



## DEVELOPMENT OF SOCIAL STUDIES ACHIEVEMENT TEST FOR ASSESSMENT OF SECONDARY SCHOOL STUDENTS

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### Abstract:

This study developed Social Studies Achievement Test (SSAT) for the assessment of secondary school students. Six research questions and two hypotheses guided the study. The instrumentation and ex-post facto research designs were adopted. A total population of 13,394 students was used, while a sample size of 800 was selected using simple and stratified random sampling techniques. A 100-multiple choice item Social Studies Achievement Test (SSAT) was developed by the researcher. The data was analysed using percentage, mean, standard deviation and independent samples t-test. The findings revealed that the SSAT was very valid, as shown in the proper distribution of the contents in the table of specifications; and reliable as indicated by a reliability estimate of 0.96. The finding also revealed that the SSAT had a good difficulty and discriminatory indices, ranging from 0.08 to 0.88 and -0.03 to 0.49 respectively. The study also revealed that gender and location could influence test results of junior secondary school students assessed using the Social Studies Achievement Test (SSAT). Based on the findings of the study, it was recommended that the test should be used by teachers for the assessment of Secondary School Students in Social Studies.

**Keywords:** test development, achievement testing, item analysis, multiple choice

### 1. Introduction

Education has remained a key to national and individual development. Every nation of the world has adopted education as an instrument for socio-political and economic development. This role of education was captured more vividly in the Nigerian National Policy on Education (2014) when it qualified education as an instrument par excellence for national development. By this single pronouncement, it is right to

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conclude that Nigeria as a nation, has officially adopted education as the key through which the door to the Nigeria of our dream can be opened. In Nigeria, as a developing country, education remains the key to unlock our way out of national and individual poverty.

This development has necessitated the introduction of several policies on education among which is the 6-3-3-4 system of education where we have primary education from 1-6 (for six years), junior secondary from 1-3 (for 3 years) senior secondary (1-3) for 3 years and tertiary education for 4 (years), the latest education policy being that of Basic Education constituting primary 1 to 3 for Lower Basic, Primary 4 to 6 for Middle Basic and JSS 1 to 3 for Upper Basic. Within the Junior Secondary Education, several subjects are being taught in order to achieve the objectives of the junior secondary education and Social Studies are one of those subjects.

The role of Social Studies in the area of national development and reorientation cannot be over-emphasised. Social Studies play the role of giving the citizens of the nation national consciousness. This role is noticeable in some of the topics being taught in Social Studies at the junior secondary school level such as gender role, marriage, family and social stratification. In an attempt to bring back the unity of Nigeria in the face of national disintegration, the role of Social Studies is essential. This is because Social Studies teach the students how they should see their country first, above all other interests. Social Studies teaches the students how to live happily and in unity with all others, irrespective of their religious, cultural or tribal affiliations. In fact, the need for Social Studies at a time when several sections of the country are clamouring for self-determination cannot be overstressed. With the people of the South-East calling for the actualization of Biafra, the Northern Youths giving quit notice to the Igbo nationals living in the North, the South-Southerners calling for resource control while the South-Westerners are calling for restructuring, Social Studies will go a long way towards national reconciliation and consciousness.

In spite of the enormous benefits of Social Studies, the performance of the students in Social Studies is poor. Statistics reported by the Examination bodies such as the Ministry of Basic and Secondary Education, who is in charge of the Basic Education Certificate Examination, has shown that students' performance is on the downward trend. For instance, Yusuf (2004) observed that in spite of the important place of Social Studies in our educational system, students' achievement is still poor. Usulor (2009) also observed that students' achievement in Social Studies was poor.

These poor performances have often been blamed on so many factors. A lot of attention has been paid to factors relating to the teacher, the student, the school environment and home environment. Little attention is, however, paid to the method of assessment. In any teaching and learning process, the method of assessment is as important as the teacher, the student and the subject matter (considered as the trinity of learning). This is because every form of teaching and learning is often accompanied by some form of objectives. These objectives are what make learning a means to an end and not an end itself. Hence, there is the need to, at a point during learning, take a break

and assess the extent to which these goals have been achieved. This is where test become necessary.

A test is an assessment tool often used to obtain information about individuals in various behavioural traits. Different tests are used in the school system for the assessment of students in the three domains of learning; the cognitive, affective and psychomotor domains of learning. These tests include achievement, aptitude, intelligence, sociometric and personality tests. All these tests vary, based on the domain of learning they assess. For example, personality and sociometric tests assess the affective domain, achievement, intelligence and aptitude test assesses the cognitive domain, while observation assesses the psychomotor domain of learning.

Achievement tests which are the focus of this study are of two major forms such as teacher-made tests and standardized tests. The teacher-made tests are those constructed by the teacher, who in most cases is not skilled in the art of test construction. These tests are, therefore, characterized by items that are not valid and reliable. These items are often poorly constructed in such a way that they lack both content and construct validity and they are often not reliable.

