

**EFFECTS OF EXPERIENTIAL TEACHING METHODS ON SENIOR  
SECONDARY SCHOOL STUDENTS' LEARNING OUTCOMES IN  
ECONOMICS IN OGUN STATE, NIGERIA**

BY

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**CERTIFICATION**

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## **DEDICATION**

Dedicated to the glory of God, for giving me the grace to commence and conclude this great study. Also, to all those the LORD brought my way to support me.

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## ABSTRACT

The fluctuating performance of students and their declining attitude towards Senior Secondary School (SSS) economics, have led to a growing concern resulting in the introduction of several learner-centre teaching methods by previous researchers. Despite this, performance in the subject has not been consistently impressive, neither the attitude better. This necessitated the introduction of experiential teaching methods, a heads-on and hands-on innovative Pedagogy. This study was therefore designed to investigate the effects of experiential teaching methods (experience debriefing and experience dictation), along with the contribution of learning styles and quantitative skills, on SSS students' economics achievement, attitude and economic reasoning.

The study was anchored to the Kolb Experiential Learning Theory and employed a 3x4x2 non randomised pre-test- post-test, control group quasi experimental design. Random sampling was used to select one senatorial district and six schools from the selected District and intact (SSII) class from each selected school, were randomly assigned to the three treatment groups: experience debriefing, experience dictation and control, with two schools to one treatment group. Instruments used for data collection were Economics Achievement Test ( $r=0.87$ ), Test of Quantitative Skill ( $r=0.82$ ), Test of Economic Reasoning (CVR=0.80) Students Attitude to Economics Scale ( $r=0.78$ ) and Students Learning Style Inventory( $r=0.77$ ). Data were analysed using Analyses of co-variance,  $\alpha_{0.05}$ .

There was a significant main effect of treatment on achievement, ( $F_{2,300} = 186.70, \eta^2=.55$ ), economic reasoning ( $F_{2,303} = 9.63, \eta^2=.06$ ) and attitude to economics ( $F_{2,304} = 15.79, \eta^2=.09$ ). Students taught with experience debriefing had the highest mean score ( $\bar{x}=31.31$ ), followed by experience dictation ( $\bar{x} = 29.07$ ) and control ( $\bar{x} = 17.51$ ). In economic reasoning, experience debriefing group also had the highest mean score ( $\bar{x} = 3.0$ ), followed by experience dictation ( $\bar{x} = 2.63$ ) and control ( $\bar{x}=1.87$ ). In attitude to economics, experience debriefing group had the highest mean score ( $\bar{x}=44.27$ ) followed by experience dictation ( $\bar{x} = 42.23$ ) and then control ( $\bar{x} = 39.07$ ). This implies that experience debriefing was most effective in improving students' achievement, economic reasoning and attitude to economics. There was a significant main effect of learning style on the attitude of students towards economics ( $F_{3,304} = 3.15, \eta^2=.03$ ). Implying that, how students learn has effect on their attitude towards economics. There was no significant main effect of learning style and quantitative skill on achievement. This means that the way the students learn and their quantitative skill have no effect on achievement. However, treatment and learning style ( $F_{6,303} = 2.30, \eta^2=0.04$ ), treatment and quantitative skill ( $F_{6,303} = 2.30, \eta^2=0.04$ ), had significant interaction effect on economic reasoning. Also treatment, learning style and quantitative skill had significant interaction effect on achievement ( $F_{6,300} = 2.50, \eta^2=0.48$ ). Implying that, the ability of the treatment to improve achievement was dependent on the students' learning styles and quantitative skills. While all the other interaction effects, were not significant.

Experiential debriefing method enhanced both achievement and attitude to economics and economic reasoning, compared to the other teaching methods. It should therefore be adopted by teachers for the teaching of SSS economics.

**Keywords:** Achievement in economics, Experiential teaching methods, Economic reasoning, Learning styles, Quantitative skill in Economics.

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## **LIST OF ABBREVIATIONS**

**EAT:** Economics Achievement Test

**IRT:** Item Response Theory

**KELT:** Kolb Experiential Learning Theory

**KLSI:** Kolb Learning Style Inventory

**NERDC:** Nigerian Educational Research and Development Council

**SATES:** Students Attitude to Economics Scale

**SLSI:** Student Learning Style Inventory

**SSCE:** Senior School Certificate Examination

**SSS:** Senior Secondary School

**TER:** Test of Economic Reasoning

**TQS:** Test of Quantitative Skill

**WAEC:** West African Examination Council

## **CHAPTER ONE**

### **INTRODUCTION**

#### **1.1 Background to the study**

Economics is offered by nearly all students in Nigerian senior secondary schools (SSS). It is the most popular elective subject in the SSS curriculum in Nigeria. An examination of Table 1.1 (WAEC Entries and Total Sat in Selected Subjects 2009-2018) showed economics in the fourth place in the list of the top most popular SSS subjects, coming only behind English language, mathematics and civic education- which are compulsory subjects. However, in the earlier years (2009-2015) as seen from Table 1.1, economics was only behind biology, because biology was more or less compulsory in the former SSS curriculum. However, with the new SSS curriculum, which began in 2011, civic education became compulsory, and the requirement that each SSS student should offer at least one science subject, was also dropped, thus biology gave way to civic education in third place.

Despite the increasing number of candidates offering Economics in senior secondary schools and its importance in improving learner's ability to manage personal finances and to citizenship education, achievement or performance of students in the subject has been fluctuating in examinations, such as the Senior School Certificate Examination (SSCE). In Table 1.2 (Economics results for 1995 – 2020) show that only 15 per cent of candidates scored Grades 1 – 6 in May/June SSCE in 1995. The trend of poor performance or achievement continued till 2002. However, the performance improved to 42.99% in 2003 before plunging to 30% in 2004 and improving again to 48% in 2010. It rose above average; 59.50% in 2011, and fell again to 56.09% in 2012; rising to 66.94 in 2013 while falling to 43.47 in 2015, and rising again to 58.02%, 63.16% and 75.39% in 2016, 2017 and 2018 respectively, and falling to 67.99% in 2019 and rising again to 76.98% in 2020. Though there was improvement in the last five years, the figures for the next five years could not be projected. In summary, the figures hitherto ranged below average to average, and slightly above average.



Table 1.1: WAEC Entries and Total Sat in Selected Subjects (2009-2018)

SUBJECT	YEAR	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
<b>ENG. LANG</b>	Total Entry	1,373,009	1,331,381	1,540,141	1,695,878	1,686,990	1,655,794	1,602,362	1,484,034	1,565,106	1,576,65
	Total Sat	1,355,725 (98.74)	1,307,745 (98.22)	1,514,164 (98.31)	1,658,887 (97.82)	1,660,056 (98.40)	1,636,103 (98.81)	1,583,797 (98.84)	1,471,108 (99.12)	1,551,649 (99.14)	1,564,535 (99.24)
<b>MATHEMATICS</b>	Total Entry	1,373,009	1,331,374	1,080,133	1,695,878	1,686,990	1,655,794	1,602,362	1,484,034	1,565,106	1,576,465
	Total Sat	1,348,528 (98.22)	1,306,535 (98.13)	1,054,853 (97.13)	1,658,357 (97.79)	1,656,527 (98.19)	1,632,377 (98.59)	1,581,420 (98.69)	1,469,585 (99.02)	1,550,348 (99.05)	1,563,457 (99.17)
<b>CIVIC EDUCATION</b>	Total Entry	-	-	-	-	-	847,375	1,601,855	1,469,585	1,565,102	1,576,464
	Total Sat	-	-	-	-	-	822,837 (97.10)	1,563,554 (97.60)	1,460,635 (98.42)	1,544,361 (38.67)	1,559,410 (98.91)
<b>BIOLOGY</b>	Total Entry	1,364,655	1,325,408	1,532,770	1,687,788	1,678,154	1,400,771	1,200,467	1,063,778	1,106,346	1,096,186
	Total Sat	1,340,206 (98.21)	1,300,418 (98.11)	1,505,199 (98.20)	1,646,150 (97.53)	1,646,741 (98.12)	1,377,161 (98.31)	1,180,369 (98.32)	1,050,129 (98.76)	1,093,597 (98.84)	1,086,081 (99.07)
<b>ECONOMICS</b>	Total Entry	1,298,733	1,256,886	1,446,686	1,583,775	1,567,942	1,393,186	1,199,182	1,088,473	1,111,299	1,111,831
	Total Sat	1,270,557 (97.83)	1,228,401 (97.73)	1,413,886 (97.73)	1,514,902 (97.29)	1,532,194 (97.72)	1,363,994 (98.05)	1,175,348 (98.01)	1,071,540 (98.44)	1,094,454 (98.48)	1,098,525 (98.80)
<b>GOVERNMENT</b>	Total Entry	861,390	805,298	925,300	1,015,901	1,004,926	893,322	751,853	701,461	727,268	727,135
	Total Sat	829,204 (96.26)	773,458 (96.05)	894,308 (96.65)	975,166 (95.99)	177,255 (97.24)	874,368 (97.88)	736,300 (97.93)	691,056 (98.51)	717,182 (98.66)	717,509 (98.67)
<b>GEOGRAPHY</b>	Total Entry	786,271	776,926	903,885	1,008,796	992,882	720,479	506,023	444,768	466,406	455,507
	Total Sat	747,877 (95.12)	737,467 (94.92)	863,032 (5.98)	958,444 (95.01)	957,578 (96.74)	698,092 (96.89)	491,180 (97.06)	433,998 (97.57)	456,767 (97.93)	447,927 (98.33)
<b>COMMERCE</b>	Total Entry	565,486	529,159	601,248	636,567	621,370	518,669	360,345	298,419	297,265	287,957
	Total Sat	539,722 (95.44)	502,561 (94.97)	575,960 (95.99)	608,750 (95.63)	601,124 (96.)	500,160 (94.43)	348,370 (96.67)	290,474 (97.33)	290,477 (97.71)	282,502 (98.10)
<b>FINANCIAL ACCOUNT</b>	Total Entry	227,595	225,348	241,217	253,940	249,731	235,048	212,201	179,847	185,343	(183,628)
	Total Sat	215,388 (94.72)	212,259 (94.19)	231,215 (95.85)	241,933 (95.27)	242,072 (96.93)	229,787 (97.76)	208,509 (98.26)	177,739 (98.82)	183,129 (98.80)	181,867 (99.04)

Source: Test Division WAEC Lagos (2020)

This fluctuating performance may not be peculiar to economics. It seems to be a common trend among all subjects in the SSCE. However, for a subject as important as economics, such a trend of fluctuating achievement cannot be excused in any way. For, one, the popularity of the subject among students; two, the importance of economics to entrepreneurship education, and three, the fact that the only knowledge of formal economics majority of high school leavers will have is the one at this level of education. For instance, Leet and Lopus (2012) consider economics the most relevant subject a student will take in secondary school. In addition, Okwilagwe and Oyedepo (2007) consider economics the most important among all subjects in the business course. Olopoenia (2006), reported Walstad (2001), as reporting, that more states in the United State (US) require some economics instruction for high school graduation. Obemeata (1991), referring to Strezer (1975), stated that a secondary school leaver who lack basic knowledge in economics, cannot be said to be well prepared for the wider society.

Apart from achievement, the way economics is taught in SSS in Nigeria is another big challenge facing the subject. Obemeata (1992) observed that teachers of high school economics usually lecture their students and follow this up with summary notes. This, according to Obemeata (1992) only gives the students a superficial understanding of economics. What most teachers do is to focus mainly on preparing students for public examinations, such as the SSCE and unified examinations- as done in some states. This has led teachers to embrace “teaching to the test” and students to engage in rote learning (Johnson, and Suvojit; 2021). Furthermore, Tieleman (2019), says that the way economics is taught is “stuck in the past” and concluded that this cannot help its graduates solve real world problem. This was also the view of Wolfers (2019), who suggested that economics instruction should focus on showing how economics can aid people from all works of life.

In a pilot study to find out the trend in the teaching methods/aid used by economics teachers, in one of the states in south-western Nigeria, it was revealed that SSS economics teachers were still stuck to the lecture method, confirming Obemeata (1992).

**Table 1.2 SSCE (May/June) Results in Economics (1997 – 2020)**

<b>Year</b>	<b>Total Sat</b>	<b>Total Credit Grades 1 – 6</b>	<b>% of Grades 1-6 to Total Sat</b>	<b>Pass Grades 7 &amp; 8</b>	<b>% of Grades 7 to Total Sat</b>	<b>Fail Grade 9</b>	<b>% of Grade 9 to Total Sat.</b>
1997	582926	81897	14.05	161175	27.64	339854	58.30
1998	604827	133657	22.10	178843	29.56	283290	46.83
1999	717509	155418	21.66	245000	34.14	297332	41.43
2000	508739	179104	35.21	177427	34.98	152208	29.91
2001	981928	276632	28.17	372978	37.98	332318	33.84
2002	868532	193291	22.17	394693	45.44	380548	43.82
2003	885807	380795	42.99	312302	35.25	192710	22.26
2004	973611	366037	37.60	360765	37.05	216736	22.20
2005	1007710	365242	36.24	416044	41.82	171145	15.71
2006	1089355	538677	45.44	357539	32.82	171145	15.71
2007	1183154	461903	39.04	421744	35.64	270918	22.89
2008	1230131	592939	48.20	392579	31.91	201525	12.16
2009	1298733	577345	44.45	383875	29.56	157925	12.16
2010	1289876	577009	44.73	413267	32.03	299660	23.23
2011	1413886	841258	59.50	399311	28.24	169864	12.01
2012	1540902	864273	56.09	409468	26.57	232321	15.08
2013	1532194	1025703	66.94	310963	20.29	159927	10.43
2014	1363994	698669	51.22	336624	24.68	302462	22.17
2015	1175348	511007	43.47	329396	28.02	309757	26.35
2016	1071540	621755	58.02	255298	23.82	170363	15.89
2017	1,094,454	691,282	63.16	244,544	22.34	131,559	12.02
2018	1,098,525	828,208	75.39	149,747	13.63	103,312	9.40
2019	1,088,918	740,394	67.99	206,220	18.94	121,667	11.17
2020	1,072,067	825,234	76.98	142,015	13.25	19,151	8.78

Source: Test Division WAEC Lagos (2020)

As revealed by Tables 1.3 and 1.4 the dominant teaching method is still the lecture method, with 66.7% usage rate. While chalk-board and text-books, are prime teaching aids. This outcome still weighed against learner-centre methods, such as class discussion and small group activities.

These inadequacies have led to a growing concern culminating in several research papers and studies (Olopoenia, 2000; 2006; Adu, 2002; Okwilagwe and Oyedepo, 2007; Adekoya, 2002; 2008; Olaoye, 2005; Adu, Ojelabi and Adeyanju, 2009; Adeyemi, 2012;) among others. Of these studies (Olopoenia, 2000; 2006; Olaoye, 2005; Adu, Ojelabi and Adeyanju, 2009) related the background characteristics of the teacher and the students to learning outcomes. While studies by (Adekoya; Adu; 2002; Adeyemi, 2013) explored whether specific instructional methods were related to learning gains in economics.

However, of the afore-mentioned variables, the teaching strategy employed by the teacher is the most overbearing and most easily manipulable (Akinsola, 1994). Leet and Lopus (2012) are also of the opinion that the increased importance of economics in high schools means that it is critically important that it be taught well. In addition, the National Policy on Education (FRN, 2004), stated that no education system can rise above the quality of its teachers - teacher quality indicators, among others, according to Goe (2007) include teacher qualification, teacher characteristics, teacher effectiveness, and teacher practices (teaching method applied by the teacher). If this is so, then it means more need be done in the area of effective teaching of economics, in high schools. In line with this view, the researcher examined the afore-mentioned studies that related teaching strategy to learning outcomes. These include studies by (Adekoya; Adu; 2002; Adeyemi, 2013).

While Adu (2004), tested the effect of two problem-based learning strategies on achievement in economics, with quantitative ability and gender as moderator variables, and found that students taught with problem based approaches did better than those who were taught with the traditional lecture method. The study revealed a significant difference in the analysis of covariance between the three approaches. Adekoya (2002) found that students taught with oral discussion method did better than those taught with both lecture method and inquiry method.

**Table 1.3 Teaching Methods Usage by Economics Teachers**

<b>Teaching Methods</b>	<b>Usage %</b>
Lecture Method	66.7
Class Discussion	62.5
Small Group Activities	42.5
Guest Speakers	21.2
Programmed Instruction	18.7

**Compiled from SPSS Output**

**Table 1.4 Teaching Aids Usage by Economics Teachers**

<b>Teaching Aid</b>	<b>Usage %</b>
Chalkboard	78.7
Text Book	63.6
Marker Boards	57.5
Used of Workbook Attached to Text	54.5
Newspaper Cutting/Magazine	51.5

**Compiled from SPSS Output**

However, student taught with lecture method, outperformed the inquiry method group. The study revealed no significant differences in the analysis of covariance between the three approaches. However, the study, a PGDE project report, was an explorative study. Adeyemi (2013) revealed that students taught with panel discussion strategy and active review outperformed those taught with the conventional method. The study revealed a significant difference in the analysis of covariance between the three approaches, with panel discussion, taking the lead.

However, these studies, though learner-centre, combining innovative methods such as problem-solving, inquiry methods, active review and panel discussion, with minimal lectures as introductory method, did not give room for student to have hands-on and heads-on, experience of economics in the class room. This present study brought into the class-room real life economics experiences. This form of teaching is referred to by various names, which include, active learning, activity-based teaching, hands-on and heads-on teaching, but the umbrella name for this form of teaching is experiential teaching.

Experiential teaching, a form of hands-on and heads-on teaching is an activity-based teaching and learning approach, exposing the learner to real life situations in the classroom. It can exist with, or without the teacher or facilitator (Kolb, 1999). Experiential teaching can be divided into two major categories: field-based experiences and classroom-based learning. Field-based learning is the oldest and most established form of experiential teaching. Field-based learning includes internships, practicums, cooperative education, and service learning. Classroom-based experiential teaching can take a multitude of forms, including role-playing, games, case studies, simulations, presentations, and various types of group work. It is a method of teaching which engage students in doing things and thinking about what they are doing (Bonwell and Eison, 1999, in Wurdinger and Rudolph, 2009). Brock and Lopus, (2016) directly referred to it as activity-based pedagogical techniques- describing it as lessons that engage learners via activities such as simulations, role-plays and group presentations.

This activity-based pedagogical technique is broadly referred to as experiential teaching methods, because it follows a criteria outlined by experiential learning theory as propounded by Kolb (1984). Actually the theory is referred to as experiential learning

theory, but when it comes to its application within the class-room it is often referred to, by scholars and researchers, as experiential teaching (Laney, 1993; Okoli and Abonyi, 2014; Nweke, Abonyi, Omebe and Njoku, 2014)

It is important here to distinguish between the two forms of experiential teaching that are of interest in this study- experience based learning (experience-debriefing) and experiential learning (experience-dictation). Both are forms of experiential teaching. Kourilsky (1983) distinguished between experiential learning and experience-based learning. Kourilsky, explained experience-based teaching as involving experience followed by inquiry-based debriefing and discussions facilitated by the teacher, whereby issues are analysed and economic principles derived. This is why it is alternatively referred to as experience-debriefing, whereas, experiential teaching, involves experience followed by oral or written presentations by the learners, with the teacher serving as facilitator. Hence it's often referred to as experience-dictation Kolb et al, (2002) are of the view that if learners are allowed to dictate or present their experience-(experience-dictation) mastery is enhanced. Thus the distinguishing factor between the two forms of experiential teaching is the post-experience session.

While the experience-presentation or dictation group engage one another in a debate or group presentations, the experience-debriefing group engage in an inquiry-based debriefing session or active review. Adeyemi (2013) used similar methods. His active review method is similar to, but not synonymous with, the inquiry-based debriefing session which is applied to the experience-debriefing treatment group. While the panel discussion method, as applied in the Adeyemi (2013) study, is similar to but not synonymous with the presentation session as applied to the experience-presentation or dictation treatment group. Similarly, Laney (1993) designed a study to test Kourilsky (1983) conclusion on the superiority of experience-based teaching over experiential approaches in economics learning among elementary school children. Laney (1993) in describing these two forms of experiential teaching, referred to experience-based learning as 'experience-debriefing' that is experience followed by a formal inquiry-based debriefing session. On the other hand, he referred to the experiential approach or experience only method as 'experience-dictation' that is experience followed by presentation or dictation of the experience by the learner.



Experiential learning is not new in our secondary schools, research evidence include; Okoli and Abonyi (2014) in Senior Secondary School biology; Nweke, Abonyi, Omebe and Njoku (2014) in Junior Secondary School basic science and technology.

The Kolb experiential learning theory (KELT), which was used in this study, is a dynamic view of learning based on a learning cycle and recognition of differences in learning style of individuals. The KELT model portrays two dialectically related modes of grasping experience—Concrete Experience (CE) and Abstract Conceptualization (AC) - and two dialectically related modes of transforming experience—Reflective Observation (RO) and Active Experimentation (AE). Learning arises from the resolution of creative tension among these four learning modes. This process is portrayed as an idealized learning cycle or spiral as presented in Fig. 2.5.

Economics as a subject seems to be mathematically inclined. An average to high quantitative ability is required for better performance in the subject (Adu, 2004). Thus disciplines have their peculiarities as recognized by the Kolb Experiential learning model. In recognition of the importance of quantitative skills in economics education, universities and other higher institutions in Nigeria with department of economics and other business related courses require a credit grade in SSCE mathematics for admission into their programme. For instance, some institutions requirement in the SSCE is a credit in English language and mathematics and any other three subjects. This reiterates the importance of quantitative skill, in the learning of economics. The outcome of a study by Adu, Ojelabi and Adeyanju, (2009) confirms this. It is necessary therefore to bring into this study this important variable. In addition, the need to bring quantitative skill into this study is accentuated by the demand of the current senior secondary school economics syllabus which, in the words of Okwilagwe and Oyedepo (2007), requires more analytical processes. Also, the fact that the SSCE economics essay paper (Paper 2), has a section (Section A), that is wholly data response and quantitative in nature.

Learning outcome is a wide term that cannot be limited to only achievement. Achievement is important, however stressing achievement as sole learning outcome would mean, in the words of Obanya (2013), ‘...defining education as merely “knowing book”’. This would be limiting the effect of instruction on learning outcome. That achievement is an important learning outcome, cannot be over emphasized, however, in

a fast changing world, a much wider range of competences, along with achievement, are needed for students to be well prepared for the future. Along with achievement, an important learning outcome essential for the application of economic principles outside the classroom is economic reasoning. Economic reasoning is the application of the concept of cost-benefit analyses to personal decision making. Richter et al. (2006), referred to it as, “economic decision rule.” Economic reasoning skill is the readiness to use economic principles to solve personal economic problems. This important learning outcome was included as one of the learning outcomes in this study.

A pedagogical study such as this will not be complete without relating it to the affective domain, of which attitude is an integral part. In addition, the role of attitude in the effectiveness of any pedagogical intervention cannot be overstressed. The more positive an attitude held towards a task, the better the student will perform on the task. Olaoye (2005) stated that attitude influences how well students learn and how they behave. Emeke (1999) added that a positive attitude is more likely to engender achievement of a goal or objective, than a negative attitude. The study by Olaoye (2005) confirms the fact that students with positive attitude towards economics as a discipline outperform those with negative attitudes. Consequently, students’ attitude to economics was added as part of the learning outcomes, in this study.

## **1.2 Statement of the Problem**

Achievement in high school economics has been fluctuating. This is unbecoming of a subject that is not only popular with students but also useful to everyone. Prominent among the factors which have been identified as contributing to the fluctuating level of students’ achievement in economics are the teaching methods adopted by economics teachers. It would thus, be necessary to introduce more innovative and creative strategies suitable for improving learning outcomes in senior secondary school economics. Several innovative and creative pedagogy, have been assessed by researchers, however, the effect of these methods of teaching is mostly measured in terms of students’ achievement, but not in terms of thinking skills – such as economic reasoning. This learning outcome is important, considering the fact that secondary school graduates will be making economic choices all their lives. They will

need some capacity for critical judgement, to solve the problems that they will encounter in life beyond school.

In addition, the effects of activity-based, learner-centred, pedagogy, such as experiential learning, on students learning outcomes in economics are inconclusive. Furthermore, it is not clear how differences in learning style and the differences in the quantitative skill of students, would affect students learning outcomes in economics, especially when activity-based experiential teaching methods are used. This study therefore, extends the literature by applying two forms of activity-based experiential approaches in the teaching of secondary school economics, in order to establish their effect on students' achievement, students' economic reasoning and attitude to economics, while taking cognizance of differences in the quantitative skill and in the learning style of learners.

### **1.3 Hypotheses**

The following null hypotheses were tested;

1. There is no significant main effect of treatment on students'
  - (i) Achievement in economics
  - (ii) Economic reasoning
  - (iii) Attitude to economics
  
2. There is no significant main effect of learning style on students'
  - (i) Achievement in economics
  - (ii) Economic reasoning
  - (iii) Attitude to economics
  
3. There is no significant main effect of quantitative ability on students'
  - (i) Achievement in economics
  - (ii) Economic reasoning
  - (iii) Attitude to economics

4. There is no significant interaction effect of treatment and student learning style on students’

- (i) Achievement in economics
- (ii) Economic reasoning
- (iii) Attitude to economics

5. There is no significant interaction effect of treatment and quantitative ability on students’

- (i) Achievement in economics
- (ii) Economic reasoning
- (iii) Attitude to economics

6. There is no significant interaction effect of learning style and quantitative ability on students’

- (i) Achievement in economics
- (ii) Economic reasoning
- (iii) Attitude to economics

7. There is no significant interaction effect of treatment, learning style and quantitative ability on students’

- (i) Achievement in economics
- (ii) Economic reasoning
- (iii) Attitude to economics

#### **1.4 Scope of the Study**

The study was done with senior secondary two (SS2) economics students in Ogun State, Nigeria. The treatment was restricted to two forms of activity-based experiential teaching approaches- experienced-based teaching and experiential teaching, with traditional lecture as control. The moderator variables were learning styles along with quantitative skill. While the dependent variables are; achievement in economics, student’s economic reasoning and student’s attitude to economics.

### **1.5 Significance of the Study**

Curriculum experts and implementers such as teachers and school administrators will find this valuable. In addition, it will be of great use to high school students of economics and their parents. Curriculum experts, who are in search of improving the curriculum, the outcome of this study will be of interest to them in their search for transformational pedagogy, especially in senior secondary school economics and other related subjects.

Curriculum implementers such as teachers, especially high school economics teachers, will find the outcome of this study relevant to their quest for a pedagogy that not only improve students interest in economics but, improve performance in the subject and raise their acquisition of practical (heads-on and hands-on) economics for effective daily decision making. Also, teachers who are interested in bringing practical economics into the classroom will find the manual of instruction developed by the researcher for the experiential teaching methods, very valuable. Students of economics, who are becoming bored and disinterested with the conventional method of teaching economics, will find experiential teaching methods of great interest in their desire for practical hands-on and heads-on economics that is not only performance enhancing but, in addition, transformational in nature.

School administrations, will also benefit from the outcome of this study. They may have to create more space and spend more, to make materials available for economics teachers and students, yet the gain to the school in terms of improvement in class attendance, better performance and better acquisition of economic knowledge, will be a profit to the school rather than a loss.

In addition, parents stand to gain from the methodology of experiential teaching. The better acquisition of economic knowledge, which experiential teaching is out to enhance, will play out on the students' ability to manage scarce resources such as money, time and space given them by their parents.

## **1.6 Definition of Terms**

### **Learning Outcomes**

The behavioural objectives expected from learners after an educational intervention.

For this study they include;

- (i) Achievement Economics
- (ii) Economic reasoning
- (iii) Attitude to economics

These were measured by Economics Achievement Test (EAT), Test of Economic Reasoning (TER), and Students Attitude to Economics Scale (SATES) respectively.

### **Achievement in Economics**

This refers to the score in an economics objective cognitive test (EAT) constructed and validated by the researcher.

### **Economic Reasoning**

Economic reasoning is the ability to apply the economic concepts of costs and benefit to personal decision making. In this study a student's economic reasoning was determined by his or her score on the Test of Economic Reasoning (TER) constructed and validated by the researcher.

### **Attitude towards Economics**

This is a learner's predispositions to respond in a consistently favourable or unfavourable manner with respect to senior secondary school economics. It was measured by the SATES constructed and validated by the researcher. A student's attitude was determined by his or her score on the SATES.

### **Experiential Teaching Approaches**

These are methods of instruction where practical experience is given central place. It's simply, hands on and heads-on teaching approach. It is subdivided into, experience-debriefing and experience-dictation.

### **Experience-debriefing**

This is one of the experiential teaching methods that were applied on one of the two experimental (treatment) groups in this study. It is a form of experiential teaching that begins with practical or hands-on economics experience, followed by debriefing and discussion facilitated by the teacher.

**Experience-dictation**

This is one of the experiential teaching methods that were applied on one of the two experimental (treatment) groups in this study. It is used here to indicate experience followed by a formal written or oral presentation by students, either in the form of debates or seminar presentations, facilitated by the teacher.

**Quantitative Skill**

This is the ability to use mathematical rules to solve problems. In this study, it was measured by a student's score on the test of quantitative skill (TQS), designed by the researcher.

**Learning style**

This refers to the learning preferences of individual students, based on their preferences for employing different aspect of the Kolb Learning Cycle. This was measured at four levels –reflective, concrete, abstract and active learning styles, using the Kolb Learning Style Inventory (KLSI). Thus each student's learning style was determined by their score on the KLSI.

## **CHAPTER TWO**

### **LITERATURE REVIEW AND THEORITICAL FRAMEWORK**

This chapter presented the Theoretical Background of this study, the Conceptual Review, the Empirical Review and concluded with an Appraisal of Literature and Gap filled.

#### **2.1 Theoretical Background**

The experiential learning theory, present a different view of learning and instruction from that of both the behavioural theories of learning and the more implicit theories of learning that underlie traditional educational methods. Cognitive learning theories ignore the possible role of subjective experience in the learning process, while emphasizing the role of mental processes. However, the experiential learning theory proposed by Kolb (1984) takes a more holistic approach and emphasizes how experiences, including cognitions, environmental factors, and emotions influence the learning process. This perspective on learning is called 'experiential' because of its intellectual origins in the work of Dewey, Lewin and Piaget and its emphases on the centrality experience in the teaching process (Kolb, 1984).

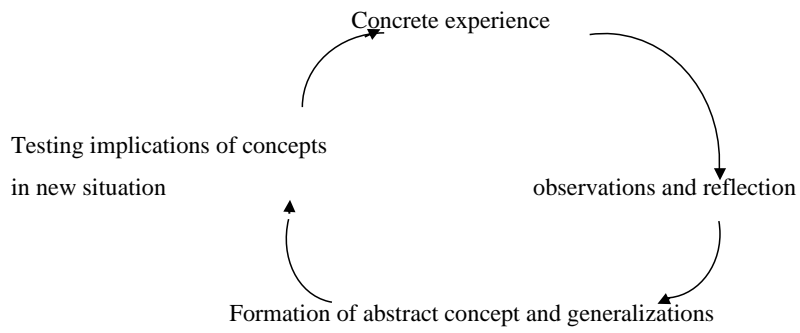
The experiential teaching theory that was used in this study is the one proposed by educational psychologist David Kolb. Kolb (1984), in setting forth this model built on the fundamental works of Kurt Lewin, John Dewey and Jean Piaget.

##### **2.1.1 The Lewinian Model of Action Research and Laboratory Training**

According to this model, the methods of action research and the laboratory method, learning, change and growth, are seen to be facilitated best by an integrated process that begins with here-and now experience followed by gathering of data and observation about that experience. The data are then analyzed and the conclusion of this analysis is fed back to the actors in the experience for modification of their behavior. Thus learning is outlined in form of a four-stage cycle, as seen in figure 2.1. It begins with concrete experience, followed by observations and reflection, then formation of



abstract concept and generalizations and then testing implications of concepts in new situation.



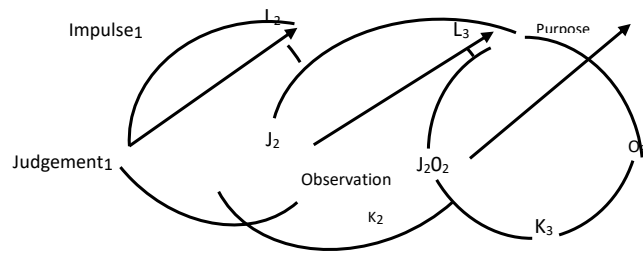
**Figure 2.1 The Lewinian Experiential Learning Model. Kolb (1984)**

### **2.1.2 Dewey's Model of Learning**

Dewey's (1938) model is similar to Lewins, in its emphasis on learning as a dialectic process integrating experience and concepts, observation, and action. Experience gives ideas their moving force and ideas give direction to impulse. Postponement of action is important for achievement of purpose. It is through the combination of these opposing but symbiotically related processes that sophisticated, mature purpose develops from blind impulse. Dewey's model is diagrammatically portrayed in figure 2.2.

Dewey (1938) is of the opinion that learning was socially constructed, asserting that brain-based pedagogy should be used to place learners and not the curriculum. He considered education to be a means of living and not a preparation for future living. Dewey believes that the class room should not be too formally organized, but organized in an informal manner- as a social interaction space where learners are a community of learners and not a group of individual learners. Dewey was bent on making learning experiences centered around student interests and developing socially responsible citizens. The ideologies of John Dewey are present in place-based education. According to Graham (2007), place-based education draws on the progressive idea that education should be multi-disciplinary in nature and that learning activities should be authentic and "seek to extend learning beyond the walls of the school" (p. 377). Thus Dewey's model places importance on building: teaching communities, strong relationships, developing higher level thinking skills for real-life application, and taking into consideration student interests when planning for instruction.

John Dewey, believed that traditional schools were uninspiring institutions, which did not support an environment for learning (Brendtro, 1999). Dewey considered traditional schools as boring and monotonous institutions that stifled student creativity. He stressed that in an effort to get students on-task, teachers in traditional schools relied heavily on reward and punishment schemes in order to force children to pay attention. Dewey concluded that an approach that focused on the interests of the students would be more successful. To Dewey (1938) learning is a function of experience, concepts, observation and action. These four poles are instrumental to the Kolb learning cycle and to the application of the two experiential treatments used in this study- see Fig. 2.4.



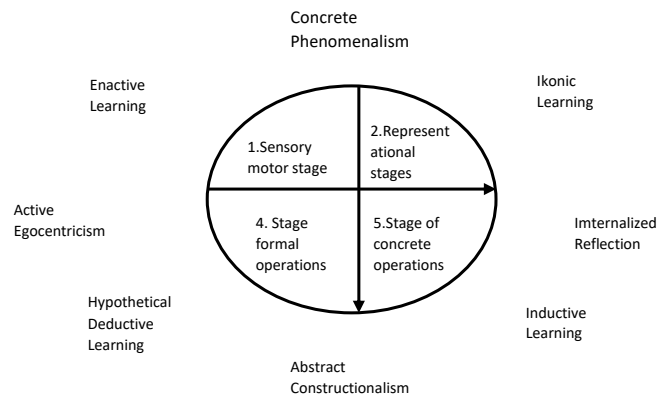
**Figure 2.2 Dewey's Model of Experiential learning**

Dewey's model, as revealed in fig 2.2, showed his description of leaning as a dialectic process integrating experience and concepts, observation and action. This is revealed by the direction of the arrows in figure. 2-2. Dewey is of the view that experience gives force to the learning process. This Dewey's view is what is at the centre of Kolb's learning style typology.

### **2.1.3. Piaget's Model of Learning and Cognitive Development**

According to Piaget, the dimensions of experience and concept, reflection, and action form the basic continuum for the development of adulthood. Change from infancy to adulthood moves progress from concrete to an abstract constructivist view, from an active egocentric view to a reflective mode of knowing. For Piaget, the learning process is a cycle of interaction between the individual and the environment that is similar to the learning models of Dewey and Lewin.

Piaget identified four major stages of cognitive growth that begins from birth to about the age of 14-16. This model is graphically portrayed in Figure 2.3.



**Fig. 2.3 Piaget's Model of Learning and Cognitive Development**

In the first stage (0-2 years), the child is basically concrete and active in his learning style. Learning is predominantly through feeling, touching and handling. In the second stage (2-6 years), the child develops a reflective orientation as he begins to internalize actions, converting them to images. This stage is called representation stage. Learning is now predominantly iconic in nature through the manipulation of observations and images. At this stage, the child's primary stance toward the world is divergent. In the third stage (7 -11 year), the intensive development of abstract symbolic powers begin. This is the stage of concrete operation, as revealed in fig. 2.3. The child in this stage further increases his independence from his immediate experienced work through the development of inductive powers.

The final stage, is the stage of formal operations, it is the adolescence point (12-15years). In this stage, the adolescence moves from symbolic processes based on concretion operation to the symbolic processes of representational logic, the stage of formal operation as revealed in fig. 2.3. At this level, the child develops the possible implications of his theories and proceeds to experimentally test which of these are true. Here his basic learning style is convergent. Thus we can see a close similarity between Piaget's model of leaning and cognitive development and Kolb's leaning cycle. Really, the later is an off short of the former.

#### **2.1.4 Kolb's Experiential Learning Theory**

David Kolb laid the foundation of modern experiential teaching theory. His 'Experiential learning' (1984) has become a foundational text in this regard. His experiential Learning theory, based on a learning cycle, was greatly influenced by the models proposed by Lewin, Piaget and Dewey and has been widely reproduced and used. Kolb (1984) concluded that a great deal of similarities existed between the aforementioned models. Thus, Kolb (1984) model is built on six propositions that are shared by the learning theories of Lewin, Piaget and Dewey. They are;

**Learning is best conceived as a process, not in Terms of Outcomes.**

In all three of the learning models just reviewed learning is described as a process whereby concepts are derived from and continuously modified by experience. No two thoughts are ever the same, since experience always intervene (Kolb 1984).

Kolb is of the opinion that, learning occurs through the course of connected experiences in which knowledge is modified and re-formed. If ideas are seen to be fixed and immutable, then it seems possible to measure how much someone has learned by the amount of these fixed ideas the person has accumulated. However, ideas are not fixed and immutable elements of thought, but are formed and re-formed through experience. Thus the experiential teaching theory views learning as an emergent process whose outcomes represent only historical record not knowledge of the future.

Viewed from the perspective of experiential teaching, the tendency to define learning in terms of outcomes can become a definition of non-learning, in the process sense. That, the failure to modify ideas and habits, as a result of experience is maladaptive. Thus, the tendency to conceive of learning in terms of outcomes, as opposed to a process of adaptation, have had a negative effect on the educational system. Jerome Bruner, in his influential book; 'Towards a Theory of Instruction' made the point that the purpose of education is to stimulate inquiry and skill in the process of knowledge getting, not to memorize a body of knowledge. "Knowing is a process, not a product" (Bruner, 1966; in Kolb, 1984). Paulo Freire calls the orientation that conceives of education as the transmission of fixed content the "banking" concept of education:

"Education thus becomes an act of depositing, in which the students are the depositories and the teacher is the depositor. Instead of communicating, the teacher issues communiqués and makes deposits which the students patiently receive, memorize and repeat. This is the "banking" concept of education, in which the scope of action allowed to the students extends only as far as receiving, filing and storing the deposits. They do have the opportunity to become collectors or cataloguers of the things they store. But in the last analysis, it is men themselves who are filed away through the lack of creativity, transformation, and knowledge in this (at best) misguided system. For apart from inquiry, apart from the praxis, men cannot be truly human. Knowledge emerges only through invention and reinvention, through the restless, impatient, continuing, hopeful inquiry men pursue in the world, with the world, and with each other" (Freire 1974, in Kolb 1984, 38)



### **Learning is continuous process Grounded in Experience**

The fact that learning is a continuous process grounded in experience has important educational implication. Put more simply, it implies that all learning is relearning. Thus it would be wrong in designing a course, to think of the learner's mind as being blank. Everyone enters every learning situation with some ideas about the topic at hand. Thus the job of an educator, according to the experiential teaching theory, is not only to impact new ideas but also to dispose of or modify old ones. This resistance to new ideas stems from their conflict with old beliefs that are inconsistent with them. The ELT proposes an educational process that begins by bringing out the learner's beliefs and theories, examining and testing them, and then integrating the new, more refined ideas into the person's belief systems, and thus facilitating learning. Thus learning is best facilitated by a process that draws out the learner's beliefs and ideas about a topic so that they can be examined, tested and integrated with new more refined ideas. Piaget called this proposition **constructivism** – individuals construct, their knowledge of the world based on their experience.

