eliciting behaviour for observation with a view to assessing or making some inference about a specific attribute of the students (Abiri, 2007). Test could be classified into objective (multiple-choice) or essay types.

From a practical point of view, free-response items are difficult to score in a reliable manner. As a result, most tests used under modern test theories consist of multiple choice items which are scored dichotomously: the correct answer receives a score of one, and each of the distracters yields a score of zero. Olatunji (2007) stated that the larger the number of plausible distractors, the larger the reliability of the test items. Items scored dichotomously are often referred to as binary items. In educational measurements, there are two main frameworks by which a test and the items it contains can be studied. These are Classical Test Theory (CTT) and Item Response Theory (IRT).

Classical Test Theory (CTT) has had a longer tradition in the education field and is still being used in test development (Bechger, Gunter, Huub & Bèguin, 2003). The fundamental feature of Classical Test Theory is the formulation of every observed score (X) as a function of the individual's True score (T) and some random measurement Error (E) i.e. $X = T + E$. True score is defined as the expected test score over parallel forms, and then the resulting properties of error are derived. Although CTT's major focus is on test-level information (Olutola, 2009).

Despite the popularity of CTT and its usefulness in test development, it is fraught with so many limitations. One of such limitation is the sample dependency of the two item parameters (Ojerinde, 2013). It lacks an effective means for simultaneously combining and presenting item difficulty and item discrimination including the role of guessing in an easily-used format (Magno, 2009). These weaknesses have necessitated a shift to IRT. Ojerinde (2013) stated that the potential benefits offered by IRT have led some examining bodies in Nigeria, for example Joint Admissions and Matriculation Board (JAMB) to start working within the IRT framework.

Item Response Theory (IRT) was originally developed in order to overcome the limitations of Classical Test Theory (CTT). IRT is a modern test theory which looks at the individual response of examinees to a specific test item. IRT may be regarded as roughly synonymous with a Latent Trait Theory (LTT) as it assumes the existence of latent trait (ability), which is an examinee's characteristic that leads to a consistent performance on a test. IRT is a modelling technique that tries to describe the relationship between an examinee's test performance and the latent trait underlying the performance (Hambleton, Robin & Xing, 2000). Theoretically, IRT ability estimates (θ) are "item – free" (i.e. would not change if different items were used) and the item difficulty statistics are person free (i.e. would not change if different persons were used). IRT models apply mathematical functions that

specify the probability of a discrete outcome, such as a correct response to an item in terms of person and items parameters.

The IRT framework encompasses a group of models, such as one-parameter, two-parameter and/or three parameter model. Within the framework of IRT, item calibration is involved which estimates the estimation of the item parameters using a particular IRT model.

In one-parameter model usually referred to as Rasch Model which shows relations between the parameter of item difficulty (b) and an individual's level of ability (Olutola, 2009). This suggests that the probability of an examinee responding to an item correctly depends on the difficulty level of the test item and his ability level. In a two-parameter model, discrimination parameter (a) is added to the parameter of item difficulty (b). This states that the probability of an examinee answering an item correctly depends on the difficulty and discrimination index of an item along with his ability level. In a three-parameter model, guessing (c) is added to the parameter of item difficulty (b) and discrimination and guessing index of an item along with his ability level. This assumes that the examinee's performance is a product of his ability, the difficulty of the item, the discrimination index and the guessing parameter with a straight-line curve to infinity (Ojerinde, Kunmi, Francis & Patrick, 2012). According to Obinne (2012) students guess because they do not have adequate knowledge or ability to provide correct answer.

In testing, students with low ability may guess correctly on a multiple-choice test item, which would be accounted for by the guessing level parameter. In IRT, the values of item difficulty and item discrimination are often used to describe ICC. The flatter the ICC, the less the item is able to discriminate since the probability of correct response at the low ability levels is nearly the same as it is at high ability levels. The steeper the curve, the better the item can discriminate (Adedoyin, 2010).

IRT is said to have two basic assumptions; (a) uni-dimensionality and (b) local item independence (Hambleton, 2000). The assumption of uni-dimensionality states that all items in a test assesses one single latent trait. The local item independence, can be seeing as the independence of the probability of being answered correctly of any two items in a tool of measurement, depending on the individual's level of ability. This assumes that the performance of an examinee on an item is not affected by performance of the same examinee on another item and the performance of an examinee on an item is not affected by performance of another examinee on the same item. (Ojerinde, Kunmi, Francis & Patrick, 2012).