The standardized achievement tests, on the other hand, are a test which has undergone serious psychometric evaluation and assessment. These tests are usually constructed by experts based on the principles of test construction. The tests are often used by examination bodies to conduct tests with which the summative assessment of the students is carried out. Standardized achievement tests follow rigorous item analysis and assessment, before being deployed for testing.

One major problem inherent in the educational system in Nigeria (Delta State, in particular) is that while the standardized tests are used in the summative assessment, the teacher-made tests are often used in the formative assessment, especially for continuous assessments. This is a misguided situation especially since formative evaluation is of great importance to the students; this is because, in the learning of Social Studies, the teacher uses formative assessment to ascertain how much the students have learned and how much more needs to be learned. Formative assessment in this sense, not only produce a student who can pass any external exams but also produce a student who is sound both in mind, body, and soul. It produces a student who will not wake up one morning and start agitating for self-determination, a student who will not give quit notice to his/her fellow citizen irrationally. It will produce a student who will be equipped with skills for solving societal and environmental challenges, a student who will participate in social and civic duties while developing a sense of responsibility, etc. Therefore, due to the sensitive and formative nature of the teacher-made achievement tests, they are expected to be valid and reliable.

A valid test is defined as a test which measures what it is designed to measure. A good test must be valid; it must measure what it is designed to measure. This is because when a test measures what it is not designed to measure, there will be an error of judgment, hence the purpose of such test will be defeated. Using a test that is not valid is like placing a thermometer on the ground and standing on it for the purpose of testing

one's weight. If the individual does not succeed in breaking the thermometer, the result obtained will not be valid and therefore, unacceptable. Funny enough, there will be a result, irrespective of whether the test is valid or not but what makes the result valid and acceptable is whether the test measures what it is designed to measure or not.

On the other hand, a reliable test is a test which is consistent and stable. This means that when one uses a reliable test to measure a similar behaviour, the same outcomes are expected. An unreliable test is a test which today gives one result and at other times gives a totally different result, such a test cannot produce acceptable results. Achievement tests are expected to be reliable. In other words, Social Studies Achievement Tests, whether teacher-made or standardised, are expected to measure the knowledge of the students in the content area at all times, and for any group of students. Hence, they are supposed to be stable and consistent.

Apart from the validity and reliability of achievement tests, these tests are also expected to contain various psychometric properties. These include difficulty, discriminatory and distractor indices.

Item difficulty is an essential item parameter; probably one of the most frequently used and reported item analysis. It is defined as the proportion of testees who passed an item, often referred to as a p-value. Item difficulty is very important in achievement tests because it shows how difficult or easy an item is. For example, a good item is one which is not too difficult and not too easy. This is because an item that is either too difficult or too easy will not be able to measure the right behaviour. It has often been argued that this type of item analysis should be referred to as easiness index rather than difficulty index for the fact that it is the proportion of the testees who got the item correct, not wrong.

A discriminatory index determines how well an item is able to discriminate between testees who are with and those without enough knowledge of the content area. This item statistics is very important as it is one of the purposes the test is constructed in the first place, to assess the extent to which the objective of the subject area has been achieved. Thus, a discriminatory index will enable the teacher to select those who have low knowledge of the subject matter from those who have high knowledge of the subject. Therefore, a good item is expected to be able to discriminate between low and high achievers with regard to their scores.

The distractor index is characterized by multiple choice test. That is, multiple choice achievement tests often have one correct answer and other wrong answers referred to as distractors. The distractors are as important as the correct answers because if the correct answer must be undoubtedly correct, the distractor must be undoubtedly incorrect. This means that the distractor should be a likely option to an examinee who is not knowledgeable in the content area just as the correct option is a likely option to an examinee who is knowledgeable in the content area.

Apart from item parameters which a Social Studies Achievement Test is expected to possess, it is equally not supposed to discriminate between students from rural and urban schools or male and female students. In other words, items in the Social Studies

Achievement Test are expected to be useful to the students whether male or female and irrespective of the location of their schools. Although, some studies (Owoeye, 2002; Onah, 2011; Owoeye & Yara, 2011) have shown that urban students are likely to perform better than rural students in achievement tests for various reasons, a properly constructed achievement test should not discriminate between the male and female as well as between urban and rural students.

In spite of the importance of a well-constructed test and the implications of using a poorly constructed test for the assessment of Social Studies students, it is sad to note that teachers, who are considered executors of educational policies are not competent in the construction of valid and reliable achievement tests, with which they can assess the achievement of the students. This anomaly has been observed by some researchers. According to Osadebe (2014), many teachers are not competent in test construction. Hence, when the students are assessed, especially in continuous assessment and in mock examinations (which is done in preparation for Junior Secondary Certificate Examination), it is done with poorly constructed tests. A situation where students are being prepared for an examination that uses a standardized achievement and the teacher is using what is considered (in psychometric) a “bad” test, such students are not expected to do very well in the external and more standardised examinations.