### **The process of learning requires the resolution of conflicts between dialectically opposed modes of adaptation to the world.**

Each of the three models of experiential teaching describes conflicts between opposing ways of dealing with the world, suggesting that learning results from resolution of these conflicts (Kolb 1984). The Lewinian model emphasizes two such dialectics – the conflict between concrete experience and abstract concepts and the conflict between observation and action. For Dewey the major dialectic is between the impulse that gives ideas their “moving force” and reason that gives desire its direction. In Piaget's frame work, the twin processes of accommodation of ideas to the external world and assimilation of experience into existing conceptual structures are the moving force of cognitive development. In Paulo Freire's work, the dialectic nature of learning adaptation is encompassed in his concept of praxis, which he defines as “reflection and action upon the world in order to transform it” (Freire 1974 in Kolb 1984, 38).

These models above give the idea that learning is by its very nature a tension and conflict filled process. New knowledge, skills, or attitudes are achieved through

confrontation among four modes of experiential teaching. According to Kolb (1984) learners, if they are to be effective, need four different kinds of abilities; concrete experience abilities (CE), reflective observation abilities (AC), and active experimentation (AE) abilities. This means, they must be able to involve themselves fully, openly and without bias in new experience (CE). They must be able to reflect on and observe their experiences from many perspectives (RO). They must be able to create concepts that integrate their observations into logically sound theories (AC), make decisions and solve problems (AE). The questions now are how one can act and reflect at the same time? How can one be concrete and be theoretical at the same time? Learning requires abilities that are polar opposites, and the learner, as a result, must continually choose which set of learning abilities he or she will bring to bear in any specific learning situation. More specifically, there are two primary dimensions to the learning process. The first dimension represents the concrete experience of events at one end and abstract conceptualization at the other. The other dimension has active experimentation at one extreme and reflective observation at the other. Thus, in the process of learning, one moves in varying degrees from actor to observer and from specific involvement to general analytic detachment.

The four learning modes illustrated in Figure 2.6 constitute a four- stage experiential teaching cycle, whereby learners resolve the tension of two dialectically opposite learning dimensions in a cyclical fashion. And as they do this they develop a particular or specific mode of grasping and or transforming experience. This becomes the learner's preferred learning style.

**Learning is a Holistic process of Adaptation to the world.**

The experiential teaching model is a holistic concept, akin to the Jungian theory of psychological types (Jung, 1923, in Kolb 1984). It describes basic life orientations as a function of dialectic tension among basic methods of relating to the world. To learn, concluded Kolb, is not the special province of a single specialized realm of human functioning such as cognition or perception. It involves the integrated functioning of the total organism, thinking, and feeling, perceiving, and behaving.

Learning is the major process of human adaptation. This concept of learning is considered broader than that commonly associated with the school classroom. It occurs in all human settings, from schools to the larger world, from the laboratory to the management board room. It includes all life stages, from childhood to teenage years, to middle and old age. Thus it includes all adaptive concepts such as creativity, problem solving, decision making and attitude change that focus heavily on one or another of the basic aspects of adaptation (Kolb 1984). When learning is conceived as a holistic adaptive process, it provides conceptual bridges across life situations such as school and work, portraying learning as a continuous life long process. This perspective showed the similarities between adaptive learning activities that are commonly called by specialized names – learning, creativity, problem solving, decision making and scientific research.

Yet performance, learning, and development, when viewed from the perspectives of experiential teaching theory, form a continuum of adaptive postures to the environment, varying only in their degree of extension in time and space. Performance is limited to short-term adaptations to immediate circumstances, learning encompasses somewhat longer term mastery of generic classes of situations, and development encompasses lifelong adaptations to one's total life situations. Thus in this study we are looking beyond students' performance, to other more adaptive Learning activities such as problem solving and decision making skills in secondary school economics.

#### **Learning Involves Transaction between the person and the Environment**

What this means, in Piaget's terms is, learning occurs through equilibration of the dialectic process of assimilating new experiences into existing concepts and accommodating existing concepts to new experience. Thus learning results from active transaction between the individual and the environment. This is opposed to the traditional educational process, which perceives the person-environment relationship as one way placing great emphasis on how environment shapes behaviour with little regard for how behaviour shapes environment.

In experiential teaching theory, the transactional relationship between the person and the environment is symbolized in the dual meanings of the term experience, one subjective and personal, referring to the person's internal state, as in "the experience of joy and happiness" and the other objective and environmental, as in, 'He has 20 years of

experience on this job” (Kolb 1984) thus it is the conclusion of proponents of the experiential teaching theory that, experience does not go on only inside a person but, in addition, it takes place outside of him/her, changing in some degree the objective condition under which experiences are had. It is then not surprising that Dewey concluded that, the conceptions of situation and of interaction are inseparable from each other. An experience is always what it is because of a transaction taking place between an individual and what, at the time, constitutes his environment, whether the latter consists of persons with whom he is talking about some topic or event, the situation, the book he is reading or the materials of an experiment he is performing.

This transaction is used to imply a two way relationship. This is to be understood as it’s implied in marketing-when the buyer and the seller interact for sales to take place. For real learning to take place, proponent of experiential teaching, believe that the learner and the environment must be in transaction, leading to a change in the learner and in the environment.

#### **Learning Is the Process of Creating Knowledge**

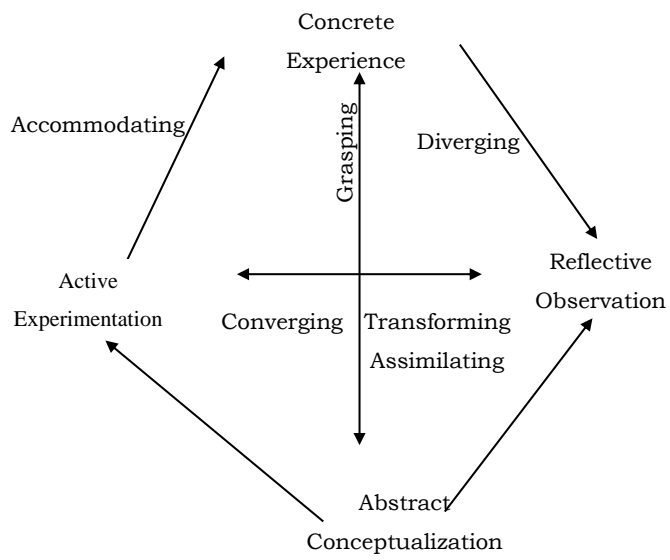
The ELT proposes a constructivist theory of learning whereby social knowledge is created and recreated in the personal knowledge of the learner. (Kolb, 2005) knowledge is the result of the transaction between social knowledge and personal knowledge Social knowledge being the civilized objective accumulation of previous human cultural experience referred to as objective experience. Personal knowledge, on the other hand is the accumulation of the individual person’s subjective life experiences-referred to as subjective experiences. This knowledge results from the transaction between these objective and subjective experiences in a process called learning (Kolb, 1984). In teaching for instances the ELT believe that it is essential to take into account the nature of the subject matter in deciding how to help students learn the material at hand.

The theory of experiential teaching provides a point from which to solve the learning and teaching difficulties students and teachers face. It suggests a method of knowledge that springs from the way the problem of traditional teaching and learning methods are solved. Thus Kolb (1984) defined learning as a process whereby knowledge is created through the transformation of experience.

### **2.1.5 The Cycle of Experiential Teaching**

The experiential learning model conceive learning as a four-stage cycle (see figure 2.4) portraying two dialectically related modes of grasping experience; Concrete Experience (CE) and Abstract Conceptualization (AC) – and two dialectically related modes of transforming experience Reflective Observation (RO) and Active Experimentation (AE). Experiential teaching is a process of constructing knowledge that involves a creative tension among the learning modes that is responsive to contextual demands (Kolb 2005). This process is portrayed as an idealized learning cycle or spiral where the learner “touches all the bases”-experiencing, reflecting, thinking, and acting in a recursive process that is responsive to the learning situation and what is being learned as can be seen from Figure 2.3 Immediate or concrete experiences are the basis for observations and distilled into abstract conceptualisation. These implications can be actively tested and serve as guides in creating new experiences (Kolb and Kolb, 2008).

Jung, (1931) is said to have traced the cycle of learning to the cultural and religious practices of nations and peoples. He discovered the ‘universal mandala’- “Mandala, means circle, an eternal process where endings become beginnings again and again. It often represents dual polarities, the integration of which field the endless circular process of knowing” (Jung 1931, in Kolb and Kolb, 2008).Jung (1931) concluded that; psychologically this circulation would be a ‘turning in a circle around oneself’: whereby all sides of the personality becomes involved...’



**Fig. 2.4 Kolb Learning cycle**

Zull (2002) linked the learning cycle to the structure of the brain. To Zull, a Biologist and founding director of Case Western Reserve University (USA) Centre for Innovation in Teaching and Education (UCITE), In his book; *The art of changing the brain: Enriching teaching by exploring the biology of learning*, suggested that the process of experiential teaching is related to the process of brain functioning; he asserts that concrete experiences come through the sensory cortex, reflection observation involves the integrative cortex at the back of the brain, creating new abstract concepts which occurs in the frontal integrative cortex, and active testing involves the motor brain. Thus the learning cycle arises from the structure of the brain.

However, there are several versions of the learning cycle proposed by the experiential teaching theorist. There are about nine popular versions ranging from a two segment, to a - four and more- level cycles.

#### **2.1.6 Learning Style and the Learning Cycle**

The concept of learning style describes individual differences in learning based on the learner's preference for employing different aspects of the learning cycle. Due to certain factors such as our hereditary equipment; our particular past life experiences and the demands of our present environment, most people or learners develop preferred ways of choosing among the four learning modes. These patterned ways, according to the ELT is known as Learning Styles. This is illustrated in figure 2.4

The ELT learning model is of the view that most learners develop individual learning styles that emphasize some learning abilities over others (Boyatzis, Kolb, & Maine Melis, 1999). That is individuals seem to develop consistent and distinctive cognitive styles. This learning model thus suggests that learning requires abilities that are polar opposites, and that the learner must continually choose which set of learning abilities he or she will use in a specific learning situation. In grasping experience some learners perceive new information through experiencing the concrete, tangible, felt qualities of the world, relying on our senses and immersing ourselves in concrete reality. Others prefer to perceive, grasp, or take hold of new information through symbolic representation or abstract conceptualization, thinking, rather than using sensation as a

guide. In addition, in transforming or processing experience some learners tend to watch others who are involved in the experience before taking action, while some jump right in. The watchers are strong on reflective observation, while the doers, prefer, active experimentation.

It is believed that a student's learning style will affect his or her performance in different subject areas. Thus each individual learning style is as a result of his or her preferring mode of grasping or transforming experience in the learning cycle. The diagram presented in figure 2.5 practically illustrates this-it contains a building of the learning style into the learning cycle. Learning style describes the unique ways individuals spiral through the learning cycle based on their preference for the four different learning modes - CE, RO, AC, & AE. Fig. 2.5 presents the Kolb Learning Style infused into the Kolb Learning Cycle.



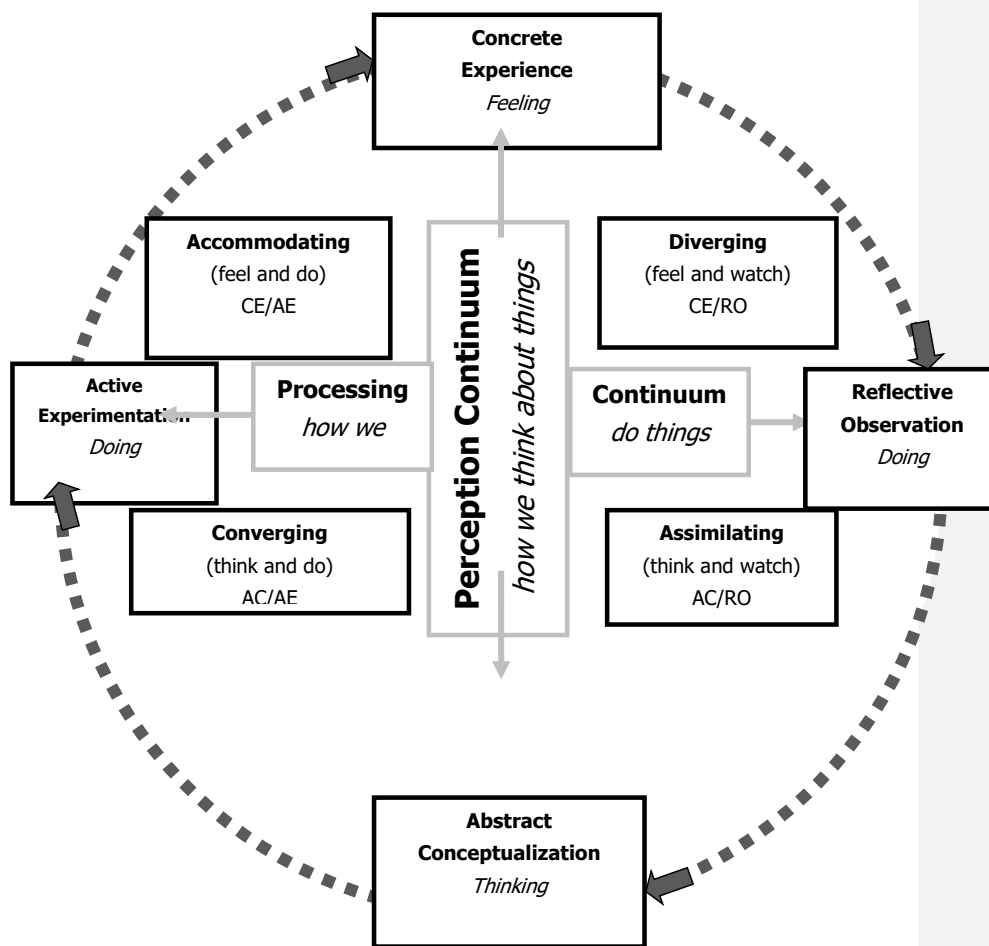


Fig 2.5 Kolb Learning Style, adapted by Chapman (2005)

Much of the research on ELT has focused on the concept of learning style using the Kolb Learning Style Inventory (KLSI) to assess individual learning styles (Kolb, 2007). While individuals who took the KLSI show many different patterns of scores—initially, Kolb (1981) identified four statistically prevalent types of learning styles. Namely, Converger, Diverger, Assimilator, and Accommodator, however, with more rigorous research and experimentation, these have been updated to nine (Eickmann, Kolb, & Kolb, 2004; Kolb & Kolb, 2005a&b).

The following summaries of these nine basic learning styles are based on research and clinical observation of these patterns of KLSI scores (Kolb 1984, Kolb & Kolb 2005b).

Learners with an **Experiencing** style emphasize feeling (CE) while balancing acting (AE) and reflecting (RO). Learners with a **Reflecting** style emphasize reflection (RO) while balancing feeling (CE) and thinking (AC). The learning strengths of this style are a capacity for deep reflection informed by the ability to be both feeling oriented and conceptual. Learners with a **Thinking** style emphasize thinking (AC) while balancing reflecting (RO) and acting (AE). They are deep thinkers. Learners with an **Acting** style emphasize acting (AE) while balancing feeling (CE) and thinking (AC). Learners with **Imagining** style learn primarily through feeling (CE) and reflecting (RO). They are best at viewing concrete situations and exploring them from many different points of view. Learners with **Analyzing** style learn primarily through thinking (AC) and reflecting (RO). They are best at understanding a wide range of information and putting it into concise, logical form.

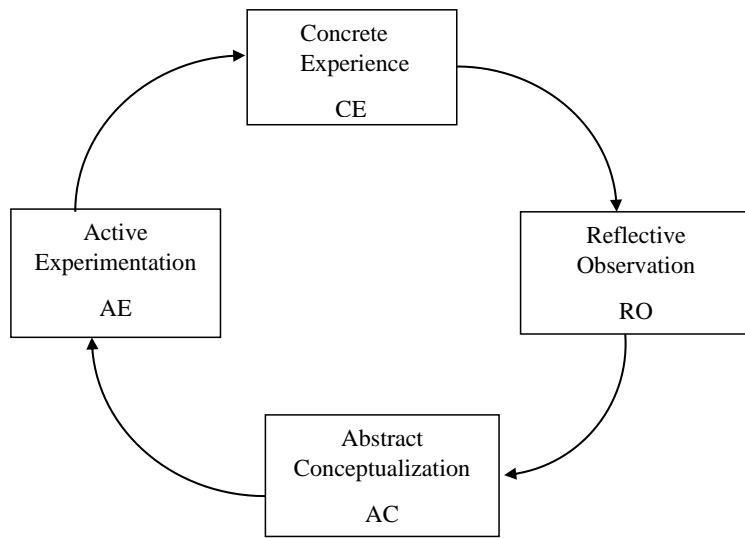
Learners with **Deciding** style emphasize thinking (AC) and acting (AE) in learning situations. People with this style are best at finding practical uses for ideas and theories. Learners with **Initiating** style learn primarily through acting (AE) and feeling (CE). They have the ability to learn from “hands-on” experience and function well in ambiguous and uncertain situations. Learners with a **Balancing** style balance the extremes of the dialectics of action/reflection and concrete/abstract by finding a middle ground between them. Their central position on the four learning modes allows them to see many different perspectives on issues and bridge differences between people. In

formal learning environments they can change their learning style to meet the learning demands of the task they face.

Recognition of students' styles is important for promoting better performance and for improving attitude to the subject. Students learn in diverse ways. Recognition of learners learning style can assist the teacher to plan learning to create interest in the subject and accommodate various kinds of learners. Studies of the learning style of economics majors, using the KLSI showed the prevalence of the diverging and the assimilating learning styles among them (Biglan,1973a and Kolb,1976b; in Kolb, 2003). In addition,Balogun (2014) used converger and assimilator learning styles, while in a pilot study (Akorede and Adekoya, 2019), using four of the latest nine learning-style template of Kolb & Kolb (2005b), found majority of high school economics students, in the sample used, to be reflective (27%), followed by the concrete (25%), abstract (25%), and active (23%) in their learning styles, respectively.Thus the outcome of this pilot study, acting as a guide, this study examined students learning style based on the four learning styles, reflective, abstract, active and concrete.

### **2.1.7 The Stages of Experiential Learning**

In examining the stage of experiential teaching we rely greatly on the work of David A. Kolb (1984). Other experts in the field shall also be mentioned; however Kolb (1984) work will be our emphases. In 1984, David A. Kolb published a ground breaking book entitled; *Experiential Learning: experience as the source of learning and development* (Englewood cliffs, Prentice Hall, 1984). Here Kolb presented what is now known as Kolb's Experiential Learning Cycle – a cyclical representation of the four stages of experiential learning as proposed by Kolb (Fig 2.6).



**FIG 2.6 The Kolb Learning Cycle 2 (Kolb 1984)**

The four stages of Kolb's learning cycle begin with concrete experience, followed by reflective observation, leading to abstract conceptualization and a final stage of active experimentation. However, this is not really the end of the cycle, since it goes on to new or further experience; thus the cycle continues Kolb (1984) hence referred to it as a "recurring cycle" As a result of the reflection and application phases, new concepts, hypotheses or impression based on the experience or situation are constantly being modified – previous experiences affect current experiences, which naturally influence future experience. The learning that takes place on one day will evolve as time progresses is described in Table 2.1 giving the description of each stage and the defining activities of each stage with appropriate examples.

**Table 2.1 Tabular Presentation of the Stages of Experiential Teaching (Kolb, 1984)**

STAGE	DESCRIPTION	ACTIVITIES TO HELP
Concrete experience	Kolb's cycle starts with a concrete experience. It begins with doing something in which the individual team or organization are assigned a task key to learning therefore is active involvement in Kolb's model one cannot learn by simply watching or reaching about it, to learn effectively the individual, team or organization must actually do.	<ul style="list-style-type: none"> <li>○ Ice breakers and energizers</li> <li>○ Team games</li> <li>○ Problem solving</li> <li>○ Discussion</li> <li>○ Practical exercises e.g. making a presentation</li> <li>○ Debates</li> </ul>
Reflective observation	This is the second stage in the cycle. This involve taking time-out from "doing" and stepping back from the task and reviewing what has been done and experienced. At this stage lots of questions are asked and communication channels are opened to other members of the team.	<ul style="list-style-type: none"> <li>○ Ask for observation</li> <li>○ Write a short report on what took place</li> <li>○ Give feedback to other participants</li> <li>○ Quiet thinking time</li> </ul>
	Vocabulary is very important and is needed to verbalize and discuss with others	<ul style="list-style-type: none"> <li>○ Tea and coffee breaks</li> <li>○ Completing learning logs or diaries</li> </ul>
Abstract conceptualisation	Abstract conceptualization is the process of making sense of what has happened and involves interpreting the events and understanding the relationships between them. At this stage the learner makes comparisons between what they have done, reflect upon and what they already know. They may draw upon theory from textbooks for framing and explaining events, models they are familiar with ideas from colleagues, previous observations or any other	<ul style="list-style-type: none"> <li>○ Present models</li> <li>○ Give theories</li> <li>○ Give facts</li> </ul>

	knowledge that they have developed.	
Active experimentation	The final stage of the learning cycle is when the learner considers how they are going to put what they have learnt into practice planning enables taking the new understanding and translates it into predictions as to what will happen next or what actions should be taken to refine or revise the way a task is to be handled for learning to be useful most people need to place it in a context that is relevant to them. If one cannot see how the learning is useful to one's life than it is likely to be forgotten very quickly.	<ul style="list-style-type: none"> <li>○ Give learners time to plan</li> <li>○ Use case studies</li> <li>○ Use role play</li> <li>○ Ask learners to use real problem.</li> </ul>

Source: Richard Mobbs (2013) How to be an e-tutor

### 2.1.8 Essential Criteria for Experiential Teaching (EL)

Experiential teaching requires self-initiative, an intention to learn and an active phase of learning (Moon, 2004). This experiential teaching is not limited to being a mere method or technique on even a particular approach it is as wide and deep as education itself. (Andresen et al 2000).

There are some criteria which need to be fulfilled if teaching and learning activities are to be labelled experience-based these criteria relate to the means of education. They are stated by Andresen et al (2000) First, the ends.

- ❖ The ultimate goal of EL involve learners own appropriation of something that is to them personally significant or meaningful (sometimes spoken of in terms of the learning being true to the lived experience of learner's)

Next, the means

- ❖ EL has a primary focus on the nature of learner's personal engagement with phenomena (sometimes described as being more or less directly in touch with the realities being studied.

- ❖ Debriefing and reflective thought are employed as essential stages. (experience alone is not necessary educative)

- ❖ There is acknowledgement of the premise that learning invariably involves the whole person and that this is associated with perception, awareness, sensibilities and values being invoked representing the full range of attributes of the functioning human being.

- ❖ There is recognition of what learner brings to the learning process (informal or formal recognition of learning).

- ❖ There is a particular ethical stance typically adopted toward learners by those who are their teachers, trainers, leaders or facilitators (involving features such as respect, validation, trust, openness and concern for the well-being of the learner, and both valuing and pursuing the self-directive potential of the learner).

In summary, in this study, the Kolb (1984) experiential learning theory was used- the treatments for the study was based on the Kolb (1984) learning cycle and



learning style, as recognised by the theory, made up one of the moderator variables of the study. In addition, the Kolb (2005) learning style inventory was adapted for the study.

## **2.2 Conceptual Review**

### **2.2.1 The History and Status of Secondary School Economics**

Compared to other secondary school subjects, economics came late into the secondary school curriculum in Nigeria. According to Obemeata (1991), economics became a secondary school subject in Nigeria in 1966, and was first taken in the West African School Certificate Examination (WASCE) in 1967. The late coming of economics, according to Obemeata (1991), was due to the argument in Britain, which was the colonial authority in Nigeria then, that economics was a tough subject to be taught at high school. Another reason which was internal was the fact that economics graduates in Nigeria did not stay long in teaching, and thus could not influence its inclusion in the secondary school curriculum. However, as soon as economics was accepted in Britain, as a secondary school subject, in the sixties it was consequently allowed into Nigeria secondary schools.

Nevertheless, as soon as economics was allowed into the secondary school curriculum, it gained wide acceptability. An examination of the West African Examination Council (WAEC) annual report between 1965 to 1974, showed that only 12 candidates were presented for economics in its first appearance in the WASCE, that was in 1967- this is 0.07% of the total number of candidates in that year. In 1969, it rose to 12.56%, while in 1970, it was 17.16%, in 1974, 58.69%; in 1975, 68.52% and by 1976 it had risen to a staggering 76.9%. These figures have continued to rise till date -as revealed by Table 1.1, to the extent that Adekoya and Akorede (2019) concluded that economics is the most popular subject in the list of elective subjects offered in secondary schools in Nigeria. This was also the earlier conclusion of Obemeata (1991).

Why and how did economics become so popular among Nigerian secondary school students? Two reasons were given by Obemeata (1991), one, that the first students which offered it in the WASCE had good grades; two, that the first teaching syllabus, which was really an examination syllabus by the WAEC, used for economics was very

scanty and could easily be covered within a short time. In addition, the introduction of economics as a school subject in Nigeria was quickened by the rise in the number of economics graduates in the country-as Nigerian universities increase, so the number of economics departments rose and hence a rise in economics graduates- to meet the increase in the demand for them in commerce and industry. The excess spilled over to schools to take up teaching appointments. Some of them became Principals and Vice-Principals and greatly influenced the inclusion of economics into their schools' curriculum.

However, in recent times, it seemed that the achievement of students in the WASSCE in economics has been on the decline, especially with the introduction of the new Senior Secondary School Syllabus. This is revealed by Table 1.2.

Obemeata (1992) attributed this decline in student performance in-economics, to teachers of economics, especially the inexperienced ones, who usually lecture their pupils and conclude by giving notes which are only a summary of what had been taught. Thus, for a change, there is the need for proactive measures-an adoption of a teaching and learning approach that is opposed to the traditional method of teacher and content centred approach to a student-centre approach. This is a call for experiential teaching. Another reason why economics came to be accepted as a secondary school subject is that it was recognized that it contributed greatly to the intellectual development of its recipients Obemeata (1991).

However, despite the popularity of economics in our school curriculum in Nigeria the subject is yet to be accorded the status it should enjoy as a result of the large number of schools teaching it and the large number of candidates offering it in the WASSCE. For instance Obameata (1991) concluded among others, that, the ministries of education in Nigeria are yet to show the necessary interest in the subject –where as subject such as mathematics and English language have specially appointed inspectors none existed for economics.

### **2.2.2. Objectives of Teaching and Learning Economics in Nigerian Secondary Schools**

From figures released by the West African Examination Council (WAEC), it can be seen that economics came into the secondary school curriculum in 1966, and was first taken in the West African School Certificate Examination in 1967. Since then, the economics curriculum has undergone major changes- which include- one, the putting in place of the SSCE syllabus in economics which is different from the SC/ GCE syllabus. While the SC /GCE syllabus was an examination syllabus- by the WAEC, the SSCE syllabus, released in 1988, by the Federal Government was a teaching syllabus, containing the performance objective, Content, Class Activities and Teaching Aids.

Under this curriculum, economics was listed under Business Studies subjects. The topics to be covered increased from 12 to 22. In addition, the SC / GCE 'O' Level Paper of essay type, with 12 questions and candidates to answer 5, was changed, under the SSCE Curriculum to contain 2 papers – Paper 1 (objectives) and Paper 2 (Essay). The Paper 2 is divided into two sections; Section A (Data Response), Section B, purely essay type. However, by 2008 a new senior secondary school curriculum was put in place by the Federal Government FGN (2008). Its implementation began in September, 2011. Its features include; the expansion of the topics from the initial 22 to 49 topics. In addition, economics was moved from the business studies list to the humanities list.

The philosophy of the curriculum is to present economics as a subject that has relevance in everyday life and could prepare graduates for an entrepreneurial career in future. It is based on the principle of equipping SSS graduates with basic knowledge and skills to appreciate the nature of economic problems in any society and adequately prepare them for the challenges in the Nigerian Economy. The objectives of the curriculum include; enabling students:

1. Understand basic economic principles and concepts as well as the tools for sound economic analysis.
2. Contribute intelligently to discourse on economic reforms and development as they affect or would affect the generality of Nigerians.
3. Understand the structure and functioning of economic institutions.

4. Appreciate the role of public policies on national economy.
5. Develop the skills and also appreciate the basis for rational economic decisions.
6. Become sensitized to participate actively in national economic advancement through entrepreneurship, capital market and so on.
7. Understand the role and status of Nigeria and other African countries in international economic relationships.
8. Appreciate the problems encountered by developing countries in their efforts towards economic advancement.

### **2.2.3 Trends in Economic Education in Nigerian Secondary Schools**

Generally, the teaching method used in teaching any subject should normally be determined by the nature of the subject (Obemeata, 1992) However, teachers of high school economics in Nigeria seem not to be in agreement with this assertion. Studies show that the lecture technique is the common technique in both the secondary and post secondary institutions in Nigeria and outside Nigeria. (Obemeata, 1992; Adu, 2004; Ajiboye, 2007; Kayode et al 2008). This trend is confirmed by a pilot study done by the researcher, in one of the South-West States, as revealed by Tables 1.3 and 1.4 Economics teachers are still commonly using the lecture method and chalk boards.

Obemeata (1992) stressed that the tendency of Nigerian teachers of secondary school economics, has been to lecture their pupils and to give summary notes. The consequence of this, according to him is that their students have a superficial understanding of the subject. Kayode and Bankole (2008) referring to a survey of teaching methods among economics faculty who are members of the American Economic Association (AEA) done by Benzing and Christ (1997) showed that most instructors of undergraduates economics use lecture with the support of blackboard, textbooks, and classroom discussion as their document method of teaching. Kayode and Bankole (2008) concluded that this was also the practice in Nigeria universities. They stated that this was so because Nigeria economics graduates and teachers had for a very long established strong linkages with foreign universities, in terms of the training of

economics teacher that were appointed in the 1960's and 1970's and, in addition, because of a tendency for Nigeria graduates to seek higher degrees abroad.

The consequence of this is that Nigeria economic graduates increased in our secondary schools (Obemeata 1997) so continued the use of the lecture method in our secondary school economic classes. Despite the fact that it was observed, concluded Kayode et al (2008), referring to America and European economics faculty members, that many instructors had changed their methods in the proceeding five years in the direction of greater student participation on the form of more class discussion, use of question and group activities, the lecture methods still pervade the Nigerian economics classroom terrain (Adekoya 2007).

Similarly the trend is the same in other subjects in our secondary schools. Okwilagwe (2006) observing the trend in interaction pattern of geography teachers, in secondary schools found that teachers initiation of interaction to the whole class constituted 32.3%, teachers to individual students was 3.5%, class to teacher talk was 2.8% and individual students talk was 3.0%. this findings, according to Okwilagwe (2006) are similar to those of Padon, Wasmon, Brown and Powers (2000) who found that in an English Language classroom where the intent is to prove the classroom behaviour of resilient and non-resilient students in a whole class instructional setting, the teacher dominate about 80% of the class time, while small group and individual tasks constitute 10% of class time while both resilient and non-resilient student interacted with the teacher for about 10% of the class time.

#### **2.2.4 Innovative and Creative Method of Teaching Economics**

The mid-1990s ushered in a paradigm shift- away from the traditional focus on the teacher and the teaching process- to a new learning paradigm that focuses on the learner and the learning process. The shift suggest a new starting point from improving the teaching and the learning process- one that centre's on what the learner is doing, rather than what the teacher is doing (and covering) in class. In the new learner- centre paradigm, the defining features and goals of effective teaching are facilitating the learning process and assessing learning outcomes Cuseo (2012)

Cuseo listed the following as the implication of the new learning paradigm; one, instruction shift from teacher-centre and content-driven to learner - center and learning process-driven. Instructional methods are conceptualized as ranging along an extreme, teacher-centre teaching involved straight (uninterrupted) lecture, in which the teacher does all the talking and is the centre of attention and control of the learning process.

On the other hand learner- centre instruction involves less deductive discourse or “talk time” on the part of the instructor, and shifts more class time, control, and responsibility for learning to the students. Two, the student's role changes from being a passive receptacle and recipient of teacher delivered information to being an engaged learner and active agent in the learning process. Instead of instructors delivering information- loaded lectures for the sole purpose of transmitting knowledge, learner-centre instruction goes beyond the learning of content to include the learning of process- i.e., educating students in the process of learning skills (which include critical thinking, problem solving, and communication skills).

Three, the instructor's role expands from being a professor who professes and disseminates truths to being a facilitator or mediator of the learning process. In this expanded role, the instructor engages in three key educational tasks; (a) educational design- creating learning task and classroom conduction that are conducive to active student involvement, (b) educational coach- facilitating, coordinating, and or demonstrating learning “from the sidelines” while students assume the role of active player (participants) in the learning process, (c) educational assessor- evaluating the effectiveness of learning by collecting data on learning outcomes and using this data as feed back to improve the learning process.

Thus, in the learner-centre paradigm, students spend less time being “instructed” (lectured to or talked at) and more time engaging in learning activities that ask them to actually do something-other than rote recording of lecture notes (O'Neill and McMahn, 2005) in Cuseo (2012). Adu (2004) adds that there is a movement away from behaviourist method of direct teaching-where the learners memorize and regurgitate, to constructivist instructional models where learners are required to produce and apply knowledge. Some of these innovative and creative teaching and learning methods would now be examined.

Of all the modern trends in teaching and learning, **mastery learning** seems the most all embracing method of teaching and learning. Ibeagha (1999) stated that, the emergence of mastery learning created a formidable beginning for the shaping of educational practices. The mastery learning model asserts that given appropriate instructional conditions majority of students can and will learn well most of what they are taught in schools.

**Advance organizer** is another innovative teaching method used in the modern classroom. For instance, Adegbile (2002), asserted that of all the modern trends in teaching English Language, advance organizer has been found to be one of the most effective methods. He investigated the effects of advance organizer on the learning of reading comprehension, and found that the three models adopted were more effective compared to the traditional method of teaching reading comprehension. The Advance organizer model was initiated by David Ausubel (1960). It is a pre – instructional strategy, where a frame work or information pattern is presented to the learner in advance of the new learning material in order to aid his learning. This method is based on the assumption that the most important factor influencing learning is what the learner already knows. Studies carried out in Nigeria using advance organizer revealed that the advance organizer methods were quite facilitative and more effective than the traditional lecture methods of teaching. (Adegbile, 2002; Egbugara, 1983; Seweje, 1987; and Adegbite, 1999.)

**Team teaching** is another innovative classroom pedagogical method, which is slowly gaining ground in the Nigerian classroom, especially at the primary and post primary levels of education. Falaye (2004) defined team teaching as a cooperative teaching strategy in which the efforts of more than one teacher, with complementary skills, are harnessed and channeled for planning the implementation and evaluation of teaching learning process for enhanced learning outcomes. In Nigeria, team teaching has not been popularized as a teaching learning approach (Falaye, 2004). It's just gradually gaining ground. Falaye, however concluded that, though not much had been done in assessing the effectiveness of team teaching in Nigerian Schools, research findings provide quite enough evidence to support the effectiveness of team teaching particularly at the primary and secondary school levels.

**Cooperative learning** is an important teaching and learning method which is worthy of mention here. Ojo (2007) quoted Steven, Slavin and Fernish (1991) as defining cooperative learning as students' exhibition of cooperative task oriented behaviour towards learning. Stannel (2006), according to Ojo (2007), identified two different forms of cooperative learning. This include, learning together (LT) and student team learning. Cooperative learning strategy has been noted to have positive effects on the recipients. Slavin (1994) in Ojo (2007), reviewed forty-three studies related to cooperative learning and found that thirty five showed significantly positive effect, eight showed no difference with control while none showed negative effect. Also in the meta-analysis of 194 studies by Johnson, Johnson and Stanne (2006) in Ojo (2007), after categorizing the cooperative strategies into eight, all the eight strategies yielded significant positive impacts on student achievements.

**Problem- based learning (PBL)** is another learner-centre method that is becoming popular in academic circles. It is a method of teaching and learning that uses problem as the bases for teaching and learning. (Vasconcelos, 2010; in Osokoya and Nwasota, 2013). Students define their own learning objectives. They begin with independent study before returning to the group to discuss and refine their acquired knowledge. PBL is not about problem solving per se, but rather it uses appropriate problem to increase knowledge and understanding. studies on PBL greatly showed its efficacy in the leaning process. Osokoya and Nwazola (2013), study confirms the positive influence of PBL over the teacher and content-centre methods. This was also the result of studies by Tokunbo, Hmelo-silver, 2004 as reported by Osokoya and Nwazota, 2013. Other forms of PBL, include question and answer method.

**Self-regulatory** system of learning as the name implies, is learner centre strategy. Self-regulation in learning can be described as the ability to design intentions and behave according to that intention, in a flexible way, for the purpose of learning. (Kohl and Kraska, 1994, in Ojo, 2007). Ojo (2007) started that self- regulatory learning moves the ability to develop knowledge, skills and attitudes which enhance and facilitate future learning within the content of certain learning environment and transferred to other learning situations. Researchers have identified several self –regulation processes that students instigate, modify, and sustain, such as attending to instruction, cognitively



processing information, rehearsing and relating new learning to prior learning, believing that one is capable of learning and establishing protective work and social environments (Schunik, 2009). Studies on self-regulatory learning, show that the strategy encourages better performance (Ojo, 2007)

**Textbook-with-Assessment Learning (TWA)** approach is another student centred method that seeks to encourage students to read or consult textual materials relevant to their subject area. The researcher first came across this method in a PhD work done by Nwazota (2013). Nwazota, designed and adapted TAL to experiment with the learning of Chemistry to better achievement. The process of textbook-with-assessment learning (TWA) approach include, one; first introduction of the lesson, by the teacher, he/she asks students to bring out their textbooks, and with his/her assistance, locate the pages, paragraphs where the day's topic are mentioned.

Two, after the referencing has been done, the teacher now releases the assessment questions and exercises to the students. Three, the teacher now ask the student to attempt the questions and exercises with minimal assistance from the teacher he/she may ask questions on areas they need help. Four, the lesson is brought to a close by the teacher taking note or putting on the chalk-board, the summary of the answers provided by the student. The students are asked to take down these notes and the class is brought to a close by the giving of more reading assignment in preparation for the next lesson. The Nwazota (2013) study reveal that students exposed to TWA achieved more than those in the lecture technique.

**Mind maps**, which is a simple technique for drawing information in diagrams, instead of writing it in sentences, is another creative technique. According to Damodharan and Rengarajen (2012), mind maps were developed in the late 1960s by Tony Busan as a way of helping students make notes that used only key words and images. They are of the opinion that mind maps can be used by teachers to explain concepts in an innovative way. The key notion behind mind mapping is that we learn and remember more effectively by using the full range of visual and sensory tools at our disposal (Damodharan and Rengarajen 2012).

**Role playing and Scenario analysis based teaching** is an experiential teaching based teaching and learning method. It is based on the principle put forward by

Confucius, that I learn and I forget. I see and I believe, I do and I understand. Role – playing is an activity presented during a lesson to show a specific issue or situation for study or discussion (Adu 2004). Role playing and scenario analysis is mostly used in organizations that try to analyze a problem pertaining to the organization. It is also used in management institutions (Damodharan and Rengarajen, 2012). However, it can effectively be applied in the classroom to aid learning. For example in teaching basic economic concepts, such as scarcity and choice, student can be asked to play the role of a consumer or house-hold with limited resources and allowed to decide, while faced with the problem of getting optimum benefit from their purchase decisions. Here the real decision pertaining to transactions are made by the students and this is more practical approach to teaching, where theory is supplemented by proper practical knowledge.

**Active review learning technique** involves learners working together to solve problems, with very minimal teacher input. Here the teacher is a moderator. Onuka and Adeyemi (2013) reported a study conducted by Zachariah et al (2009), which compared active review learning strategy to conventional method, the study showed that there was no significant difference between the two techniques. Other forms of active review techniques include: panel discussion, debate, jigsaw group, project, concept mapping etc.

**Simulation**, as a teaching and learning strategy, is one of the learner-centre techniques that put the student or learner at the centre circle of the learning process. Ighalo (2014) reported Eygen and Kauchale (2001) as referring to simulation as an instructional mode used to put the student in a “real” situation without taking the risks. This simulation is meant to be as realistic as possible where students are able to experience consequences of their actions and decisions Adu (2004) listed the following steps as necessary for the effective use of simulation; one, identification of the problem e.g. inflation, fuel scarcity, armed robbery etc; two, list out the specific objective, the knowledge to be acquired by the students; three, identify and isolate the various dimensions of the problem and all the stakeholders in the problem; four, share out the dimension and factors of the problem to students for exploration and detailed study; five, allow students to investigate their assigned dimensions of the problem, and prepare materials ( standard and improvised) for easy modelling of the main problem; six,

execute the simulation in the classroom with the teacher playing minimal role. The simulation revealed the actual cause and effects of the problem and solution is provided.