In a multiple-choice testing, examinees do get some items correctly or incorrectly as a result of the items' level of difficulty, discrimination and guessing. The way an item is constructed sometimes could expose the item to guessing by the examinee. Given the fact that in the school setting tests are used to measure cognitive aspects of learning and make important decisions on examinees. It is important to note that test items must be moderately difficult, discriminating and not too prone to guessing. Therefore, this study investigated students' ability levels, the item difficulty and discrimination level and identified such items that were prone to

guessing in SSCE Economics multiple-choice tests in WAEC and NECO examinations. The researcher also compared the indices generated to find out if the item parameters of the two exam bodies were the same or not.

Purpose of the Study

The purpose of this study was to conduct a three-parameter comparison of WAEC and NECO multiple-choice Economics test items among secondary school students. Specifically, this study investigated:

1. ability levels of students in 2015 WASSCE and NECO multiple-choice Economics items;
2. item difficulty of 2015 WASSCE and NECO multiple-choice Economics items;
3. item discrimination of 2015 WASSCE and NECO multiple-choice Economics items; and
4. item guessing of 2015 WASSCE and NECO multiple-choice Economics test items.

Research Questions

1. What are the ability levels of students in WASSCE and NECO multiple-choice Economics items?
2. What is the difficulty level of WASSCE and NECO multiple-choice Economics items?
3. What is the discrimination level of WASSCE and NECO multiple-choice Economics items?
4. What are the items that are prone to guessing in 2015 WASSCE and NECO multiple-choice Economics items?

Research Hypotheses

HO₁: There is no significant difference in the difficulty levels of 2015 WASSCE and NECO multiple-choice Economics items.

HO₂: There is no significant difference in the discrimination levels of 2015 WASSCE and NECO multiple-choice Economics items

HO₃: There is no significant difference in the guessing indices of 2015 WASSCE and NECO multiple-choice Economics items.

METHODOLOGY

Descriptive survey method was adopted in this study. The population for this study covered all public Senior Secondary School students in Kwara State. There were 334 public Senior Secondary Schools in Kwara State (Kwara State Ministry of Education and Human Capital Development, 2015). There were 24,041 SS3 students who registered for WASSCE and NECO SSCE in public secondary schools during the 2015/2016 academic session and a total number of 768 students, which represents 3.2% were sampled for this study (Research Advisor, 2006). Multi-stage sampling technique was used. At the first stage, stratified random sampling technique was adopted to select two Local Government Areas from each Senatorial District to make a total of six Local Government Areas. At the

second stage, simple random sampling technique was used to select 4 schools from each of the chosen Local Government Areas to arrive at 24 schools. At the third stage, purposive sampling technique was used to select SS3 class from the chosen schools. This class was selected because the students were expected to have covered a major part of the Senior School Certificate Economics syllabus. At the fourth stage, simple random technique was used to select 32 students who offered Economics in SSS 3.

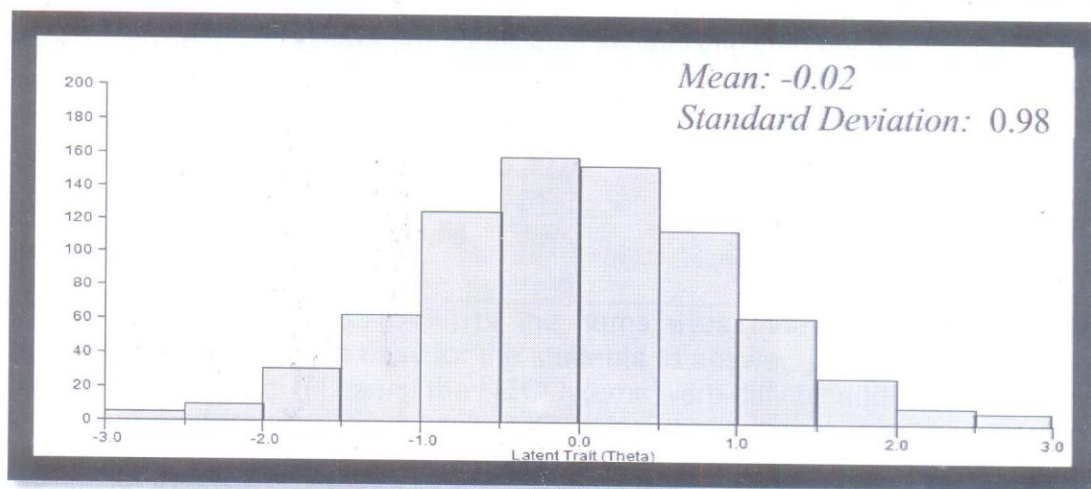
The 2015 WASSCE and NECO multiple-choice Economics items were adopted and administered to the sampled students. The data collected from this study was scored dichotomously. Four research questions were raised and answered using item parameters generated from the analysis. In the course of answering the research questions 1-4, students' ability (theta) were for WAEC and NECO Economics multiple-choice items. WINGEN IRT software package was used to generate item difficulty and discriminating indices of each item in WASSCE and NECO Economics multiple-choice items. Three research hypotheses were postulated and tested using independent t-test at 0.05 significant level.