However, it is unfair to expect the Social Studies teacher, who is not a trained psychometrician, to construct achievement tests, taking into cognizance, the above conditions. It is as a result of this lack of valid and reliable Social Studies test that the development of Social Studies Achievement Test in this study became necessary.

Several studies have been conducted on the development of achievement tests. For instance, Opara and Magnus-Arewa (2017) developed and validated mathematics achievement test for primary six school pupils. The design of the study is instrumentation research design. Using random sampling technique via balloting, 10 primary schools were drawn from 54 primary schools in Obio/Akpor L.G.A. Through stratified random sampling technique, 858 primary six pupils were drawn from the population of 2928 primary six pupils from Obio/Akpor L.G.A. The Form 1 MAT was face validated in terms of clarity of words and plausibility of distracter by specialist in Educational Measurement and Evaluation and mathematics teachers. The Form II MAT consists of what was administered to 858 pupils and their response was used in determining proportions of pupils who showed mastery ability.

Odo and Ugwoji (2016) also developed and validated Biology Achievement Test (BAT) for Assessment of Students in Enugu State. A multiple choice test of 100 items was developed, based on Biology syllabus. The test was administered to a sample of 600 students randomly drawn to determine the validity and reliability of the test. Through a regular method of item analysis, distractor index, difficulty index, and discrimination index were calculated. The test has a reliability coefficient of 0.88 established through the use of Kuder-Richardson formula 20. This study is related to the present study in that the present study will also examine the difficulty and discriminatory index as well as validity and reliability of the achievement test under study. However, while the

study is on Biology achievement, the present study is on Social Studies Achievement Test.

Osadebe (2014) also constructed Economics Achievement Test for Assessment of Students. A sample of 1,000 students was randomly drawn to determine the validity and reliability of the test. After item analysis, the result showed that the Economics achievement test has a high face and content validity. The test item validity was determined through Difficulty and discrimination indices. A difficult index or p-value of 0.5 for each item was considered after applying the formula of correction for guessing. The discrimination index was established through point biserial statistics for each item with a correction coefficient of at least 0.3. The test has a reliability coefficient of 0.95 established through the use of Kuder-Richardson formula 20.

Gourav (2015) also constructed and validated Achievement Test in Economics. The investigator framed 90 items initially on the selected topics of Economics of class XI on the basis of the blueprint prepared for the achievement test in the light of specific objectives. After the items were written, the investigator consulted the language and subject experts for checking the items framed with respect to the faulty language or inadvertent defects in wording for and also to verify whether the items measure what was intended to be measured at the level of achievement. For trying out the preliminary draft of the achievement test, the test was given to the sample of 100 students of class XI. The difficulty value (DV) and discriminating power (DP) of the test items were determined by adopting Kelley's (1939) method. On the basis of the DV and DP, the preliminary draft of the achievement test was modified. In total, 70 items having difficulty value (DV) ranging from 0.20 to 0.75 and the items ranging from 0.20 to 0.90 on the discriminating power (DP) were retained.

In a similar study, Chime (2012), developed and validated an Economics Achievement Test. One thousand and twenty-five SS II students were sampled from the selected schools. The researcher postulated four research questions and two hypotheses to guide the study. Based on the research questions and hypotheses, the design and methodology, a table of specification was constructed and used. And a 50-item test was developed based on the level of cognitive ability measured by the test and the draft EAT was validated by experts. The data obtained were analysed, using mean and standard deviation, Kuder-Richardson (KR-20) reliability method. From the results of the analysis, it was found out that: the developed Economics achievement test instrument for Senior Secondary schools has high psychometric properties in terms of facility and discrimination index; the instrument has high-reliability index; there was significant difference between the achievement of male and that of female students in Economics at the senior secondary school level in favour of the male students; there was a significant difference in mean achievement between students in schools located in urban areas and those in rural areas in favour of urban students.

In another study, Ugwu (2012) developed and validated criterion-referenced achievement test for senior secondary two students in Biology. The population for the study was made up of 44,259 Biology students in senior secondary school class two

(2010/2011 session) in Enugu State. The sample comprised 113 males and 184 females, giving a total of 297 students. The instrument developed and validated was Criterion-Referenced Achievement Test (CRAT) for SSII. The validity and reliability of the instrument was established. The internal consistency measure of the instrument was found to be 0.51 using Kuder Richardson formula 20 (KR-20). Mean and the standard deviation were used to provide answers to the research questions while T-test and Chi-Square Test of Goodness of fit were used to test the hypotheses at 0.05 level of significance. The result of the study showed that the items of CRAT did not deviate statistically from the specifications of the core curriculum; there is no statistically significant difference between the mean achievement of male and female. The evidence in these studies is the dearth of similar studies in Social Studies, particularly, in Delta State. These are the gaps that the present study filled.