In conclusion, the teacher summarizes the nature, causes, effects and solution to the problem. The study conducted by Ighalo (2004) reveal the efficacy of simulation over the conventional method of teaching.

**Simulation; games, and role playing** are creative, participatory teaching and learning techniques, they are forms of experiential leaning tools. This approach has high group membership movement while facilitating meaningful and fun leaning. De Boad (1989) quoted Adams (1973) as defining simulation as a form of play that reflects the real world. Roles are more stretched and have a defined set of participants with specific times, place, equipment, and rules. (De Boad, 1989) De Boad, added that games are like play, but have an end or a pay off and involve suspense. Student or learner should not be forced to participant in a game or simulation or role play. Competition should be made positive and leaning should be encouraged.

#### **2.2.5 Experiential Versus Experience- Based Learning and Instruction**

Both experience based learning and experiential teaching method, are forms of experiential teaching. Kourilisly (1983) is quoted by Laney (1993) as distinguishing between experiential teaching and experience- based learning. Kourilisly (1983) explained experience- based learning as involving experience followed by debriefing and discussions, with the aim of deriving the economic concepts underlying the experience. Whereas, experiential approach, merely involved experience only with little or no inputs from the teacher or facilitator. A good example is when students play monopoly or related learning games. Thus it involves experience in and of itself. Kouriloky (1983) is of the view that experience alone (experiential teaching) is not sufficient for mastery of economic concepts. He noted that debriefing with experience or inquiry methods focus students' attention on relevant ideas and greatly promote mastery.

Laney (1993) in describing these two forms of experiential teaching, referred to experience-based learning as 'experience-debriefing' that is experience followed by a formal debriefing session that is inquiry based. On the other hand, he referred to the

experiential approach or experience only method as ‘experience-dictation’ that is experience followed by presentation or dictation of the experience by the learner.

Laney (1993) carried out a study among elementary school children. The study confirmed Kouriloky (1983) view of the superiority of experience-based learning over experiential- learning. However Laney’s study was on first grade elementary school pupils, with ages between 5-6. The sample size was small- about 15 in each treatment Group. It was not an intact class – participants were selected out of their classes and assigned randomly to each treatment group. Laney’s study merely tested the assertion of the superiority of experience- based learning to experiential teaching, However this study would be more extensive and in addition to testing Kourilisly (1983) assertion regarding experiential versus experience based learning, will examine learners development of economic reasoning ability and development of the use of economic principles to solving daily economic problems, while making room for students learning style and quantitative skill. It will also make extensive use of the Kolb (1984) learning cycle.

## **2.3 Empirical Review**

### **2.3.1 Experiential Teaching versus Students’ Learning Outcomes**

Experiential teaching (EL) is observation, simulation and / or participation that enhance learning through authentic activity, reflection and application. Thus the theory conceives of learning in form of a process and not in terms of outcomes, nevertheless, it is important to examine the outcomes of experiential teaching as it relates to students achievement since achievement record are importance aspect of the school record keeping system.

Several studies have been done measuring the effects of experiential teaching strategy on achievement at the primary, post primary and post-secondary levels, while some of these studies were done locally some were studies conducted outside the country – a few of them especially relating to direct experiential teaching are reviewed below.

Okoli and Abonyi (2013) investigated the effects of experiential teaching strategy on students' achievement in SSS biology. The study employed a non-equivalent control group quasi experimental design. Out of the two schools drawn for the study one was assigned to the treatment group while the remaining school was assigned to the control group. The control group was taught the same concept in biology using the expository method. The result revealed that experiential teaching is superior to the conventional expository method in biology. In addition, learning does not discriminate across gender in student achievement in biology.

In another related study, Nweke et al (2014); effect of experiential teaching method on pupil's achievement in basic science and technology. The experiential method proved to be more facilitative- its student performed better significantly. At the international level, a comprehensive study was carried out in 2009 in Canada, by the Ontario Ministry of Education to ascertain the impact of experiential teaching programmes on student's success.

Ontario is currently making visible efforts to increase academic standards, improve secondary school success for all students, and raise the provincial secondary graduation rate to 85%. These reforms have led to important change in the secondary school system, such as the creation of specialist high skills majors and expanded cooperative education, providing students with valuable experiential teaching opportunities that help prepare them for the life after high school, while providing them with experiences and knowledge that maximize their growth and development and meeting their needs for career exploration.

The Canadian Council on Learning (CCL) was contracted by the Ontario ministry of education to undertake a systematic rapid evidence assessment (SREA) of the research literature devoted to examining the effect of experiential teaching programme on students' success. The CCL is an independent non-profit corporation that promotes and support research to improve all aspects of learning across Canada and across all walks of life. Created in 2004, its mission include, informing Canadians about the state of learning in Canada and fostering quality research on learning. The main research question governing the SREA is what do we know about the impact of

experiential teaching on students' achievement at secondary school graduation, and their preparation for their future post secondary path ways?

The total number of studies captured for the review was 514, of which 298 studies progresses to criteria for inclusion in the key wording stage. In addition the studies reviewed varied on programme type, measurement tools, outcomes and quality. However, regardless of programme type or the quality of the study, when career awareness was used as a measuring of career preparation all results were positive. Although tempered by the relation in the quality of the research, outcomes for indicator of graduation were also positive with all studies in the category indicating that experiential teaching programmes have positive effects on retention and dropout rates. The findings suggest that high school students who experienced are type of EL programme demonstrate psychosocial benefits in terms of self-esteem, engagement in workplace or school, socialization and leadership, and motivation.

However, the evidence of the impact of experiential teaching on academic achievement (defined in the literature as grades, grade point average, standardized scores, and various other measures) is inconclusive four studies reported positive outcome; two of these studies were rated as being of low quality. While of the four studies reporting no impact on academic success, two were of medium quality and two were of high quality. However based on the findings presented by the reviews the CCL concluded that EL programmes do not appear to have a negative impact on students academic success, and that it was likely that moderator variables, such as prior academic achievement or the type of outcomes measure (GPA versus test scores, etc) have an effect on overall results.

### **2.3.2 Learning Style and Students Learning Outcomes**

Learning style is the manner in which a learner perceives, interacts with, and responds to the learning environment. The ELT proponents such as Kolb (1984) describe learning style as an individual's proffered ways of processing and transforming knowledge. Kolb, sees learning style as important for students, as well as for teachers and that a match between them resulted in better student achievement while a mismatch,

according to Kolb (1981), leads to loss of energy and increase in confusion, and hence lower achievement.

Spence (2013) is of the opinion that people learn in different ways. He supported his view with the Neuro-Scientists finding that every brain is unique and more singular in structure than DNA or fingerprint. He added that neuroscience research suggests that the brain is not one general learning system but consists of many specialised modules developed over eons of evolution. While those modules vary, their networks connections differ even more, depending on genetics and experience. Thus every student brings to the classroom experiences, assumptions, and hidden Semi-autonomous processes that we call euphemistically “prior knowledge”. In addition Spence (2012) quoted Mavin Minsky, artificial intelligence pioneer, as saying that there is no such thing as a typical student because each brain contains many different kinds and combinations of resources.

Thus there exist a relationship between learning style and achievement. Several studies have been done which prove that a relationship exist between the two constructs. In a study by Vaishnav (2013) titled; Learning style and Academic achievement of Secondary school students, it was revealed that learning style had a significant effect on academic achievement. The study used visual, auditory, and kinaesthetic (VAIC) learning style questionnaire, as developed by Harward Gardner’s VAIC learning style brain box and VAK Learning style Inventory by Victoria Chrislett and Alan Chapman to identify the preferred learning style of students, using a sample of 200 secondary school student of 9<sup>th</sup> 10<sup>th</sup> and 11<sup>th</sup> grades.

According to this study kinesthetic learning style was found to be more prevalent than visual and auditory learning style- and there exist positive high correction between Kinaesthetic learning style and academic achievement of student used in the sample. However, very negligible positive correlation was found between visual learning style and academic achievement of students, where as positive low correlation exist between auditory learning style and academic achievement of students. The study, this concluded that, kinaesthetic learners are more benefited in traditional classroom at secondary school level.

In another related study; Uzuntiryaki (2007) using a sample of 265, 10<sup>th</sup> grade students, enrolled in a chemistry course and seven chemistry teachers, and using Grasha

– Riechmann student Learning style scale, found that there was statistically significant difference among students with different learning styles, with respect to chemistry achievement. Students with learning styles of independent/ collaborative/ participant had higher achievement scores than the other group of students. This study also found out that students taught by learner-centred pedagogy outperformed the student taught with the traditional method. The finding of this study is also confirmed by Abidin, Rezaee, Abdullah & Singh (2011). In the study; Learning styles and overall Academic Achievement in a specific Educational System, Abidin .et al. (2011) using a simple of 317 students, and Joy Reid's perceptual Learning style preference Questionnaire (1987), found a significant relationship between overall academic achievement and learning styles. The study also found that the high, moderate and low achievers have a similar preference pattern of learning in all learning styles and that the learning styles framework does not change with subjects, where it actually plays an important role across all the subjects.

The Abidin et al (2011) study seems to confirm that students have a distinct learning style which does not change with subject area. Since secondary school student have different subjects to contend with in their classroom. Some of them have as much as nine subjects, which include subjects in the arts, and sciences.

However a study by Khalid et al (2013) seems to show a different outcome from the studies afore mentioned. The study, Using a sample of 100 students and the Grasha-Riechamann learning styles scale (GRLSS) to measure learning styles, on a six dimensions of free style, avoidance, cooperation, dependents, competition and, participation, the findings of the study show that respondents prefer the dependent learning style followed by cooperation. In addition, the study showed no significant relationship between learning styles and academic achievements, for the arts and science students. It also showed no significant difference in the learning style of both the arts and science students.

However, Akram et al (2013) findings seem to negate Abidin et al (2011) study. This study; an exploration of relationship between perceptual learning styles and achievement goals, used a sample of 100 students selected from government and private schools. It used Reid (1987) perceptual learning-style preference scale to gather data on



the student learning style. It also focused on visual and tactile learning style. Results of the study indicated positive correlation between chosen perceptual learning styles and achievement goals. Another study by Adekoya and Akorede (2020), using four of the latest nine learning style template of Kolb & Kolb (2005b), found majority of high school economics students, in the sample used, to be reflective (27%), followed by the concrete (25%), abstract (25%), and active (23%) in their learning styles, respectively.

### **2.3.3 Quantitative Skill and Students' Learning Outcomes**

Adu et al (2009) quoted Educational Testing service, (1995) as defining quantitative ability as a measure of a student's ability to apply knowledge of flexibility in thinking, to identify critical features on new situations, to make correct generalizations, and to compare mathematical expressions. This definition is all encompassing and embracing. It seems to relate quantitative ability or skills to mathematical or numerical ability. It is not surprising then that Adu et al (2009) defined quantitative skills as an ability to solve numerical problems easily and to separate a whole into its constituent parts. Quantitative ability includes arriving at mathematical solutions to problem, as well as basic adding, subtracting, multiplying and dividing (Adu et al 2009).

In recent times there has been an increased application of mathematics in economics (Okwilagwe and Oyedepo, 2007). This increasing relevance of mathematics and statistics in economics theory and analyses has been responsible for the inclusion of data response compulsory section in the SSCE economics paper 2. This relevance of mathematics in economics at the secondary school level has led to an heightened interest of researchers and teachers of economics in the quantitative ability of intending students of economics both at the high school and post high school levels. For instance, intending applicants for the degree of economics and other related courses must have a minimum of credit pass in SSCE mathematics.

Several studies have been done to ascertain the relevance of quantitative skill to students' learning outcome as both the secondary and posts secondary levels of education. Adu et al (2009) did a study to investigate the relationships between quantitative ability and students' academic achievement in economics – using variables

such as knowledge of Venn diagram; measures of central tendency; and percentages. The outcome of the study showed that the quantitative ability variables (knowledge of Venn diagram, measure of central tendency and percentages) taken together correlate positively with student achievement in economics, with knowledge of measures of central tendency making the greatest contribution to their achievement in economics. This was also the outcome of studies by Adu (2002); Uduosoro, 2000, Fajola, 1999 and Ajelabi, 1998, in Adu et al (2009). Thus Adu et al (2009) concluded that no student will be able to achieve well in economics, without good quantitative ability.

In another related study by Ayanniyi (2013), it was revealed that while quantitative reasoning ability had significant contribution to students' achievement in economics attitude had no significant contribution. However, both variables students' attitude and quantitative ability jointly had significant contribution to achievement in economics. This showed that the singular effect of quantitative ability was what responsible chiefly for the effect on achievement. However, a study by Opatete (2009) seems to have a different outcome.

To Davidson (2003) quantitative reasoning or numeracy is not just the ability to do mathematics, but the ability to understand quantitative arguments and reason about quantitative concepts in all areas of the curriculum whether in the arts, sciences or the social sciences. While students do not need to learn sophisticated mathematics skill, but all should be able to use simple mathematics tools to reason, to understand, interpret, critique, debunk, challenge, explicate and draw conclusion (Marth, 2007, in Ayanniyi, 2013). Davidson (2003) argued that though quantitative reasoning is assumed to be synonymous with mathematics yet there are differences – while mathematics is primarily a discipline, quantitative reasoning is a skill that has practical application. Wolfe (1997) defines quantitative reasoning as a wide range of mental abilities that facilitate deductive reasoning in a variety of settings.

Since Obemeata (1992) is of the view that the present SSCE economics syllabus require deductive reasoning it then means, the need for quantitative skill would be essential entry behaviour for students of secondary school economics, thus justifying the inclusion of this variable in the present study. The need for quantitative skill by students of economics was also stressed by Lonis (2001). To Lonis (2001), the effective

education of students in this dispensation requires not only widespread literacy, but also an adequate degree of numeracy. Today quantitative reasoning is required in virtually all academic fields, by most, if not all professionals and is necessary for decision making in life.

All these arguments for quantitative skill point to the importance of its knowledge in economics. For student to perform well in economics at all levels they need to be proficient in mathematics and other related quantitative skill based subjects such as statistics. This will allow graduates of secondary school economics to be able to apply this knowledge to solve real life economic and social problems. A study by Falaye (2006) found that influence of students' numerical ability on achievement in practical geography is not significant across students' gender and course of study. Another related study by Afuwape (2002) showed numerical ability as having a significant main effect on achievement in integrated science. Analytical students achieved higher than their non-analytical counterparts. The study also indicated that the higher the numerical ability, the better the achievement.

To Afuwape (2002) numerical ability is one of the skills students should possess to enable them do better in mathematics and sciences. Iroegbu (1997), problem based learning, numerical ability and gender as determinants of meaningful learning in energy concept found numerical ability having a significant main effect on achievement. This was also the outcome of studies by Onafowokan (1998) who reported a significant direct causal effect of numerical ability on integrated science students' conception of heat and temperature. Afuwape (2002) while making a case for game and simulation assisted instruction an experiential teaching approach, stressed that science teachers should constantly expose their students to game and simulation assisted instruction. This, according to Afuwape (2002) will lead to students having positive attitude towards learning and in turn improve their achievement level.

#### **2.4 Appraisal of Literature / Gap filled**

Literature examined point to the importance of economics education. Thus the interest of post basic students in economics is not surprising. However, despite the importance of economics education and the popularity of the subject, literatures reveal a

fluctuating performance in the subject at public examinations conducted by the WAEC and NECO. There is need to put in place measures that will promote better performance in the subject.

Several studies have been done and solutions to poor performance in economics have been put forward. Such studies include (Obemeata, 1980, 1985, 1991, 1992; Owolabi, 1996; Laney, 1993; Olopoeni, 2000, 2006, Adekoya 2002, 2008; Olaoye 2005, Okwilagwe and Oyedepo, 2007 Kayode and Bankole, 2008; Adeyemi, 2012). Of these studies (Adekoya; Adu, 2002; Adeyemi 2012) are pedagogical studies. However, these studies, though learner-centre, combining innovative methods such as problem-solving, inquiry methods, active review and panel discussion, with minimal lectures as introductory method, did not give room for student to have direct and practical economics hands-on and heads-on, experiences in the class room as postulated by experiential teaching theory. This present study will bridge this gap. In addition, these pedagogical studies only examined achievement as their only learning outcome while neglecting other learning outcomes such as students' development of economic reasoning ability and problem solving skills. This study hopes to fill this gap using the experiential teaching model proposed by Kolb (1984).

The Kolb (1984) model is a comprehensive model of teaching and learning built on the learning theories of Dewey, Lewin and Piaget. Kolb postulated that learning involves a cycle of four processes—concrete experience, reflective observation, abstract conceptualization and active experimentation, each of which must be present for meaningful learning to occur. The model made room for individual differences in learning style believing that the way individuals navigate within the learning cycle, as they learn, differs. In addition, it recognized the existence of fundamental differences in the nature of disciplines. That different disciplines have different ways by which they are best taught and learned and are favorable to particular learning styles, while being the opposite to other learning styles.

Thus, this made use of the Kolb model to test the superiority of experience based teaching to experiential teaching in the secondary school economics classes, while moderating for differences in learning style and the differences in the quantitative skill of learners

## CHAPTER THREE

### 3.0 METHODOLOGY

This chapter presented the Research Design, Sampling Technique and Sample, Instruments, Economics Treatment Manuals and the Data Analyses.

#### 3.1 Research Design

The study used a 3 x 4 x 2 non-randomised pre-test and post-test, control group, quasi-experimental design. Shown as follows;

Experimental group 1	-	$O_1 X_1 O_2$
Experimental group 2	-	$O_1 X_2 O_2$
Control group	-	$O_1 X_3 O_2$

Where;

$O_1$  represents pre-test achievement in economics, economic reasoning, and students' attitude to economics.

$O_2$  represents post-test achievement in economics, economic reasoning, and students' attitude to economics.

$X_1, X_2, X_3$ , the treatments.

#### 3.2 Variables in the Study

##### 1. Independent variables: -

- Experience - debriefing (Experience-based teaching)
- Experience-dictation (experiential teaching)
- Conventional method

##### 2. Moderator Variables

- Learning style, at four levels (Reflective, Concrete, Abstract and Active)
- Quantitative ability, at two levels (High. Low)

### **3. Dependent Variables**

- Achievement in economics
- Economic reasoning
- Attitude to economics

3.3 Factorial Design

Table 3.0 showing 3 x 4 x 2

**FACTORIAL MATRIX**

Treatment						Learning Styles
Experience Debriefing		Experience Dictation		Conventional Method		
						Reflective
						Concrete
						Abstract
						Active
High	Low	High	Low	High	Low	
Quantitative Skill						

### **3.4 Population**

The target population for the study were; all SS2 economics students in Ogun State.

### **3.5 Sampling Techniques and Sample**

Multi-stage sampling procedure was used to select the study sample. Ogun state has three senatorial districts; one was randomly selected. Six Schools that met the specified criteria were selected from the senatorial district. At the School level, intact classes (SSII) were randomly assigned to treatment groups, two schools for each treatment. The criteria for selection of a school include;

(a) Distance- this is to ensure reasonable distance among the schools selected, so as to prevent filtration of information, of treatment, from one school to another.

(b) Schools that have qualified economics teachers, with at least a B.Ed. degree in economics or its equivalent. Six schools were randomly selected out of the list of those that met these criteria; two schools each were then randomly assigned to the treatment and control groups.



**Table 3.1 Distribution of samples across schools**

<b>School</b>	<b>Treatment</b>	<b>No of students</b>
<b>1</b>	Experience Debriefing Strategy	40
<b>2</b>		34
<b>3</b>	Experience Dictation Strategy	85
<b>4</b>		40
<b>5</b>	Conventional Teaching Strategy	80
<b>6</b>		46
<b>Total</b>		325

### **3.6 Instruments**

The following instruments were developed by the researcher, to gather data for the study.

1. Economics Achievement Test (EAT)
2. Test of Economic Reasoning (TER)
3. Test of Quantitative Skill (TQS)
4. Student Learning Style Inventory (SLSI)
5. Students' Attitude to Economics Scale (SAES)

#### **3.6.1. Economics Achievement Test (EAT)**

The EAT was developed and validated by the researcher using IRT methods, to test students' quantitative skill level. It consists of two sections. Section A and B. Section A contains the bio-data of the students, while section B contains the objective EAT. This instrument was developed and validated by the researcher using Item response theory (IRT) methods, in order to measure acquisition of knowledge in selected topics in secondary school economics. The topics are;

- (1) Basic economics concepts, which include, want, scarcity, choice, scale of preference, opportunity-cost, basic economic problems of society
- (2) Production
- (3) Business - organization
- (4) Money and inflation
- (5) International Trade and payments

These topics are basic to economic reasoning and understanding and affect decision by either the house hold, government or the industry. In addition, they are part of the topics of the three – year SSS economics curricula. The EAT was used to obtain pre-test and post-test achievement scores of the students. (See Appendix 2)

#### **Development and Validation Process of the Instrument**

The researcher used the senior secondary school economics curriculum (FGN, 2008) designed by the Nigerian Educational Research and Development Council (NERDC) and economics textbooks which include; TONAD Essential Economics for

Senior Secondary Schools by Cole EsanAnde (2015) and Economics for Senior Secondary Schools I and 2 by Nnadi K. U. and Falodun A. B. (Longman Nig. 2010)

The researcher prepared a table of specification (the test blue print) and generated 210 objective-test items, each with four alternative, A to D. The items were generated from the selected topics viz:

<b>S/N</b>	<b>Topics</b>	<b>No. of item generated</b>
1.	Economics: Meaning and basic concepts	30
2	Production and Division of Labour	40
3	Business Organization	50
4	Money and Inflation	50
5	International Trade and Balance of Payment	40
	Total	210

#### **Face/Content Validity**

These initial 210 items were given to seasoned economics teachers and experts and researchers with specialization in economics education for vetting and appropriateness of the instrument. On their suggestions and recommendations some items were expunged while some were reframed leaving a total of 150 items for inclusion in the EAT. The table of specification for the 150 items is shown in Table 3.2.1

**Table 3.2.1: Table of Specification for EAT**

		<b>Knowledge</b>	<b>Comprehension</b>	<b>Application</b>
		1,2,3,27,28,69,76,77,		
Definition, Scope and meaning of Economics	101,102,103,121		1,52,53,68,120,123,136,137	
Production and division of labour	49,50,55,56,71,72,73,104,105,139,140,141,142,143,150	4,5,6,17,18,19,29,30,	5,70,138	
Business organization	33,44,46,47,48,54,57,58,59,75,78,79,80,81,98,99,106,107,108,109,110,111,122,124,125,126,145,146,	7,8,9,10,20,21,31,32,	4,100,144	
Money and inflation	,42,43,60,61,62,82,83,86,94,95,96,97,112,113,115,127,128,129,130,147	11,12,13,22,23,35,36	4,37,41,84,85,87,114,148	
International trade and B.O.P	,39,40,63,64,65,66,89,90,91,92,93,117,118,131,132,135,149	14,15,16,24,25,26,38	7,88,116,119,133,34	
<b>TOTAL</b>		<b>122</b>	<b>28</b>	<b>150</b>

### **Trial Testing**

The 150 items that emerged from the vetting was administered to 916 students, similar to the sample used for the study, for trial testing. The 3-parameter logistic model of the Item Response Theory (IRT) was used in analyzing the data collected, to determine the difficulty indices range, the discriminating indices range and the vulnerability to guessing limit, used for determining the items that made up the final 40-item EAT. 57 items survived this IRT based analyses.

### **Construct validity assessment of EAT**

To assess the construct validity, the extent to which an instrument is able to measure what it was designed to measure. To assess the validity of the EAT, the extent to which the items on the test was able to measure the same construct among identifiable sub-groups was assessed. To achieve this feat, the differential functioning of the items with respect to sex of the testees was assessed. Table 3.2.2 presents the result of the DIF assessment of EAT based item response theory likelihood ratio differential item functioning (IRT-LR DIF).

**Table 3.2.2: Differential item functioning assessment of EAT**

Item	$\chi^2$	df	p	Remark	Item	$\chi^2$	Df	p	Remark
1	0.855	2	0.652	No DIF	70	2.15	2	0.341	No DIF
2	2.095	2	0.351	No DIF	71	6.935	2	0.031	DIF
5	0.171	2	0.918	No DIF	77	0.939	2	0.625	No DIF
6	1.25	2	0.535	No DIF	78	0.389	2	0.823	No DIF
7	1.071	2	0.585	No DIF	79	5.716	2	0.057	No DIF
8	0.695	2	0.706	No DIF	81	-3.525	2	1	No DIF
10	-2.448	2	1	No DIF	84	-3.432	2	1	No DIF
16	2.636	2	0.268	No DIF	94	0.042	2	0.979	No DIF
18	-2.365	2	1	No DIF	95	-27.858	2	1	No DIF
25	2.729	2	0.256	No DIF	99	-8.423	2	1	No DIF
26	0.412	2	0.814	No DIF	103	6.977	2	0.031	DIF
29	2.486	2	0.289	No DIF	104	-19.515	2	1	No DIF
32	4.003	2	0.135	No DIF	110	1.751	2	0.417	No DIF
33	5.472	2	0.065	No DIF	111	11.235	2	0.004	DIF
34	0.142	2	0.931	No DIF	117	11.497	2	0.003	DIF
36	-8.452	2	1	No DIF	119	7.805	2	0.02	DIF
40	-7.075	2	1	No DIF	120	10.926	2	0.004	DIF
43	15.843	2	0	DIF	121	7.072	2	0.029	DIF
44	0.461	2	0.794	No DIF	126	-8.292	2	1	No DIF
45	2.503	2	0.286	No DIF	129	3.551	2	0.169	No DIF
47	-0.398	2	1	No DIF	130	2.074	2	0.354	No DIF
49	0.476	2	0.788	No DIF	131	1.19	2	0.552	No DIF
50	1.192	2	0.551	No DIF	137	9.489	2	0.009	DIF
52	7.59	2	0.022	DIF	138	10.913	2	0.004	DIF
55	0.092	2	0.955	No DIF	141	7.736	2	0.021	DIF
61	1.791	2	0.408	No DIF	144	6.395	2	0.041	DIF
64	-0.817	2	1	No DIF	146	-1.68	2	1	No DIF
68	5.321	2	0.07	No DIF	149	6.745	2	0.034	DIF
69	12.802	2	0.002	DIF					

The result showed that out of the 57 items that survived item analysis, 15 items functioned differentially with respect to gender. The result showed that 15 out of the 57 items remaining on the EAT did not measure construct irrelevant construct factor, gender. Therefore the 15 items lack validity and were removed from the 57 items. The implication of the result is that 42 out of the 57 items were able to measure the same trait among male and female testees. Consequently, there were 42 valid items on the EAT. These 42 items were subjected to reliability analysis.

### **Reliability of EAT**

To estimate the reliability of the 42-item EAT, the responses of the testees to the 42 items were subjected to empirical reliability analysis, an IRT based reliability estimate. The estimate returned an ER of 0.87. Revealing that, the 42 items were highly reliable-consistent and precise for measuring achievement in economics.

Out of this 42 items, 40 items were selected, based on their psychometric properties to make up the final EAT used for the study. (They are items; 1, 2, 5, 6, 7, 10, 16, 18, 25, 26, 29, 32, 33, 34, 36, 40, 45, 47, 49, 50, 55, 61, 64, 68, 70, 77, 78, 79, 81, 84, 94, 95, 99, 104, 110, 126, 129, 130, 131, 146)

### **CROSS-VALIDATION OF THE EAT.**

To cross-validate the 42-item EAT, the 42-items EAT was administered to another sample of 923 students, and the invariance of the test was assessed. Testing measurement invariance is to ensure that the observed scale indicators/items measure the same theoretical constructs in identifiable subgroup. To achieve this feat, the responses of the respondents to the items of the reliable factors were subjected to multiple group multidimensional item response theory. The result, as seen on Table 3.2.3, showed that there is no significant difference between the functionality of the 42-item EAT among both genders. This means that the EAT measured the theoretical construct underlying the scale optimally. Thus, the test is adjudged to have construct validity. 40, out of the 42-item EAT were re-arranged and formed the final copy of the EAT taken to the field.



**Table 3.2.3: consistency of EAT among male and female examinees**

	M2	df	p	RMSEA	RMSEA_5	RMSEA_95	TLI	CFI
stats	3012.3	2964	0.2635	0.0289	0.0270	0.0308	0.9816	0.9715

### **3.6.2 Test of Quantitative Skill (TQS)**

The TQS was developed and validated by the researcher using IRT methods, to test students' quantitative skill level. It consists of two sections- A and B. A include the bio-data of the students, while B contains the objective TQS. The pre-test scores obtained on the TQS was used to separate students into high and low quantitative ability.

#### **Development and Validation Process of the Instrument**

##### **Face/Content Validity.**

Initially, 150 items were developed, however this was reduced to 120, based on the views of experts in the field of mathematics and economics at the ICEE, UI.

##### **Dimensionality assessment**

To assess the dimensionality of the TQS, the responses of the testees to the initial 120-item TQS was subjected to Stout's test of essential unidimensionality, implemented in DETECT package an IRT package. The result is presented in Table 3.3.1.

**Table 3.3.1: Unidimensionality of TQS**

	unweighted	weighted
		-
DETECT	-0.1248769	0.1248769
		-
ASSI	-0.1901961	0.1901961
		-
RATIO	-0.1471958	0.1471958

Table 3.3.1 showed that the TQS was essentially unidimensional (maximum DETECT value = -0.12 ( $< .20$ ), ASSI = -0.19 ( $< 0.25$ ) and RATIO = -0.14 ( $< 0.36$ )). Therefore the assumption of unidimensionality was not rejected. This result showed that one dominant dimension accounted for the variation observed in student's responses to the 120-item TQS. Hence EAT fulfilled the unidimensionality assumption of item response theory.

#### **ASSESSING ITEM LOCAL INDEPENDENCE OF THE TQS TEST DATA**

To assess the item local independence of the test data Yen  $Q_3$  was used. In order to select the item response model that is most suitable for estimating the probability of correct response that is used for calculating the residual used for the item local independence assessment, IRT model-data fit was advanced. To achieve the feat, the test data was calibrated using: the one-parameter logistic model, two-parameter logistic model, three-parameter logistic model and four-parameter logistic model respectively. The information indices values obtained for each of the models were compared. The result of the model-data fit is presented in Table 3.3.2 below.

#### **Model-data fit assessment**

Table 3.3.2 presented the result of the model-data fit assessment.

**Table 3.3.2: IRT Model-data fit assessment for TQS**

	<b>AIC</b>	<b>AICc</b>	<b>SABIC</b>	<b>HQ</b>	<b>BIC</b>	<b>logLik</b>	<b>X2</b>	<b>df</b>	<b>p</b>
Comparing the fitness of 1PL and 2PL to the TQS data									
1PL	141728.4	141759	141947.6	141956.9	142332	-70743.18	4924.282	119	0
2PL	137042.1	137179.3	137477	137495.3	138239.3	-68281.04			
Comparing the fitness of 2PL and 3PL to the TQS data									
2PL	137042.1	137179.3	137477	137495.3	138239.3	-68281.04	1541.371	120	0
3PL	135740.7	136100.2	136393.1	136420.6	137536.5	-67510.35			
Comparing the fitness of 3PL and 4PL to the TQS data									
3PL	135740.7	136100.2	136393.1	136420.6	137536.5	-67510.35	1932.549	120	0
4PL	134048.2	134813.9	134918	134954.6	136442.6	-66544.08			

Table 3.3.2 presented the model-data fit assessment of the EAT. This assessment show the IRT model that is best for the calibration of the EAT data. The table showed that when the fitness of M1PL and M2PL models to the data were compared, the result showed that the M2PL had AIC = 137042.1, AICc = 137179.3, SABIC = 137477, HQ = 137495.3, BIC = 138239.3 values that were lesser than the AIC = 141728.4, AICc = 141759, SABIC = 141947.6, HQ = 141956.9, BIC = 142332 values of the M1PL. In addition, the Likelihood ratio test that 2PL fitted the data better than 1PL was statistically significant ( $\chi^2(119) = 4924.282, p < 0.005$ ). These results showed that the 2PL model fitted the data better than the 1PL model.

The result showed that the M3PL model fitted the data better than the 2PL model (3PL model's AIC = 135740.7, AICc = 136100.2, SABIC = 136393.1, HQ = 136420.6, BIC = 137536.5 values were respectively lesser than the 2PL model's AIC = 137042.1, AICc = 137179.3, SABIC = 137477, HQ = 137495.3, BIC = 138239.3; the Likelihood ratio test that 3PL model fitted the data better than 2PL model was statistically significant, ( $\chi^2(120) = 1541.371, p > 0.005$ )). Furthermore, the fitness of the test data to 3PL and 4PL were compared. The result presented in the table showed that 4PL fitted the data better than 3PL (4PL model's AIC = 134048.2, AICc = 134813.9, SABIC = 134918, HQ = 137495.3, BIC = 138239.3 were respectively lesser than 3PL model's AIC = 135740.7, AICc = 136100.2, SABIC = 136393.1, HQ = 136420.6, BIC = 137536.5).

This result showed that four parameter model fitted the data better than 3PL. Thus, the item local independence based on Yen Q3 statistic was carried out based on 4PL model. The discrimination (a) was judge based on 0.40 benchmark. The difficulty (b) parameter was judge based on -2 to 2 range benchmark. The guessing (c) parameter was judged based on less than 0.35 criterion (Hambleton and Jones). Since the test was calibrated with the 4PL model that fitted the test data, the quality of carelessness parameter (u) was judged. Items with u value less than 0.50 was considered poor. Furthermore, the item fit assessment was also assessed. The outcome showed that in all 35 items met all the requirements that an item must meet to be considered good for the assessment of tests' proficiency in a subject. The items include: 14, 17, 26, 27, 28, 31, 32, 40, 42, 43, 44, 45, 46, 50, 57, 61, 62, 63, 67, 68, 73, 75, 110, 118, 38, 41, 48, 53, 55,

56, 58, 72, 78, 79 and 80. The remaining 62 items were poor as they could not meet item quality criteria. Therefore the items were removed from among the 97 items on the TQS. The remaining 35 items were subjected to the validity analysis.

### **VALIDITY OF TQS**

To assess the construct validity, the extent to which an instrument is able to measure what it was designed to measure. To assess the validity of the TQS, the extent to which the items on the test was able to measure the same construct among male and female groups. To achieve this feat, the differential functioning of the items with respect to sex of the testees were assessed. The result showed that 11 out of the items remaining on the TQS did measured construct irrelevant construct factor, gender. Therefore the 11 items lack validity and were removed from the 35 items. The implication of the result is that 11 out of the 35 items were not able to measure the same trait among male and female testees. Consequently, there were 24 valid items on the TQS. These 24 items were subjected to reliability analysis. The result is presented in Table 3.3.3.

### **Reliability of TQS**

To estimate the reliability of the 24-item EAT, the responses of the testees to the 24 items were subjected to empirical reliability analysis, an IRT based reliability estimate.

**Table 3.3.3 : Reliability estimate of 24-item TQS**

N	ER
24	0.82



### **CROSS-VALIDATION OF THE TQS.**

To cross-validate the 24-item EAT, the 24-items TQS was administered to another sample and the invariance of the test was assessed. Testing measurement invariance is to ensure that the observed scale indicators/items measure the same theoretical constructs in identifiable sub-groups. To achieve this feat, the responses of the respondents to the 24-item TQS were subjected to multiple group multidimensional item response theory. The result is presented in Table 3.3.4

Table 3.3.4 showed that there was no significant difference between the functionality of the 24-item TQS (see Appendix – for the test) among male and female testees ( $M2(408) = 451.206, p = 0.0687$ ). The RMSEA for the model was within the acceptable standard (estimate was 0.029 [C.I.95%: 0.026, 0.032]), with a narrowed confidence interval and a decreased upper bound confidence interval value. Evaluation of the other fit indices showed a value higher than the bench mark all revealed that the model was fit (CFI = 0.96; TLI = 0.96). Due to the consensus across indices, the model reflected that there was consistency in the trait measured by the test data among genders appropriately. The result showed that there is no significant difference between the functionality of the 24-item TQS among testees, based on gender. This means that the TQS measured the theoretical construct underlying the scale optimally. Thus, the test is adjudged to have construct validity.

Summarily, 120 items were subjected to IRT analyses. Only 24 items survived the IRT analyses as good items. The 24 items were subjected to empirical reliability (ER) analyses, an IRT based reliability estimate. The estimate returned an ER of 0.82, revealing that the 24 items were highly reliable, consistent and precise for measuring quantitative skill, in economics. The surviving 24 TQS items were used for the study.

**Table 3.3.4 consistency of 24-item TQS among male and female examinees**

	M2	df	p	RMSEA	RMSEA_5	RMSEA_95	TLI	CFI
stats	451.206	408	0.0687	0.029	0.026	0.032	0.962	0.955

### **3.6.3 Test of Economic Reasoning (TER)**

The items for the TER were designed by the researcher to test students' ability to apply economic principles and reasoning to solve specific economics based problems. Each question, as designed by the researcher, present students with hypothetical economic problems which they are likely to face in real life situation, asking them to proffer solution and in addition state the economic reasoning behind their action or decision. The TER consists of 15 items which was prone-down to four after validation, using IRT methods. These four items were used for the study.

#### **The Development and validation process of the TER**

The test of economic reasoning (TER) is to test student proficiency to apply cost/benefit analysis in personal decision making- that is the ability of students to use the economic concepts of scarcity, choice and most especially, opportunity cost in their daily decision making activities.

#### **Face/Content Validity**

After wide consultation and copious reading around economic reasoning and the development of economic reasoning test, the researcher developed 20 items. This was shown to experts in economic education at the Institute of Education, University of Ibadan and Senior Secondary School teachers of economics. On their recommendation some of the 20- item were expunged while some were reframed leaving only 15 items. This was prepared and arranged for trial testing.

#### **Dimensionality Assessment**

To assess the dimensionality of the TER the responses of the testees to the initial 15-items was subjected to parallel analysis and full information item factor analysis with partial credit model was conducted based on the number of dimension identified under parallel analysis to identify the interpretable factors underlying the scale. Table 3.4.1 showed that there were 3 factors of the real data set with Eigen value greater than the Eigen value of the generated data set. The result showed that there are 3 factors underlying the responses of the respondents to the TER.

**Table 3.4.1: Dimensionality of TER**

<b>Factors</b>	<b>Eigen value of Real data set</b>	<b>95th percentile of Eigen value of simulated data sets</b>
1	4.91	0.42
2	1.03	0.24
3	0.29	0.19
4	0.13	0.15
5	0.06	0.12
6	-0.02	0.08
7	-0.02	0.05
8	-0.07	0.01
9	-0.11	-0.01
10	-0.13	-0.05
11	-0.15	-0.08
12	-0.19	-0.12
13	-0.22	-0.15
14	-0.26	-0.19
15	-0.34	-0.25

**Table 3.4.2: Item parameters of the TER**

<b>Item</b>	<b>a1</b>	<b>a2</b>	<b>Remark</b>	<b>b1</b>	<b>b2</b>	<b>b3</b>	<b>b4</b>	<b>b5</b>	<b>b6</b>	<b>Remark</b>
b1	1.08		Good	0.7	0.13	2.48	2.23			Poor
b2	0.93		Good	0.65	-0.9	1.87	2.76			Poor
b3	1.26		Good	0.33	2.46	2.7	0.55			Poor
b4	1.07		Good	-0.02	0.74	1.69	2.28			Good
b5	1.75		Good	0.65	0.86	2.02				Good
b6	1.4		Good	1.21	0.92	2.74				Poor
b7	1.45		Good	0.5	0.23	2.28				Poor
b8	1.55		Good	0.83	0.56	2.05				Poor
b10		1.61	Good	0.64	2.42	1.28				Poor
b11		1.64	Good	1.63	0.76	2.7				Poor
b12		3.63	Good	0.94	1.38	2.43				Good
b13		3.72	Good	1.46	1.01	2.1				Poor
b14		4.23	Good	1.35	1.29	2.45				Poor
b15		3.08	Good	1.19	1.25	2.26				Good

Table 3.4.2 showed the item parameter estimates of the TER. On the table “a1” is the discrimination for items loading on dimension 1, “a2” is the discrimination for items loading on dimension 2. The b1, b2, b3, b4, b5 and b6 are the estimated category threshold parameters. These category parameters are also called item step difficulties. The parameter showed the point at which the probabilities for adjacent categories are equally likely.