RESULTS AND DISCUSSIONS

Research Question One

The theta (ability) index of each student who responded to the tests items was generated. Under Item Response Theory (IRT), ability levels range from -3 to +3.

Figure 1: Students' Abilities (Theta) in 2015WASSCE Multiple-Choice Economics



Items

As shown in figure 1, the mean ability (theta) of the examinees in WAEC was found to be -0.02, with a range from -3.16 to 3.29 while the mean ability (theta) of the examinees.

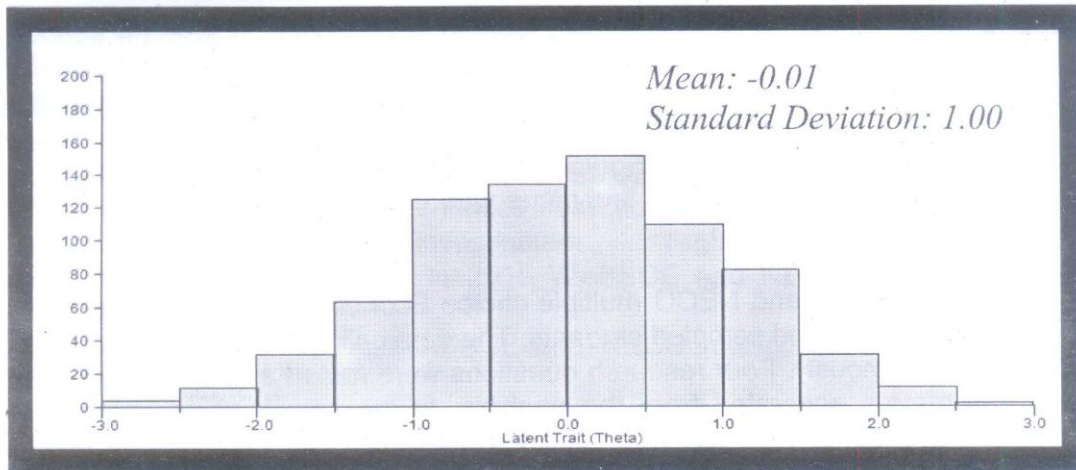


Figure 2: Students' Abilities (Theta) in 2015 NECO Multiple-Choice Economics Items

As shown in figure 2, the mean ability (theta) of the examinees in NECO was found to be 0.01 with a range from -3.31 to 3.15. This shows that on the average, the examinees sampled (SS3 students) were of medium ability and their abilities in NECO were higher than in WAEC Economics items.

Research Question Two

Difficulty indices of 2015 WASSCE and NECO multiple-choice Economics items were generated and the researchers used the numerical values given by Baker (2001) to interpret the difficulty indices generated and present the difficulty level of each item in table2.

Table 1

Difficulty Level of 2015 WASSCE and NECO Multiple Choice Economics Items

Table 1 shows that in 2015 WAEC multiple-choice Economics items, 8(16%) of the

Exam	Difficult Items		Moderate Items		Easy Items		Total (%)
	(above +0.1)	Freq. (%)	(-0.1 to +0.1)	Freq. (%)	(Below-0.1)	Freq. (%)	
WASSCE	1,6,7,18,32,36,40,43	8 (16%)	3,9,10,11,12,13,14,16,19,20,21,26,28,29,30,31,33,34,38,39,41,44,45,46,7,49,50	27(54%)	2,4,5,8,15,17,22,23,24,27,35,37,42,48	15(30%)	50(100%)
NECO	4,10,20,33,41,52,55	7(12%)	3,7,8,9,12,13,15,17,18,19,22,24,27,28,29,30,34,35,36,39,40,42,45,48,51,53,54,59,60	29(48%)	1,2,5,6,11,14,16,21,23,25,26,31,32,37,38,43,44,46,47,49,50,56,57,58	24(40%)	60(100%)

items were difficult and 27(54%) of the items were moderately difficult while 15(30%) of the items were easy for the students to answer. In the same vein, this table also shows that 7(12%) of the NECO items were difficult and 30(50%) of the items were moderately difficult while 23(38%) of the items were easy to answer. Furthermore, to do justice to research question 1, table 2 compares the mean difficulty of 2015WASSCE and NECO multiple-choice Economics items obtained