### **1.1 Statement of the problem**

Over the years, there have been issues of poor academic achievement of students at all levels. Statistics reported by examination bodies year in year out confirm this assertion. A lot of factors have been argued to be responsible, ranging from the students, the teacher, school environment to the subject-matter. Little attention is however paid to methods and tools for assessing the cognitive, affective and psychomotor domains of learning. The teacher who is responsible for translating educational policies into action is expected to construct achievement tests, with which he/she can assess the students in the cognitive domain of learning, most especially for formative purpose. However, these teachers are not competent in the art of item construction. The items they generate therefore lack validity and are not reliable. It is worthy to note that items that lack validity and reliability cannot measure the actual achievement of students in the cognitive domain. The problem of this study, therefore, is, how valid and reliable is the developed Social Studies Achievement Test?

### **1.2 Research Questions**

The following research questions guided the study:

1. To what extent is the Social Studies Achievement Test (SSAT) valid?
2. What is the reliability of the SSAT?
3. What is the difficulty index of each item of the SSAT?
4. What is the discriminatory index of each item of the SSAT?
5. What is the achievement of male and female students when assessed with the SSAT?
6. What is the achievement of students from urban schools and those from rural schools when assessed with the SSAT?

### **1.3 Hypotheses**

The following null hypotheses were tested at 0.05 level of significance:

1. There is no significant difference between the achievement of male and female students when assessed with the SSAT.
2. There is no significant difference between the achievement of students from urban and rural schools when assessed with the SSAT.

## 2. Method

This study adopted an instrumentation and ex-post facto research design. It was an instrumentation study because it developed a Social Studies Achievement Test for the assessment of Junior Secondary School Students. The study is also an ex-post facto because it determined the achievement of male and female as well as rural and urban students on the Social Studies Achievement Test.

The population of this study comprised all Junior Secondary School students in their second year (JSS 2) in Delta Central Senatorial District. There are 180 Junior Secondary Schools and 13,394 students in the senatorial district, as shown in table 1.

**Table 1:** Population distribution of students in Delta Central Senatorial District by Local Government Area

S/N	Local Government Area	No. of Schools	No. of Students
1	Ethiope East	24	1,535
2	Ethiope West	24	1,487
3	Okpe	16	1,027
4	Sapele	16	2,627
5	Udu	14	1,468
6	Ughelli North	44	1,592
7	Ughelli South	26	1,236
8	Uwvie	16	2,422
<b>Total</b>		<b>180</b>	<b>13,394</b>

**Source:** Ministry of Basic and Secondary Education, Asaba (2017)

Based on the population of the study, the sample size comprised 800 JSS 2 students, who were selected from 8 schools in the eight Local Government Areas of Delta Central Senatorial District. The sampling techniques that were used in the study were simple and stratified random sampling techniques. The simple random sampling technique of the balloting method was used to select the schools used from each Local Government Area. The choice of the simple random sampling technique is because it gave all the schools equal chance of being selected. The stratified random sampling technique was used to group the students based on gender and location. This enabled the researcher to compare the achievement of the students based on their gender and school location when assessed using the Social Studies Achievement Test. A sample of 800 randomly drawn through balloting was used for item analysis.

In line with the objective of the study, the researcher developed a Social Studies Achievement Test. The test comprised 100 multiple choice items which was derived from the Junior Secondary School Social Studies Syllabus. The syllabus will be obtained



from the Ministry of Basic and Secondary Education, Asaba, Delta State. The items in the test comprised 5 options; one correct answer and four incorrect options, which acted as distracters.

The following were the steps used to develop the Social Studies Achievement Test:

1. Planning;
2. Item writing;
3. Item analysis;
4. Composition of items; and
5. Determine Reliability.

**Step 1: Planning:** This step involved series of activities which the researcher embarked on. These activities included:

1. Identifying the instructional and behavioural objectives to be measured;
2. Identifying the content areas to be covered by the test;
3. Deciding on the test format;
4. Designing a table of specification.

**Step 2: Item Writing:** This step succeeded the development of the table of specification. The items were written in line with the specifications before item analysis.

**Step 3: Item Analysis:** This was a very crucial stage in the life cycle of the test development. For the development of achievement test, there was the need to do an item analysis in order to ascertain the psychometric properties of the test. This was so because an item with a good psychometric property is the one that is considered a good test. The result of the item analysis helped in judging the quality of each item, and thus, helped in improving the item, and the skill of the researcher in test development. There were two indices involved in the item analysis. These include item difficulty and item discrimination index.

**Step 4: Composition of Items:** After item analysis, the selected items that met the standard were composed to form a test. During this stage, items of similar content value were grouped together in the test.

**Step 5: Determine Reliability:** After compositing the items, there was the need to determine the reliability of the test. The reliability coefficient of the test was determined using Kuder-Richardson formula 20 (K-R<sub>20</sub>).

The Social Studies Achievement Test was administered to the students directly by the researcher, with the help of 5 research assistants. The researcher visited the schools personally prior to the testing date to make his intention known to the principal or head of the school and to obtain permission. Item analysis was conducted respectively.