The table also showed the quality of the parameter estimates of the test items and item fit assessment. The discrimination (a) was judged, based on 0.40 benchmark. The step difficulties parameter (b) parameter was judge based on the benchmark that step difficulty parameter estimates of good items should always ordered in increasing manner. Table 3.4.showed that in all, four items (4, 5, 12 and 15) met all the requirements that an item must meet to be considered good.

#### **Marking guide for the TER**

In order to design a marking guide for the TER the research used Kourilisky and Murray (1981) model for conceptualizing economic reasoning. They conceptualized economic reasoning in terms of a three-level hierarchy of decision making that integrate scarcity alternatives, and opportunity cost. Those at level 1 of the hierarchy can recognize the existence of scarce resources, such as money and times. Those at level 2 are able to identify specific alternative uses for the scarce resources, while individuals at level 3 are able to identify realistic alternative uses and rate them in terms of anticipated benefits. Thus students response to a question was scored at the highest level of economic reasoning exhibited. The detailed evaluation criteria are presented in Appendix 3

#### **3.6.4 Student Learning Style Inventory (SLSI).**

The Kolb learning style inventory (KLSI) version 3.1 (2005) was adapted for use in this study. The KLSI is a simple self – description test, based on experiential learning theory; that is designed to measure learners learning style based on the four learning modes( Concrete, Active, Abstract and Reflective) of the Kolb learning cycle. It is a forced – choice test item, where respondents are required to rank order a series of

four words that describes these different learning abilities. A Cronbach Alpha of 0.77 was obtained for the SLSI. This instrument was used to get the learning style of the students- the pre-test scores was used to classify students into four groups of the Kolb Learning Styles of Concrete, Active, Abstract and Reflective. The SLSI is on appendix 5.

### **3.6.5 Students Attitude to Economics Scale (SATES)**

The SATES is an affective domain instruments for measuring student's attitude towards economics as a discipline. The survey is divided into two sections. Section A, elicits information on student's background while section B, contain students' attitude towards economics. The instrument was designed by the researcher, to elicit information from students on their attitude towards economics. The instrument consists of 14. Items with four options ranging from 1-4 (Strongly Agree, Agree Disagree, and strongly disagree). The instrument was developed and validated using IRT methods. The 14-item SATES was subjected to empirical reliability(ER) analyses, an IRT based reliability estimate. The estimate returned an ER of 0.78. Revealing that the SATES is highly reliable-consistent and precise for measuring attitude to economics.

### **The Development and validation process of the SATES**

#### **Face/Content Validity**

After extensive review of literature on attitude scaling and economics education in high school, the researcher developed a 60-item Students' Attitude to Economics Scale (SATES) This was administered to 50 high school economics students to get their reaction and feed back as to the appropriateness of the SATES. In addition, the SATES was shown to high school economics teachers and researchers in the field of economics education, at the Institute of Education, UI. The feedback received from them led to further editing and reduction of the SATES to only 55 items. The Students' Attitude to Economics Scale (SATES) is an affective domain instruments. The instrument consists of 55. Items with four options ranging from 1-4 (Strongly Agree, Agree, Disagree, and strongly disagree).The final 55-item SATES was administered to 973 SS II- economics students.

### **Dimensionality Assessment**

To assess the dimensionality of the SATES, the responses of the testees to the initial 55-item SATES was subjected to parallel analysis, and full information item factor analysis with multidimensional graded response model, was conducted based on the number of dimension identified under parallel analysis to identify the interpretable factors underlying the scale. The result is presented in Table 3.5.1;



**Table 3.5.1: Dimensionality of SATES**

<b>Factors</b>	<b>Eigen value of Real data set</b>	<b>95th percentile of Eigen value of simulated data sets</b>
1	6.87	0.52
2	3.76	0.46
3	0.94	0.43
4	0.75	0.4
5	0.57	0.37
6	0.48	0.35
7	0.47	0.32
8	0.41	0.3
9	0.36	0.28
10	0.33	0.26
11	0.31	0.25
12	0.28	0.23
13	0.25	0.21
14	0.22	0.19
15	0.17	0.18
16	0.15	0.16
17	0.12	0.15
18	0.11	0.13
19	0.07	0.12
20	0.05	0.1
21	0.02	0.09
22	0.02	0.07
23	-0.01	0.06
24	-0.02	0.05

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25	-0.04	0.03
26	-0.05	0.02
27	-0.1	0.01
28	-0.11	-0.01
29	-0.13	-0.02
30	-0.17	-0.04
31	-0.18	-0.05
32	-0.19	-0.06
33	-0.21	-0.07
34	-0.22	-0.09
35	-0.23	-0.1
36	-0.26	-0.11
37	-0.27	-0.13
38	-0.28	-0.14
39	-0.29	-0.15
40	-0.32	-0.16
41	-0.34	-0.18
42	-0.35	-0.19
43	-0.36	-0.2
44	-0.38	-0.21
45	-0.39	-0.23
46	-0.41	-0.24
47	-0.43	-0.25
48	-0.45	-0.27
49	-0.46	-0.28
50	-0.47	-0.3
51	-0.5	-0.31
52	-0.52	-0.33
53	-0.54	-0.34
54	-0.58	-0.36
55	-0.59	-0.39

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Table 3.5.1 showed the analysis of the number of factors that underlie the SATES based on the suggestion of parallel analysis. On the table, column 1 represents the factors of the SATES and the randomly generated data set. In all there are 55 factors, representing the total number of items in the real data set (i.e., SATES). Column 2 and 3 represent the Eigen value for the factors of the real and 95 percentile of the 55 data sets randomly generated based on the original data sets. The table showed that there were 14 factors of the real data set with Eigen value greater than the Eigen value of the generated data set. The result showed that there are possible 14 factors underlying the responses of the respondents to the SATES. They are presented in Appendix

#### **Identifying interpretable factors of SATES**

To identify which of the 14 factors were interpretable (i.e., factors having three or more factors loading on them), Economics Attitude scale was calibrated using graded response model (Multidimensional item response theory graded response model) with the 14 possible dimensions found to underlie the SATES. To identify the identifiable factors, the factor loading from the calibration was extracted.

The result showed that there are four interpretable factors underlying the SATES. The implication of the result is that four factors underlie the SATES. These four factors have 14 items loading on them altogether. The factors were therefore interpreted by the items loading on each factor. (They are presented on Tabular form in Appendix 4.

## **VALIDITY OF SATES**

To assess the construct validity, the extent to which an instrument is able to measure what it was designed to measure. To assess the validity of the SATES, the extent to which the items on the test was able to measure attitude towards economics among male and female groups, the differential functioning of the items on the scale with respect to sex of the testees were assessed. Table 3.5.2 presents the result of the DIF assessment of SATES based item response theory likelihood ratio differential item functioning (IRT-LR DIF)

**Table 3.5.2 : Differential item functioning assessment of SATES**

Item	X2	df	P
1	1.746	1	0.186
2	1.669	1	0.196
3	1.668	1	0.197
4	1.599	1	0.206
5	1.536	1	0.215
6	1.362	1	0.243
7	1.242	1	0.265
8	1.207	1	0.272
9	1.155	1	0.283
10	1.151	1	0.283
11	1.154	1	0.283
12	1.006	1	0.316
13	0.988	1	0.320
14	0.877	1	0.349

Table 3.5.2 showed that all the 14 had insignificant chi-square value ( $p > 0.05$ ). The results showed that out of the 14 items that survived item analysis, functioned similarly among male and female. Consequently, there were 14 valid items on the SATES. These 14 items were subjected to reliability analysis.

#### **Reliability of SATES**

To estimate the reliability of the 14-item SATES, the responses of the testees to the 14 items were subjected to empirical reliability analysis, an IRT based reliability estimate. The result is presented in Table 3.5.3

**Table 3.5.3: Reliability estimate of 14-item SATES**

<b>Factor</b>	<b>ER</b>
F1	0.75
F2	0.73
F3	0.84
F4	0.79

### **CROSS-VALIDATION OF THE SATES.**

To cross-validate the 14-item SATES, the 14-item SATES was administered to another sample made up of 1,274 SS11 economics students, and the invariance of the test was assessed. Testing measurement invariance is to ensure that the observed scale indicators/items measure the same theoretical constructs in identifiable sub group. To achieve this feat, the responses of the respondents to the 14-item SATES were subjected to multiple group multidimensional item response theory. The result is presented in Table 3.5.4



**Table 3.5.4 Consistency of 14-item SATES among male and female examinees**

	M2	Df	P	RMSEA	RMSEA_5	RMSEA_95	TLI	CFI
stats	100.231	98	0.416	0.011	0.015	0.035	0.982	0.985

Table 3.5.4 showed that there was no significant difference between the functionality of the 14-item SATES among male and female testees ( $M2(98) = 100.231$ ,  $p = 0.416$ ). The RMSEA for the model was within the acceptable standard (estimate was 0.011 [C.I.95%: 0.015, 0.035]), with a narrowed confidence interval and a decreased upper bound confidence interval value. Evaluation of the other fit indices showed a value higher than the bench mark all revealed that the model was fit (CFI = 0.98; TLI = 0.99). Due to the consensus across indices, the result showed that there was consistency in the trait measured by the test data among genders; there is no significant difference between the functionality of the 14-item SATES among genders. This means that the SATES measured the theoretical construct underlying the scale optimally. Thus, the test is adjudged to have construct validity.

#### **Interpretation of scores on the SATES**

To effectively interpret the scores of respondent on the SATES, Table 3.5.5 presents the scoring- strongly agree=4, agree=3, disagree=2, and strongly disagree=1, for positively stated items (items 4, 5, 6, 7, 8, 9 and 10). The scores were reversed for negatively stated items (items 1, 2, 3, 11, 12, 13, and 14). Based on this, the minimum score on the 14-item SATES is 14 while the maximum score is 56. Using 40% as bench mark ( $40\% \times 56 = 22$ ), a range of scores between 22 and 56 are considered positive, while scores below 22 are considered negative. Thus respondents who score between 14 and 21, range of scores tend to have a negative attitude towards SSS economics, while respondents who score between 22 and 56 range of scores tend to have a positive attitude towards SSS economics

**Table 3.5.5: Scoring of the SATES**

<b>Responses</b>	<b>S</b>	<b>A</b>	<b>D</b>	<b>S</b>
	<b>A</b>			<b>D</b>
Favourable (Positive)statement	4	3	2	1
Unfavourable (Negative) statement	1	2	3	4

The SATES was used to gather the pre and post tests of attitude of the sample used in the study. **The SATES is on Appendix 4.**

### **3.7. Economics Treatment Manuals**

These manuals were developed by the researcher based on the Kolb (1984) Learning cycle and the theory of experiential pedagogy as postulated by Kolb (1984). These experiential treatment groups consist of two types, one the experience-debriefing method and the experience-dictation or presentation method. The distinguishing factor between the two treatment groups is the post-activity debriefing, for the experience debriefing group and the post-activity presentation, by the experience-dictation group.

#### **3.7.1 The lesson plan follows this format;**

##### **STEP 1. Introduction of the topic;**

##### **STEP 2. Ice Breaker:**

This is introductory in nature. It is an aspect of the experiential teaching methods whose purpose is to set the stage for teaching. The ice breaker can be a piece of music, a picture, a short story, drama presentation, a proverb, an idiom, a film, a song, a newspaper cutting, a key saying, a table of figures, etc. Whatever is selected, it's vital that it captures the essence of the learning objective of the lesson. It must set the student thinking and reflecting as the lesson unfolds. It should be in-form of a 'time-bomb' that explodes unfolding the main objectives and content of the lesson. However, it must be short and concise to save time and to avoid unnecessary distraction.

##### **STEP 3. Reflective Question**

This is in form of a reflective question following the ice breaker story or events. Student will be allowed to respond to this question or sometimes may be asked to save their response till the end of the lesson.

##### **STEP 3. Outline the learning objective of the lesson.**

##### **STEP 4. Itemize the content and the concepts to be covered.**

**STEP 5. Learning Activity:** -State the activities to be carried out – is it a simulation, a game, a role play, a group presentation, a demonstration, a group decision making activity, a problem solving exercise?

**STEP 6. Materials / Resources:** - itemize the materials or resources needed for the planned activity in **step 5** and prepare them (get them ready for the use in the classroom).

**STEP 7.Procedure** – state the step by step procedure as the lesson unfolds.

**STEP 8.Debriefing / Dictation:** - This is the step that will distinguish the treatment groups. For the Experience – debriefing group, the teacher will now re-introduce the reflective question that followed the ‘**ice breaker**’ act and use it along with the activity in **step 5** to steer the lesson toward, the attainment of the learning objectives of the lesson. While, for the experience – dictation group, the teacher will, after the activity, ask the students to make a written and oral presentation of their views in response to the reflective question and the learning objective of the lesson. The topics of the debate will be carefully selected by the teacher, making sure it covers the content of the lesson and leads to the attainment of the learning objective of the lesson.

**STEP 9.Summary / closure:** The teacher brings the lesson to a close with a short summary and hand- out the topic for the next lesson.

**STEP 10.Evaluation:** – oral not paper and pencil.

The step by step procedure for initiating the treatment in each group is given as follows;

### **3.7.2 Treatment Group 1 (Experience – Debriefing)**

This group after being exposed to the practical economics experience; in the form of either a game, a simulation, a direct economic activity- usually in groups, will now be exposed to an inquiry based debriefing session. The lesson will follow the format as outlined in 3.7.1above.

For a class of two periods, of 40mins/period (90mins), the first period should be used by the teacher for introducing the topic and preparing the students for the lesson and for the practical experience session. It will follow this format;

**Step 1.** Introduce the topic, itemizing the content, the learning objectives and giving essential definitions of key terms and concepts, using the lecture method and introduce the ice breaker/reflective question.

**Step 2.** Introduce the activities to be carried out – is it a simulation, a game, a role play, a group presentation, a demonstration, a group decision making activity, a problem solving exercise?

**Step 3.** Divide Students into groups for the experience aspect of the lesson. (Allow 5 to 10 in a group, depending on the population of the class.)

**Step 4.** Using the lecture method, introduce the experience format – letting students know the purpose of the activity and what is expected of them (are there rules, if it's a game or a simulation or a role play, a group presentation, a demonstration, a group decision making activity, a problem solving exercise? Let them know)

**Step 5.** Allow students to carry out the activity, with minimal or only essential input from the teacher. (teacher or designated assistant(s), to go round to see how the activity is being carried out, offering only necessary help and in addition, corrective / punitive measure to erring students)

**Step 6.** End the session at the end of the pre-determined time- giving a warning bell of 5mins to the closing time. (The session should not go beyond the first period of 40mins) The second period will be for the debriefing session. The goal here is to use the session to bring out the economic concepts which the practical economic experience is out to teach or portray. It will follow this format;

**Step 1.** Reintroduce the reflective question posed at the beginning of the lesson- especially if it captures the main essence of the topic.

**Step 2.** Allow students to respond to the question in their groups.

**Step 3.** After the students' responses, the teacher, while commending right responses, should come in to correct wrong notions and answers in their responses, and the mistakes noticed during the experience session and summarize the lesson by pointing to the main economic concepts the experience session was out to portray on. The goal here is to use the reflective question along with the activity to steer the lesson towards the attainment of the learning objectives of the lesson.

**Step 4.** The teacher is to give a brief summary and close the lesson and then hand out the topics for the next class.

### **3.7.3 Treatment Group 2 (Experience – Dictation)**

This group after being exposed to the practical economics experience; in the form of either a game, a simulation, a direct economic activity- usually in groups, will now be exposed to an oral and written presentation session, in form of a balloon debate or seminal presentation. The lesson will follow the format as outlined in 3.7.1 above.

For a class of two periods, of 40mins/period (90mins), the first period will be used by the teacher for introducing the topic and preparing the students for the lesson and for the practical experience session. It will follow this format;

**Step 1.** Introduce the topic, itemizing the content, the learning objectives and giving essential definitions of key terms and concepts, using the lecture method and introduce the ice breaker/reflective question.

**Step 2.** Introduce the activities to be carried out – is it a simulation, a game, a role play, a group presentation, a demonstration, a group decision making activity, a problem solving exercise?

**Step 3.** Divide Students into groups for the experience aspect of the lesson. (Allow between 5 to 10 students in a group- depending on the population of the class.)

**Step 4.** Using the lecture method, introduce the experience format – letting students know the purpose of the activity and what is expected of them (are there rules, if it's a game or a simulation or a role play, a group presentation, a demonstration, a group decision making activity, a problem solving exercise? Let them know)

**Step 5.** Allow students to carry out the activity, with minimal or only essential input from the teacher. (The teacher or designated assistant(s), to go round to see how the activity is being carried out, offering only necessary help and in addition, corrective / punitive measure to erring students)

**Step 6.**End the session at the end of the pre-determined time- giving a warning bell of 5mins to the closing time. (The session should not go beyond the first period of 40mins)

The second period will be for the presentation session. The goal here is to use the session to bring out the economic concepts which the practical economic experience is out to teach or portray. It will follow this format;

**Step 1.** Reintroduce the reflective question posed at the beginning of the lesson- especially if it captures the main essence of the topic- pose it as a debate topic, or break it into sub-parts suitable for either seminar or project topic or a debate. The goal here is to use the reflective question along with the activity to steer the debate or presentation towards the attainment of the learning objectives of the lesson.

**Step 2.** Allow students in their groups about 15mins, after they have selected their debate or presentation topics, to interact among themselves in their various groups, to prepare for the presentation. The role of the teacher here is to assist the students with information on the reference materials to consult for effective preparation for presentation.

**NOTE: If the allotted time for the preparation and the presentation will not suffice for this session, it can be differed to the next lesson period- giving the students more time to prepare and consult widely in and outside the school environment before presentation.**

**Step 3.**Presentation Proper; each group will give a written and oral presentation of its position. They will present the written part to the teacher before the commencement of the oral debate. Allow 5mins each for each group- 3mins for the lead speakers, 2mins



for the supporting speakers. Bring the debate to a close after each group has made its presentation.

**Step 4.** After the Presentations, the teacher, while commending right responses, should come in to correct wrong notions and responses, and the mistakes noticed during the experience session and the presentation. The goal here is to use the presentation topics along with the activity to steer the lesson towards the attainment of the learning objectives of the lesson.

**Step 5.** The teacher is to give a brief summary and close the lesson, and then hand out the topics for the next class.

The manuals, as prepared by the researcher are on appendix 1. It covers the following topics.

- (1) Basic economics concepts, which include, want, scarcity, choice, scale of preference, opportunity-cost and basic economic problem of society
- (2) Production
- (3) Business - organization
- (4) Money and inflation
- (5) International Trade and payments

These topics are basic to economic reasoning and understanding and affect decision by either the house hold, government or the industry

### **3.8. The Control group**

The control group followed the usual lesson notes that secondary school teachers are used to.

### **3.9 Data Analysis**

For this study, the statistical tool to be used to establish the main effect and the interaction effect of the independent variables is the analyses of covariance (ANCOVA). The scores of the students in the tests and questionnaires will be used for data analysis. The post test scores of the students will be subjected to Analysis of covariance (ANCOVA), with the pre-tests serving as covariates. If the main effect is

significant, it will be subjected to Multiple Classification Analysis (MCA) to get the magnitude and direction of the effects, and to ascertain the degree of variability due to each independent variable. However, for significant effect, Scheffe Multiple Range Comparison will be employed as post-hoc measure. If the interaction effect is found to be significant, further test will be carried out to disentangle the interaction through simple effect analysis technique. The entire hypothesis will be tested at 0.05, level of significance.

### **3.10 Methodological Challenges**

During the course of this research work, one key challenge I faced has to do with obtaining the support of school administrators to embrace the strain the methods of experiential teaching will have on their school timetable. It was not an easy task. The researcher had to really press hard to obtain such permission. In addition, it was not easy obtaining the support of economics teachers in the schools used to assist in carrying out the treatment. It was a herculean task; however the researcher was able to surmount this obstacle in the end. As a form of suggestion, it is far better to train your own personal research assistance and send them out to administer the treatment in designated schools (this also has its challenges).

### **3.11 Ethical Consideration**

Before proceeding on this research work, a letter of introduction was obtained from the Institute of education, which granted me easy access to schools and the permission of school authorities. In addition, the consent of students and teachers used in the research were obtained- after dully educating them on the purpose, benefit and duration of the study, and promising them, that they will be used in the research, without disclosing their personal details, and during the reportage of the research finding. For instant students used for the treatments were not under compulsion to indicate their names on test items- while some did, a few did not write their names.

The teachers, who were used to administer the treatment, were fully informed that they were free to opt out of the study at any time, and that their contribution was voluntary, and will not have anything to do with their promotion or career aspiration. All participants were also dully informed that the outcome of the study will be reported in confidence.

## **CHAPTER FOUR**

### **RESULTS AND DISCUSSION**

This chapter presented the results and the accompanying discussions in line with the objective of the study, guided by the hypotheses. First the results are presented based on the three learning outcomes of the study; achievement, economic reasoning and attitude. Immediately after each result is presented the accompanying discussion followed.

#### **4.1 Results**

##### **Hypothesis 1(i)**

**There is no significant main effect of treatments on economics achievement.**

To test the significance of the main effect of treatment (Experience Debriefing, Experience Dictation and Control) on students' achievement in economics, Analysis of Covariance (ANCOVA) was carried out. In Table 4.1 is presented the summary of the analysis.

**Table 4.1: Summary of Analysis of Covariance (ANCOVA) of students' achievement in economics by treatment (Experience Debriefing, Experience Dictation and Control), Learning Style and Quantitative ability**

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	12479.697 <sup>a</sup>	24	519.987	23.251	.000	.650
Intercept	16957.962	1	16957.962	758.259	.000	.717
EACH_PRE	21.410	1	21.410	.957	.329	.003
Treatment	8350.815	2	4175.408	186.699	.000	.554
Learning Style	63.263	3	21.088	.943	.420	.009
Quantitative ability	22.046	1	22.046	.986	.322	.003
Treatment * Learning Style	167.020	6	27.837	1.245	.283	.024
Treatment * Quantitative ability	131.545	2	65.773	2.941	.054	.019
Learning style * Quantitative ability	110.228	3	36.743	1.643	.180	.016
Treatment * Learning style * Quantitative ability	335.056	6	55.843	2.497	.023	.048
Error	6709.300	300	22.364			
Total	222364.000	325				
<b>Corrected Total</b>	<b>19188.997</b>	<b>324</b>				

**a. R Squared = .650 (Adjusted R Squared = .622)**

Table 4.1 showed that there was a significant main effect of treatment (Experience Debriefing, Experience Dictation and Control) ( $F_{(2,300)} = 186.699$ ,  $p < 0.05$  (0.000), partial  $\eta^2 = .554$ ) on students' economics achievement. The partial ETA square (0.554) showed that the effect size of treatment on the dependent variable was high. Therefore, the hypothesis which states "There was no significant main effect of treatments on economics achievement" was rejected. This result showed that treatments significantly improved economic achievement of students. This implies that the treatment improved students' achievement in economics. The results of the estimated marginal means and pair wise comparison of students' achievement in economics were presented in Tables 4.1.1 and 4.1.2.

Table 4.1.1 showed that the students in Experience Debriefing group had highest mean score ( $\bar{x} = 31.306$ ) followed by those in Experience Dictation group ( $\bar{x} = 29.066$ ) and then control group ( $\bar{x} = 17.511$ ). This result showed that experience debriefing was most effective in improving students' achievement in economics followed by experience dictation, then control. This result implies that experience debriefing treatment group was better than experience dictation and control in improving students' performance in economics.

To assess whether the differences observed in the effect of the treatments on the achievement of students across the treatment groups were significant and where the observed significance lies, Bonferonni Pair-wise comparison was conducted. The result is presented in Table 4.1.2

**Table 4.1.1: Estimated marginal means of students' achievement in economics by treatment**

Treatment	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
Experience Debriefing	31.306 <sup>a</sup>	.681	29.966	32.646
Experience Dictation	29.066 <sup>a</sup>	.496	28.090	30.043
Control	17.511 <sup>a</sup>	.504	16.518	18.503

**a. Covariates appearing in the model are evaluated at the following values: EACH\_PRE = 11.3200.**

**Table 4.1.2: Pairwise comparison of students' achievement in economics by treatment**

(I) Treatment	(J) Treatment	Mean Diff(IJ)	Std. Error	Sig. <sup>b</sup>	95% Confidence Interval for Difference <sup>b</sup>	
					Lower Bound	Upper Bound
Experience Debriefing	Experience	2.239*	.843	.025	.211	4.268
	Dictation					
Experience Dictation	Control	13.795*	.847	.000	11.755	15.835
	Experience	-2.239*	.843	.025	-4.268	-.211
Dictation Debriefing	Control	11.556*	.708	.000	9.852	13.259
	Experience	-	.847	.000	-15.835	-
Control Debriefing	Experience	13.795*				11.755
	Experience	-	.708	.000	-13.259	-9.852
Control Dictation	Experience	-	.708	.000	-13.259	-9.852
	Dictation	11.556*				

**Based on estimated marginal means**

**\*. The mean difference is significant at the .05 level.**

**b. Adjustment for multiple comparisons: Bonferroni.**

Table 4.1.2 showed the Pairwise multiple comparisons showing where the significant effect of the treatment on economics achievement lies. Table 4.1.2 showed that experience debriefing significantly improved economics achievement more than experience dictation (mean diff = 2.239,  $p < 0.05$  (0.025)). Also, experience debriefing significantly improved students' economics achievement more than the conventional teaching approach (mean diff = 13.795,  $p < 0.05$  (0.000)). Furthermore, Table 4.1.2 showed that experience dictation on the other hand significantly improved economics achievement more than the conventional teaching approach (mean diff = 11.556,  $p < 0.05$  (0.000)). The result showed that experience debriefing improved students' economics achievement significantly more than experience dictation and the conventional teaching approach.

The results showed that there is a significant main effect of treatment on students' economics achievement. This outcome is essentially so because of the efficacy of experiential pedagogy. In the experiential learning classroom student are not easily distracted, bored or unable to focus. This pedagogy is attention grasping and fosters economics content mastery, hence the outcome of this present study. That both the experiential treatment groups did better than the control (lecture method) confirmed the ancient Chinese proverb that,

“I hear, and I forget.

I see, and I remember.

I do, and I understand”

This finding is supported by the findings in studies by Adu and Galloway (2015), Adekoya and Akorede (2020) and Adeyemi (2013) which found a significant main effect of treatment on achievement in high school economics. This outcome, also corroborate the outcome of the study by Osokoya and Nwazota (2018). In which students exposed to problem based learning outperformed their colleagues exposed to conventional method in practical skill, in high school biology.

#### **Hypothesis 2(i)**

**There is no significant main effect of learning style on achievement in economics**

Table 4.2 showed the estimated marginal means of learning style on students'



achievement in economics. The Table revealed that students with concrete learning style had highest mean score ( $\bar{x} = 26.659$ ) followed by reflective learning style ( $\bar{x} = 26.182$ ), active learning style ( $\bar{x} = 25.793$ ) and abstract ( $\bar{x} = 25.211$ ). Table 4.2 showed that students with concrete learning style achieved more in economics, followed by reflective learning style, active learning style, abstract learning style. Table 4.1 showed that there is no significant main effect of learning style on achievement in Economics ( $F_{(3,300)} = 0.943$ ,  $p > 0.05(0.420)$ , partial  $\eta^2 = .009$ ). This means that there is no significant main effect of learning style on achievement in economics achievement. Therefore, the hypothesis "there is no significant main effect of learning style on achievement in economics" was not rejected. This result showed that learning style does not have significant effect on students' performance in economics. This implies that how students learn has no effect on their achievement in economics.

The results show that there is no significant main effect of learning style on achievement in Economics. This finding is line with the study by Adekoya and Akorede (2020), Mokhter et al. (2013), which found no significant effect of learning style on achievement in economics and art/science streams, among high school students, respectively. However, studies by Balogun (2014), Abidin et al. (2011) and Uzuntiryaki (2007) found a significant relationship between learning style and achievement. In addition, this study revealed that students with concrete learning style achieved more in economics, followed by reflective learning style, active learning style, and abstract learning style. The outcome of this study seems to confirm the debate on the efficacy of learning style on achievement. While many studies confirm the efficacy of learning style, others are of the view that learning style is not related to achievement.

The present outcome may be due to the fact that many of the students may not have developed a particular preference to specific learning style at this level of their education. For instance, the study by Adekoya and Akorede (2020), found an even distribution of Kolb Learning Styles among a sample of 560 SSS economics students. This was also the outcome of a study by Ibe (2015), among SSS biology students, using Kolb Learning Styles.

**Table 4.2: Estimated marginal means of learning style on students' achievement in economics**

Learning style	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
Active	25.793 <sup>a</sup>	.581	24.649	26.936
Reflective	26.182 <sup>a</sup>	.466	25.264	27.099
Abstracts	25.211 <sup>a</sup>	.507	24.214	26.208
Concrete	26.659 <sup>a</sup>	.951	24.787	28.531

a. Covariates appearing in the model are evaluated at the following values: EACH\_PRE = 11.3200.

### **Hypotheses 3(i)**

#### **There is no significant main effect of quantitative ability on achievement in economics**

Table 4.3 showed the estimated marginal means of quantitative ability on students' achievement in economics. Table 4.3 revealed that participants with low quantitative ability had higher improvement in economics achievement ( $\bar{x} = 26.286$ ) than participants with higher quantitative ability ( $\bar{x} = 25.636$ ). However, Table 4.1 showed that there was no significant main effect of quantitative ability on achievement in Economics ( $F_{(1,300)} = 0.986, p > 0.05(0.322)$ ). Therefore, the hypothesis "There is no significant main effect of quantitative ability on achievement in Economics" was not rejected. This result showed that quantitative ability does not have significant effect on students' performance in economics. This implies that quantitative ability in economics does not significantly improve students' achievement. The result revealed that participants with low quantitative ability had higher improvement in economics achievement than participants with higher quantitative ability. The overall effect showed that there was no significant main effect of quantitative ability on achievement in Economics. This is surprising; most studies (Adu et al, 2009; and Ayanniyi, 2013) reveal that quantitative ability had a positive influence on achievement in economics.

This outcome may have been caused by the fact that science students who are not economics majors may have scored higher than arts and commercial students in the quantitative skill test while not taking the economics tests seriously, because they are not economics majors. This outcome corroborate the findings of Adu (2002) and Opateye (2009) which found no significant main effect of quantitative ability on achievement in high school, economics and electrochemistry, respectively. However, the findings of this study negate the findings of studies by Adu et al, (2009) which found a significant main effect of quantitative ability on achievement.

**Table 4.3 Estimated Marginal means of students' achievement in economics by quantitative ability**

Quantitative ability	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
Low	26.286 <sup>a</sup>	.443	25.415	27.157
High	25.636 <sup>a</sup>	.482	24.686	26.585

**a. Covariates appearing in the model are evaluated at the following values:  
EACH\_PRE = 11.3200.**

#### **Hypothesis 4(i)**

**There is no significant interaction effect of treatment and learning style on students' achievement in economics.**

Table 4.4 showed the effect of the treatment across the various learning styles. The table showed that experience debriefing was more effective for students with concrete learning style (mean = 33.463). The Table 4.4 also showed that experience dictation was more effective for students with abstract learning style (mean = 29.556) and in the conventional teaching method group, students with active learning style (18.221) achieved more than their counterparts with other learning style. This result showed that the extent to which the treatments affected the performance of examinees differed with respect to learning style. However, table 4.1 showed that there was no significant interaction effect of treatment and learning style on students' achievement in economics, ( $F_{(6,300)} = 1.245$ ,  $p > 0.05(0.283)$ ). Therefore, the hypothesis that "there is no significant interaction effect of treatment and learning style on students' achievement" was not rejected. This result showed that there was no significant interaction effect of treatment and learning style on students' performance in economics. This implies that there was no significant difference in the way the treatment improved achievement in economics across the various styles through which students learn.

**Table 4.4: Estimated marginal means of students' achievement in economics by treatment and learning style**

Treatment	Learning style	Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
Experience	Active	30.407 <sup>a</sup>	1.149	28.146	32.668
Debriefing	Reflective	32.243 <sup>a</sup>	1.015	30.245	34.241
	Abstracts	29.110 <sup>a</sup>	.939	27.263	30.957
	Concrete	33.463 <sup>a</sup>	2.050	29.430	37.497
Experience	Active	28.749 <sup>a</sup>	.932	26.915	30.583
Dictation	Reflective	28.926 <sup>a</sup>	.710	27.529	30.322
	Abstracts	29.556 <sup>a</sup>	.745	28.089	31.023
	Concrete	29.035 <sup>a</sup>	1.421	26.238	31.832
Control	Active	18.221 <sup>a</sup>	.924	16.402	20.040
	Reflective	17.377 <sup>a</sup>	.651	16.096	18.658
	Abstracts	16.966 <sup>a</sup>	.936	15.125	18.807
	Concrete	17.478 <sup>a</sup>	1.385	14.754	20.203

**a. Covariates appearing in the model are evaluated at the following values:  
EACH\_PRE = 11.3200.**

This result showed that there was no significant interactions effect of treatment and learning style on students' performance in economics. This implies that there was no significant difference in the way the treatment improved achievement in economics across the various styles through which students learn. This outcome is not surprising since scholars are still greatly divided on the influence of learning style on achievement. For instance, Akdemir and Koszalka (2008), Massa and Mayer (2006) Pashler et al (2008) are of the view that there is no empirical proof to support the matching of learning style with teaching style, to enhance achievement.

This outcome is in line with studies by Cimermanova (2018) and Licin (2018). Cimermanova (2018) find no significant interaction effect of learning style and teaching method on achievement in English language among Pre-service English language teachers. While Licin (2018) found the same outcome. This outcome is however different from the outcome by Munir, Emzir, and Rahmot (2017). They found a significant interaction effect of teaching method and learning style on achievement in English Language.

**Hypothesis 5(i)**

**There is no significant interaction effect of treatment and quantitative ability on students' achievement in economics.**

**Table 4.5: Estimated marginal mean of students' achievement in economics by treatment and quantitative ability**

Treatment	Quantitative Reasoning	Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
Experience	Low	32.835 <sup>a</sup>	.878	31.106	34.563
Debriefing	High	29.777 <sup>a</sup>	1.041	27.729	31.825
Experience	Low	28.588 <sup>a</sup>	.780	27.052	30.124
Dictation	High	29.545 <sup>a</sup>	.613	28.338	30.752
Control	Low	17.436 <sup>a</sup>	.619	16.218	18.654
	High	17.585 <sup>a</sup>	.798	16.015	19.155

**a. Covariates appearing in the model are evaluated at the following values: EACH\_PRE = 11.3200.**



Table 4.5 showed that experience debriefing treatment improved the economics achievement of participants with low quantitative ability (mean = 32.835) than their counterpart with high quantitative ability (mean = 29.777). On the other hand, experience dictation was more effective for participants with high quantitative ability (mean = 29.545). In the same vein, the conventional method of teaching improved the economics achievement of participants with high quantitative ability (mean = 17.585) than their counterpart with low quantitative ability (17.436). However, Table 4.1 showed that there was no significant interaction effect of treatment and quantitative ability on students' achievement in economics, ( $F_{(2,300)} = 2.941, p > 0.05 (0.054)$ ).

The hypothesis "There is no significant interaction effect of treatment and quantitative ability on students' achievement in economics" was therefore not rejected. This result showed that there was no significant interaction effect of treatment and quantitative ability on students' performance in economics. This implies that the treatment function similarly across the groups irrespective of the students' level of quantitative ability that is the ability of the treatment to improve achievement in economics was independent of the students' quantitative ability.

The result showed that there was no significant interaction effect of treatment and quantitative ability on students' performance in economics. This implies that the treatment function similarly across the groups irrespective of the students' level of quantitative ability that is the ability of the treatment to improve achievement in economics was independent of the students' quantitative ability. This outcome is rather surprising, considering the effect of quantitative ability on achievement in economics.

However it may have been due to the fact that majority of the sample used in this study are Art & Commercial Students, with few Science Students, where high performance in mathematics is essential for inclusion in the science class. Despite this, this outcome is in line with the study by Adu (2002), which found no significant interaction effect of treatment and quantitative ability on achievement in economics. However, studies by Adu, Ojelabi and Adeyanju (2009) found a significant interaction effect of Teaching method and quantitative ability on achievement in economics. This was also the outcome of a study by Opatye (2009).

**Hypothesis 6(i):**

**There is no significant interaction effect of learning style and quantitative ability on students' achievement in economics.**

Table 4.6 showed that in abstract learning style, active learning style, and reflective learning style, high quantitative ability students had higher mean scores of 25.319, 26.312 and 27.098 respectively, while in concrete learning style, students with low quantitative ability had higher mean score of 27.670 in the economics achievement test. However, Table 4.1 showed that there was no significant interaction effect of learning style and quantitative ability on students' achievement in economics, ( $F_{(3,300)} = 1.643, p > 0.05 (0.180)$ ). The hypothesis that "there is no significant interaction effect of learning style and quantitative ability on students' achievement in economics" was therefore not rejected. This result showed that there was no significant interaction effect of learning style and quantitative ability on students' performance in economics. This implies that the achievement of students in economics does not depend on the students' learning style and quantitative ability.

This result showed that there was no significant interaction effect of learning style and quantitative ability on students' performance in economics. This implies that the achievement of students in economics does not depend on the students' learning style and quantitative ability. This outcome is in line with the study by Rautopuro and Vaisanen (2003) which found that learning style did not have any effect on success in applied statistics course in education.

However, a study by Bosman and Schulze (2018) found a significant interaction effect between achievement in mathematics and learning style. This outcome may be due to the fact that, despite the importance of quantitative ability on achievement in economics, this aspect of economics is not given adequate attention by economics teachers in high school. The researcher, based on his experience in teaching high school economics, and his long term interaction with teachers of high school economics can attest to this. Added to this is the ongoing debate as to the efficacy of learning style on achievement.

**Table 4.6: Estimated marginal mean of students' achievement in economics by learning style and quantitative ability**

Learning style	Quantitative Reasoning	Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
Active	Low	25.273 <sup>a</sup>	.766	23.767	26.780
	High	26.312 <sup>a</sup>	.876	24.588	28.035
Reflective	Low	27.098 <sup>a</sup>	.684	25.753	28.444
	High	25.265 <sup>a</sup>	.633	24.019	26.512
Abstracts	Low	25.102 <sup>a</sup>	.696	23.732	26.473
	High	25.319 <sup>a</sup>	.736	23.871	26.768
Concrete	Low	27.670 <sup>a</sup>	1.265	25.182	30.159
	High	25.647 <sup>a</sup>	1.421	22.852	28.443

**a. Covariates appearing in the model are evaluated at the following values: EACH\_PRE = 11.3200.**

### **Hypothesis 7(i)**

**There is no significant interaction effect of treatment, learning style and quantitative ability on students' achievement in economics.**

Table 4.7 showed that for experience debriefing, students that learn with concrete learning style and have low quantitative ability had the highest mean score (mean= 36.829). In experience dictation, students that learn with abstract learning style and have high quantitative ability had the highest mean score (mean= 30.326). In control group, students that learn with active learning style and have high quantitative reasoning had the highest mean score (mean= 18.291). Table 4.1 showed that there is significant interaction effect of treatment group, learning style and quantitative ability on students' achievement in economics, ( $F_{(6,300)} = 2.497$ ,  $p < 0.05(0.023)$ , partial  $\eta^2=0.048$ ). The effect size of interaction effect of treatment group, learning style and quantitative ability was very low. The hypothesis that "There is no significant interaction effect of treatment groups, learning style and quantitative ability on students' achievement in economics" was rejected.

This result showed that experience debriefing treatment group with concrete learning style and low quantitative ability improved students' economic achievement more than experience dictation and control. The implication of the result is that the ability of the treatment to improve students' achievement in economics was dependent on the students' quantitative ability and learning styles.

There is a significant interaction effect of treatment, learning style and quantitative ability on students' achievement in economics. This result showed that experience debriefing treatment group with concrete learning style and low quantitative ability improved students' economic achievement more than experience dictation and control. . The implication of the result is that the ability of the treatment to improve students' attitude towards economics was dependent on the students' quantitative ability and learning styles.