Table 2:

Mean Difficulty Index of 2015 WAEC and NECO Multiple-Choice Economics Items

Examination Bodies	Item No.	Mean	Minimum	Maximum
WASSCE	50	0.22	-1.83	2.17

NECO	60	0.02	-2.71	3.04
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Table 2 presents the mean difficulty index of WASSCE and NECO multiple-choice Economics items. The table reveals that WAEC Economics items had highest mean difficulty of 0.22 while NECO Economics items had mean difficulty of 0.02. This shows that WASSCE Economics items are more difficult than NECO Economics items for 2014 examinations.

Research Question Three

Discrimination indices of 2015 WASSCE and NECO multiple-choice Economics items were also generated and the researchers also used the numerical values given by baker (2001) to interpret the discrimination indices generated and present the discrimination level of each item in table 3.

Table 3

Discrimination Levels of 2015 WASSCE and NECO Multiple-Choice Economics Items

Exam Bodies	High Discrimination (1.35 – Freq. above) (%)	Moderate Discrimination (0.65 to Freq. 1.34) (%)	Low Discrimination (0.00 to Freq. 0.64) (%)	Total (%)
WASSCE	2,16,23,41 8 (16%)	5,7,9,10,11, 12,18,22,24, 26,27,28,35, 36,38,42,47, 48,49, 19(38%)	1,3,4,6,8,11, 13,14,15,17, 19,20,21,25, 29,30,31,33, 34,40,43,44,46, 23(46%)	46(92%)
NECO	4,12,14,27,39,51,58 7(12%)	1,2,3,10,11, 13,17,18,22, 26,29,30,35, 23(38%)	6,9,15,19,21, 23,24,25,28, 31,32,33,34, 37,40,41,45, 47,48,50, 24(40%)	54(90%)

36,38,42,4
3,
44,46,49,
53,
55,60,

54,
56,57,59,

Table 3 reveals that in 2015WASSCE multiple-choice Economics items, 8(16%) of the items were of high discrimination and 19(38%) of the items were moderately discriminated while 23(46%) of the items were of low discrimination. Also, table 3 shows that 7(12%) of the NECO Economics items were of high discrimination and 23(38%) of the items were moderately discriminated while 24(40%) of the items were of low discrimination.

However, 46 items were calibrated out of the 50 items in the 2015WASSCE Multiple-choice Economics items. Four items (37, 39, 45 and 50) were excluded from the calibration because they had negative item discrimination while 54 items were calibrated out of 60 items in 2015 NECO multiple-choice Economics items as six items (5, 7, 8, 16, 20 and 52) were excluded from the calibration because they had negative item discrimination. These items with negative discrimination favoured lower-ability students than higher-ability students and literature revealed that any negative discriminating items should be excluded from calibration.

Furthermore, table 4 compares the mean discrimination of 2015WASSCE and NECO multiple-choice Economics items obtained

Table4:

Mean Discrimination Index of 2015WASSCE and NECO Multiple-Choice Economics Items

Examination	Item No.	Mean	Minimum	Maximum
WASSCE	46	0.67	0.06	3.12
NECO	54	0.82	0.00	2.71

As shown in Table 4, the mean discrimination index of WASSCE Economics items was found to be moderate at 0.67 while the mean discrimination index of NECO Economics items was also found to be moderately discriminated at .0821. Also, it can be deduced that WASSCE Economics items had lowest mean discrimination (0.67) when compared with NECO Economics items which had the highest mean discrimination (0.82). This shows that NECO Economics items discriminated more than WASSCE Economics items for 2014 examinations.