Research question one was answered using percentage; research question two was answered using Kuder Richardson formula 20 (KR20), research questions 3 and 4 were answered using the proportion of the testees. In terms of difficulty index, items greater than or equal to 0.30 were considered good while items less than 0.30 were considered low, whereas for the discriminatory index, items greater than or equal to

0.20 were considered appropriate while items less than 0.20 were considered inappropriate. Research questions 5 and 6 were answered using mean and standard deviation. The hypotheses were tested using independent samples t-test at 0.05 level of significance.

### 3. Results

#### 3.1 Research Questions

**Research Question 1:** To what extent is the Social Studies Achievement Test (SSAT) valid?

**Table 2:** Computation of the Social Studies Achievement Table of Specifications for Validity

Subject Content Area	Behavioural Objectives						Total 100%
	Knowledge 30%	Comprehension 30%	Application 20%	Analysis 8%	Synthesis 6%	Evaluation 6%	
Safety 20	3	3	2	1	0	1	10
Family 20	3	3	2	1	1	0	10
Marriage 16	3	2	2	0	1	0	8
Group Behaviour 16	2	3	1	1	0	1	8
Drug Abuse 16	2	1	1	0	1	0	5
Drug Trafficking 10	1	1	0	1	0	1	4
Human Trafficking 10	1	2	2	0	0	0	5
<b>Total = 100</b>	<b>15</b>	<b>15</b>	<b>10</b>	<b>4</b>	<b>3</b>	<b>3</b>	<b>50</b>

The table 2 shows a very good distribution of the Social Studies Achievement Test items. This was as a result of the high degree of agreement among experts on the percentage weight assigned to the objectives in the cognitive domain and content areas of junior secondary school Social Studies curriculum respectively. The result indicated that all the objectives and content areas were well covered. Thus, the agreement among the experts and the distribution of items to the objectives and content areas are enough evidence that the Social Studies Achievement Test has a high content validity. The face validity was also considered appropriate during experts' judgment.

**Research Question 2:** What is the reliability of the SSAT?

**Table 3:** Social Studies Achievement Test Estimate of Reliability Using Kuder-Richardson Formula 20

No of Students	No of Items	$\sum pq$	$\bar{X}$	SD	SD <sup>2</sup>	Rf
800	100	20.95	55.03	19.92	396.76	0.96

Table 3 shows an estimate of the Social Studies Achievement Test (SAT) reliability using Kuder-Richardson formula 20. This approach became necessary because the SSAT is a

single multiple choice objective test with expected response of either pass (1) or fail (0). Thus, a reliability estimate of 0.96 was obtained. This helped to establish the internal consistency of the SSAT. The result revealed that the SSAT has a high reliability and should be used. Since the SSAT has 100 items, the high reliability seems to explain the fact that the longer a test, the higher the reliability coefficient.

**Research Question 3:** What is the difficulty index of each item of the SSAT?

**Table 4:** Mean difficulty index for the Social Studies Achievement Test

Items	R	T	Difficulty Index ( $R/T$ )	Remark
1	656	800	0.82	Good
2	704	800	0.88	Good
3	644	800	0.81	Good
4	515	800	0.64	Good
5	274	800	0.34	Good
6	496	800	0.62	Good
7	536	800	0.67	Good
8	257	800	0.32	Good
9	573	800	0.72	Good
10	521	800	0.65	Good
11	634	800	0.79	Good
12	434	800	0.54	Good
13	508	800	0.64	Good
14	360	800	0.45	Good
15	680	800	0.85	Good
16	637	800	0.80	Good
17	573	800	0.72	Good
18	304	800	0.38	Good
19	476	800	0.60	Good
20	639	800	0.80	Good
21	550	800	0.69	Good
22	427	800	0.53	Good
23	372	800	0.47	Good
24	590	800	0.74	Good
25	571	800	0.71	Good
26	575	800	0.72	Good
27	470	800	0.59	Good
28	529	800	0.66	Good
29	580	800	0.73	Good
30	431	800	0.54	Good
31	588	800	0.74	Good
32	350	800	0.44	Good
33	554	800	0.69	Good
34	551	800	0.69	Good
35	571	800	0.71	Good
36	560	800	0.70	Good
37	331	800	0.41	Good
38	163	800	0.20	Low