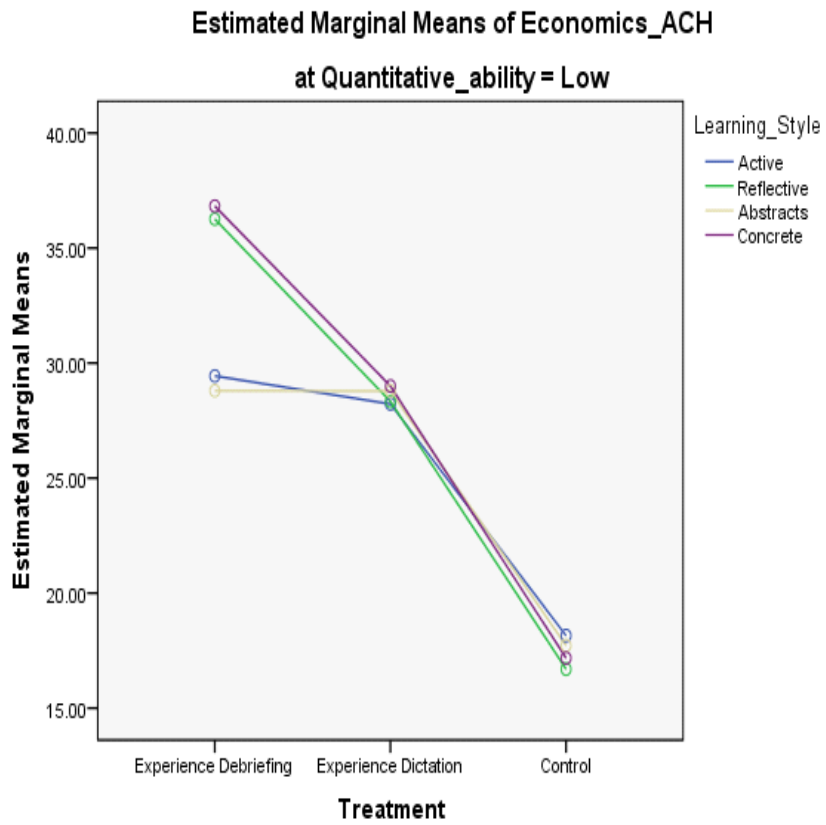
This outcome may be due to the fact that the teaching methods had a deep and direct significant main effect on achievement, even though learning style and quantitative ability did not individually significantly affect achievement but combined with treatment, both had a significant interaction affect on achievement. This outcome showed the importance

of learner centre pedagogy, such as the likes of experiential learning approaches, on student mastery of economics. This outcome showed the importance of quantitative ability and learning style in interacting with achievement. This is in line with the studies by Adu 2002 and Opatye 2009 in the area of quantitative ability and Munir, Emzir and Rahmat (2017) in the case of learning style.

**Table 4.7: Estimated marginal mean of students' achievement in economics by treatment, learning style and quantitative ability**

Treatment	Learning style	Quantitative ability	Mean	Std. Error	95% Confidence Interval		
					Lower Bound	Upper Bound	
Experience	Active	Low	29.443 <sup>a</sup>	1.576	26.341	32.546	
		High	31.371 <sup>a</sup>	1.672	28.081	34.661	
Debriefing	Reflective	Low	36.265 <sup>a</sup>	1.496	33.321	39.208	
		High	28.221 <sup>a</sup>	1.370	25.526	30.917	
	Abstracts	Low	28.802 <sup>a</sup>	1.426	25.995	31.608	
		High	29.419 <sup>a</sup>	1.221	27.016	31.822	
	Concrete	Low	36.829 <sup>a</sup>	2.366	32.173	41.485	
		High	30.098 <sup>a</sup>	3.345	23.514	36.681	
Experience Dictation	Active	Low	28.225 <sup>a</sup>	1.267	25.732	30.717	
		High	29.274 <sup>a</sup>	1.365	26.587	31.961	
	Reflective	Low	28.335 <sup>a</sup>	1.116	26.138	30.531	
		High	29.517 <sup>a</sup>	.879	27.787	31.246	
	Abstracts	Low	28.786 <sup>a</sup>	1.148	26.528	31.045	
		High	30.326 <sup>a</sup>	.949	28.459	32.193	
	Concrete	Low	29.005 <sup>a</sup>	2.365	24.352	33.658	
		High	29.065 <sup>a</sup>	1.578	25.960	32.170	
	Control	Active	Low	18.152 <sup>a</sup>	1.086	16.015	20.289
			High	18.291 <sup>a</sup>	1.500	15.339	21.242
		Reflective	Low	16.696 <sup>a</sup>	.850	15.024	18.368
			High	18.057 <sup>a</sup>	.986	16.117	19.998
Abstracts		Low	17.719 <sup>a</sup>	1.009	15.733	19.704	
		High	16.213 <sup>a</sup>	1.576	13.111	19.315	
Concrete		Low	17.177 <sup>a</sup>	1.788	13.659	20.695	
		High	17.779 <sup>a</sup>	2.115	13.617	21.941	

**a. Covariates appearing in the model are evaluated at the following values: EACH\_PRE = 11.3200.**



Covariates appearing in the model are evaluated at the following values: EACH\_PRE = 11.3200

**Figure 4.7: Graph of estimated marginal means of economics achievement at low quantitative ability.**

### **Hypothesis 1(ii)**

#### **There is no significant main effect of treatment on students' Economic reasoning**

To test the significance of the main effect of treatment (Experiencing Debriefing, Experience Dictation and Control) on students' economic reasoning, Analysis of Covariance (ANCOVA) was carried out. Table 4.8 showed the summary of the analysis.

Table 4.8 showed that there is a significant main effect of treatment (Experience Debriefing, Experience Dictation and Control) ( $F_{(2,303)} = 9.628, p < 0.05 (0.000)$ , partial  $\eta^2 = 0.060$ ) on students' economics reasoning. The partial ETA square (0.060) showed that the effect size of treatment on the dependent variable was low. This means that there is a significant main effect of treatments on students' economics reasoning. Therefore, the hypothesis which states that "There is no significant main effect of treatments on students' economics reasoning" was rejected. This result showed that treatments had significant effect on students' economic reasoning. This implies that the treatment improved students' economic reasoning. The results of the estimated marginal means and pairwise comparison of students' achievement in economics are presented in Tables 4.8.1 and 4.8.2.



**Table 4.8: Summary of Analysis of Covariance (ANCOVA) of economic reasoning by treatment (Experience Debriefing, Experience Dictation and Control), Learning Style and Quantitative ability**

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	180.410 <sup>a</sup>	24	7.517	3.098	.000	.197
Intercept	547.677	1	547.677	225.746	.000	.427
Pre-test	28.416	1	28.416	11.713	.001	.037
Treatment	46.718	2	23.359	9.628	.000	.060
Learning style	15.236	3	5.079	2.093	.101	.020
Quantitative ability	26.229	1	26.229	10.811	.001	.034
Treatment * Learning style	33.540	6	5.590	2.304	.034	.044
Treatment * Quantitative ability	19.063	2	9.532	3.929	.021	.025
Learning style * Quantitative ability	7.412	3	2.471	1.018	.385	.010
Treatment * Learning style * Quantitative ability	24.212	6	4.035	1.663	.130	.032
Error	735.102	303	2.426			
<b>Total</b>	<b>2658.000</b>	<b>328</b>				
<b>Corrected Total</b>	<b>915.512</b>	<b>327</b>				

**a. R Squared = .197 (Adjusted R Squared = .133)**

**Table 4.8.1: Estimated marginal means of students' economic reasoning by treatment.**

Treatment	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
Experience Debriefing	2.999 <sup>a</sup>	.223	2.560	3.438
Experience Dictation	2.633 <sup>a</sup>	.163	2.311	2.954
Control	1.869 <sup>a</sup>	.166	1.542	2.197

**a. Covariates appearing in the model are evaluated at the following values: pre-test = 1.4726.**

**Table 4.8.2: Pairwise comparison of students' economic reasoning by treatment**

(I) Treatment	(J) Treatment	Mean Difference (I-J)	Std. Error	Sig. <sup>b</sup>	95% Confidence Interval for Difference <sup>b</sup>	
					Lower Bound	Upper Bound
Experience	Experience	.366	.276	.558	-.299	1.031
Debriefing	Dictation					
	Control	1.129*	.279	.000	.458	1.801
Experience	Experience	-.366	.276	.558	-1.031	.299
	Debriefing					
Dictation	Control	.763*	.233	.004	.202	1.325
	Experience	-1.129*	.279	.000	-1.801	-.458
Control	Debriefing					
	Experience	-.763*	.233	.004	-1.325	-.202
	Dictation					

Based on estimated marginal means

\*. The mean difference is significant at the .05 level.

b. Adjustment for multiple comparisons: Bonferroni.

Table 4.8.1 showed that the students taught with Experience Debriefing, had the highest mean score ( $\bar{x} = 2.999$ ) followed by Experience Dictation group ( $\bar{x} = 2.633$ ) and then control group ( $\bar{x} = 1.869$ ). This result showed that experience debriefing was most effective in improving students' economic reasoning followed by experience dictation, then control. This implies that experience debriefing treatment group was better than experience dictation and control in improving students' performance in economics.

To assess whether the differences observed in the effect of the treatments on the students' economic reasoning across the treatment groups were significant and where the observed significance lies, Bonferonni pair-wise comparison was conducted. The result is presented in Table 4.8.2

Table 4.8.2 showed the pairwise multiple comparisons showing where the significant lies. The Table 4.8.2 revealed that experience debriefing did not significantly improve students' economic reasoning more than experience dictation (mean diff .366,  $p > 0.05$  (0.558)). Experience debriefing and experience dictation significantly improved students' economic reasoning more than the conventional teaching approach (exp deb: mean diff = 1.129,  $p < 0.05$  (0.000) (experience dictation: mean diff = 0.763,  $p < 0.05$  (0.000)). The result showed that while experience debriefing and experience dictation significantly improved students' economic reasoning more than the conventional teaching approach, experience debriefing did not significantly improve students' economic reasoning more than experience dictation.

The result showed that experience debriefing and experience dictation similarly improved students' economic reasoning and both treatments better improved students' economic reasoning than control group. The implication of the result is that experience debriefing and experience dictation were more effective in improving students' economic reasoning in economics.

Result showed that treatments had significant effect on students' economic reasoning. This implies that the treatment improved students' economic reasoning. The result showed that while experience debriefing and experience dictation significantly improved students' economic reasoning more than the conventional teaching approach, experience debriefing did not significantly improve students' economic reasoning more

than experience dictation. The result showed that experience debriefing and experience dictation similarly improved students' economic reasoning and both treatments better improved students' economic reasoning than control group.

The implication of the result is that experience debriefing and experience dictation were more effective in improving students' economic reasoning. In addition, the experience debriefing method was most effective in improving students' economic reasoning followed by experience dictation, then control. This is in line with the study by Laney (1993) which found that experience debriefing being superior to experience dictation in improving students' economic reasoning among school children but did not reach statistical significance. However, the experience debriefing method alone did not significantly improve students' economic reasoning more than the experience dictation, it was the combination of both the experience debriefing and experience dictation methods that significantly improved students' economic reasoning more than the conventional teaching method.

**Hypothesis 2(ii)**

**There is no significant main effect of learning style on students' economic reasoning**

**Table 4.9 : Estimated marginal means of students' economic reasoning by learning style**

Learning style	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
			Active	2.400 <sup>a</sup>
Reflective	2.387 <sup>a</sup>	.151	2.089	2.684
Abstracts	2.163 <sup>a</sup>	.168	1.833	2.493
Concrete	3.051 <sup>a</sup>	.314	2.434	3.668

**a. Covariates appearing in the model are evaluated at the following values: pre-test = 1.4726.**

Table 4.9 showed the estimated marginal means of learning style on students' economic reasoning. The Table 4.9 revealed that students with concrete learning style had highest mean score ( $\bar{x} = 3.051$ ) followed by active learning style ( $\bar{x} = 2.4$ ), reflective learning style ( $\bar{x} = 2.387$ ) and abstract ( $\bar{x} = 2.163$ ). The result showed that students with concrete learning style had the most improved students' economic reasoning, followed by active learning style, reflective learning style, and abstract learning style. Table 4.9 showed that there is no significant main effect of learning style on students' economic reasoning ( $F_{(3,303)} = 2.093$ ,  $p > 0.05$  ( $p = 0.101$ ), partial  $\eta^2 = .020$ ). This means that there is no significant main effect of learning style on students' economic reasoning. Therefore, the hypothesis "There is no significant main effect of learning style on students' economic reasoning" was not rejected. This result showed that learning style did not have a significant effect on students' economic reasoning. This implies that how students learn has no effect on students' economic reasoning.

This result showed that learning style did not have a significant effect on students' economic reasoning. This implies that how students learn has no effect on students' economic reasoning. The result showed that students with concrete learning style had the most improved students' economic reasoning, followed by active learning style, reflective learning style and abstract learning style.. This outcome is not in line with the theory of learning style. However, it may have been due to the fact that many of the students, who are teenagers, may not have keenly developed the use of a particular learning style at this level of their education (Kolb, 1984). However, this outcome is in line with outcome of a study by Eishani, Saad and Nami (2013) which revealed a non significant relationship between learning styles and creativity.

### **Hypothesis 3(ii)**

**There is no significant main effect of quantitative ability on students' economic reasoning**

**Table 4.10: Estimated marginal means of students' economics reasoning by quantitative ability**

Quantitative_ability	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
Low	2.146 <sup>a</sup>	.145	1.861	2.432
High	2.854 <sup>a</sup>	.159	2.542	3.166

**a. Covariates appearing in the model are evaluated at the following values: pre-test = 1.4726.**



Table 4.10 showed the estimated marginal means of quantitative ability on students' economic reasoning. The Table 4.10 revealed that learners having high quantitative ability had mean score ( $\bar{x} = 2.854$ ) greater than those with low ability ( $\bar{x} = 2.854$ ). Table 4.10 showed that there is significant main effect of quantitative ability on students' economic reasoning ( $F_{(1,303)} = 10.881$ ,  $p < 0.05(0.001)$ , partial  $\eta^2 = .034$ ). The effect size (0.034) of quantitative ability was very low. Therefore, the hypothesis "There is no significant main effect of quantitative ability on students' economic reasoning" was rejected. The result showed that learners having high quantitative ability had greater improved economic reasoning compared to learners with low quantitative ability. This implies that students' quantitative ability in economics significantly improves their economic reasoning.

The result showed that learners that had high quantitative ability had more improved economic reasoning compared to learners with low quantitative skill. This implies that students' quantitative ability in economics significantly improves their economic reasoning. Thus the outcome showed that there is significant main effect of quantitative ability on students' economic reasoning. This outcome showed the great importance of quantitative ability on economic reasoning. Thus the outcome of this study is in line with study by Schuhmann, McGoldrick and Burns (2005).

The study, designed to determine the correlation between quantitative literacy and economic literacy of university students, showed that quantitative literacy is an important determinant of economic literacy and hence economic reasoning. This was also the outcome of studies by Anazia (2019), Corengia et al. (2013), and Adu et al. (2009). Adu et al. (2009) Concluded that no student can do well in economics without a high quantitative ability.

#### **Hypothesis 4(ii)**

**There is no significant interaction effect of treatment and learning style on students' economic reasoning**

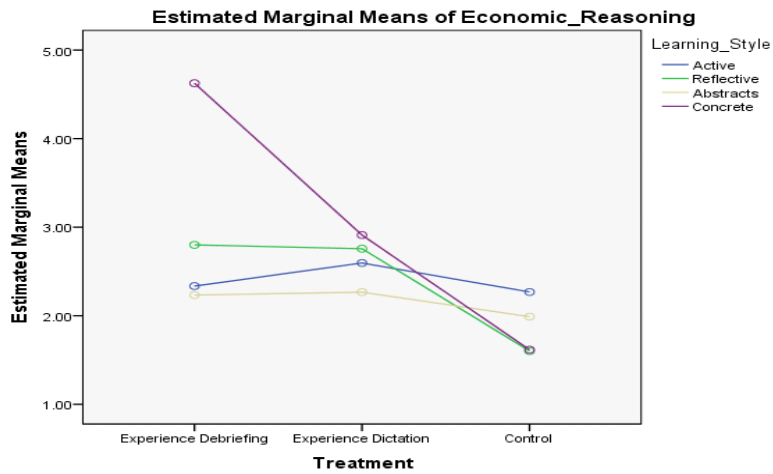
**Table 4.11 : Estimated marginal means of students' economic reasoning by treatment and learning style**

Treatment	Learning style	Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
Experience	Active	2.335 <sup>a</sup>	.367	1.612	3.058
Debriefing	Reflective	2.800 <sup>a</sup>	.325	2.160	3.440
	Abstracts	2.234 <sup>a</sup>	.309	1.625	2.842
	Concrete	4.626 <sup>a</sup>	.678	3.291	5.961
Experience	Active	2.596 <sup>a</sup>	.302	2.002	3.189
Dictation	Reflective	2.757 <sup>a</sup>	.234	2.297	3.217
	Abstracts	2.266 <sup>a</sup>	.251	1.773	2.760
	Concrete	2.911 <sup>a</sup>	.468	1.990	3.832
Control	Active	2.268 <sup>a</sup>	.305	1.669	2.868
	Reflective	1.602 <sup>a</sup>	.213	1.182	2.022
	Abstracts	1.990 <sup>a</sup>	.308	1.383	2.596
	Concrete	1.617 <sup>a</sup>	.456	.719	2.514

**a. Covariates appearing in the model are evaluated at the following values: pre-test = 1.4726.**

Table 4.11 showed effect of treatment across various learning styles. The table showed that experience debriefing and experience dictation were more effective for students that learn with concrete learning styles with higher mean scores of mean 4.626 and 2.911 respectively. The conventional teaching method was more effective for students that learn with active learning style (mean = 2.268). Table 4.8 showed that there was significant interaction effect of treatment and learning style on students' economic reasoning, ( $F_{(6,303)} = 2.304$ ,  $p < 0.05(0.034)$ , partial  $\eta^2 = 0.044$ ). The effect size (0.044) of interaction effect of treatment and learning style was very low.

The hypothesis that "There is no significant interaction effect of treatment and learning style on students' economic reasoning" was rejected. This result showed that there was significant difference in the way the treatment improved students' economic reasoning across the various styles through which students learn. The result also showed that experience debriefing and dictation treatment was more effective in improving the economic reasoning of students who learn concretely while control was more effective with students who learn through active learning style. This implies that experience debriefing and experience dictation was more effective in improving economic reasoning of students with concrete learning style.



Covariates appearing in the model are evaluated at the following values: pre\_test\_eco = 1.4726

**Figure 4.18a: Graph of estimated marginal means of economics reasoning and learning style**

This result showed that there was significant interaction effect of treatment and learning style on students' economic reasoning. There is a significant difference in the way the treatment improved students' economic reasoning across the various styles through which students learn. The result also showed that experience debriefing and dictation treatment was more effective in improving the economic reasoning of students who learn concretely while control was more effective with students who learn through active learning style.

This implies that experience debriefing and experience dictation was more effective in improving economic reasoning of students with concrete learning style. This outcome can be explained based on the efficacy of the treatment to foster economic reasoning. This outcome showed that the experiential learning pedagogy is discriminatory across different learning style. This is important for teachers to note in designing learning/teaching methods to use in the economics classroom, especially in relation to economic reasoning.

This outcome is in line with a study by Munir, Emzir and Rahmot (2017) which found a significant interaction effect of treatment and learning style on achievement in English at Junior High School. The study showed that student teams achievement division STAD was more effective compared to jigsaw, in improving students achievement in English of visual and Kinesthetic students, while jigsaw is better in improving English achievement of auditory students. However, this outcome is rather different from the outcome of a study by Adekoya and Akorede (2019), which found no significant interaction effect of treatment and learning style on achievement in SSS economics.

**Hypothesis 5(ii)**

**There is no significant interaction effect of treatment and quantitative ability on students' economic reasoning.**

**Table 4.12: Estimated marginal means of students' economic reasoning by treatment and quantitative ability.**

Treatment	Quantitative_ability	Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
Experience	Low	2.188 <sup>a</sup>	.287	1.623	2.753
Debriefing	High	3.810 <sup>a</sup>	.341	3.138	4.481
Experience	Low	2.432 <sup>a</sup>	.257	1.926	2.937
Dictation	High	2.834 <sup>a</sup>	.202	2.436	3.231
Control	Low	1.820 <sup>a</sup>	.204	1.418	2.222
	High	1.919 <sup>a</sup>	.263	1.402	2.435

a. Covariates appearing in the model are evaluated at the following values: pre-test = 1.4726.

Table 4.12 showed that experience debriefing, experience dictation and control improved the economic reasoning of participants with high quantitative reasoning (mean = 3.810, 2.832, 1.919) than their counterpart with low quantitative ability (mean = 2.188, 2.432, 1.820) respectively. Table 4.8 showed that there is significant interaction effect of treatment and quantitative skill on students' economic reasoning, ( $F_{(6,303)} = 2.304, p < 0.05(0.021)$ , partial  $\eta^2 = 0.044$ ). The effect size (0.044) of interaction effect of treatment and learning style was very low. The hypothesis that "There is no significant interaction effect of treatment and learning style on students' economic reasoning" was rejected. This result showed that there was significant difference in the way the treatment improved students' economic reasoning across the various styles through which students learn.

The result also showed that in all treatment groups, student with high quantitative ability had more improved economic reasoning than their counterparts with low economic reasoning. The implication of the result is that the ability of the treatment to improve students' economic reasoning was dependent on the students' quantitative ability.

This result showed that there was significant difference in the way the treatment improved students' economic reasoning across the various styles through which students learn. The result also showed that in all treatment groups, student with high quantitative ability had more improved economic reasoning than their counterparts with low economic reasoning. The implication of the result is that the ability of the treatment to improve students' economic reasoning was dependent on the students' quantitative ability. This outcome should not be a surprise, bearing in mind the importance of quantitative ability in learning economics- especially the basic economic concept of; scarcity, choice and opportunity cost, which are the hallmark of economic reasoning. This study itself showed that quantitative ability has a significant main effect on economics reasoning as revealed by Table 4.12.

This outcome is in line with the study by Schuhman et al (2005) and Anazia (2019). Thus the interaction effect of both the treatment and quantitative ability on economics reasoning lends credence to the importance of the experiential teaching method and students' quantitative ability on economics reasoning. We may, therefore

conclude that economics reasoning is sensitive to experiential teaching methods and learners quantitative ability.

**Hypothesis 6(ii)**

**There is no significant interaction effect of learning style and quantitative ability on students' economic reasoning**



**Table 4.13: Estimated marginal mean of students' economic reasoning by learning style and quantitative ability.**

Learning style	Quantitative ability	Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
Active	Low	2.286 <sup>a</sup>	.250	1.795	2.777
	High	2.513 <sup>a</sup>	.282	1.958	3.068
Reflective	Low	2.139 <sup>a</sup>	.219	1.708	2.570
	High	2.634 <sup>a</sup>	.209	2.224	3.045
Abstracts	Low	1.853 <sup>a</sup>	.232	1.398	2.309
	High	2.473 <sup>a</sup>	.243	1.995	2.952
Concrete	Low	2.307 <sup>a</sup>	.417	1.488	3.127
	High	3.795 <sup>a</sup>	.468	2.874	4.716

**a. Covariates appearing in the model are evaluated at the following values: pre\_test\_eco = 1.4726.**

Table 4.13 revealed that learners with high quantitative ability obtained higher mean scores in all learning styles (active = 2.513, reflective = 2.634, abstracts = 2.473, concrete = 3.795 ) than their counterparts with low quantitative ability (active = 2.286, reflective = 2.139, abstracts = 1.853, concrete = 2.307 ). However, Table 4.15 showed no significant interaction effect of learning style and quantitative ability on students' economic reasoning, ( $F_{(3,303)} = 1.018$ ,  $p > 0.05(0.385)$ , partial  $\eta^2 = 0.010$ ). The hypothesis that "There is no significant interaction effect of learning style and quantitative ability on students' economic reasoning" was not rejected. The result showed that the interaction effect of learning style and quantitative ability had no significant effect on students' economic reasoning. This implies that economic reasoning of students does not depend on the interaction of learning style and quantitative ability.

The result showed that the interaction effect of learning style and quantitative ability had no significant effect on students' economic reasoning. This implies that economic reasoning of students does not depend on the interaction of learning style and quantitative ability. This outcome is similar to the outcome on the interaction effect of learning style and quantitative ability on achievement, as revealed by this present study (see Table 4.6). This outcome is similar to the outcome of the study by Balogun (2014) whose study found no interaction effect of learning styles and study habit on students' academic achievement in financial accounting among high school students.

However a study by Sanni and Emeke (2014) had a contrary outcome. They found a significant interaction effect of learning style and gender/age on achievement in Biology. The reason for this outcome may be due to what has been stated before, that many of these high school students are yet to develop a full blown learning style type (Kolb 1984)

#### **Hypothesis 7(ii)**

**There is no significant interaction effect of treatment, learning style and quantitative ability on students' economic reasoning.**

**Table 4.14: Estimated marginal mean of students' economic reasoning by treatment, learning style and quantitative ability.**

Treatment	Learning style	Quantitative ability	Mean	Std. Error	95% Confidence Interval		
					Lower Bound	Upper Bound	
Experience Debriefing	Active	Low	2.093 <sup>a</sup>	.519	1.071	3.115	
		High	2.577 <sup>a</sup>	.520	1.554	3.600	
	Reflective	Low	2.589 <sup>a</sup>	.470	1.664	3.513	
		High	3.012 <sup>a</sup>	.450	2.127	3.897	
	Abstracts	Low	1.596 <sup>a</sup>	.471	.668	2.524	
		High	2.872 <sup>a</sup>	.404	2.077	3.666	
	Concrete	Low	2.474 <sup>a</sup>	.783	.933	4.015	
		High	6.778 <sup>a</sup>	1.103	4.607	8.949	
Experience Dictation	Active	Low	2.288 <sup>a</sup>	.403	1.495	3.081	
		High	2.904 <sup>a</sup>	.451	2.017	3.791	
	Reflective	Low	2.371 <sup>a</sup>	.367	1.648	3.093	
		High	3.143 <sup>a</sup>	.289	2.574	3.712	
	Abstracts	Low	2.323 <sup>a</sup>	.391	1.554	3.093	
		High	2.209 <sup>a</sup>	.312	1.595	2.824	
	Concrete	Low	2.744 <sup>a</sup>	.779	1.212	4.277	
		High	3.078 <sup>a</sup>	.520	2.055	4.101	
	Control	Active	Low	2.478 <sup>a</sup>	.358	1.774	3.182
			High	2.059 <sup>a</sup>	.493	1.089	3.029
		Reflective	Low	1.457 <sup>a</sup>	.276	.913	2.001
			High	1.747 <sup>a</sup>	.325	1.108	2.386
Abstracts		Low	1.640 <sup>a</sup>	.332	.987	2.294	
		High	2.339 <sup>a</sup>	.519	1.318	3.361	
Concrete		Low	1.704 <sup>a</sup>	.590	.543	2.865	
		High	1.529 <sup>a</sup>	.697	.158	2.901	

**a. Covariates appearing in the model are evaluated at the following values: pre-test= 1.4726.**

Table 4.14 showed that for experience debriefing, students that learn with concrete learning style and have high quantitative ability had the highest mean score (mean= 6.778). In experience dictation, students that learn with reflective learning style and have high quantitative ability had the highest mean score (mean= 3.143). In control group, students that learn with active learning style and have low quantitative reasoning had the highest mean score (mean= 2.478). Table 4.8 showed no significant interaction effect of treatment group, learning style and quantitative ability on learners' economic reasoning, ( $F_{(6,303)} = 1.663$ ,  $p > 0.05$  (0.130), partial  $\eta^2 = 0.032$ ). The hypothesis that "There is no significant interaction effect of treatment groups, learning style and quantitative ability on students' economic reasoning" was not rejected. . The result showed that the interaction effect of treatment, learning style and quantitative ability did not significantly improve students' economic reasoning. This implies that there was no significant difference in the way treatment groups improved students' economic reasoning across the various level of quantitative ability of students and various learning styles.

This outcome may be due to the fact that, the two variables of learning style and quantitative ability may have been responsible for playing down the effect of treatment on students economics reasoning. As strong as the treatment is in improving achievement and economics reasoning, learning style and quantitative ability are still lagging variable. In the high school economics class room. Many of the students are yet to develop sharp differences and usage of learning style (Kolb 1984). In addition, the majority of students in the economics classes, in Nigeria high schools are either Arts/Commercial students. While majority of science students- who are higher in quantitative skills, offer Geography in place of economics. The outcome of this study is in line with the study by Adekoya and Akorede (2019) which found no significant interaction effect of teaching method and learning style on achievement.

### **Hypothesis 1(iii)**

**There is no significant main effect of treatments on students' attitude towards economics.**

To test the significance of the main effect of treatment (Experiencing Debriefing, Experience Dictation and Control) on students' attitude towards economics, Analysis of Covariance (ANCOVA) was carried out. Table 4.15 showed the summary of the analysis.

Table 4.15 showed that there was significant main effect of treatment (Experience Debriefing, Experience Dictation and Control) ( $F_{(2,304)} = 15.790$ ,  $p < 0.05(0.000)$ , partial  $\eta^2 = .094$ ) on attitude of students towards economics. The partial eta square (.094) showed that the effect size of treatment on the dependent variable was very low. Therefore, the hypothesis which states "there is no significant main effect of treatment on students' attitude towards economics" was rejected. This result showed that treatments significantly improved learner's attitude towards economics.

The results of the estimated marginal means and pairwise comparison of attitude of students towards economics are presented in Tables 4.15.1 and 4.15.2. Table 4.15.1 showed that the students in Experience Debriefing method had the greatest mean score ( $\bar{x} = 44.269$ ) after, comes Experience Dictation group ( $\bar{x} = 42.231^a$ ) and then control group ( $\bar{x} = 39.067$ ). This result showed that experience debriefing was most effective in improving students' attitude towards economics followed by experience dictation, then control. This result implies that experience debriefing treatment group was better than experience dictation and control in improving students' performance in economics.

To assess whether the differences observed in the effect of the treatments on students' attitude towards economics across the treatment groups were significant and where the observed significance lies, bonferonni pair-wise comparison was conducted. The result is presented in Table 4.15.2

**Table 4.15: Summary of Analysis of Covariance (ANCOVA) of attitude towards economics by treatment (Experience Debriefing, Experience Dictation and Control), Learning Style and Quantitative ability**

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	3370.161 <sup>a</sup>	24	140.423	4.691	.000	.270
Intercept	5646.098	1	5646.098	188.621	.000	.383
Pretest	690.719	1	0.00...0	23.075	.000	.071
Treatment	945.299	2	472.650	15.790	.000	.094
Learning style	283.015	3	94.338	3.152	.025	.030
Quantitative_ability	16.882	1	16.882	.564	.453	.002
Treatment * Learning_Style	146.046	6	24.341	.813	.560	.016
Treatment * Quantitative_ability	12.005	2	6.002	.201	.818	.001
Learning_Style * Quantitative_ability	133.016	3	44.339	1.481	.220	.014
Treatment * Learning_Style * Quantitative_ability	242.921	6	40.487	1.353	.234	.026
Error	9099.796	304	29.934			
Total	582873.000	329				
Corrected Total	12469.957	328				

**a. R Squared = .270 (Adjusted R Squared = .213)**

**Table 4.15.1: Estimated marginal means of attitude towards economics by treatment**

Treatment	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
Experience Debriefing	44.269 <sup>a</sup>	.781	42.732	45.806
Experience Dictation	42.231 <sup>a</sup>	.572	41.105	43.357
Control	39.067 <sup>a</sup>	.583	37.919	40.215

**a. Covariates appearing in the model are evaluated at the following values: att\_pre = 38.0578.**

**Table 4.15.2: Pairwise comparison of attitude towards economics by treatment**

(I) Treatment	(J) Treatment	Mean Difference (I-J)	Std. Error	Sig. <sup>b</sup>	95% Confidence Interval for Difference <sup>b</sup>	
					Lower Bound	Upper Bound
Experience Debriefing	Experience	2.038	.968	.108	-.293	4.369
	Dictation					
Experience Dictation	Control	5.202*	.975	.000	2.855	7.548
	Experience	-2.038	.968	.108	-4.369	.293
Debriefing Dictation	Debriefing					
	Control	3.163*	.817	.000	1.196	5.131
Control Debriefing	Experience	-5.202*	.975	.000	-7.548	-2.855
	Debriefing					
Control Dictation	Experience	-3.163*	.817	.000	-5.131	-1.196
	Dictation					

Based on estimated marginal means

\*. The mean difference is significant at the .05 level.

b. Adjustment for multiple comparisons: Bonferroni.



Table 4.15.2 showed the pairwise multiple comparisons showing where the significant effect of the treatment on students' attitude towards economics lies. The Table 4.15.2 showed that experience debriefing did not significantly improve students' attitude towards economics more than experience dictation (mean diff = 2.038,  $p > 0.05$  (0.108)). Furthermore, Table 4.15.2 showed that experience debriefing and experience dictation significantly improved students' attitude towards economics more than the conventional teaching approach (experience debriefing: mean diff = 5.202,  $p < 0.05$  (0.000); experience dictation: mean diff = 3.163,  $p < 0.05$  (0.000)).

This result showed that experience debriefing was most effective in improving students' attitude towards economics followed by experience dictation, then control. This result implies that experience debriefing treatment group was better than experience dictation and control in improving students' performance in economics. The study showed that there is a significant main effect of treatment on attitude of students towards economics. This outcome is likely so considering the effect of the treatment – a learner centered pedagogy. Since the experiential method is learner centered, students in such a classroom are rarely bored- they do not only develop a love for the method they grow to love the subject too.

Moreover, studies in the literature on economics education in high school support this outcome. Adu and Galloway 2017 which showed that cooperative learning method, led to a positive attitude toward high school economics. Adeyemi (2013), had a similar outcome. Outside of economics, studies by Ibode (2004), Abijo (2009), Badru (2009) corroborate the outcome of this study. However the outcome of the study negates the findings of Aparara and Yoloye (2014) that, there existed no significant main effect of treatment on students' attitude to chemistry.

### **Hypothesis 2(iii)**

#### **There is no significant main effect of learning style on students' attitude towards economics**

Table 4.16 presented the estimated marginal means of learning style on students' attitude towards economics. The table revealed that the students in abstract learning style had highest mean score ( $\bar{x} = 43.142$ ) followed by reflective learning style ( $\bar{x} = 42.285$ ), concrete learning style (41.500) and active learning style ( $\bar{x} = 40.495$ ). Table 4.16 showed that students that learn with abstract learning style had the most improved attitude towards economics, followed by reflective learning style, concrete learning style and then active learning style. Table 4.15 showed that there is a significant main effect of learning style on the attitude of students towards economics ( $F_{(3,304)} = 3.152$ ,  $p < 0.05$  (0.025), partial  $\eta^2 = .030$ ). The effect size (0.030) was very low. Therefore, the hypothesis "There is no significant main effect of learning style on students' attitude towards economics" was rejected.

This result showed that students with abstract learning style had the most improved attitude towards economics, followed by reflective, concrete and abstract learning styles. This implies that how students learn has effect on their attitude towards economics.

**Table 4.16: Estimated marginal means of students' attitude towards economics by learning style**

Learning style	Mean	Std. Error	95% Confidence Interval	
			Lower	Upper
Active	40.49 <sup>a</sup>	.661	39.196	41.795
Reflective	42.28 <sup>a</sup>	.531	41.241	43.330
Abstracts	43.14 <sup>a</sup>	.586	41.989	44.295
Concrete	41.50 <sup>a</sup>	1.100	39.335	43.664

**a. Covariates appearing in the model are evaluated at the following values: att\_pre = 38.0578.**

**Table 4.16.1: Pairwise comparison of attitude towards economics by learning style**

(I) Learning style	(J) Learning style	Mean Difference (I-J)	Std. Error	Sig. <sup>b</sup>	95% Confidence Interval for Difference <sup>b</sup>	
					Lower Bound	Upper Bound
Active	Reflective	-1.790	.848	.213	-4.041	.461
	Abstracts	-2.646*	.883	.018	-4.991	-.301
	Concrete	-1.004	1.283	1.000	-4.412	2.403
Reflective	Active	1.790	.848	.213	-.461	4.041
	Abstracts	-.856	.791	1.000	-2.956	1.244
	Concrete	.785	1.222	1.000	-2.458	4.029
Abstracts	Active	2.646*	.883	.018	.301	4.991
	Reflective	.856	.791	1.000	-1.244	2.956
	Concrete	1.642	1.246	1.000	-1.668	4.951
Concrete	Active	1.004	1.283	1.000	-2.403	4.412
	Reflective	-.785	1.222	1.000	-4.029	2.458
	Abstracts	-1.642	1.246	1.000	-4.951	1.668

Based on estimated marginal means

\*. The mean difference is significant at the .05 level.

b. Adjustment for multiple comparisons: Bonferroni.

Table 4.16.1 showed the pairwise multiple comparisons revealing where the significant effect lies. The Table 4.16.1 showed that active learning style did not significantly improve students' attitude towards economics more than reflective learning style, abstract and concrete learning styles. Reflective learning style did not significantly improve students' attitude towards economics more than active, abstract and concrete learning style. Concrete learning style did not significantly improve students' attitude towards economics more than active, abstract and reflective learning style. Abstract learning style significantly improved students' attitude towards economics than active learning style (mean diff = 2.646,  $p < 0.05$ ,  $p = 0.018$ ) but did not significantly improve students' attitude towards economics more than abstract and concrete learning style.

The result showed that all learning styles had similar effect on students' attitude towards economics except abstract learning style that significantly improved students' attitude towards economics more than active learning style. The implication of the result is that students with abstract learning style had a better attitude towards economics than students' with active learning style.

This outcome showed that there is a significant main effect of learning style on the attitude of students towards economics. The results show that students that learn with abstract learning style had the most improved attitude towards economics, followed by reflective learning style, concrete learning style and then active learning style. This result can be explained based on the fact that in the SSS economics classroom there are various categories of Students- Arts, Social Science and Science Student. Studies seems to show that the different categories of student develop different learning style over time, based on their subject area specialization (Adekoya and Akorede ,2019; Kolb, 1986). The outcome of the study is in line with studies by Caliskan and Kilinc (2012) which found a significant effect of learning style on attitude of primary school pupils to social studies. This was also the outcome of a study by Yazicilar and Guven (2009).

### **Hypothesis 3(iii)**

**There is no significant main effect of quantitative ability on students' attitude towards economics**

Table 4.17 presents the estimated marginal means of quantitative ability on attitude towards economics. It revealed that the learners having high quantitative ability had higher mean score ( $\bar{x} = 42.139$ ) compared to those with low quantitative ability ( $\bar{x} = 41.572$ ). However, table 4.8 showed that there is no significant main effect of quantitative ability ( $F_{(1,304)} = .564, p > 0.05(.453), \text{partial } \eta^2 = .002$ ) on attitude of students towards economics. Therefore, the hypothesis "There is no significant main effect of quantitative ability on students' attitude towards economics" was not rejected. The result showed that quantitative ability does not have significant effect on students' attitude towards economics. This implies that quantitative ability does not significantly improve students' attitude towards economics.

This outcome should be understood in line with the fact that the two variables quantitative ability and attitude towards economics are at variance. For instance, in this study quantitative ability did not have a significant effect on achievement in economics. The high school economics classroom in most Nigeria secondary schools is made up of mostly commercial students and art student- with a few sciences based students. This may be responsible for this particular outcome. Nevertheless, this outcome is in line with the study by Opataye (2009) However this outcome negate the findings of a study by Aparo and Yoloje (2014) which found a significant main effect of chemistry process skill on attitude towards chemistry in high school.

**Table 4.17: Estimated marginal means of attitude towards economics by quantitative ability**

Quantitative_ability	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
Low	41.57 <sup>a</sup>	.510	40.569	42.575
High	42.13 <sup>a</sup>	.556	41.045	43.213

**a. Covariates appearing in the model are evaluated at the following values: att\_pre = 38.0578.**

**Hypotheses 4 (iii): There is no significant interaction effect of treatment and learning style on students' attitude towards economics.**



**Table 4.18: Estimated marginal means of students' attitude towards economics by treatment and learning style**

Treatment	Learning style	Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
Experience Debriefing	Active	43.803 <sup>a</sup>	1.290	41.265	46.340
	Reflective	44.033 <sup>a</sup>	1.142	41.786	46.281
Experience Dictation	Abstracts	45.957 <sup>a</sup>	1.087	43.819	48.096
	Concrete	43.283 <sup>a</sup>	2.369	38.620	47.945
	Active	40.599 <sup>a</sup>	1.059	38.514	42.683
	Reflective	43.576 <sup>a</sup>	.822	41.958	45.194
Control	Abstracts	44.069 <sup>a</sup>	.861	42.375	45.763
	Concrete	40.679 <sup>a</sup>	1.645	37.443	43.915
	Active	37.085 <sup>a</sup>	1.069	34.982	39.188
	Reflective	39.247 <sup>a</sup>	.750	37.771	40.722
	Abstracts	39.399 <sup>a</sup>	1.083	37.269	41.529
	Concrete	40.538 <sup>a</sup>	1.602	37.386	43.690

• Covariates appearing in the model are evaluated at the following values: att\_pre = 38.0578.