Research Question Four

Guessing indices of 2015WASSCE and NECO multiple-choice Economics items were also generated and the researchers also used the numerical values given by baker (2001) to interpret these as seen in table 5

Table 5: Item Guessing of 2015WASSCE and NECO Multiple-Choice Economics Tests

Exam	Items Prone to Guessing			Items Not Prone to Guessing		
	(0.35 and above)	Freq. (%)		(Below 0.35)	Freq. (%)	Total (%)
WASSCE	3,4,5,9,13,16, 18,21,23,33, 34,35,42,44, 46,50	16 (32%)		1,2,6,7,8,10,11,12, 14,15,17,19,20,22, 24,25,26,27,28,29, 30,31,32,36,37,38, 39,40,41,43,45,47, 48,49	34 (68%)	50 (100%)
NECO	3,5,9,13,21,29, 30,34,40,44, 45,46,48,49, 50,55,57,60, 58, 59	20 (33%)		1,2,4,6,7,8,10,11, 12,14,15,16,17,18, 19,20,22,23,24,25, 26,27,28,31,32,33, 35,36,37,38,39,41, 42,43,47,51,52,53, 54,56	40 (67%)	60 (100%)

Table 5 shows that in 2015WASSCE multiple-choice Economics items, 16(32%) of the items were prone to guessing while 34(68%) of the items were not prone to guessing. In 2015 NECO multiple-choice Economics items, 20(33%) of the items were prone to guessing while 40(67%) of the items were not prone to guessing.

Furthermore, table 6 compares the mean guessing index of 2015WASSCE and NECO multiple-choice Economics items.

Table 6: Mean Guessing Index of 2014WASSCE and NECO Multiple-Choice Economics Items

Examination	Item No.	Mean	Minimum	Maximum
WASSCE	50	0.31	0.00	1.81
NECO	60	0.33	0.00	1.84

As shown in table 6, the mean guessing index of NECO Economics items was found to be higher at 0.33 than the mean guessing index of WASSCE Economics items which was found to be 0.31. This shows that more items were prone to guessing in 2015 NECO than 2015WASSCE.

This study showed that more items were prone to guessing in 2015 NECO than 2015 WAEC Economics items. In WASSCE Economics items, 16(32%) of the items were guessed while 20(33%) of the items in NECO Economics items were guessed. The mean guessing index of NECO Economics items was found to be

higher at 0.3251 than the mean guessing index of WASSCEEconomics items of 0.3096.

Testing of Hypothesis One

Table7

The t-test Showing Difficulty Index of 2015 WASSCE and NECO Multiple Choice Economics Items

Examination	N	Mean	Std.	df	t-cal.	Sig.	Remarks
WASSCE	50	0.1346	0.96	108	0.62	0.12	NS
NECO	60	0.0079	1.16				

P > 0.05

As shown in table7, the t-value is 0.62 with a p-value of 0.12. Since the p-value of 0.12 is greater than 0.05 alpha level of significance, therefore, the null hypothesis one is not rejected. This implies that there is no significant difference in the difficulty levels of WASSCE and NECO multiple-choice Economics items.

Testing of Hypothesis Two.

Table 8

The t-test Showing Discrimination Index of 2015 WASSCE and NECO Multiple-Choice Economics Items

Examination	N	Mean	Std.	df	t-cal.	Sig.	Remarks
WASSCE	50	0.2213	0.80	108	1.462	0.60	S
NECO	60	-0.0211	0.91				

P > 0.05

As shown in table8, the t-value is 0.6 with a p-value of 0.60. Since the p-value of 0.60 is greater than 0.05 alpha level of significance, therefore, the null hypothesis two is not rejected. This implies that there is no significant difference in the discrimination indices of WASSCE and NECO multiple-choice Economics items.

Testing of Hypothesis Three

Table 9

The t-test Showing Guessing Index of 2015 WASSCE and NECO Multiple-Choice Economics Items

Examination	N	Mean	Std.	df	t-cal.	Sig.	Remarks
WASSCE	50	0.3096	0.47				

			108	-0.17	0.72	NS
NECO	60	0.3251	0.49			

$P > 0.05$

As shown in table9, the t-value is -0.17 with a p-value of 0.72. Since the p-value of 0.72 is greater than 0.05 alpha level of significance, therefore, the null hypothesis three is not rejected. This implies that there is no significant difference in the guessing indices of WASSCE and NECO multiple-choice Economics items.

Discussion of the Findings

The finding revealed that SS3 students were of average ability and their ability levels in NECO were higher than in WASSCE. The mean ability (theta) of the examinees in NECO was found to be 0.01 while the mean ability (theta) of these same examinees in WASSCE was found to be -0.02. This result supports Pido (2012) who found students to be of medium ability level on the average. This implies that SS3 students in Kwara State were of average ability level and they seem to be well prepared for NECO than WAEC as they might have overcome some exam tensions associated with WASSCE in NECO examinations.