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39	604	800	0.76	Good
40	124	800	0.16	Low
41	492	800	0.62	Good
42	415	800	0.52	Good
43	625	800	0.78	Good
44	512	800	0.64	Good
45	89	800	0.11	Low
46	170	800	0.21	Low
47	398	800	0.50	Good
48	454	800	0.57	Good
49	522	800	0.65	Good
50	479	800	0.60	Good
51	285	800	0.36	Good
52	635	800	0.79	Good
53	203	800	0.25	Low
54	530	800	0.66	Good
55	601	800	0.75	Good
56	610	800	0.76	Good
57	564	800	0.71	Good
58	345	800	0.43	Good
59	360	800	0.45	Good
60	633	800	0.79	Good
61	634	800	0.79	Good
62	570	800	0.71	Good
63	524	800	0.66	Good
64	250	800	0.31	Good
65	105	800	0.13	Low
66	286	800	0.36	Good
67	582	800	0.73	Good
68	357	800	0.45	Good
69	311	800	0.39	Good
70	618	800	0.77	Good
71	347	800	0.43	Good
72	516	800	0.65	Good
73	486	800	0.61	Good
74	507	800	0.63	Good
75	322	800	0.40	Good
76	67	800	0.08	Low
77	481	800	0.60	Good
78	130	800	0.16	Low
79	543	800	0.68	Good
80	494	800	0.62	Good
81	438	800	0.55	Good
82	568	800	0.71	Good
83	296	800	0.37	Good
84	121	800	0.15	Low
85	326	800	0.41	Good
86	158	800	0.20	Low
87	237	800	0.30	Good

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88	369	800	0.46	Good
89	432	800	0.54	Good
90	267	800	0.33	Good
91	495	800	0.62	Good
92	504	800	0.63	Good
93	479	800	0.60	Good
94	228	800	0.29	Low
95	274	800	0.34	Good
96	387	800	0.48	Good
97	396	800	0.50	Good
98	508	800	0.64	Good
99	239	800	0.30	Good
100	339	800	0.42	Good

**R** = Number of students who answered item correctly

**T** = Total number of students tested

Table 4 shows the difficulty index for the Social Studies Achievement Test. The Table shows that the test had difficulty index between 0.08 and 0.88. Out of the 100 items, 89 items were considered good in terms of their difficulty index. However, 11 items were considered low and therefore will need modification before they can be used in any assessment.

**Research Question 3:** What is the discriminatory index of each item of the SSAT?

**Table 5:** Mean discriminatory index for the Social Studies Achievement Test

Item	RU	RL	$\frac{1}{2}T$	RU-RL	$\frac{RU - RL}{\frac{1}{2}T}$	Remark
1	232	162	400	70	0.18	Inappropriate
2	235	165	400	70	0.18	Inappropriate
3	232	140	400	92	0.23	Appropriate
4	213	103	400	110	0.28	Appropriate
5	159	40	400	119	0.30	Appropriate
6	222	74	400	148	0.37	Appropriate
7	220	99	400	121	0.30	Appropriate
8	90	57	400	33	0.08	Inappropriate
9	219	99	400	120	0.30	Appropriate
10	221	83	400	138	0.35	Appropriate
11	228	117	400	111	0.28	Appropriate
12	178	67	400	111	0.28	Appropriate
13	212	76	400	136	0.34	Appropriate
14	107	95	400	12	0.03	Inappropriate
15	230	159	400	71	0.18	Inappropriate
16	228	120	400	108	0.27	Appropriate
17	219	94	400	125	0.31	Appropriate
18	146	62	400	84	0.21	Appropriate
19	196	87	400	109	0.27	Appropriate
20	219	137	400	82	0.21	Appropriate
21	213	109	400	104	0.26	Appropriate

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22	194	58	400	136	0.34	Appropriate
23	177	70	400	107	0.27	Appropriate
24	237	104	400	133	0.33	Appropriate
25	219	110	400	109	0.27	Appropriate
26	222	90	400	132	0.33	Appropriate
27	194	96	400	98	0.25	Appropriate
28	212	87	400	125	0.31	Appropriate
29	231	92	400	139	0.35	Appropriate
30	192	71	400	121	0.30	Appropriate
31	225	108	400	117	0.29	Appropriate
32	147	73	400	74	0.19	Inappropriate
33	227	80	400	147	0.37	Appropriate
34	220	95	400	125	0.31	Appropriate
35	233	74	400	159	0.40	Appropriate
36	234	60	400	174	0.44	Appropriate
37	163	35	400	128	0.32	Appropriate
38	68	34	400	34	0.09	Inappropriate
39	233	101	400	132	0.33	Appropriate
40	40	23	400	17	0.04	Inappropriate
41	228	49	400	179	0.45	Appropriate
42	110	121	400	-11	-0.03	Inappropriate
43	233	112	400	121	0.30	Appropriate
44	215	48	400	167	0.42	Appropriate
45	43	21	400	22	0.06	Inappropriate
46	84	42	400	42	0.11	Inappropriate
47	172	85	400	87	0.22	Appropriate
48	220	64	400	156	0.39	Appropriate
49	221	80	400	141	0.35	Appropriate
50	235	45	400	190	0.48	Appropriate
51	147	34	400	113	0.28	Appropriate
52	235	111	400	124	0.31	Appropriate
53	76	53	400	23	0.06	Inappropriate
54	216	82	400	134	0.34	Appropriate
55	238	72	400	166	0.42	Appropriate
56	240	73	400	167	0.42	Appropriate
57	230	57	400	173	0.43	Appropriate
58	146	46	400	100	0.25	Appropriate
59	187	54	400	133	0.33	Appropriate
60	230	120	400	110	0.28	Appropriate
61	237	107	400	130	0.33	Appropriate
62	236	72	400	164	0.41	Appropriate
63	228	47	400	181	0.45	Appropriate
64	89	37	400	52	0.13	Inappropriate
65	34	37	400	-3	-0.01	Inappropriate
66	152	32	400	120	0.30	Appropriate
67	237	76	400	161	0.40	Appropriate
68	191	65	400	126	0.32	Appropriate
69	145	40	400	105	0.26	Appropriate
70	234	103	400	131	0.33	Appropriate