Table 4.18 showed the effect of treatment across various learning style. The Table 4.18 showed that experience debriefing and experience dictation was more effective for students who learn with abstracts learning style (mean score = 45.957, 44.069) respectfully. The conventional teaching method was more effective for students who learn with concrete learning style (mean score = 40.538). However, table 4.15 showed that there was no significant interaction effect of treatment and learning style on students' attitude towards economics, ( $F_{(6,304)} = .813$ ,  $p > 0.05(0.560)$ , partial  $\eta^2 = 0.016$ ). Therefore, the hypothesis "There is no significant interaction effect of treatment and learning style on students' attitude towards economics" was not rejected.

This result showed that there was no significant difference in the way the treatment improved students' attitude towards economics across various styles through which students learn. The implication of the result is that the ability of the treatment to improve students' attitude towards economics was independent of the students' learning style.

This result showed that there was no significant difference in the way the treatment improved students' attitude towards economics across various styles through which students learn. The implication of the result is that the ability of the treatment to improve students' attitude towards economics was independent of the students' learning style. The result showed that experience debriefing and experience dictation was more effective for students who learn with abstracts learning style. The conventional teaching method was more effective for students who learn with concrete learning style.

This outcome is surprising one would have expected that the treatment (experiential teaching method) and different learning styles should significantly affect students' attitude to economics. But this is not so, though individually each of these variables had a significant main effect on attitude to economics. However, both of them interacting together did not have any interaction effect on attitude. This may be a sample size challenge or challenge posed by data gathering. This outcome is in line with the study by Alabi (2008) where a combination of treatment and verbal ability did not also produce significant effect on attitude to English essay writing.

**Hypothesis 5(iii)**

**There is no significant interaction effect of treatment and quantitative ability on students' attitude towards economics.**

**Table 4.19: Estimated marginal means of attitude towards economics by quantitative ability and treatment**

Treatment	Quantitative ability	Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
Experience	Low	43.626 <sup>a</sup>	1.013	41.633	45.620
Debriefing	High	44.912 <sup>a</sup>	1.196	42.558	47.265
Experience	Low	42.049 <sup>a</sup>	.898	40.282	43.816
Dictation	High	42.412 <sup>a</sup>	.710	41.016	43.809
Control	Low	39.042 <sup>a</sup>	.714	37.637	40.447
	High	39.093 <sup>a</sup>	.925	37.273	40.912

**a. Covariates appearing in the model are evaluated at the following values: att\_pre = 38.0578.**

Table 4.19 showed that experience debriefing, experience dictation and control improved the attitude of participants towards economics with high quantitative ability (mean = 44.912, 42.412, 39.093) respectively than their counterparts with low quantitative ability (mean = 43.626, 42.049, 39.093). However, Table 4.15 showed that there was no significant interaction effect of treatment and quantitative ability on students' attitude towards economics, ( $F_{(2,304)} = 0.201$ ,  $p > 0.05(0.818)$ , partial  $\eta^2 = 0.001$ ). Therefore, the hypothesis that "There is no significant interaction effect of treatment and quantitative ability on students' achievement" was not rejected.

The result showed that the treatment functioned similarly across the groups irrespective of the students' level of quantitative reasoning. The implication of the result is that the ability of the treatment to improve students' attitude towards economics was independent of the students' quantitative ability.

. From this study, as initially discussed, treatment, that is the teaching method employed, has significant main effect on attitude. This was confirmed by studies done by Ibode (2004) Alabi (2008) Adeyemi (2013). However, combined with quantitative ability the outcome seems to be different.

The interaction effect of both treatment and quantitative ability was not significant in relation to attitude. Whereas, in this study both variables, students attitude and quantitative ability, had significant interaction effect on achievement. This was also confirmed by Ayanniyi (2013). This present outcome may have been due to the fact that many students seem not to be aware of the importance of quantitative ability on achievement in economics. Despite the fact that Adu, Ojelabi and Adeyanju (2009) finding suggested the great importance of quantitative ability on achievement in economics.

#### **Hypothesis 6(iii)**

**There is no significant interaction effect of learning and quantitative ability on students' attitude towards economics.**

**Table 4.20: Estimated marginal means of attitude towards economics by quantitative ability and learning style**

Learning style	Quantitative ability	Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
Active	Low	40.235 <sup>a</sup>	.876	38.511	41.959
	High	40.756 <sup>a</sup>	.990	38.808	42.704
Reflective	Low	41.989 <sup>a</sup>	.769	40.475	43.503
	High	42.581 <sup>a</sup>	.733	41.138	44.024
Abstracts	Low	44.019 <sup>a</sup>	.806	42.433	45.605
	High	42.264 <sup>a</sup>	.851	40.590	43.939
Concrete	Low	40.045 <sup>a</sup>	1.466	37.162	42.929
	High	42.954 <sup>a</sup>	1.643	39.721	46.187

**a. Covariates appearing in the model are evaluated at the following values: att\_pre = 38.0578.**

Table 4.20 showed that students with high quantitative ability with active learning style (mean = 40.756), reflective learning style (mean = 42.581), and concrete learning style (mean = 42.954) had higher mean scores. For the abstract learning style, students with low quantitative ability had higher mean score (mean = 44.019). However, Table 4.15 showed that there was no significant interaction effect of learning style and quantitative ability on students' attitude towards economics, ( $F_{(3,304)} = 1.481$ ,  $p > 0.05$  (0.220), partial  $\eta^2 = 0.014$ ). Therefore, the hypothesis that "There is no significant interaction effect of learning styles and quantitative ability on students' attitude towards economics" was not rejected. This result showed that the interaction effect of learning style and quantitative did not significantly improve students' attitude towards economics. This implies that attitude of students towards economics is independent of the interaction of learning style and quantitative ability of students.

This outcome may be due to the fact that, majorly students' attitude to a particular subject, especially in secondary schools is influenced by other factors beyond their learning style and quantitative ability. Studies show that factors such as parent's attitude, peer group influence, play a greater role. ( Onyekachi, 2018; Obemeata, 1980). This may explain the reason for this outcome. This finding negate the finding by Dunn, Giannitti, Murray, Rossi (1990) which found a significant relationship between learning style and treatment on attitude towards social studies.

#### **Hypothesis 7(iii)**

**There is no significant interaction effect of treatment, learning and quantitative ability on students' attitude towards economics.**

**Table 4.21: Estimated marginal means of attitude towards economics by quantitative ability, treatment and learning style**

Treatment	Learning style	Quantitative ability	Mean	Std. Error	95% Confidence Interval	
					Lower Bound	Upper Bound
Experience Debriefing	Active	Low	43.207 <sup>a</sup>	1.824	39.618	46.796
		High	44.398 <sup>a</sup>	1.824	40.809	47.987
	Reflective	Low	42.532 <sup>a</sup>	1.651	39.283	45.782
		High	45.534 <sup>a</sup>	1.584	42.418	48.650
	Abstracts	Low	48.586 <sup>a</sup>	1.650	45.338	51.833
		High	43.329 <sup>a</sup>	1.413	40.549	46.110
Experience Dictation	Concrete	Low	40.180 <sup>a</sup>	2.752	34.765	45.595
		High	46.385 <sup>a</sup>	3.876	38.759	54.012
	Active	Low	40.025 <sup>a</sup>	1.413	37.245	42.805
		High	41.172 <sup>a</sup>	1.579	38.064	44.280
	Reflective	Low	43.931 <sup>a</sup>	1.290	41.392	46.469
		High	43.222 <sup>a</sup>	1.018	41.219	45.224
Control	Abstracts	Low	44.690 <sup>a</sup>	1.327	42.078	47.302
		High	43.448 <sup>a</sup>	1.095	41.292	45.603
	Concrete	Low	39.549 <sup>a</sup>	2.736	34.165	44.934
		High	41.809 <sup>a</sup>	1.824	38.219	45.398
	Active	Low	37.474 <sup>a</sup>	1.261	34.992	39.955
		High	36.697 <sup>a</sup>	1.733	33.286	40.108
Reflective	Low	Low	39.506 <sup>a</sup>	.968	37.601	41.410
		High	38.988 <sup>a</sup>	1.143	36.739	41.237
	Abstracts	Low	38.781 <sup>a</sup>	1.167	36.485	41.077
		High	40.016 <sup>a</sup>	1.824	36.428	43.605
Concrete	Low	40.408 <sup>a</sup>	2.069	36.336	44.479	
	High	40.669 <sup>a</sup>	2.449	35.850	45.487	

a. Covariates appearing in the model are evaluated at the following values: att\_pre = 38.0578.



Table 4.21 showed that for experience debriefing, students that learn with abstract learning style and have low quantitative ability had the highest mean score (mean= 48.586). In experience dictation, students that learn with abstract learning style and have low quantitative ability had the highest mean score (mean= 44.690). In control group, students that learn with concrete learning style and have high quantitative reasoning had the highest mean score (mean= 40.669). Table 4.15 showed that there is no significant interaction effect of treatment group, learning style and quantitative ability on students' attitude towards economics, ( $F_{(6,304)} = 1.353$ ,  $p > 0.05(0.234)$ , partial  $\eta^2=0.026$ ).

The hypothesis that "There is no significant interaction effect of treatment groups, learning style and quantitative ability on students' attitude towards economics" was not rejected. The result showed that the interaction effect of treatment, learning style and quantitative ability did not significantly improve students' attitude towards economics. This implies that there was no significant difference in the way treatment groups improved students' attitude towards economics across the various level of quantitative ability of students and various learning styles.

Though this study revealed a significant main effect of treatment on students' attitude to economics, this was also the case with learning style. However, for quantitative ability, its effect on attitude was not significant. Thus the outcome of this interaction effect of the variables- treatments, learning style and quantitative ability on attitude may have been caused by the sole effect of quantitative ability, which it has been said before may have been due to the fact that the majority of students in this sample, were social science and Art students with few science student where quantitative ability is highly demanded. This finding is in line with the outcome of the study by Adeyemi (2013)

## **CHAPTER FIVE**

### **SUMMARY CONCLUSION AND RECOMMENDATIONS**

Presented in this chapter are; the summary, implication of the study, recommendations, and suggestions for further study and the limitations of the study.

#### **5.1 Summary of the Study**

This study examined the effect of experiential teaching methods- experienced based learning and experiential learning, and conventional teaching strategy, which served as control, on Senior Secondary School (SSS) students' achievement in economics, economic reasoning and attitude to economics. Also the moderating effect of learning style and quantitative ability were investigated to determine their main and interaction effect on achievement, economic reasoning, and attitude towards economics.

Out of the five instruments used in the study, four were developed and validated by the researcher, using Item Response Theory (IRT) methodology. They are; Economics Achievement Test (ER 0.87), Test of Quantitative Skill (ER 0.82), Test of Economic Reasoning and Students Attitude to Economic Scale (ER 0.78). The fifth instrument, Students Learning Style Inventory ( $r=0.77$ ) was adapted and revalidated using Crombach alpha.

The research took place in six secondary schools, which were randomly selected out of one (randomly selected) of the three Senatorial Districts of Ogun State. Two schools each were randomly selected and assigned to each of the treatments. Two experiential teaching manuals were developed along with a conventional lesson plan, to guard the administration of the treatments.

The study employed a 3x4x2 non randomized pre-test, post-test, control group quasi-experimental design. After preliminary introduction, and permission from the selected schools, and the establishment of time table as approved by the schools, the pre-tests were administered, after which the treatment followed (this took four weeks). This was followed by the post-tests. After the post test and sorting of the data obtained, seven hypotheses were tested. The data obtained were analysed using descriptive statistics

(mean scores and standard deviation), Analyses of Covariance and Scheffe Post Hoc Multiple Comparison. The summary of the findings as revealed by the analyses are;

There was a significant main effect of treatment (Experience Debriefing, Experience Dictation and Control) on students' economics achievement, ( $F_{(2,300)} = 186.699$ ,  $p < 0.05$  (0.000), partial  $\eta^2 = .554$ ) students' economics reasoning, ( $F_{(2,303)} = 9.628$ ,  $p < 0.05$  (0.000), partial  $\eta^2 = .060$ ) and on attitude of students towards economics ( $F_{(2,304)} = 15.790$ ,  $p < 0.05$  (0.000), partial  $\eta^2 = .094$ ). In addition, there was no significant main effect of learning style on achievement in Economics ( $F_{(3,300)} = 0.943$ ,  $p > 0.05$  (0.420), partial  $\eta^2 = .009$ ) and on students' economic reasoning ( $F_{(3,303)} = 2.093$ ,  $p > 0.05$  ( $p = 0.101$ ), partial  $\eta^2 = .020$ ), whereas, there was a significant main effect of learning style on the attitude of students towards economics ( $F_{(3,304)} = 3.152$ ,  $p < 0.05$  (0.025), partial  $\eta^2 = .030$ ). Also there was no significant main effect of quantitative ability on achievement in Economics ( $F_{(1,300)} = 0.986$ ,  $p > 0.05$  (0.322)) and on attitude of students towards economics ( $F_{(1,304)} = .564$ ,  $p > 0.05$  (.453), partial  $\eta^2 = .002$ ), However, there was a significant main effect of learning style on students' economic reasoning ( $F_{(1,303)} = 10.881$ ,  $p < 0.05$  (0.001), partial  $\eta^2 = .034$ ).

Furthermore, there was no significant interaction effect of treatment and learning style on students' achievement in economics, ( $F_{(6,300)} = 1.245$ ,  $p > 0.05$  (0.283)) and on students' attitude towards economics, ( $F_{(6,304)} = .813$ ,  $p > 0.05$  (0.560), partial  $\eta^2 = 0.016$ ). But, there was significant interaction effect of treatment and learning style on students' economic reasoning, ( $F_{(6,303)} = 2.304$ ,  $p < 0.05$  (0.034), partial  $\eta^2 = 0.044$ ). In addition, there was no significant interaction effect of treatment and quantitative ability on students' achievement in economics, ( $F_{(2,300)} = 2.941$ ,  $p > 0.05$  (0.054)) and on students' attitude towards economics, ( $F_{(2,304)} = 0.201$ ,  $p > 0.05$  (0.818), partial  $\eta^2 = 0.001$ ), but there was significant interaction effect of treatment and quantitative ability on students' economic reasoning, ( $F_{(6,303)} = 2.304$ ,  $p < 0.05$  (0.021), partial  $\eta^2 = 0.044$ ).

Also, there was no significant interaction effect of learning style and quantitative ability on students' achievement in economics, ( $F_{(3,300)} = 1.643$ ,  $p > 0.05$  (0.180)), students' economic reasoning, ( $F_{(3,303)} = 1.018$ ,  $p > 0.05$  (0.385), partial  $\eta^2 = 0.010$ ) and on students' attitude towards economics, ( $F_{(3,304)} = 1.481$ ,  $p > 0.05$  (0.220), partial  $\eta^2 = 0.014$ ). Furthermore, there was significant interaction effect of treatment, learning style and

quantitative ability on students' achievement in economics, ( $F_{(6,300)} = 2.497$ ,  $p < 0.05(0.023)$ , partial  $\eta^2=0.048$ ). However, there was no significant interaction effect of treatment group, learning style and quantitative ability on students' economic reasoning, ( $F_{(6,303)} = 1.663$ ,  $p > 0.05(0.130)$ , partial  $\eta^2=0.032$ ) and on students' attitude towards economics, ( $F_{(6,304)} = 1.353$ ,  $p > 0.05(0.234)$ , partial  $\eta^2=0.026$ ).

## **5.2 Implications of the Study**

The findings of this study on the effect of experiential teaching methods on student learning outcome in economics, attitude to economics and students' economics reasoning ability have implications for several stake holders in secondary education in Nigeria and beyond. These stake holders include students, teachers, and school-administrators, policy makers in education, curriculum planners, researchers and publishers.

### **5.2.1 Economics Students**

Students of high school economics and other higher level student of economics have a lot of gain by the teaching and learning methods offered by experiential teaching and learning techniques of experience debriefing and experience dictation are far better in improving learning outcome in economics compared to the traditional or conventional method of teaching economics.

The experience debriefing method which had the highest significant effect (higher means gain) on achievement, can offer student of economics real life experience with tough economics concepts. It is instructor led, post experience, debriefing session, and focusing students' attention on the economics concepts hidden within the real life experiences. The practical economics experiences along with the debriefing session, help to further improve mastery of tough economics concepts, and hence improve student achievement in public examination in economics and, in addition, the development of economic reasoning ability. In addition, the opportunity offered by the two experiential teaching and learning techniques will be of help in focusing students' attention to the topic of study. Studies have shown the importance of attention in knowledge acquisition. In the traditional teaching method, student attention retention is low, while in the

experiential teaching classroom attention retention is very high, because students are active role players in the experiential teaching classroom.

Another important area where experiential teaching methods can be of immense assistance in fostering mastery of economic topics and concept, of high school economics student, is the area of language development. In the traditional teaching method, studies showed that language development tends to lag behind conceptual development. Whereas in the experiential teaching classroom, both conceptual development and language development are simultaneously enhanced. The experiential learning technique offers students opportunity to share their experience, talk, discuss, state ideas in their own words, engage in inquiry-oriented discussions, and role-play. All these allow them not only to acquire economic knowledge, but in addition, improve their language development and mastery.

Finally, of not less importance, is the opportunity offered by the experiential teaching method for students to make a connection between new ideals and what they already know. This opportunity is fostered by the post experience debriefing and dictation provided by the experiential teaching technique.

### **5.2.2 Economics Teachers**

The outcome of this study that the treatment experience debriefing and experience dictation had a more profile impact on learning outcome compared to the conventional teaching method, is a positive for teachers of economics to embrace experience teaching techniques that the treatment had a significant effect on the attitude of learners should also be an encouragement of for teachers of high school economics to embrace experiential teaching methods. in addition, students complain that economics is a bring subject can be a forgotten issue if teachers embrace experiential teaching methods. Apart from this, teachers of economics can benefit immensely from the myriads of information available for personal growth and professional development, in the field of experimental teaching and learning for instance the experimental learning lesson an plan can offer teachers of economics the means of bringing hand on and head on economics into their classroom and device with just one hands on (simulation, games and role-play) economics lesson, several topics can be taught at once.

### **5.2.3. Policy Makers and School Administrators**

The use of experiential teaching methods may be tasking on school administrators and policy makers, for it may mean they have to spend more money to make materials available for students and make more space available for the experiential learning classroom. Yet the ends justify the means. The gain of better learning outcomes and better attitude towards learning economics will make up for the extra cost. If we consider the popularity of economics among students and the fact that, the knowledge of economics in senior secondary school (SSS) will be the only one many SSS economic graduates will ever have, then policy makers in the education sector and School administrators will immensely profit from what experimental learning methods will bring to the SSS economics classroom. This is more so when they begin to receive feedback that graduate of SSS economics are making head ways as entrepreneurs, shop owners and employees offering skilled services policy makers in the field of education can initiate training programmes for teachers to benefit from the efficacy of experience teaching methods.

### **5.2.4 Parents**

Parents who may be burdened by extra assignment and projects, brought home from the experiential teaching classroom, and the provision of materials,, used to simulate the real economics topics and concepts learnt in the class, will sure be compensated by the improvement in learning outcome from their words that students in the treatment group significantly did better them the control group significantly did better them the control group, in the test of economic reason that is also a gain for parents. Parent will gain from the parents. Parent will gain from the assistance offered by the words in money assistance offered by their words in money and time management skills gained from the treatment and the test of economic reasoning.

### **5.2.5 Researchers and Educational Evaluators**

Four instruments were developed and validated using IRT methods in this study. They include; economics achievement test (EAT) the test of economic reasoning (TER), the test of quantitative skill (TQS) and the student attitude to economic scale (sates). All the instruments were painstakingly developed and validated using the methods offered by

item response theory (IRT). The development and validation followed best practices, as outlined by experts in the field of research instruments. Researchers and educational evaluators can benefit greatly from the use of these instruments. In addition, experiential teaching methods, with its proven advantages, based on the outcome of this study, can be a subject of further research by evaluators and researchers, especially in the field of economics education in SSS.

#### **5.2.6 Curriculum Planners**

Curriculum Planners such as the Nigerian Educational Research and Development Council (NERDC) will benefit from the findings of this research work. For instance having seen the positive effect of experiential teaching methods on achievement and attitude to economics, the NERDC will fund the methods of experience debriefing and experience dictation, important enough for inclusion in the SSS economics curriculum. It can be included in the activity column of the SSS economics curriculum. In addition the NERDC can include experts in the field of experiential education among the resource persons, when planning the review or change in the present SSS economics curriculum and other related subjects. Also, following the importance of economics reasoning, as shown by the outcome of this study, it is recommended that the NERDC and other related bodies in charge of the SSS economics curriculum add economic reasoning into the curriculum. Examination bodies such as the West African Examination Council (WAEC) and the National Examination Council (NECO) should note the importance of economic reasoning in the SSS economics curriculum and thus include it in their test items.

#### **5.3 Conclusion**

The outcome of this study showed the efficacy of experiential teaching methods- experience the briefing and experience dictation, over the traditional methods of teaching high school economics. This study also showed the important role played by the treatment that is experiential teaching methods, on attitude improvement. That is, the experiential teaching methods had significant main effect on students attitude towards economics. The post treatment attitude was in the positive direction compared to the pre-treatment attitude for the experiential teaching groups. In addition, the experiential teaching method had a

positive main effect on students' economic reasoning. That is students exposed to experiential method performed significantly better than those exposed to the traditional methods, on the test of economic reasoning.

#### **5.4 Recommendations**

The outcome of this study showed the efficacy of the experiential teaching methods over the traditional lecture methods. It will therefore not be out of place to recommend the methods of experiential teaching and learning for high school economics. This method of pedagogy has proven itself in many other subject areas apart from economics. Though embracing experiential techniques would mean more strain on the school time table, to provide more periods for economics, for the economics teacher- to lead post economic experience, debriefing/dictation sessions, yet the improvement expected in learning outcomes will make up for this additional demands on teachers, students and school administrators.

In addition, it is high time teachers of economics leave their comfort zones, to embrace more innovative and creative teaching methods such as experiential teaching methods. Training programmes on experiential methods may need to be organized. If however, such training are not forth coming at the schools level, several of such training and materials can be obtained freely online at several of the experiential learning cites- Google the name "experiential learning" and you will find myriads of material and training programmes to assist in enhancing your experiential teaching skills.

Also, following the importance of economics reasoning; as shown by the outcome of this study, it is recommended that the NERDC and other related bodies in charge of the SSS economics curriculum add economic reasoning into the curriculum. Examination bodies such as the West African Examination Council WAEC and the NECO should note the importance of economic reasoning in the SSS economics curriculum and thus include it in their test items. In addition, the teaching of economic reasoning should be done in such a way as to improve the economic reasoning of students, so as to be able to apply economic reasoning principles in their day to day living.

Also, there is need for teachers to improve on the teaching of the quantitative aspect of the SSS economics, in order to improve achievement. Teachers also need to



make the teaching of economics more interesting, as provided by the experiential teaching methods, in order to promote positive and better attitude towards economics.

This study showed that learning style and quantitative skill did not have significant main effect and interaction effect on achievement. This outcome adds to the literature on the debate on effects of these variables on achievement. In addition, this outcome points to teachers of economics not to allow the debate about the effects of learning style and quantitative skill, hinder them in introducing pedagogies that can aid achievement.

### **5.5 Contributions to Knowledge**

This study has shown the efficacy of the experiential teaching pedagogy over the traditional method of teaching economics in high school. Thus the experiential teaching manual developed by the researcher will be a welcome addition to the senior secondary school economics curriculum. Teachers of economics and other subjects will find it very valuable

In addition, the four instruments used in gathering data by the researcher, which were developed and validated using Item Response Theory (IRT) methods- Economics Achievement Test (EAT); Test of Economic Reasoning (TER); Quantitative Skill Test (QST) and the Students Attitude to Economics Scale (SATES) are highly recommendable instruments for researchers and teachers- especially in the field of high school economics.

### **5.6 Limitation of the Study**

This study had its challenges; prominent among them is the challenge of attrition or experimental mortality. For instance some of the students in one of the treatment groups did not complete the treatment- making the samples in the treatment groups not to be equal.

In addition, obtaining the support of school administrators to embrace the strain the methods of experiential teaching will have on their school timetable was not easy. The researcher had to really press hard to obtain such permission. In addition, it was not easy obtaining the support of economics teachers in the schools used to assist in carrying out the treatment. It was a herculean task; however the researcher was able to surmount this obstacle in the end. As a form of suggestion, it is better to train your own personal research assistance and send them out to administer the treatment in designated schools.

### **5.7 Suggestions for further Study**

This study had its limitation. For instance it was carried out among SSII economics students, one would have asked how the outcome would have been if it were carried out among SSI or SSIII economics students. In addition, the study was done in Ogun State, one out of the 36 states in Nigeria. What would have been the outcome if the study was done in each of the six geopolitical zones in Nigeria? It is thus suggested that this study be replicated in some of the six geopolitical zones.

This study used two different forms of experiential teaching; experience debriefing and experience dictation, separately. One wonders what would have happened if both the debriefing session, of the experience debriefing technique and the dictation methods of the experience dictation techniques were combined into one treatment group. It is believed that this will greatly improve learning outcome. It is therefore suggested that the efficacy of combing the two treatment forms should be tested in future studies.

The variables used in this study especially the moderator variables which include learning style and quantitative skill can be expanded in further studies, or replaced with variables such as verbal ability, gender or school location. Such an expansion will be an extension of the existing literature, on economic pedagogy.

If this study had been a correlation study, what would have been the outcome of the data analysis? In addition, if the present study had used structural equation modeling (SEM) methods for analyzing the data gathered by this study, one wonders what the outcome would have been. It is therefore suggested that the techniques of SEM or correlations be used to replicate this study.

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## APPENDIX I

### OPERATIONAL MANUAL OF INSTRUCTION FOR THE TREATMENT GROUPS

#### Lesson 1a

**Method:** Experience-Debriefing

**Topic:** Economics: Meaning and Basic Concepts

**Performance Objectives:** At the end of the lesson, students should be able to:

- (1) Explain the meaning of economics.
- (2) Explain the basic concepts of scarcity, choice, opportunity-cost, scale of preference,

#### CONTENT

- (1) What is economics?
- (2) Concepts of want, scarcity, choice and opportunity cost

**Ice Breakers:** Someone said; ‘... the art of living itself is a continuous application of the science of economics.’

**Reflective Question:** What is your own view-how true is this statement? Ask students to share their views or response towards the end of the class.

#### Definition of Concepts

**Economics:** Economics is a science which studies human behavior as a relationship between ends and scarce means which have alternative uses.

**Scarcity:** Means limited in supply. It arises as result of people’s limited means and their unlimited wants. This lead to **Choice**- choosing between ones unlimited wants the ones to satisfy with ones limited resources. For an effective choice to be made a **scale of preference** is required. A scale of preference is a priority list of one’s wants in order of priority. As choices are made between alternatives, some alternatives are forgone, this is what we refer to as **opportunity cost**.

**Material Resources:** Write the definition of economics, as given by Professor Lord Robbins, on cardboards, write in phases of five; with each phrase forming a part of the definition of economics, as written below:

**1= Economics is a Science**

**2= which studies human behaviour**

**3= as a relationship between ends**

**4=and scarce means**

**5= which have alternative uses**

**Activity:** To present activities whereby students discover that economics concept of scarcity, choice, opportunity-cost, scale of preference, are basic to everyday life experience and decision making.

**PROCEDURE:**

**STEP 1:** Divide Students into groups -ask one student in each group to act as “Secretary” and record the group’s ideas.

**STEP 2:** Now present the definition of economics written on the cardboard to the class. Hang each cardboard containing a phase of the definition on different part of the class. Ask each group to brainstorm what each phrase means and how it relates to what they know about the word “economics”.

The Students who is selected as secretary in each group should record the group’s ideas for each word / phrase. (Allow about 20mins for this)

**STEP 3:** When Students are through with this, take them through the definition, and begin by asking each group to mention the ideas written for each phrase of the definition of economics. The teacher, while noting each group’s explanation, should steer the discussion toward how each phrase in the definition relate to the subject matter of economics and the methodology of economics and basic economic concept of **want, scarcity, choice, scale of preference opportunity-cost**. Use the outline below to serve as gUide.

**Economics is a Science:** Discuss students’ ideas, written under this aspect of the definition. Ask them to explain their ideas. Discussion might centre on how “hard” sciences, such as physics or chemistry, differ from “soft” sciences, such as sociology or economics. The “hardsciences” tend to deal with the structure and behavior of

Inanimate objects, while the “soft sciences” involve the observation of the behaviour of human beings; hence, they are often referred to as social sciences.

**Which Studies human behaviour:** Focus discussion on the aspect of human behaviour that is of interest to economists- that is how people make choices relating to their day-to-day living or sustenance-**ends and scarce means** .

**As a relationship between ends:** Here after students have noted what they put down as ends- which may include; wants, goals, desires, etc. the teacher should state that the common features about humans is that their ends or **wants** are **unlimited** and vary over time. Bring in the economic concept of **unlimited wants** here.

**And scarce means:** ask students what is meant by the words ‘scarce’ and ‘means’. After noting their contributions, point to the fact that the economic concept of **scarcity** came out of the word ‘scarce’ and that in economics **scarcity** means that the available **resource** for **satisfaction** of **human wants** are **inadequate** and thus have a **cost**. For the word **means**, ask student to give one word or phrase that can be used to replace it in the given definition of economics. The word is **resources** Ask students to name resources. Coal, oil, etc., are often named by students. Discuss how “people” are resources and how labour is a resource. Money, time etc. are also resources. State that these means (**resources**) are scarce and thus have a cost. Hence the reference to them as **scarce means**. Now introduce the economic concept of **scarcity** and **choice**. Steer the discussion to the fact that because human wants are too many and thus cannot be satisfied with their available resources (**scarcity**), **choices** have to be made. In making choices economist usually prepare a **scale of preference**. Ask students to define a scale of preference. *A scale of preference is a list of one’s wants in order of priority.*

**Which have alternative uses:** Ask students for examples of alternative use of resources. Examples: consuming goods versus using them for further production, building more schools versus building more roads, throwing away paper versus recycling paper, and going to school versus learning a trade, buying biscuits versus saving your pocket money. Now introduce the economic concept of **opportunity cost**. Ask students to define

opportunity cost. Opportunity cost is the alternatives forgone, in making a particular choice.

**Experience-Debriefing:** Now re-introduce the reflective question posed at the beginning of the lesson. Allow students to air their view. Students' views will be diverse. However, the goal of the teacher in this debriefing session is to address the mistakes and the misconceptions about economics concepts identified during the definition of economics/economics concepts session. Only provide additional information, in relation to the reflective question, by adding that since economics is concerned with how scarcity and the necessity of choice influence people's actions, thus one may be correct to say that **'... the art of living itself is a continuous application of the science of economics.'**

**Closure:** Summarize the lesson by asking students to give their own definition of economics, so that it includes the economics concepts of want, scarcity, choice, scale of preference and opportunity cost.

**Here is a possible definition:**

Economics is a **social-science**, which studies how individuals use their **scarce resources** to satisfy part of their **unlimited wants**, with the assistance of a **scale of preference**, which help them to **choose** among **alternatives** while considering the **opportunity-cost** of their **choices**.

## **LESSON 2a**

**Method:** Experience-Debriefing

2. **TOPIC:** -Theory of Production. (Production & Division of Labour)

### **Performance Objective**

Students should be able to:

1. Explain the concept and factors of production.
2. State and explain the characteristics of each factor of production.
3. Explain the meaning of division of labour.
4. State the difference between specialization and division of labour.
5. Identify the advantages, disadvantages and limitation of division of labour.
6. State the advantages and disadvantages of large scale production.

### **Content**

Meaning of production.

Types of production.

Factors of production.

Division of labour and specialization.

Scale of production.

**Ice Breakers:** Someone said;**if you want to travel qUickly, go alone, but if you want to travel far, go with others.**

**Reflective Question:** Explain the above quote in relation to our topic today?

**Note;** Take one or two responses from the students and move on with the lesson, stating that more responses will be welcomed as the lesson progresses.

**ACTIVITY:** Students are to participate in a production simulation and use the experience to discover the importance of the factors of production and division of labour to the production process.

**TEACHING & LEARNING RESOURCES:** Card boards of four different colours – representing the four factors of production

**White card board – Land**

**Blue card board – Labour**

### **Red card board – Capital**

### **Yellow card board – Entrepreneur**

Pack these items in large brown envelopes in different quantities, with each containing these additional items in different quantities- scissors, blade, ruler, bottle of gum or stapler, for cutting different shapes and making shapes that represent products. With Plenty of play money #100; #200, #500, #1000

### **Procedure**

**Step 1:** Tell the students they are going to participate in a production activity. The main purpose of the activity is to show the importance of factors of production and division of labour to the production process.

**Step 2:** Place these items in envelopes in different quantities with some envelopes having only land (A4 – size white cardboard) with others having a combination of 2 or more factors of production – however, non should have all the 4 card-board colors representing all the four factors of production.

Now divide the students into groups with a maximum of ten in a group – depending on the number of students in the class and the number of envelopes containing the “factors of production” prepared. Hand over each envelope to each team. With the instructions;

You are to engage in production, however, a good produced will only be certified as able to provide utility if it contains all the factors of production. You will sell your products to a produce buyer who will determine its value based on the criteria that it contains all the factors of production in various degrees. However, the more capital (red card-board) it contains the higher its value. That is, you will use the A4 sized cardboard papers in your envelop to cut various shapes representing goods of your choice. A shape will only be accepted if it contains all the colours representing the factors of productions. In your envelopes you will notice that you do not have all the colors. How you get the other colours so as to start production is left to you and your team members. Use your initiative; you can start the activity by opening your envelopes. Before you commence, make a note of the items in your envelop and the amount of money you have. I will ask for this at the end of the lesson.



**Note:** As each group open their envelopes there will be a lot of confusion and students will have many questions. The teacher at this stage can give suggestive prompts, such as why don't you buy the cardboard, you do not have from another group or exchange some of yours with others. Another question will arise, what would be the rate of exchange? Ask them to determine that by themselves. If that is difficult suggest an exchange rate.

**Step I:** Ask who have already obtained all the four colours to begin production by using the blade and scissors in their envelopes to cut various shapes.

**Step II:** inform the class that the time available is short that the lesson will soon be brought to a close "hurry!!!. If they are not already doing so, suggest that dividing the task of negotiating for paper, cutting the paper, sticking them together into different shapes and taking them to the produce buyer for sale can be divided among them (division of labour).

**Closure:** Bring the simulation to a close, after giving them about 5-mins to round up. Now ask the students to return to their groups and ask them these questions;

**What was in your envelope when you opened them?**

**What items do you now have, including the cardboard papers, goods produced?**

**How much money do you have now?**

After these results have been noted, let the post-activity debriefing session begin.

### **Debriefing**

**Stage 1:** Re-introduce the ice breaker quote and the reflective question. Ask students to respond to the question, based on what they have learnt so far on production and division of labour. Note their responses and use their response to begin the debriefing session.

**Stage 2.** Draw students' attention to similarities and differences between the results from different groups. Ask for reasons for the differences, students ideas may differ, however, state that the differences may be due to the differences in the items found in each groups envelopes and the strategies adopted by the groups e.g. use of division of labour and the strategy adopted for exchange.

Ask students to outline the distinguishing characteristics of each factor of production. After they have done this, the teacher should stress that this is shown in the simulation by

the different colours of the card board representing each factor of production. Add that despite the differences in characteristics, each factor is essential for production to take place.

**Stage 3.** Ask the students ‘what is division of labour?’ It is the breaking down of the production process into segments, with each segment being handled by an individual or group of individuals or a machine. Point them to the fact that in the simulation, the use of scissors, ruler and the gum can represent the use of machines in the real world production process. State that **just as traveling with others makes one to cover more distance, so does working with others (division of labour) makes production faster and larger in scale.**

**Stage 4.** Ask the students to list the advantages of using the scissors over the blade and hence outline the advantages of division of labour and specialization and the importance of factors of production and division of labour to the production process.

**Closure:** Summarize the lesson by asking students how the activity simulates the real world. After noting their response add that in the real world, just as in the simulation, production cannot take place without the factors of production, add that just as the use of the scissors hastening up production, so the use of machines lead to increase and speed in production. Ask students to check up their text books and list the characteristics of each factor of production. Conclude that **just as traveling with others makes one to cover more distance, so does working with others (division of labour) makes production faster and larger in scale.**

### **Lesson 3a.**

#### **METHOD: Experience-Debriefing**

#### **Topic: - Firms and Industry**

**Performance Objectives:** Students should be able to:

Define and explain the difference between a Firm and an Industry.

- (1) State the factors that determine the size of a Firm.
- (2) List and explain the meaning of different types of business.
- (3) Discuss the formation and the features of each type of business organization.
- (4) Distinguish between private and public limited companies.

- (5) Identify the strengths and weaknesses of the different types of business organization.
- (6) State the reasons for the predominance of small firms in Nigeria.
- (7) List the methods of raising funds in the capital market.
- (8) Define private and public companies.
- (9) State the characteristics, distinctions between private and public companies.
- (10) Distinguish between quoted and unquoted companies.
- (11) State the nature of the Second-Tier Stock Market.

#### **Content**

Definition of firms and industry.

Types and features of business enterprises.

General and specific problems of business enterprises.

Private and public companies; definition, characteristics, distinction between private and public companies.

Quoted and unquoted companies, definitions and distinctions.

Shares, debentures and bonds.

#### **Ice Breakers**

There is a debate in John's class as to the most important form of business organization.

#### **Reflective Question**

Ask students for their views. Note their views and state that their views are hypotheses which will be verified as the lesson proceeds.

#### **Lesson Description**

Students are to participate in a group presentation of the importance of each type of business organisation.

#### **Teaching & Learning Resources**

A chart containing the definition, basic characteristics, advantages/disadvantages and sources of capital of each type of business organization.

#### **Procedure**

Announce to the class that they are going to take part in a press conference 'The Business Organization Press Conference' where, in groups they will be expected to consider an issue in the way businesses are organized in West-Africa, with each group making a written and oral presentation to the rest of the group. Inform them that each group will

make its presentation as a business owner (sole proprietorship, partnership, private company, public limited liability company, cooperative society, public corporations). They will be expected to make a case for why they consider the particular business form the best for West-African countries. List and explain the meaning of different types of business. Vis;

\* Discuss the formation and the features of each type of business organization.

\*Identify the strengths and weaknesses of the different types of business organization.

\* Outline why they consider this form of business the most important, in West-African context

Divide the class into groups, depending on the class size-between 5 and 10 is ok. Randomly allot the business types to each group and give them about ten minutes to consult their notes/text books and other relevant materials and write out their written presentation and outline their points for the oral presentation. The teacher should go round the class to see that group members are participating in this aspect of researching the points for their presentation. As you go round give prompts and ask for hands for those who are through-allocate more time if necessary.

When they are through ask each group to hand over the written aspect of their presentation. Then ask them to select two members of their group who will make the presentation on behalf of the group. The presentation will be for a max of 5minutes per group-4mins for the lead speaker and a minute for the supporting speaker. The presenters will be expected to outline their position and make a case for why this particular form of business is considered the most suitable for West-African countries.

At the end of each presentation students should be allowed to ask questions and presenters should respond to such questions appropriately.

### **Debriefing**

Now reintroduce the views of the students as to the most important form of business organization- put forward at the beginning of the lesson. Ask them to compare these to the views put forward by the various groups in the 'The Business Organization Press Conference' Are there similarities/ differences? The teacher should use this session to

correct the mistakes made during the presentation and steer the lesson towards attaining the stated objectives of the lesson.

#### **Closure**

The teacher should bring the lesson to a close by commending the students for their performance and stating that; *ceterisparibus*, (all things being equal) each form of business is as important as the other depending on the objective of the entrepreneur. Close the class by handing out the topic for the next lesson.

#### **Lesson4a.**

##### **Method: Experience-Debriefing**

**Topic:** -Money: Meaning, Characteristics and Functions.

**Performance Objective:** Students should be able to:

- (1) Explain the meaning of money;
- (2) Compare money economy with a barter economy;
- (3) Identify the various types of money and explain the functions of money in a modern economy.
- (4) Explain the characteristics of money.