This finding revealed that 2015WASSCE Economics multiple-choice test had more difficult items than 2015 NECO Economics test. In WASSCE Economics items, 8(16%) of the items were difficult; 27(54%) of the items were moderate and 15(30%) of the items were easy while in NECO multiple-choice items, 7(12%) of the items were difficult, 30(50%) of the items were moderate and 23(38%) of the items were easy. WASSCE Economics items had higher mean difficulty of 0.22 while NECO Economics items had mean difficulty of 0.02. This outcome is consistent with Olutola (2011) who also found that WASSCEEconomics items are more difficult than NECO.

This finding revealed that 2015 NECO multiple-choice Economics items discriminated more than 2015WASSCE multiple-choice Economics items. In WAEC Economics items, 8(16%) of the items were of high discrimination, 19(38%) of the items moderately discriminated and 23(46%) of the items were of low discrimination while in NECO Economics items, 7(12%) of the items were of high discrimination, 23(38%) of the items were moderate and 24(40%) of the items of low discrimination. This result disagrees with Olatunji (2007) who found that WASSCEEconomics items discriminated more than NECO. This could be said that NECO Economics items differentiated well between examinees having low abilities and those with high abilities than in WASSCE Economics items.

Out of the 50 items in the 2015WASSCE Multiple-choice Economics items, 46 items were calibrated and 4 items were excluded from calibration because they had negative item discrimination while out of the 60 items in the 2015 NECO multiple-choice Economics items, 54 items were calibrated and 6 items were excluded from calibration because they had negative item discrimination. This result supports Pido (2012) who also found some items having negative discrimination in 2011 Uganda Certificate of Education (UCE) examinations in

Biology, Physics, Chemistry and Geography multiple-choice question. This implies that some items in WASSCE and NECO favoured lower-ability students than higher-ability students.

The mean guessing index of NECO Economics items was found to be higher at 0.3251 than the mean guessing index of WASSCE Economics items of 0.3096. This disagrees with Obinne (2012) who found that more items were prone to guessing in WASSCE than NECO Biology test items. This could be either the way some items were constructed in NECO exposed such items to guessing or students employed guessing as a strategy to respond correctly to such items.

There was no significant difference in the difficulty levels of WASSCE and NECO multiple-choice Economics items. This outcome is in line with Pido (2012) who found that was insignificant variance in the difficulty indices of Physics, Chemistry, Biology and Geography in Uganda National Examination Board. This shows that the difficulty pattern of WASSCE and NECO multiple-choice Economics items is the same.

There was no significant difference in the discrimination indices of WASSCE and NECO multiple-choice Economics items. This outcome agrees with the finding of Obinne (2012) that revealed no significant difference in the Pseudo-chance levels of NECO and WASSCE Biology test items in Uganda National Examination Board. This shows that the pattern discrimination of WASSCE and NECO multiple-choice Economics items are the same.

There was no significant difference in the guessing indices of WASSCE and NECO multiple-choice Economics items. This outcome attests to the finding of Obinne (2012) that revealed no significant difference in the Pseudo-chance levels of NECO and WASSCE Biology test items in Uganda National Examination Board. This shows that the pattern of guessing of WASSCE and NECO multiple-choice Economics items are is same.

Conclusions

Based on the findings from this study, it can be concluded that SS3 students in Kwara State are of average ability level and their ability levels are higher in NECO than in WASSCE. WASSCE Economics items are more difficult than NECO Economics items. NECO Economics items discriminate well between low- and high-ability students than WAEC Economics items. Though, some items in WASSCE and NECO favour low-ability students than high-ability students as such items have negative discrimination. It could also be concluded that NECO Economics items are prone to guessing than WASSCE Economics items. Lastly, the patterns of difficulty, discrimination and guessing of WASSCE and NECO multiple-choice Economics items are the same.

Implication

Given the importance of assessment in educational setting, the use of (traditional) approach for items setting, selection and compilation will go a long way to ensure item standardisation. This study therefore, demonstrates that the use of IRT

approach for analysing and evaluating test items is necessary to ensure moderately difficult, discriminating and not too prone to guessing items in tests construction and administration.

Recommendations

- i. Multiple-choice Economics items should be properly reviewed by the officers in charge of test construction in WASSCE and NECO offices. This would help to detect such items with negative discrimination and reduce the guessing tendency of each item.
- ii. Giving that the ability levels of SS3 students are on the average, items being constructed and administered to students by WASSCE and NECO should be of moderate difficulty and discrimination level.

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