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71	185	32	400	153	0.38	Appropriate
72	230	44	400	186	0.47	Appropriate
73	218	45	400	173	0.43	Appropriate
74	226	65	400	161	0.40	Appropriate
75	161	41	400	120	0.30	Appropriate
76	15	28	400	-13	-0.03	Inappropriate
77	227	48	400	179	0.45	Appropriate
78	75	21	400	54	0.14	Inappropriate
79	220	88	400	132	0.33	Appropriate
80	222	54	400	168	0.42	Appropriate
81	214	59	400	155	0.39	Appropriate
82	227	91	400	136	0.34	Appropriate
83	174	38	400	136	0.34	Appropriate
84	43	40	400	3	0.01	Inappropriate
85	199	20	400	179	0.45	Appropriate
86	55	41	400	14	0.04	Inappropriate
87	127	30	400	97	0.24	Appropriate
88	224	28	400	196	0.49	Appropriate
89	199	49	400	150	0.38	Appropriate
90	82	62	400	20	0.05	Inappropriate
91	212	69	400	143	0.36	Appropriate
92	217	73	400	144	0.36	Appropriate
93	216	57	400	159	0.40	Appropriate
94	124	33	400	91	0.23	Appropriate
95	141	36	400	105	0.26	Appropriate
96	209	23	400	186	0.47	Appropriate
97	171	91	400	80	0.20	Appropriate
98	224	65	400	159	0.40	Appropriate
99	136	35	400	101	0.25	Appropriate
100	153	57	400	96	0.24	Appropriate

**RU**- The number in the upper group who get the item right

**RL**- The number in the lower group who got the item right

$\frac{1}{2} \mathbf{T}$  - One half of the total number of students included in the item analysis

Table 5 shows the discriminatory index of the Social Studies achievement test. The discriminatory index as shown in the table ranges between -0.03 to 0.49. The result showed that 81 out of the 100 items are appropriate in terms of their discriminatory index. However, 19 out of the 100 items are inappropriate and therefore, need further modification before they can be useful.

**Research Question 4:** What is the achievement of male and female students when assessed with the SSAT?

**Table 6:** Mean analysis of the achievement of male and female students when assessed with the SSAT

Gender	N	Mean	SD
Male	363	52.09	20.12
Female	437	57.48	19.44

Table 6 shows a mean analysis of the achievement of male and female students when assessed with the SSAT. The results showed that male students had a mean score of 52.09 while female students had a mean score of 57.48. This result has shown that there is a difference between male and female students in their achievement when assessed with the SSAT, in favour of the female students.

**Research Question 6:** What is the achievement of students from urban schools and those from rural schools when assessed with the SSAT?

**Table 7:** Mean analysis of the achievement of students from urban and rural schools when assessed with the SSAT

Location	N	Mean	SD
Rural	445	53.70	21.23
Urban	355	56.70	18.04

Table 7 shows a mean analysis of the achievement of students from urban and rural schools when assessed with the SSAT. The results showed that students from rural schools had a mean score of 53.70 while students from urban schools had a mean score of 56.70. This result has shown that there is a difference between students from urban and rural schools in their achievement when assessed with the SSAT, in favour of the students from urban schools.

**Hypothesis 1:** There is no significant difference between the achievement of male and female students when assessed with the SSAT.

**Table 8:** t-test analysis of the difference between the achievement of male and female students when assessed with the SSAT

Gender	N	Mean	SD	t	P	Decision
Male	363	52.09	20.12	3.84	0.000	Significant
Female	437	57.48	19.44			

Table 8 shows a t-test analysis done to determine the difference between the achievement of male and female students when assessed with the SSAT. The result shows that  $t = 3.84$ ,  $p < 0.05$ . Hence, the null hypothesis is rejected. This means that there is a significant difference between the achievement of male and female students when assessed with the SSAT, in favour of female students.



**Hypothesis 2:** There is no significant difference between the achievement of students from urban and rural schools when assessed with the SSAT.

**Table 9:** t-test analysis of the difference between the achievement of students from urban and rural schools when assessed with the SSAT

Location	N	Mean	SD	t	P	Decision
Urban	445	53.70	21.23	2.12	0.03	Significant
Rural	355	56.70	18.04			

Table 9 shows a t-test analysis done to assess the difference between the achievement of students from urban and rural schools when assessed with the SSAT. The result shows that  $t = 2.12$ ,  $p < 0.05$ . Hence, the null hypothesis is rejected. This means that there is a significant difference between the achievement of students from urban and rural schools when assessed with the SSAT, in favour of students from urban schools.