##### **Content**

- i. Definition of money, Historical development of money, functions of money, types (including credits cards, value card, other ICT aided payment instruments).
- ii. Characteristics of money, qualities of a good money

**Ice Breakers ;** One day, long ago, money was going on a journey to another community. As money got near to board the vehicle, the towns' people, who had stood by the road side to bid her farewell, clung to her, weeping and wailing- both young and old, even the king was not left out- they never wanted her to leave. Money felt sorry for the people and returned home.

##### **Reflective Question**

Why did the town's people act the way they did?

**Note:** the teacher should note students' answers, and inform them that their answers are hypotheses which in the course of the lesson will either be accepted or rejected, and continue with the lesson.

**Lesson Description**

To take students through the definition of money, via active means, so that all the learning objectives of the lesson are attained.

**Teaching & Learning Resources**

A card board sheet with the definition of money written on it- in phases of four -as written below;

**Money is anything  
that is generally accepted  
within a given community  
in payments for goods and services  
and for the settlement of debts**

**Procedure****Step 1.**

Divide Students into groups of between five and ten each. Ask each group to appoint a group leader who will take note of ideas of the group or answers to questions or goals reached or decision taken by the group.

**Step 2**

Begin by asking students to give the definition of money, note their definition and bring out the generally acceptable definition of money written on a card board - written in parts as done below.

**\*Money is anything**

**\*That is generally accepted**

**\*Within a given community**

**\*In payments for goods and services**

**\*And for the settlement of debts**

**Step 3:** Ask each group to examine each of the part of the definition of money as it is stated on the card board. Ask each group to write down what each part of the definition means in relation to what they know about money, with one student acting as “scribe” to record the group ideas (This should last for about ten minutes)

**Step 4:** Next ask students to state and explain the ideas put forward for each part of the definition. After reviewing students' ideas steer the discussion to the ideas that follow, for each part of the definition as stated below;

**“Money is anything”** Here centre discussion on the word “anything” Explain that societies, individuals, communities usually determine or decide on what they will accept as money. There were times in the past when people simply exchange goods for goods (barter) as times past, individuals/ communities, began to use or accept certain tangible materials as money e.g. cowry, salt, tobacco, leather, beads, shells, ivory, feathers and paper etc. Stress the fact that these materials were introduced due to the failure or difficulties encountered by the barter system. Ask student to mention the modern-day types of money. They will probably mention coins and paper money. Add other forms such as bank money or bank deposit (demand deposits) POS machine, ATM machine, credit cards, online transfers etc.

**“That is generally accepted”**—Ask students, what is meant by the word ‘generally’?After noting what students put down. Stress that “generally” is the key word in the definition of money and that it is what determines exactly what assets or tangible maternal should be accepted as money especially in a modern economy. Once there is general acceptability of “anything” in transactions and in the settlement of debts such becomes money. Here on the side line, introduce the issue of legal tender in the definition of money, stressing that money is said to be a legal tender when it is backed by the laws of the land.

Ask students, what characterization a material must possess to be generally accepted as money. They are:**Acceptability, divisibility, homogeneity, portability, scarcity, recognizability, durability, stability.**

**‘Within a given Community:** -Ask student what is a community. A community is a group of people living together, in a particular area. Here ask the students why they think what is accepted as money vary from community to community. For instance, state that in some part of the country coins are readily accepted for payments while in some parts they are not. This stress the importance of the social and economic realities existing in a community as determinant of what is accepted as money. In addition, why cheques, POS payments, credit cards, on-line transfers are readily available and used for transactions and in settlements of debts. Some of this electronic payment means are not accepted in

some circles. Ask students why this is the case and whether it is the case in their immediate community.

**“In payments for goods and services”**

Ask students to give one word that can be used to represent this phrase in the definition of money. The word is “transactions” ask them what is transactions. (transaction is what takes place when individuals exchange goods and services for money-trade) Thus money oils the wheel of transaction. A money-less economy(barter) makes transaction difficult. Ask student to state the problem posed by the barter system of transaction. They include:

**# Low coincidence of wants**

**# Difficulty of determining the exchange rate**

**# The problem posed by indivisible commodities**

**# Store of value is difficult**

**# Borrowing is also difficult**

Thus money serves a good medium of exchange and unit of account compared to barter.

**“and for the settlements of debts:**

Ask students, why people have debts. Compare a money economy to a barter economy in terms of incurring and settling of debts which are more favorable and why?

Debts arise when peoples’ expenses exceed their income or revenue or then receipts. Money provides people with a good standard for deferring payments. This is one of the functions of money.

**Debriefing Session**

Now re-introduce the story about money, and the reflective question. After noting students’ answers, compare this to the initial response given at the beginning of the lesson. commend the correct responses and add that the important function performed by money was responsible for why the people of the town didn’t want money to leave. Ask students to list this functions;

**=Medium of exchange.**

**=Store of value.**

**=Unit of account.\Measure of value.**

**=A standard of deferred payments.**



**CLOSURE:** Bring the debriefing session to a close by adding that there are other functions of money that are not directly captured by the functions of money listed above which could have caused the people of the town, and money to behave the way they did. Ask the students to find out this. Hand out the topic for the next lesson.

### **Lesson 5a**

#### **TOPIC:- Inflation and Deflation**

**PERFORMNCE OBJECTIVES:**v Students should be able to:

#Identify the different types of inflation and deflation, the alternative causes and control measures.

#Identify the effects of inflation and deflation.

#Discuss Nigeria's inflationary experience and the various control measures adopted by government.

#### **CONTENT**

Meaning and types of inflation.

Causes, effects and control of inflation and deflation.

Inflation in Nigeria.

**Ice Breaker;** Story Line = When the two sons of inflation, Mild and Rapid, arrived our country the minister of economic planning went to welcome them at the air-port.

However, the minister, at the airport joyfully received into the country Mild, the first son of inflation, on the other hand, alerted the head of customs about Rapid, the second son of inflation, who was immediately picked up by the police and sent out of the country on the next flight.

**Reflective Questions:** - Explain the reasons behind the Minister'sbehaviour? (Take note of students' response no answer should be thrown off or rejected. Tell them their answers are hypotheses which will be either rejected or accepted as the lesson unfolds.

**Definition of Conceptions** Inflation / Deflation, Cost push inflation / Demand pull inflation Mild, Rapid, hyper inflation

**Inflation is the persistent tendency for the general price level to rise. It is a rise in the price level of all goods and services over a period of time. It is a decline in the purchasing power of money over a period of time.**

Deflation is the persistent tendency for the general price level to fall. Deflation is the opposite of inflation. It is a rise in the purchasing power of money over a period of time.

The **types of inflation** include; Price inflation, Wage inflation, Rapid inflation, anticipated inflation, Unanticipated inflation, Demand-pull inflation, Cost – push inflation, Multi-causal inflation, imported inflation, War-caused inflation, Rapid or staggering inflation.

**Activity;** Students should be organized to participate in a trading simulation to discover the various types, causes and control of inflation.

**Materials / Resource;** Some items commonly used by students such as T-shirts, note book socks, pen, school bags, short novels, including food items such as sweets, soft drinks, bread etc- you can improvise. Some amount of ‘play money’

### **Procedure**

**Step 1:** Divide students into groups of between 5 and seven, introduce the item / items of trade- a bottle of coke

**Step 2:** Hands out a random amount of play money to each student with some having more than others

**Step 3:** Ask the students to make bids for the bottle of soft drinks and give the soft drinks to the highest bidder, recording the amount paid on the board. Conclude this by withdrawing the remaining play money.

**Step 4** Give out more money than the amount given out at the first this means more money in circulation. Start bids for the soft drinks again and exchange the drink for the money of the higher bidder. Record the amount paid.

**Step 5** Repeat the exercise handling out more money than before the amount paid for the soft drinks will go much higher than before record the amount paid.

**Step 6** Now ask students why the money paid for the soft drinks went up at each bid. Note their answers, use their resumes to direct their attention to the main objective of the lesson – that student be able to identify the types, causes and effects of inflation.

What made the price paid for the soft drinks to go up is that they had more money (more money in circulation) they were willing to pay more for it.

**Step 7** In order to bring out the other causes of inflation, ask the students to explain that what can cause people to have more money at their disposal. Take note of their response and give cues if need be and their response to direct attention to the other causes of inflation. Which include wage inflation, cost – push inflation. Because people wages / salaries increase, it increases (demand-pull inflation). And because wages / Salaries go up cost of production also goes up cost-push inflation. Relate all this to the definition of their terms.

**Step 8** As price of item go up what happens to fixed income earners like pensioners and those who are borrowers and lenders. Use the responses of student here to steer student's attention to the effect of inflation on different house-holds in the economy.

**Step 9** How can we stop persistent rise in the general price level? To simulate the other causes of inflation, the procedure can be repeated.

**The increase in money supply might be caused by increase in wages, increase government spending, wages and salaries. For firms to meet the wage bill they will have to pass the cost of the extra wage bill to their products in the form of increase in price (Cost-push inflation). Similarly, when people or households in the economy have increase in wages and salaries. This will increase their demand for goods and service and leading to a form of demand – pull inflation especially if the increase in demand is not met by a similar increase in supply or production of goods and services.**

Other causes of inflation include, expectation of a future rise in price

**Control if inflation:** Since the simulation showed that inflation or increases in price are caused by increase in money supply for control of inflation, ask students how the money in people's hands can be reduced in order to limit their demand for goods and services. Responses will vary.

To help them illustrate this by organizing students again to participate in a trading simulation to discover the various means of controlling inflation.

**Step 1:** Bring in a bottle of soft drinks and hand out a random amount of play money to selected students. Ask students to count their money. Some may complain that they had less than others. Respond that people earn different wages based on their qualification experience job type and position while some are born into wealthy families.

**Step 2:** Take bids for the bottle of soft drinks and give it to the highest bidder withdraw their money, recording the amount paid for the soft drinks, on the board.

**Step 3:** Give out more money and take more bids for another bottle of Coke, the bids will go much higher – record the amount paid at each bid.

**Step 4:** Inform the students that you want to limit the amount paid for the bottle of soft drinks, control inflation. Ask them to suggest ways to achieve this. Responses will vary. Tell the students that government often put in place measures to limit the money in circulation in order to reduce inflation.

**Step 5:** Ask the students you gave the play money to hand over a certain percentage say 20% as taxes. After handing over the amount take a bid for another bottle of soft drinks and give the soft drinks to the highest bidder. Withdraw more money by introducing higher taxes. Take another bid for another bottle of soft drinks record the amount paid. Ask the students what they noticed about the amount paid for the soft drinks as taxes paid increases. Less amount of money is paid.

**Debriefing:** Apart from increasing taxes ask the student to mention other means that can be used to redeem inflation based on the simulation.

Responses will vary. However, let the students know that these measures can be classified into two categories

- (1.) Fiscal and monetary policies which involves;
  - (a) A cut in government spending
  - (b) Increase in taxation
- (2.) Prices and incomes Policy which include;
  - (a) Government instruction to firms to avoid unjustified price rises and to labour unions to avoid unjustified wage claims. The imposition of legislation to regulate or freeze wage and prices. However, these measures would depend on whether the inflation is mild or rapid, demand pull or cost – push.

### **Inflation in Nigeria**

**Step 1:** Ask students to share their views on the growing inflation or increases in price in the country. Tell them to list common household goods whose prices have gone up rapidly in the last three to six months. Let the teacher note these prices.

**Step 2:** Now ask for their views as to the cause of these rapid price increases. Note their response and add that the current inflation in the country is peculiar – caused by a combination of factors which include;

- (1) Corruption and failure of government to plan for the rainy day.
- (2) Fall in the value of the naira caused by fall in the oil revenue accruing to the country due to fall in the price of crude oil.
- (3) Persistent deficit in the Nigerian Balance of payment (BOP) raising the domestic price of all imported goods.

### **Effect of inflation**

**Step 1:** Ask student to recall what happened to the value of money when they had so much to pay for the soft drinks and when they had less money to pay. Commend responses that aligns with those listed below.

- (1) Fixed income earners will lose
- (2) Lenders will lose while borrowers will gain
- (3) Investors and business men will gain, especially when the inflation is mild, however if it is rapid or staggering inflation, the economy can break down, in need of a bail-out.

**CLOSURE:** Conclude the debriefing session by re-introducing the reflective question. Ask students to compare their views now to their views at the beginning of the lesson. Any difference? The minister got rid of Rapid because of the highly negative effect of a staggering or rapid inflation, which include; uncontrollable rise in the general price level, which can result in the breakdown of the economy. While Mild was allowed into the country because of the positive effect of a mild inflation level, which include; initiation of increase in production, and other business activities.

#### **LESSON 6a**

#### **METHOD; Experience Debriefing**

#### **TOPIC: - INTERNATIONAL TRADE& BALANCE OF PAYMENT (BOP)**

#### **PERFORMNCE OBJECTIVES**

Students should be able to:

- i. Explain how domestic trade differs from international trade.
- ii. Discuss comparative cost theory.
- iii. Explain the limitations of comparative cost theory.
- iv. Explain the terms of trade and discuss the instruments of foreign trade protection; and.
- v. Explain the features of the various forms of economic integration.
- vi. Outline the trend and structure of Nigeria's external trade.
- vii. Identify factors that give rise to payment of money into and out of the home country's account.

- viii. Explain balance of payment concepts such as trade balance, current account balance and overall balance.
- ix. Identify the different ways of dealing with balance of payments disequilibrium.
- x. Trace the developments in Nigeria's balance of payment.

### **CONTENT**

- i. Meaning of international Trade, Distinguish between domestic and international trade.
- ii. Discuss the reasons for international trade, theory of comparative cost and its shortcomings.
- iii. Meaning of Globalization, Features, challenges opportunities globalization presents to the Nigerian economy.
- iv. Terms of trade and measurements, favorable and unfavorable balance of payment and their effects, balance of payment concepts.
- v. Methods of correcting balance of payment problems.

### **ACTIVITIES (Lesson Description)**

Here students are organized to participate in a trading simulation and use the experience to discover the distinguishing factors between domestic trade and international trade, the problems associated with international trade, the inequality between nations, how resources and technology determine trade patterns.

### **Teaching & Learning Resources**

Card boards of four different colours – representing the four factors of production

White card board – Land

Blue card board – Labour

Red card board – Capital

Yellow card board – Entrepreneur

Scissors/ Blade / Ruler, Bottle of Gum or Stapler for cutting different shapes and making shapes that represent products.

ii. Plenty of play money \$ x €

### **PROCEDURE**

The teacher, to divide students into groups- each group represent one of three different types of income countries – High income countries

Middle income countries

Low income countries

1. Let students know they will participate in a trading activity in form of a game; to illustrate what happens in international trade and the reasons for international trade.
2. The teacher should divide the students into teams with each team acting as a separate “country”, with between five to ten student in a team, depending on the population of the class. They should be about five to ten counties in a game. The goal of each country is to “manufacture” paper sharpen (cars, electronics, agric-products etc.) and sell them to an international marketing company. The objective for each country in to make as much money as possible by using the material given to them No other materials can be used.

Resources for each type of country

#### **High Income Countries X<sub>1</sub> X<sub>2</sub> X<sub>3</sub> X<sub>4</sub>**

- (I) 10 sheets of red A4 Sized card board
- (ii) 10 Sheets of Yellow A4 Sized card board
- (iii) 1 Sheets of Blue A4 Sized card board
- (iv) 1 Sheets of White A4 Sized car board
- (v) 2 Pencils, 2rulers, 2 Pars of scissors, 1 compass



**Middle income countries**

- ( I) 4 sheets of red A4 sized card board
- ( ii ) 4 sheet of yellow A4 sized card board
- ( iii) ½ a sheet of blue A4 sized card board
- ( iv) ½ a sheet of white A4 sized card board
- ( v) 1 pencil, 1 ruler, 1 blade

**Low income countries**

- ( i) 10 sheet of white A4 sized card board
- (ii) 10 sheet of blue A4 sized card board

The materials (resources) for each type of country are placed in envelopes so they can easily be allocated to each team, at the beginning of the game. After handing over the materials give the following instruction for the commencement of the game.

**Instruction for Starting the Game**

Each A4 size cardboard represent the factors of production.

White cardboard \_\_\_\_\_ Land

Blue cardboard \_\_\_\_\_ Labour

Red cardboard \_\_\_\_\_ Capital

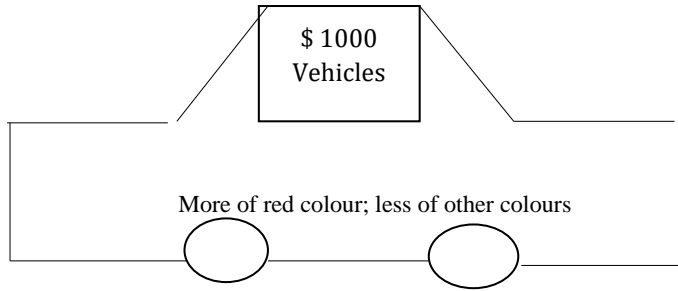
Yellow cardboard \_\_\_\_\_ Entrepreneur

While scissors, blade, ruler, bottles of gum and stapler represent technology (This information on the articles representing technology should not be disclosed to the students initially until the debriefing session) for any product to be approved as saleable, it must contain all the four colours.

Each of the team or groups represents a country. The goal of each country is to make as much money for itself as possible by using the materials in the envelope to make designated shapes, as instructed by the teacher. All shapes represent products of international trade such as motor – vehicles, electronics, clothing and building materials, crude oil and other natural resources etc. All shapes should be cut with sharp edges using scissors or razor blade only. The shapes can be sold to the trader, who will check them for accuracy and exchange them for cash. Each team can manufacture as many shapes as they like or as their resources permit them – the more shapes you make and sell the richer you will become.

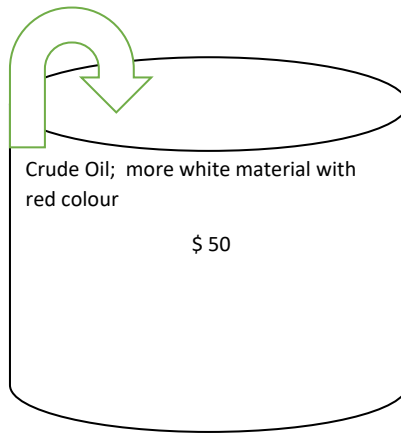
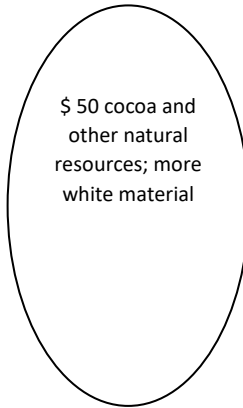
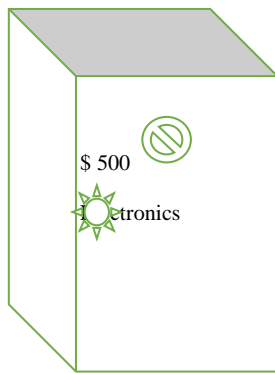
All questions or observations should be directed to the teacher. When you hear the teacher's whistle you must stop and listen there should be no fighting over materials or stealing each other's resources.

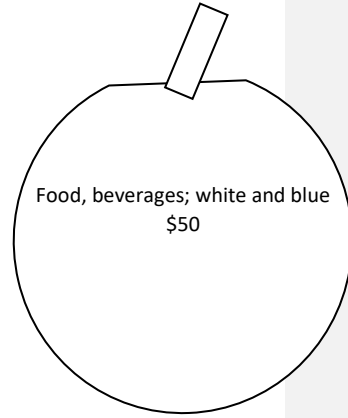
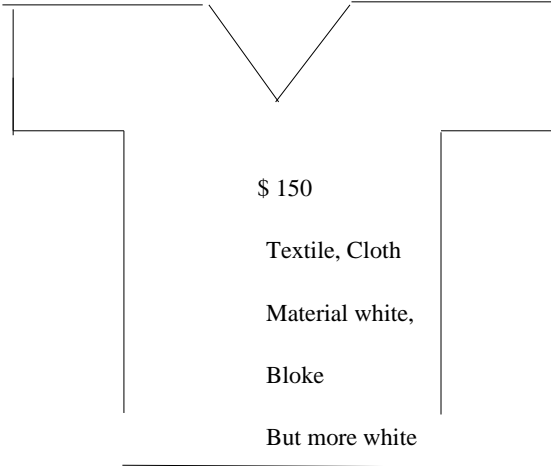
The more red-cardboard a product has, the more money will be paid for it. While products with more of white and blue cardboards will cost less. Thus the amount to be paid for each product are specified based on the template overleaf.



Electronics

More of red colours less of othercolours





After giving student instruction let the game commence. At first student are going to be in a dilemma as what to do. For instance, some of the team countries will find out that they do not have some essential material to make shapes; such as certain type of card boards, scissors, blade or gum. They are likely to ask why they do not have such material, like other countries. “Can we combine with other counties?”

The teacher should not directly answer these guesses, rather the teacher should give a suggestion response: such as. “If you wish!” “If you think that is the best thing to do “You have a choice” “use your brain”

For the rich countries, they will probably begin to make shapes of product since they have all the materials. However, they will go out of white and blue card boards (raw materials). How they go about obtaining this scarce material is part of what the teacher will use in the experience debriefing session.

(4) Let the game take its course. As the game proceed the teacher should have few or more assistants who will monitor how the student are negotiating the price of paper and other materials and in addition, prevent, cheating or forcefully taking other countries material or stealing them. All these are necessary because they will be of use during the debriefing session.

(5) As the class time (40 minutes) comes to a close, the students should be given 5 – minute warning of when the game will end.

(6) When the game ends, the teacher should ask each country to answer the following questions:

(i) What was in your envelopes at the commencement of the game?

(ii) What materials do you presently have?

(i) How much money do you have now?

(ii) **Debriefing**

Use the results from step 6 to commence the debriefing session- use the out comes to pose questions All these sessions should take cognizance of the desired learning objectives outlined for the lesson.

### **Dictation**

This group, at the end of the class activity will be given some question based on the class activity in relation to the learning objectives outlined for the lesson. At the next class, or lesson, they will present a written assignment in answer to the question posed by the teacher or given them as assignment. Secondly, they will make a presentation that should not last beyond 15 minutes before the class. These oral presentation is more or less a summary of their written presentation. After their oral presentation, they will be asked questions by other students or groups also by the teacher order to focus the dictation session towards the main learning objective of the lesson.

## **OPERATIONAL MANUAL OF INSTRUCTION FOR THE TREATMENT GROUPS**

### **Lesson 1b**

#### **Method: Experience-Dictation**

#### **Topic: Economics: Meaning And Basic Concepts**

#### **Performance Objectives**

At the end of the lesson, students should be able to:

- (3) Explain the meaning of economics.
- (4) Explain the basic concepts of scarcity, choice, opportunity-cost, scale of preference,

#### **Content**

- (1) What is economics?
- (2) Concepts of want, scarcity, choice and opportunity cost

**Ice Breakers:** Someone said; ‘... the art of living itself is a continuous application of the science of economics.’

**Reflective Question:** What is your own view-how true is this statement? Ask students to share their views or response towards the end of the class.

### **Definition Of Concepts**

**Economics:** *Economics is a science which studies human behavior as a relationship between ends and scarce means which have alternative uses.*

**Scarcity:** *Means limited in supply. It arises as result of people's limited means and their unlimited wants. This lead to **Choice**- choosing between ones **unlimited wants** the ones to satisfy with ones **limited resources**. For an effective choice to be made a **scale of preference** is required. A scale of preference is a priority list of one's wants in order of priority. As choices are made between alternatives, some alternatives are forgone; this is what we refer to as **opportunity cost**.*

### **Material Resources:**

Write the definition of economics, as given by Professor Lord Robbins, on cardboards or on the chalkboard- write in phases of five; with each phrase forming a part of the definition of economics, as written below:

1. = **Economics is a Science**
2. = **Which Studies human behaviour**
3. = **as a relationship between ends**
4. = **and scarce means**
5. = **which have alternative uses**

### **Activity:**

To present activities whereby students discover that economics concept of scarcity, choice, opportunity-cost, scale of preference, are basic to everyday life experience and decision making.

### **Procedure:**

**Step 1:** Divide Students into groups -ask one student in each group to act as "Secretary" and record the Group's Ideas.

**Step 2:** Now present the definition of economics written on the cardboard to the class. Hang each cardboard containing a phrase of the definition on different part of the class. Ask each group to brainstorm what each phrase means and how it relates to what they know about the word “economics”.

The Students who is selected as secretary in each group should record the group’s ideas for each word / phrase. (Allow about 20mins for this)

**Step 3:** When Students are through with this, take them through the definition, begin by asking each group to mention the ideas written for each phrase of the definition of economics.

The teacher, while noting each group’s explanation, should steer the discussion toward how each phrase in the definition relate to the subject matter of economics and the methodology of economics and basic economic concept of want, scarcity, choice, scale of preference opportunity- cost. Use the outline below to serve as guide.

**Economics is a Science:** Discuss students’ ideas, written under this aspect of the definition. Ask them to explain their ideas. Discussion might centre on how “hard” sciences, such as physics or chemistry, differ from “soft” sciences, such as sociology or economics. The “hard sciences” tend to deal with the structure and behaviour of inanimate objects, while the “soft sciences” involve the observation of the behaviour of human beings, hence, they are often referred to as social sciences.

**Which Studies human behaviour :**Focus discussion on the aspect of human behaviour that is of interest to economists- that is how people make choices relating to their day-to-day living or sustenance-ends and scarce means .

**As a relationship between ends:** Here after students have noted what they put down as ends- which may include; wants, goals, desires, etc. the teacher should state that the common features about humans is that their ends or wants are unlimited and vary over time. Bring in the economic concept of unlimited wants here.

**And scarce means:** ask students what is meant by the words ‘scarce’ and ‘means’. After noting their contributions, point to the fact that the economic concept of scarcity came



out of the word 'scarce' and that in economics scarcity means that the available resource for satisfaction of human wants are inadequate and thus have a cost. For the word means, ask student to give one word or phrase that can be used to replace it in the given definition of economics. The word is resources Ask students to name resources. Coal, oil, etc., are often named by students. Discuss how "people" are resources and how labour is a resource. Money, time etc. are also resources. State that these means (resources) are scarce and thus have a cost. Hence the reference to them as scarce means. Now introduce the economic concept of scarcity and choice. Steer the discussion to the fact that because human wants are too many and thus cannot be satisfied with their available resources(scarcity), choices have to be made. In making choices economist usually prepare a scale of preference. Ask students to define a scale of preference. *A scale of preference is a list of one's wants in order of priority.*

**Which have alternative uses:** Ask students for examples of alternative use of resources. Examples: consuming goods versus using them for further production, bUilding more schools versus bUilding more roads, throwing away paper versus recycling paper, and going to school versus learning a trade, buying biscUits versus saving your pocket money. Now introduce the economic concept of opportunity cost. Ask students to define opportunity cost. Opportunity cost is the alternatives forgone, in making a particular choice.

### **Experience-Dictation**

Now re-introduce the reflective question posed at the beginning of the lesson; Announce to the class that there is going to be a '**balloon-debate**'. The title of the debate is '**... the art of living itself is a continuous application of the science of economics.**'(No one can do without the basic economic principles of scarcity, choice, and opportunity cost) **Discuss.** Each group will give a written and oral presentation of its position. They will present the written part to the teacher before the commencement of the oral debate. Allow 3mins each for each group- 2mins for the lead speakers, a min for the supporting speakers. Bring the debate to a close by announcing the scores.

**Closure:** Summarize the lesson by asking students to give their own definition of economics, so that it includes the economics concepts of **want, scarcity, choice, scale of preference and opportunity cost.**

Here is a possible definition:

Here is a possible definition:

*Economics is a **social-science**, which studies how individuals use their **scarce resources** to satisfy part of their **unlimited wants**, with the assistance of a **scale of preference**, which help them to **choose** among **alternatives** while considering the **opportunity-cost** of their **choices**.*

## **LESSON 2b**

**Method: Experience-Debriefing**

**Topic: - Theory Of Production.**

### **Performance Objectives**

Students should be able to:

- i. Explain the concept and factors of production.
- ii. State and explain the characteristics of each factor of production.
- iii. Explain the meaning of division of labour.
- iv. State the difference between specialization and division of labour.
- v. Identify the advantages, disadvantages and limitation of division of labour.
- vi. State the advantages and disadvantages of large scale production.

### **Content**

- i. Meaning of production.
- ii. Types of production.
- iii. Factors of production.

- iv. Division of labour and specialization.
- v. Scale of production.

### **Ice Breakers**

Someone said; **if you want to travel qUickly, go alone, but if you want to travel Far, Go With Others.**

### **Reflective Question**

Can you explain the above quote in relation to our topic today?

Take one or two responses from the students and move on with the lesson stating that more responses will be welcomed as the lesson progresses.

### **Lesson Description**

Students are to participate in a production simulation and use the experience to discover the importance of the factors of production and division of labour to the production process.

### **Teaching & Learning Resources**

Card boards of four different colours – representing the four factors of production

White card board – Land

Blue card board – Labour

Red card board – Capital

Yellow card board – Entrepreneur

Pack these items in large brown envelopes in different quantities, with each containing these additional items in different quantities- scissors, blade, ruler, bottle of gum or stapler for cutting different shapes and making shapes that represent products.

(2) Plenty of play money #100; #200, #500, #1000

### **PROCEDURE**

#### **STEP 1**

Tell the students they are going to participate in a production activity. The main purpose of the activity is to show the importance of factors of production and division of labour to the production process.

## **Step 2**

Place these items in envelopes in different quantities with some envelopes having only land (A4 – size white cardboard) with others having a combination of 2 or more factors of production – however, non should have all the 4 card-board colors representing all the four factors of production.

Now divide the students into groups with a maximum of ten in a group – depending on the number of students in the class and the number of envelopes containing the “factors of production” prepared. Hand over each envelope to each team. With the instructions;

You are to engage in production, however, a good produced will only be certified as able to provide utility if it contains all the factors of production. You will sell your products to a produce buyer who will determine its value based on the criteria that it contains all the factors of production in various degrees. However, the more capital (red card-board) it contains the higher its value. That is, you will use the A4 sized cardboard papers in your envelop to cut various shapes representing goods of your choice. A shape will only be accepted if it contains all the colours representing the factors of productions. In your envelopes you will notice that you do not have all the colors. How you get the other colours so as to start production is left to you and your team members. Use your initiative; you can start the activity by opening your envelopes. Before you commence, make a note of the items in your envelop and the amount of money you have. I will ask for this at the end of the lesson.

### **Note**

As each group open their envelopes there will be a lot of confusion and students will have many questions. The teacher at this stage can give suggestive prompts, such as why don't you buy the cardboard, you do not have from another group or exchange some of yours with others. Another question will arise, what would be the rate of exchange? ‘Ask them to determine that by themselves. If that is difficult suggest an exchange rate.

**Step I:** Ask who have already obtained all the four colours to begin production by using the blade and scissors in their envelopes to cut various shapes.

**Step II:** inform the class that the time available is short that the lesson will soon be brought to a close “hurry! If they are not already doing so, suggest that dividing the task of negotiating for paper, cutting the paper, sticking them together into different shapes and taking them to the produce buyer for sale can be divided among them (division of labour).

**Closure:**

Bring the simulation to a close, after giving them about 5-mins to round up. Now ask the students to return to their groups and ask them these questions;

1. What was in your envelope when you opened them?
2. What items do you now have, including the cardboard papers, goods produced?
3. How much money do you have now?

After these results have been noted, let the post-activity dictation session begin.

**Dictation**

Ask the class to return to their groups and that there is going to be a debate as to the most important factor/aspect of production process just simulated. The topic of the debate is; which of the factors of production viz; **land, labour, capital, entrepreneur** and processes of production, viz **division of labour** and **use of machines** is the most important to the production process? Each group should make a blind pick from a roll of paper with the factors and process of production. Depending on what they pick, each group will give a written and oral presentation of its position. Each group will relate their argument to the quote in the reflective question.

**Closure**

After the presentations, the teacher should commend students on how well they have made their presentations. The teacher should bring the class to a close by stating that as much as each factor is as important as the other that, just as in the simulation, outcomes will be determined by the ingenuity brought into the production process- **just as traveling with others makes one to cover more distance, so does working with**

**others (division of labour) makes production faster and larger in scale.** Close the class by giving out the next lesson's topic and the topic of the presentations.

**Next Classtopic:** Business Organization

**Lesson3b.**

**Method: Experience-Dictation**

**Topic: - Firms And Industry**

**Performance Objectives**

Students should be able to:

- i. Define and explain the difference between a Firm and an Industry.
- ii. State the factors that determine the size of a Firm.
- iii. List and explain the meaning of different types of business.
- iv. Discuss the formation and the features of each type of business organization.
- v. DistingUish between private and the public limited companies.
- vi. Identify the strengths and weaknesses of the different types of business organization.
- vii. State the reasons for the predominance of small firms in Nigeria.
- viii. List method of raising funds in the capital market.
- ix. Define private and public companies.
- x. State the characteristics, distinctions between private and public companies.
- xi. DistingUish between quoted and unquoted companies.
- xii. State the nature of the Second-Tier Stock Market.

**Content**

- i. Definition of firms and industry.
- ii. Types and features of business enterprises.
- iii. General and specific problems of business enterprises.
- iv. Private and public companies; definition, characteristics, distinction between private and public companies.
- v. Quoted and unquoted companies, definitions and distinctions.
- vi. Shares, debentures and bonds.

### **Ice Breakers**

There is a debate in John's class as to the most important form of business organization.

### **Reflective Question**

Ask students for their views. Note their views and state that their views are hypotheses which will be verified as the lesson proceeds.

### **Lesson Description**

Students are to participate in a group presentation of the importance of each type of business organisation.

### **Teaching & Learning Resources**

A chart containing the definition, basic characteristics, advantages/disadvantages, sources of capital of each type of business organization.

### **Procedure**

1. Announce to the class that they are going to take part in a press conference '**The Business Organization Press Conference**' where, in groups, they will be expected to consider an issue in the way businesses are organized in West-Africa, with each group making a written and oral presentation to the rest of the group. Inform them that each group will make its presentation as a business owner (sole proprietorship, partnership, private company, public limited liability company, cooperative society, public corporations). They will be expected to make a case for why they consider the particular business form the best for West-African countries. List and explain the meaning of different types of business. Viz;

\* Discuss the formation and the features of each type of business organization.

\*Identify the strengths and weaknesses of the different types of business organization.

\* Outline why they consider this form of business the most important, in West-African context

2. Divide the class into groups, based on the population of the students. Randomly allot the business types to each group and give them about ten minutes to consult their notes/text books and other relevant materials and write out their written presentation and outline their points for the oral presentation.
3. The teacher should go round the class to see that group members are participating in this aspect of researching the points for their presentation. As you go round give prompts and ask for hands for those who are through-allocate more time if necessary.
4. When they are through ask each group to hand over the written aspect of their presentation. Then ask them to select two members of their group who will make the presentation on behalf of the group. The presentation will be for a max of 5minutes per group-4mins for the lead speaker and a minute for the supporting speaker. The presenters will be expected to outline their position and make a case for why this particular form of business is considered the most suitable for West-African countries.
5. At the end of each presentation students should be allowed to ask questions and presenters should respond to such questions appropriately.

#### **Dictation**

Now reintroduce the views of the students as to the most important form of business organization- put forward at the beginning of the lesson. Ask them to compare these to the views put forward by the various groups in the ‘**The Business Organization Press Conference**’ Are there similarities/ differences?

Since the lesson is in form of a debate/presentation, the teacher should use the dictation session to probe further and get student **talking**, in order to steer the lesson towards attaining the stated objectives of the lesson.

#### **Closure**

The teacher should bring the lesson to a close by commending the students for their performance and stating that; *ceteris paribus*, (all things being equal) each form of business is as important as the other depending on the objective of the entrepreneur. Close the class by handing out the topic for the next lesson.

### **LESSON 4b**



**Method: Experience-Dictation**

**Topic: - Money: Meaning, Characteristics And Functions.**

**Performance Objective**

Students should be able to:

Explain the meaning of money;

Compare money economy with a barter economy;

Identify the various types of money and explain the functions of money in a modern economy.

Explain the characteristics of money.

**Content**

Definition of money,

Historical development of money,

functions of money, types (including credits cards, value card, other ICT aided payment instruments).

Characteristics of money, qualities of a good money

**Ice Breakers**

One day, long ago, money was going on a journey to another community. As money got near to board the vehicle, the towns' people, who had stood by the road side to bid her farewell, clung to her, weeping and wailing- both young and old, even the king was not left out- they never wanted her to leave. Money felt sorry for the people and returned home.

**Reflective Question**

Why did the town's people act the way they did?

**Note;**

The teacher should note students' answers, and inform them that their answers are hypotheses which in the course of the lesson will either be accepted or rejected, and continue with the lesson.

### **Lesson Description**

To take students through the definition of money, via active means, so that all the learning objectives of the lesson are attained.

### **Teaching & Learning Resources**

A card board sheet with the definition of money written on it- in phases of four -as written below;

- ❖ Money is anything
- ❖ that is generally accepted
- ❖ within a given community
- ❖ in payments for goods and services
- ❖ and for the settlement of debts

### **Procedure**

**Step 1.** Divide Students into groups of between five and ten each. Ask each group to appoint a group leader who will take note of ideas of the group or answers to questions or goals reached or decision taken by the group.

**Step 2** Begin by asking students to give the definition of money, note their definition and bring out the generally acceptable definition of money written on a card board - written in parts as done below.

- \*Money is anything
- \*That is generally accepted
- \*Within a given community
- \*In payments for goods and services
- And for the settlement of debts

**Step 3.** Ask each group to examine each of the part of the definition of money as it is stated on the card board. Ask each group to write down what each part of the definition means in relation to what they know about money, with one student acting as “scribe” to record the group ideas (This should last for about ten minutes)

**Step 4.** Next ask students to state and explain the ideas put forward for each part of the definition. After reviewing students’ ideas steer the discussion to the ideas that follow, for each part of the definition as stated below;

**“Money is anything”:** - Here centre discussion on the word “anything” Explain that societies, individuals, communities usually determine or decide on what they will accept as money. There were times in the past when people simply exchange goods for goods (barter) as times past, individuals/ communities, began to use or accept certain tangible materials as money e.g. cowry, salt, tobacco, leather, beads, shells, ivory, feathers and paper etc. Stress the fact that these materials were introduced due to the failure or difficulties encountered by the barter system. Ask student to mention the modern-day types of money. They will probably mention coins and paper money. Add other forms such as bank money or bank deposit (demand deposits) POS machine, ATM machine, credit cards, online transfers etc.

**“That is generally accepted”** – Ask students, what is meant by the word ‘generally’?

After noting what students put down, stress that “**generally**” is the key word in the definition of money and that it is what determines exactly what assets or tangible maternal should be accepted as money especially in a modern economy. Once there is general acceptability of “anything” in transactions and in the settlement of debts such becomes money. Here on the side line, introduce the issue of legal tender in the definition of money, stressing that money is said to be a legal tender when it is backed by the laws of the land.

Ask students, what characterization a material must possess to be generally accepted as money. They are:

Acceptability, divisibility, homogeneity, portability, scarcity, recognizability, durability stability.

**‘Within a given Community:** - Ask student what is a community. A community is a group of people living together, in a particular area. Here ask the students why they think what is accepted as money vary from community to community. For instance, state that in some part of the country coins are readily accepted for payments while in some parts they are not. This stress the importance of the social and economic realities existing in a community as determinant of what is accepted as money. In addition, why cheques, POS payments, credit cards, on-line transfers are readily available and used for transactions and in settlements of debts. Some of this electronic payment means are not accepted in some circles. Ask students why this in the case and whether it is the case in their immediate community.

**“In payments for goods and services”**

Ask students to give one word that can be used to represent this phrase in the definition of money. The word is “transactions” ask them what is transactions. (Transactions is what takes place when individuals exchange goods and services for money-trade) Thus money oils the wheel of transaction. Money-less economy (barter) makes transaction difficult. Ask student to state the problem posed by the barter system of transaction. They include;

**# Low coincidence of wants**

**# Difficulty of determining the exchange rate**

**# The problem posed by indivisible commodities**

**# Store of value is difficult**

**# Borrowing is also difficult**

Thus money serves a good medium of exchange and unit of account compared to barter.

**“and for the settlements of debts:**

Ask students, why people have debts. Compare a money economy to a barter economy in terms of incurring and settling of debts which is more favorable and why?

Debts arise when peoples' expenses exceed their income or revenue or then receipts. Money provide people with a good standard for deferring payments. This is one of the functions of money.