#### 4. Discussion of Results

This study developed Social Studies Achievement Test (SSAT), for the assessment of junior secondary school students. The study showed that all the null hypotheses were rejected.

The first finding showed a very good distribution of the Social Studies Achievement Test items as observed in the table of specification or test blueprint. This was as a result of the high degrees of agreement among experts on the percentage weight assigned to the objectives in the cognitive domain and on content areas of junior secondary school Social Studies. The result indicates that all the objectives and content areas were well covered in the test blueprint. This is evidence that the Social Studies Achievement Test has a high content validity. This finding is consistent with the finding of Osadebe (2014), who constructed Economics Achievement Test for Assessment of Students and found that the Economics achievement test has a high face and content validity.

The second finding showed that a reliability estimate of 0.96 was obtained for the Social Studies Achievement Test (SSAT). The result suggests that the SSAT is highly reliable and could be used for Junior Secondary School Two (JSS III), especially during their mock examination, in preparation for their Junior Secondary School Certificate Examination (JSCE). The high reliability estimate confirms the assertion of Cohen, Swerdik and Sturman (2010) that homogenous tests such as achievement tests usually result in high reliability coefficient (especially when measures of internal consistency such as Kuder Richardson 20 are used to estimate their reliability), since they measure only one trait. This finding is in line with the finding of Odo and Ugwoji (2016), who developed and validated Biology Achievement Test (BAT) for Assessment of Students in Enugu State. They used Kuder Richardson formula 20 for the reliability and obtained a coefficient of 0.88.

The third finding revealed that 89 out of the 100 items in the Social Studies Achievement Test (SSAT) are appropriate in terms of difficulty index. However, it was shown in the study that 11 out of the 100 items are not appropriate, hence, will require further modification before they can be used. This finding has shown that the SSAT is very appropriate and useful for the assessment of students' Social Studies achievement in the cognitive domain. This finding is in line with the finding of Gourav (2015), who constructed and validated Achievement Test in Economics, and found that 70 items having difficulty value (DV) ranging from 0.20 to 0.75.

The fourth finding showed that 97 out of the 100 items in the Social Studies Achievement Test (SSAT) are appropriate in terms of discriminatory index while 3 others need modification in order for them to be useful in the assessment of students. This finding agrees with the finding of Chime (2012), who developed and validated an Economics Achievement Test and found that the test had high psychometric properties in terms of facility and discrimination index.

The fifth finding revealed that there was a significant difference between the achievement of male and female students when assessed with the SSAT. This finding seems to suggest that female students performed better than their male counterparts in the Social Studies Achievement Test. The finding agrees with the assertion of Gessell (2004) that girls under the age of fourteen years usually perform better than boys of the same age.

The sixth finding showed that there was a significant difference between the achievement of students from urban and rural schools when assessed with the SSAT.

This finding seems to suggest that location can influence the achievement of students in the Social Studies Achievement Test (SSAT). This finding agrees with the finding of Chime (2012), who found in his study that there was a significant difference in mean achievement between students in schools located in urban areas and those in rural areas in favour of urban students. The finding however is at variance with the finding of Ezeudu (2003) and Bosede (2010) that location has no effect on students' academic achievement.

## **5. Conclusions and Recommendations**

In conclusion, the Social Studies Achievement Test items are valid and can therefore be used for the assessment of junior secondary school students in the cognitive domain. That the reliability index of the Mathematics Achievement Test (MAT) was found to be 0.96, indicating a high reliability. Hence, can be used for the assessment of junior secondary school students in the cognitive domain. The items in the Social Studies Achievement Test (SSAT) are neither too difficult nor too easy; that most of the items in the Social Studies Achievement Test (SSAT) are appropriate in terms of discriminatory index while few others need modification in order for them to be useful in the assessment of students; It was found that gender can influence the achievement of secondary school students assessed using the Social Studies Achievement Test (SSAT);

and that location can affect the achievement of secondary school students assessed using the Social Studies Achievement Test (SSAT).

Based on the findings from this study the following recommendations were made:

1. The developed Social Studies Achievement Test should be used by Social Studies teachers for the assessment of secondary school students, especially during mock examination, in preparation for external examinations;
2. The test should be added to the already existing item bank domiciled in the Ministry of Basic and Secondary Education, since the psychometric properties of the test has been shown to be sound;
3. Most of the items should be modified in terms of difficulty and discrimination so that they will be useful in the assessment of junior secondary school students;
4. That since, the test is gender sensitive, Social Studies teachers should be mindful of this sensitivity and find ways to motivate the male students so that the gender gap can be bridged; and
5. That teachers in the rural schools should up their game so that their students will have proper knowledge of Social Studies.

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