**Dictation Session:** Inform students that they are going to engage in a debate titled; **'which is the most important function of money?'** Each group will give a written and oral presentation of its position. Close this session by commending students for their performance. Now re-introduce the story about money, and the reflective question. Ask students to compare the views put forward in the debate, by various groups, to the initial response given at the beginning of the lesson.

**CLOSURE:** Close this session by commending students for their performance. commend the correct responses Add that there are other functions of money that are not directly captured by the functions of money listed above and hence in their presentation, which could have caused the people of the town, and money to behave the way they did. Ask the students to find out this and hand out the topic for the next lesson.

## **Lesson 5b**

### **Topic:- Inflation and Deflation**

#### **Performance Objectives**

Students should be able to:

Identify the different types of inflation and deflation, the alternative causes and control measures.

Identify the effects of inflation and deflation.

Discuss Nigeria's inflationary experience and the various control measures adopted by government.

#### **Content**

- i. Meaning and types of inflation.
- ii. Causes, effects and control of inflation and deflation.
- iii. Inflation in Nigeria.

#### **Ice Breaker**

Story Line = when the two sons of inflation, Mild and Rapid, arrived our country the minister of economic planning went to welcome them at the air-port. However, the minister, at the airport joyfully received into the country Mild, the first son of inflation, on the other hand alerted the head of customs about Rapid, the second son of inflation, who was immediately picked up by the police and sent out of the country on the next flight.

**Reflective Questions:** - Explain the reasons behind the minister's behaviour?

(Take note of students' response no answer should be thrown off or rejected. Tell them their answers are hypotheses which will be either rejected or accepted as the lesson unfolds.

### **Definition of Conceptions**

- Inflation / Deflation
- Cost push inflation / Demand pull inflation
- Mild, Rapid, hyper inflation

**Inflation is the persistent tendency for the general price level to rise. It is a rise in the price level of all goods and services over a period of time. It is a decline in the purchasing power of money over a period of time.**

Deflation is the persistent tendency for the general price level to fall. Deflation is the opposite of inflation. It is a rise in the purchasing power of money over a period of time.

The types of inflation include;

**Price inflation**

**Wage inflation**

**Rapid inflation**

**Anticipated inflation**

**Unanticipated inflation**

**Demand-pull inflation**

**Cost – push inflation**

**Multi-causal inflation**

**Imported inflation**

**War-caused inflation**

**Rapid or staggering inflation**

### **Activity**

Students should be organized to participate in a trading simulation to discover the various types, causes and control of inflation.

### **Materials / Resources**

(I.) Some items commonly used by students such as T-shirts, note book covers, pen, school bags, short novels, including food items such as sweets, soft drinks, bread etc- you can improvise

(II.) Some amount of ‘play money’

## **Procedure**

**Step 1:** divide students into groups of between 5 and seven, introduce the item / items of trade- a bottle of coke

**Step 2:** Hands out a random amount of play money to each student with some having more than others

**Step 3** Ask the students to make bids for the bottle of soft drinks and give the soft drinks to the highest bidder, recording the amount paid on the board. Conclude this by withdrawing the remaining play money.

**Step 4** Give out more money than the amount given out at the first this means more money in circulation start bids for the soft drinks again and exchange the drink for the money of the higher bidder. Record the amount paid.

**Step 5** Repeat the exercise handing out more money than before the amount paid for the soft drinks will go much higher than before record the amount paid.

**Step 6** Now ask students why the money paid for the soft drinks went up at each bid. Note their answers, use their responses to direct their attention to the main objective of the lesson – that students be able to identify the types, causes and effects of inflation.

What made the price paid for the soft drinks had more money (more money in circulation) they were willing to pay more for it. As the money in their possession increases individual 'naira' value to the definition of inflation.

**Step 7** In order to bring out the other causes of inflation, ask the students to explain that what can cause people to have more money at their disposal. Take note of their response and give cues if needed and their response to direct attention to the other causes of inflation. Which include wage inflation, cost – push inflation. Because people wages / salaries increase, it increases (demand-pull inflation. And because wages / Salaries go up cost of production also goes up cost-push inflation. Relate all this to the definition of their terms

**Step 8** As price of item goes up what happens to fixed income earners like pensioners and those who are their money in the hands of borrowers and lenders?



Use the responses of student here to steer student's attention to the effect of inflation on different HH in the economy.

**Step 9** How can we stop persistent rise in the general price level? To simulate the other causes of inflation, the procedure can be repeated.

The increase in money supply might be caused by increase in wages, increase in government spending and salaries. For firms to meet the wage bill they will have to pass the cost of the extra wage bill to their products in the form of price increase (Cost-push inflation).

Similarly, when people or house-hold in the economy have increase in wages and salaries. This will increase their demand for goods and service and leading to a form of demand – pull inflation especially if the increase in demand is not met by a similar increase in supply or production of goods and services.

Other causes of inflation include, expectation of a future rise in price

**Control of inflation** Since the simulation showed that inflation or increases in price are caused by increase in money supply for control of inflation, ask students how the money in people's hands can be reduced in order to limit their demand for goods and services. Responses will vary.

To help them illustrate this by organizing them again to participate in a trading simulation to discover the various means of controlling inflation.

**Step 1** Bring in a bottle of soft drinks and hand out a random amount of pay money to selected students. Ask students to count their money. Some may complain that they had less than others. Respond that people earn different wages based on their qualification experience job type and position.

**Step 2** Take bids for the bottle of soft drinks and give it to the highest bidder withdraw their money, recording the amount paid for the soft drinks, on the board.

**Step 3** Give out more money and take more bids for another bottle of Coke, the bids will go much higher – record the amount paid at each bid.

**Step 4** Inform the students that you want to limit the amount paid for the bottle of soft drinks, control inflation. Ask them to suggest ways to achieve this. Responses will vary. Tell the students that government often put in place measure to limit the money in circulation in order to reduce inflation.

**Step 5** Ask the students you gave the play money to hand over a certain percentage say 20% as taxes. After handing over the amount take a bid for another bottle of soft drinks and give the soft drinks to the highest bidder. Withdraw more money by introducing higher taxes. Take another bid for another bottle of soft drinks record the amount paid. Ask the students what they noticed about the amount paid for the soft drinks as taxes paid increases. Less amount of money is paid.

Apart from increasing taxes ask the student to mention other means that can be used to redeem inflation based on the simulation.

Responses will vary.

However, let the students know that these measures can be classified into two categories

(1.) Fiscal and monetary policies

(a) A cut in government spending

(b) Increase in taxation

(2.) Prices and incomes Policy which include

(a) Government exhortation to firms to avoid unjustified price rises and to labour unions to avoid unjustified wage claims

(b) The imposition of legislation to regulate or even freeze wage and prices. However, these measures would depend on whether the inflation is mild or rapid, demand pull or cost – push.

Inflation in Nigeria

**Step 1;** Ask students to share their views on the growing inflation or increases in price in the country. Tell them to list common household goods who see

price have gone up rapidly in the last three to six months. Write the teacher note these prices.

**Step 2** Now ask for their views as to the cause of these rapid price increases. Note their response and add that the current inflation in the country in peeler time it is caused by a combination of factors which include.

- (i) Corruption and failure of government to plan for the rainy day.
- (ii) Fall in the value of the naira caused by fall in the oil revenue accruing to the country or fall in the prices of crude in the world market and militancy in the Niger – Delta.
- (iii) Persistent deficit in the Nigerian Balance of payment (BOP) raising the domestic price of all imported goods.

#### **Effect of inflation**

**Step 1** Ask student to recall what happened to the value of money when they had so much to pay for the soft drinks and when they had less money to pay. Responses that aligns with those listed below.,

- (1) Fixed income earners will lose
- (2) Lenders will lose while borrowers will gain
- (3) Investors and business men will gain, especially when the inflation is mild, however if it is rapid or staggering inflation, the economy can break down, in need of a bail-out.

### **Dictation**

Inform the students they are going to present papers which should be well researched and publishable in the economy section of the school magazine or a popular Nigerian daily newspaper. After dividing the students into groups, ask each group to appoint a secretary, who will write out the groups ideas. The title of the paper is; **Inflation, The Good The Bad The Ugly**. Tell the students that the paper will have three sub-headings as outlined below and will be handed over to you at the commencement of the next economics class.

- i. Meaning and types of inflation.**
- ii. Causes, effects and control of inflation.**
- iii. Inflation in Nigeria.**

**Closure** -Re-introduce the reflective question. Ask students to compare their views now to their views at the beginning of the lesson. Any difference?

## **Lesson 6b**

### **Method; Experience Debriefing**

### **Topic: - International Trade and Balance Of Payments (B.O.P).**

### **Performance Objectives**

Students should be able to:

1. Explain how domestic trade differs from international trade.
2. Discuss comparative cost theory.
3. Explain the limitations of comparative cost theory.
4. Explain the terms of trade and discuss the instruments of foreign trade protection; and.
5. Explain the features of the various forms of economic integration.
6. Outline the trend and structure of Nigeria's external trade.
7. Identify factors that give rise to payment of money into and out of the home country's account.
8. Explain balance of payment concepts such as trade balance, current account balance and overall balance.
9. Identify the different ways of dealing with balance of payments disequilibrium.
10. Trace the developments in Nigeria's balance of payment. Terms of trade and measurements, favorable and unfavorable balance of payment and their effects, balance of payment concepts.
11. Methods of correcting balance of payment problems.

### **Content**

- i. Meaning of international Trade, Distinguish between domestic and international trade.
- ii. Discuss the reasons for international trade, theory of comparative cost and its shortcomings.

- iii. Meaning of Globalization, Features, challenges opportunities globalization presents to the Nigerian economy.
- iv. Terms of trade and measurements, favorable and unfavorable balance of payment and their effects, balance of payment concepts.
- v. Methods of correcting balance of payment problems.

#### **Activities (Lesson Description)**

Here students are organized to participate in a trading simulation and use the experience to discover the distinguishing factors between domestic trade and international trade, the problems associated with international trade, the inequality between nations, how resources and technology determine trade patterns

#### **Teaching & Learning Resources**

Card boards of four different colours – representing the four factors of production

White card board – Land

Blue card board – Labour

Red card board – Capital

Yellow card board – Entrepreneur

Scissors/ Blade / Ruler, Bottle of Gum or Stapler for cutting different shapes and making shapes that represent products.

ii. Plenty of play money \$ x €

#### **Procedure**

The teacher to divide students into group each group represent one of three different types of income countries – High income countries.

Middle income countries

Low income countries

1. Let students know they will participate in a trading activity to illustrate what happens in international trade and the reasons for international trade.

2. The teacher should divide the students into teams with each team acting as a separate “country”, with between five to ten students in a team, depending on the population of the class. They should be about five to ten countries in a game. The goal of each country is to “manufacture” paper sharpen (cars, electronics, agric products etc.) and sell them to an international marketing company.. The objective for each country is to make as much money as possible by using the material given to them No other materials can be used.

Resources for each type of country

**High Income Countries X<sub>1</sub> X<sub>2</sub> X<sub>3</sub> X<sub>4</sub>**

- (I) 10 sheets of red A4 Sized card board
- (ii) 10 Sheets of Yellow A4 Sized card board
- (iii) 1 Sheets of Blue A4 Sized card board
- (iv) 1 Sheets of White A4 Sized car board
- (v) 2 Pencils, 2rulers, 2 Pars of scissors, 1 compass

**Middle income countries**

- ( I) 4 sheets of red A4 sized card board
- ( ii ) 4 sheet of yellow A4 sized card board
- ( iii) ½ a sheet of blue A4 sized card board
- ( iv) ½ a sheet of white A4 sized card board
- ( v) 1 penal 1 ruler, 1 blade

**Low income countries**

- ( i) 10 sheet of white A4 sized card board
- (ii) 10 shet of blue A4 sized card board

The materials (resources) for each type of country are placed in envelopes so they can easily be allocated to each team, at the beginning of the game. After handing over the materials give the following instruction for the commencement of the game.

**Instruction for Starting the Game**

Each A4 size cardboard represent the factors of production.

White cardboard \_\_\_\_\_ Land

Blue cardboard \_\_\_\_\_ Labour

Red cardboard \_\_\_\_\_ Capital

Yellow cardboard \_\_\_\_\_ Entrepreneur

While scissors, blade, ruler, boletes of gum and stapler represent technology (This information on the articles representing technology should not be disclosed to the Students initially until the debriefing session) for any product to be approved as saleable, it must contain all the four colours.

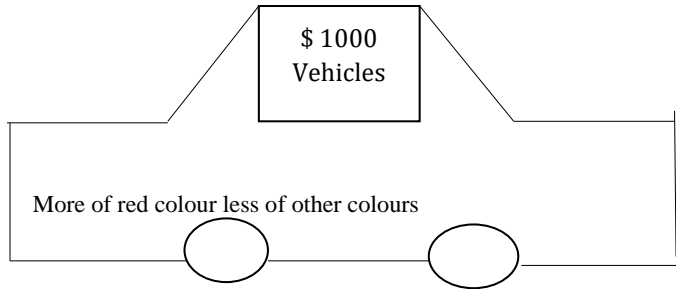
Each of the team or groups represents a country. The goal of each country in to make as much money for itself as possible by rising the materials in the envelope to make designated shapes, as instructed by the teacher. All shapes represent product of international trade such as motor – vehicles, electronics, clothing and building materials, crude oil and other natural resources etc. All shapes should be out with sharp edges using scissors or major blade only. The shapes can be sold to the trader, who will check them for accuracy and exchange them for cash. Each team can manufacture as many shapes as they like or as their resources permits them – the more shapes you make and sell the richer you will become.

All questions or observations should be directed to the teacher. When you hear the teacher's whistle you must stop and listen there should be no fighting over materials or stealing each other's resources.

After giving student instruction let the game commence. At first student are going to be in a dilemma as what to do. For instance, some of the team countries will find oil that they do not have some essential material to make shapes; such as certain type of card boards, scissors, blade or gum. They are likely to ask, why do we not have such material like other countries. "can we combine with other counties? The teacher should not directly answer these questions, rather the teacher should give a suggestive response: such as. "If you wish!" "If you think that is the best thing to do "You have a choice" "use your brain"

For the rich countries, they will probably begin to make lots of product since they have all the material. However, they will run out of white and blue card board (raw materials). How they go about obtaining this scarce material is part of what the teacher will use in the debriefing/experience discussion session. The price to be paid for each product are specified based on the template below

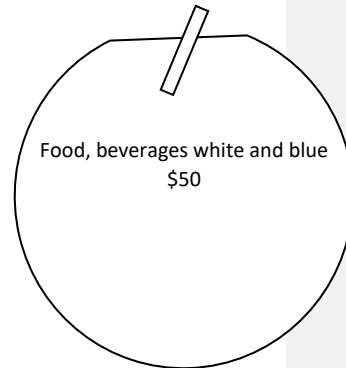
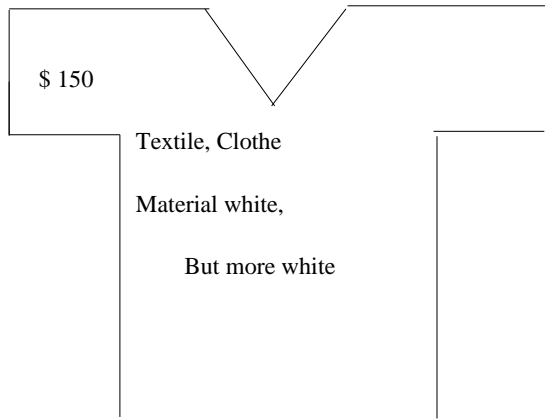
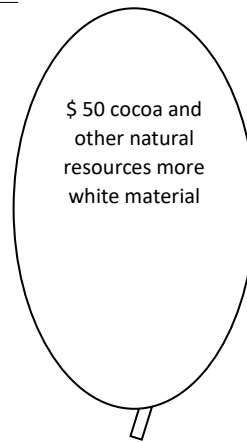
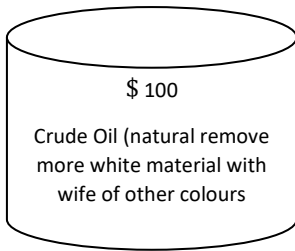




\$ 500

Electronics

More of red colours less of other colours



(4) Let the game take its course. As the game proceed the feather should have few or more assistance who will monitor how the student are negotiating the price of paper and other material and in addition, prevent, cheating or forcefully taking other countries material or stealing them. ALL these are necessary because they will be of use during the debriefing I dictation session

(5) As the class time (40 minutes) comes to a close, the students should be given a 5 – minute of warming of when the game will end.

(6) When the game ends, the teacher should ask each country to answer the following questions:

(i) What was in your envelopes at the commencement of the game?

(ii) What materials do you presently have?

(iii) How much money do you have now?

### **Dictation**

This group, at the end of the class activity will be given some question based on the class activity in relation to the learning objectives outlined for the lesson. At the next class, or lesion, they will present a written assignment in answer to the question posed by the teacher or given them as assignment. Secondly, they will make a presentation that should not last beyond 15 minutes before the class. This oral presentation is more or less a summary of their written presentation. After their oral presentation, they will be asked questions by other students or groups also by the teacher order to focus the dictation session towards the main learning objective of the lesion.

## APPENDIX II

### MANUAL FOR THE DEVELOPMENT OF EAT USING IRT

#### 2.1. Development Process of the Instrument

The researcher used the senior secondary school economics curriculum (FGN, 2008) designed by the Nigerian Educational Research and Development Council (NERDC) and economics textbooks which include; TONAD Essential Economics for Senior Secondary Schools by Cole EsanAnde (2015) and Economics for Senior

S/N	Topics	No. of item generated
1.	Economics: Meaning and basic concepts	30
2.	Production and Division of Labour	40
3.	Business Organization	50
4.	Money and Inflation	50
5.	International Trade and Balance of Payment	40
	Total	210

Secondary Schools I and 2 by Nnadi K. U. and Falodun A. B. (Longman Nig. 2010)

The researcher prepared a table of specification (the test blue print) and generated 210 objective- test items, each with options A to D.

These initial 210 items were given to seasoned economics teachers and experts and researchers with specialization in economics education for vetting and appropriateness of the instrument. On their suggestions and recommendations some items were expunged while some were reframed leaving a total of 150 items for inclusion in the EAT. The table of specification for the 210 items is shown in table 3.2.1. The 150 items that emerged from the vetting will be trial tested and the 3-parameter logistic model of the Item Response Theory (IRT) will be used in analyzing the data collected, to determine the difficulty indices range, the discriminating indices range and the vulnerability to guessing limit, to be used for determining the items that will make the final 50-item EAT.

**Table 3.2.1: TABLE OF SPECIFICATION FOR EAT**

	Knowledge	Comprehension	Application
Definition, Scope and meaning of Economics	1,2,3,27,28,69,76,77,101,102,103,121	51,52,53,68,120,123,136,137	-
Production and division of labour	4,5,6,17,18,19,29,30,49,50,55,56,71,72,73,104,105,139,140,141,142,143,150	45,70,138	-
Business organization	7,8,9,10,20,21,31,32,33,44,46,47,48,54,55,58,59,75,78,79,80,81,98,99,106,107,108,109,110,111,122,124,125,126,145,146,	74,100,144	-
Money and inflation	11,12,13,22,23,35,36,42,43,60,61,62,82,83,86,94,95,96,97,112,113,115,127,128,129,130,147	34,37,41,84,85,87,14,148	-
International trade and B.O.P	14,15,16,24,25,26,38,39,40,63,64,65,66,89,90,91,92,93,117,118,131,132,135,149	67,88,116,119,133,134	-
<b>TOTAL</b>	<b>122</b>	<b>28</b>	<b>150</b>

The 150 items selected were divided into two parts. Paper A and paper B. the table of specification for the papers were obtained from the table of specification of the 150 item EAT. Paper A was made of 75 Questions while paper B was made of the other half. 75 questions. These were taken to the field. So as not to give any of the two papers edge over the other, they were administered in such a way that while some students had paper A first others had papers B and vice-versa. The papers were administered to 531 students (who were not part of the sample used for the treatment) at the exploratory stage.

#### **Economics Achievement Test (EAT) A**

1. In economics human wants are (a) limited (b) unlimited (c) many (d) few
2. Economics is concerned with how----- influence people's actions (a) goods and services (b) factors of production (c) scarcity and choice (d) money
3. Economics is a social science which seeks to explain the \_\_\_\_\_ of human societies (a) social basis (b) economic basis (c) political basis (d) psychological basis
4. Which of the following best defines production (a) the creation of tangible goods that satisfying human wants (b) the creation of both consumer goods and producer goods (c) the creation of goods and services that satisfy human wants (d) the creation of consumer, producers and capital goods that satisfy human wants
5. Radios, Television sets, handsets and dresses are examples of (a) durable goods (b) non-durable goods (c) electronic goods (d) producer goods
6. Bread, biscuits, drugs and other food items are examples of (a) durable goods (b) non – durable goods (c) marketable goods (d) edible goods
7. The primary objective of business enterprises is (a) to provide employment (b) to manufacture goods and services (c) to provide essential commodities (d) to make profit
8. One of the following is **not** a reason for the prevalence of small scale business in west Africa (a) desire for independence (b) under developed local market (c) unlimited liability (d) small capital requirement
9. Another name for the one man business form of business enterprise is (a) sole trader (b) retailer (c) shop owner (d) whole trader
10. One advantage of the one man business form of business enterprise over the joint stock companies is that (a) they make more profit (b) they are common in small towns and

- local areas (c) they do not make their accounts public (d) they do not borrow money from the public
11. For an item to serve as money, the key characteristic it must possess is (a) value (b) general acceptability (c) scarcity (d) durability
  12. In the definition of money, as any asset that is generally acceptable in transaction and in the settlement of debts, the key word or term is (a) "asset" (b) "transaction" (c) "settlement of debt" (d) "generally acceptable"
  13. Under the barter economy, which of the following is difficult? (a) saving for the future (b) borrowing (c) exchange (d) all of the above
  14. Which of the following is **NOT** a reason for international trade? (a) climate and soil Type differences (b) National resources (c) to prevent dumping (d) need for variety of goods and services
  15. One primary distinguishing factor between international trade and domestic trade is (a) differences in skills of the labour force (b) the currency used (c) the variety of goods produced (d) differences in transportation and communication
  16. International trade helps the less developed countries (LCD) to (a) earn foreign exchange (b) fill the technological gap (c) fill the managerial and entrepreneurial gap (d) all the above
  17. The digging of lime stone out of the earth is a form of (a) tertiary production (b) secondary production (c) primary production (d) mining production
  18. The type of production process, where production depends wholly on acts of man, is known as (a) primary production (b) tertiary production (c) secondary production (d) all of the above
  19. Which of the factors of production is a fixed factor (a) land (b) labour (c) capital (d) entrepreneur
  20. The maximum number of persons that can constitute a partnership is (a) 2 (b) 10 (c) 5 (d) 20
  21. The establishment responsible for the registration of companies in Nigeria is (a) registrar of companies commission (b) company and allied bodies registration commission (c) ministry of commerce and industry (d) corporate affairs commission

22. Money is said to be a legal tender when (a) it is generally accepted by all (b) it is backed by the laws of the country (c) it is homogeneous (d) it has stable value
23. Which of the following is not a characteristic of money? (a) legality (b) scarcity (c) portability (d) stability
24. International trade refers to (a) trade among different countries (b) trade among different tribes in a country (c) trade among different states in a country (d) all of the above
25. The record of the financial transaction between countries engaged in international trade is known as (a) Balanced trade (b) Balance of payments (c) terms of trade (d) all of the above
26. The difference between the money value of goods imported and exported by a country , involved in international trade is known as (a) balance of payments (b) balance of invincible trade account (c) balance of trade (d) all of the above
27. Generally economist believe that resources have (a) alternative uses (b) specific uses (c) dual uses (d) important uses
28. In economics, scarcity is measured by (a) a person's salary relative to his/her resources (b) a person's want relative to his/her resources (c) a person's budget relative to his/her resources (d) a person's income relative to his/her resources
29. A type of production in which basic raw materials are subjected to appropriate manufacturing processes, is known as (a)tertiary production (b)applicative production (c)primary production (d) secondary production
30. Labour, as a factor of production, is (a)homogeneous (b)not homogeneous (c) fixed in supply (d)a & c
31. One basic difference between partnership and the sole proprietorship form of business is that (a) partnership is very expensive to set up compared to sole proprietorship (b) a sole proprietorship has a larger capital base (c) A partnership has a larger capital base (d) non of the above
32. We say a partnership has unlimited liability because (a) its members liability is limited (b) the personal assets of the partners may be sold to pay off any debt incurred by the partnership (c) its members have unlimited capital (d) none of the above

33. An agreement drawn by intending partners, stating its basic features, rules and regulations guiding the partnership, is known as (a) partnership law (b) deed of partnership (c) partnership rules (d) cooperate agreement
34. In a particular community where leaves are generally accepted as money, they will likely face one of the following problems (a) problem of general acceptability (b) problem of portability (c) problem of durability (d) problem of recognisability
35. Cheques, bank notes or drafts are examples of (a) commodity money (b) fiat money (c) fiduciary money (d) legal money
36. A kind of money whose value is defined by the intrinsic value it possesses is known as? (a) legal money (b) fiat money (c) commodity money (d) fiduciary money
37. When the prices of goods and services rises what happens to the value of money? (a) it falls (b) it rises (c) it remains unchanged (d) its' steady
38. The primary argument for international trade is based on (a) differences in quality & quantity of goods available (b) differences in natural resources (c) differences in labour endowment (d) differences in comparative costs
39. Another name for international trade is (a) interstate trade (b) national trade (c) visible and invisible trade (d) foreign trade
40. A balance of payment surplus means a country (a) exports more than it imports (b) imports more than it exports (c) must borrow from other countries to pay for its imports (d) pay more for goods and services received
41. Fiscal measures to curb inflation include (a) cut in government spending (b) increase in taxation (c) a and b (d) cut in money supply
42. A type of inflation caused by increase in the wages of labour is known as -----? (a) demand -pull inflation (b) staggering inflation (c) cost-push inflation (d) unexpected inflation
43. Which of the following is true about inflation? (a) it makes prices of goods and services to fall (b) it makes prices of inputs to be fall (c) it makes fixed income earner to gain (d) it leads to a fall in the purchasing power of money.
44. Which of the following statements is **not** true about debenture holders? (a) they are those who bear the risk of the business (b) they are creditors to the firm (c) they are entitled to a fixed rate of interest (d) all of the above



45. The advantages of marketing economies of scale to large firms implies that (a) they are able to withstand adverse trading conditions in one particular market (b) they are able to obtain finance at lower rates of interest (c) they are able to purchase raw materials and distribute finished products in large quantities (d) they are able to engage the service of expert marketing managers
46. All, but one, of the following are characteristics of a producers cooperative (a) they produce the same type of products (b) they use their resources collectively to produce particular products (c) they contribute money to buy equipment needed to make their products (d) they contribute money and allow members to receive the total sum collected each month on a rotatory basis
47. A form of business enterprise in which all members have equal shares and equal voting rights is known as (a) public limited company (b) private company (c) cooperative society (d) partnership
48. After the formation and registration of a public company, the document produced to the company which provides information to the general public about the company is known as (a) company prospectus (b) certificate of incorporation (c) articles of Association (d) memorandum of Association
49. Which of the following is responsible for the theory of specialization and division of labour? (a) Lionel Robbins (b) Adam Smith (c) David Ricardo (d) Alfred Marshall
50. Which of the following is a description of specialization? (a) a worker concentrates on the performance of one aspect of the function needed for the production of a given product (b) a situation where different people in the country do different jobs (c) when different people in a society perform different functions or engage in different occupations (d) one man carries on with one job while depending on other people to produce other things which he needs
51. Resources are said to be scarce because (a) they have a cost (b) human wants are unlimited (c) they are not available (d) a & b
52. In economics, the concept of opportunity cost arises because (a) goods and services have prices (b) goods and services are scarce (c) our wants are unlimited while the resources for satisfying them are limited (d) there are few goods and services in the market

53. A commodity which people can obtain in whatever quantity they so define, without paying for it, is regarded as a (a) general goods (b) free goods (c) price- less goods (d) private goods
54. The advantages enjoyed by large firm for being able to purchase their raw materials on better terms is referred to as (a) financial economics (b) technical economics (c) marketing economics (d) purchase economics
55. Another name for producer- goods is (a) secondary goods (b) primary goods (c) capital goods (d) a and b above
56. One of the limits to division labour is (a) consumer income (b) number of consumers (c) the size of the market (d) availability of skilled labour
57. The maximum number of persons that can set up a private limited liability company is (a) 10 (b) 20 (c) 50 (d) 100
58. The document issued to a public company by the registrar of companies, upon its registration, conferring on the company the rights of a legal entity, is known as (a) corporate agreement certificate (b) trading certificate (c) certificate of incorporation (d) registration of company name certificate.
59. The advantage of a public company involve all but one of the following (a) limited liability (b) economies of scale (c) management is separate from ownership (d) It's a legal entity
60. Barter is defined as (a) the exchange of goods for goods only (b) the exchange of commodity or service for another commodity or service (c) the exchange of service for another service only (d) the use of commodity or service
61. Naira notes in Nigeria are an example of (a) inconvertible money (b) convertible money (c) standard money (d) limited legal tender
62. The function of money that enables the prices of all goods and services to be quoted in money terms is (a) unit account (b) standard of exchange (c) store of value (d) standard for deferred payments
63. One of the following is **NOT** an advantage of foreign trade (a) infant industries argument (b) increase variety of goods and services (c) comparative cost advantage (d) increase in quality of available goods and services

64. The theory of comparative costs state, all things being equal, that a country should specialize in, and export those commodities which it has (a) minimum absolute cost disadvantage (b) maximum comparative cost advantage (c) absolute cost advantage (d) minimum comparative cost advantage
65. The movement toward economic , financial, trade and communications integration across the world Is known as (a) internationalism (b) nationalism (c) globalism (d) free trade area
66. Which of the following is not a characteristics of both domestic trade and foreign trade?(a) use of money as medium of exchange (b) need for specialization (c) need for middlemen (d) use of different currencies
67. One of the economic outcomes associated with dependence of west – African countries on primary productions is (a) rise in prices of products (b) underproduction of products (c) vulnerability to world recession and price fluctuation (d) increase in trading partners
68. To economist anything that is obtained at \_\_\_\_\_ is said to be scarce (a) money worth (b) the market (c) a cost (d) a super market
69. Human wants are insatiable because the \_\_\_\_\_ for satisfying them are limited (a) means (b) method (c) plans (d) money
70. The production of wealth is necessary because (a) it enables individual and collective wants to be satisfied (b) it enables wealthy individual to leave their wealth for their children (c) it increases our choice of goods and services (d) a & b
71. The reward to land as a factor of production is (a) profit (b) rent (c) wages and salary(d)interest
72. One distingUishing characteristic of land as a factor of production is that (a)it has alternatives(b)it is paid by cash (c) it has no cost of production (d)all of the above
73. Which of the following best defines production ? (a) the making of goods and services (b) the creation of things for free distribution (c) the making of tangible goods which satisfy human wants (d) the making of goods and services for the satisfaction of people's wants through exchange
74. The advantages of a private company include all but one of the following (a) members enjoy limited liability (b) It is a separate legal entity which can sue and be sued (c) there

- is intimacy among the owners making for a better running of the enterprise (d) it is in position to raise larger capital through the sale of shares to the general public
75. In the formation of a public company, the documents prepared that contain the rules that govern the internal working of the organization is known as (a) memorandum of Association (b) Articles Association (c) company prospectus (d) trading certificate

#### **Economics Achievement Test (EAT) B**

76. If nothing is given up to obtain a good or service then that good or service is \_\_\_\_ (a) scarce (b) not scarce (c) not important (d) important
77. Arrange the following basic economic concepts in order of occurrence in our day to day economic decisions (a) scarcity → wants → choice → scale of preference → opportunity cost (b) wants → scarcity → scale of preference → opportunity cost → choice (c) wants → scale of preference → choice → opportunity cost (d) wants → scarcity → scale of preference → choice → opportunity cost
78. Classifying business enterprises into either small scale, medium scale or large scale enterprises is usually based on their (a) turnover and the number of workers employed (b) turnover and number of branches (c) annual profit and number of factories (d) annual profit and number of workers employed
79. An association of people with common interest, formed for the purpose of engaging in a business or providing services for the members is \_\_\_\_\_ (a) a partnership (b) a private company (c) a franchise (d) a cooperative
80. Company names with PLC at its end, is an example of (a) a private limited company (b) public limited company (c) public cooperation (d) personal limited company
81. A company whose shares cannot be bought or sold on the stock exchange is known as (a) a priceless company (b) unsold company (c) an unquoted company (d) a sole proprietorship
82. Which of the following type of money gets its value from government order requiring all people and firms within the country to accept it, as a means of

payments? (a) commodity money (b) commercial money (c) fiduciary money (d) fiat money

83. The most durable type of money are (a) coins (b) bank notes (c) coins (d) bank deposits

84. The function of money that is not encouraged during inflation is (a) standard of deferred payment (b) store of value (c) unit of account (d) a and b

85. The transactionary demand for money is primarily dependent on (a) individuals money income (b) the rate of interest (c) the level of unemployment & employment (d) the rate of inflation

86. The elementary Quantity Theory of money states that, (a) the average price of transactions in an economy is inversely related to the quantity of money in circulation (b) the sum of all transactions in an economy is directly proportional to the quantity of money printed by the central bank (c) the average price of transactions in an economy is proportional to the nominal quantity of money in circulation (d) money supply and price level in an economy are inversely proportion to one another

87. When the price level falls, the value of money ? (a) falls (b) rises (c) levels (d) b and c only

88. Devaluation of a country's currency will lead to (a) exports becoming cheaper (b) imports becoming expensive (c) balance of payment improvement (d) all of the above

89. Which of the following is not a means of correcting balance of payment (BOP) deficit? (a) increase in imports (b) Devaluation (c) reduction of imports (d) borrowing

90. The principle under lying international trade Is (a) exchange (b) profit (c) specialization (d) large scale production

91. A balance of payment surplus exists when (a) the value of autonomous credit items exceeds the value autonomous debit items (b) the value of autonomous debit items exceeds the value of autonomous credit items (c) there is a balance between both autonomous debit and credit items (d) a and b only

92. The main features of globalization process include (a) liberalization of trade (b) free movement of capital (c) accelerated development in information technology (d) all the above

93. Which of the following is not a benefit of globalization? (a) socio-economic development among nations (b) the value system of many countries are affected (c) increase in international trade and investment (d) freedom to choose markets among globalized economy

94. Which of the following is not a major cause of inflation in Nigeria? (a) rising export prices (b) money supply (c) unstable political situation (d) unstable-climatic condition

95. Which of the policies below was put in place to stop inflation in Nigeria (a) increase in the minimum wage (b) structural adjustment programme (SAP) (c) war against indiscipline (d) change begins with you

96. Which of the following is NOT a determinant of the value of money ? (a) the supply of money (b) the supply of goods and services (c) the rate of interest (d) the number of times money changes hand.

97. In Nigeria paper money is of how many denominations? (a) 6 (b) 8 (c) 10 (d) 5

98. John and James publishers (Nig) Ltd. Is an example of a (a) private limited company (b) public limited company (c) partnership (d) joint ventures

99. A "listed company" is (a) a firm whose shares are quoted on the stock exchange for public trading (b) a firm whose name is listed in the register of companies (c) a specialized company set up by the government to provide services to the general public (d) a private company that provide banking services to the public

100. The primary problem facing public corporations in Nigeria is (a) political intervention (b) corruption (c) bureaucracy (d) diseconomies of scale

101. Economics is often defined as a science because \_\_\_\_\_ (a) it uses scientific methods (b) it performs laboratory experiments (c) it deals with behaviour of human beings (d) its conclusions are drawn from observation and investigation of human behaviour

102. When an individual arranges his/her needs in order of preference this is known as (a) table of wants (b) scale of wants (c) scale of need (d) scale of preference

103. In the above definition “ends” mean (a) goods and services (b) human wants (c) money (d) scarce resources

104. The risk bearer in the production process is (a) producer (b) manager (c) capitalist (d) entrepreneur

105. The reward for the entrepreneur as a factor of production is (a) profit (b) interest (c) wages and salaries (d) rent

106. Majority of business enterprises in Nigeria are (a) medium scale (b) larger scale (c) small scale (d) big size

107. One of the following is not a reason for the survival of small firms (a) small capital requirement (b) underdeveloped local market (c) need for flexibility (d) risk bearing advantage

108. One of the following is not an advantage of the partnership form of business (a) it is not expensive to register (b) it does not make its account public (c) it enjoys economies of scale (d) all of the above

109. A partnership can be converted to a private company by (a) getting it registered as limited liability company (b) getting it registered as an unlimited liability company (c) changing its partnership agreement (d) changing its partnership deeds

110. A certificate issued by the registrar of companies, following the fulfillment of all required registration formalities, permitting a public company to proceed with its business, is known as (a) certificate of incorporation (b) trading certificate (c) certificate of registration (d) corporate certificate

111. First bank plc is an example of a (a) banking industry (b) private limited company (c) joint venture (d) public limited company

112. Beads, shells, cowries and gold coins are examples of (a) commodity money (b) fiat money (c) fiduciary money (d) gold money

113. The characteristics of money that makes it easily transferable from one place to another or from person to person, for transaction is (a) durability (b) acceptability (c) portability (d) stability

114. When the price level rises (a) money can buy more goods and services (b) money can buy less goods and services (c) money can buy the same goods and services (d) money increases in value

115. Which of the following, gain during inflation? (a) fixed income earners (b) rental income earners (c) debtors (d) lenders

116. A current account deficit in the balance of payment BOP results from (a) an excess of imports over exports (b) an excess of exports over imports (c) an excess of invisible imports over visible exports (d) an excess of visible exports over invisible imports

117. A country's balance of payment (BOP) consist of (a) the visible and the invisible accounts (b) the import and the export of visible goods accounts (c) the current and the capital accounts(d) the portfolio and the inter-firm accounts

118. Bilateral international trade is trade between (a) many countries (b) one country (c) biliual countries (d) two countries

119. The imbalance in Nigeria's trade with other rations is majority created by (a) her dependence on crude oil as major export (b) her dependence on agriculture produce as major export (c) poor infrastructural development (d) unstable government and government policies

120. In economics, technology and the development of new means of transport and communications will bring about (a) new ways of doing things (b) higher order needs (c) new ways of satisfying existing wants (d) new model cars and hand-sets

121. 'Means' in the above definition means (a) resources (b) utility (c) human wants (d) money

122. Which of the following factors limit the size of firms? (a) available capital (b) size of the market (c) managerial ability (d) all of the above

123. One of the following is not a characteristic of economic-goods (a) scarcity (b) abundance (c) value (d) opportunity cost

124. One of the following is not a form of cooperative (a)consumer cooperative (b) personal cooperative (c) credit & thrift cooperative(d)producer cooperatives



125. Which of the following is not a reason for government participation in business enterprises (a) to provide essential service (b) profit motive (c) indigenization motive (d) to enjoy limited liability

126. Which of the following is not true of holders of ordinary shares (a) they do not receive any dividend until every other person has made claims (b) they attract a fixed percentage of the company's profit (c) they are the main risk bearer among the share holders (d) they have a right to vote during general meetings

127. The primary motive for holding money is (a) speculative motive (b) transactionary motive (c) demand motive (d) speculative motive

128. Which of the following best defines inflation? (a) it is the persistent tendency for the general price level to rise over a fairly long period of time (b) it is the general rise in prices of goods and services (c) an increase in the general price level (d) rising prices of goods and services including imports and exports

129. Which of the following is a cause of inflation in Nigeria? (a) money supply (b) expected inflation (c) exchange rate movement (d) all of the above

130. A type of inflation caused by an autonomous increase in government spending is known as (a) cost-push inflation (b) demand-pull inflation (c) imported inflation (d) exported inflation

131. A balance of payment deficit means a country (a) exports more goods and services and capital than it imports (b) imports more goods ,services and capital than it exports (c) it must borrow from other countries to pay for its imports (d) b and c

132. The theory of comparative cost was formulated by (a) Adam Smith (b) David Ricardo (c) Lionel Robbins (d) Thomas Malthus

133. Under which of the following conditions will devaluation improve a country's balance of payment? (a) when other nations devalue their currency (b) when there is a corresponding increase in wages and other incomes (c) the elasticity of demand for imports , must be elastic (d) all of the above

134. The primary reason why most west –African countries experience balance of payment (BOP) problem is (a) political instability (b) low level of technological development (c) inadequate market (d) unemployment

135. The theory of comparative cost advantage is based on what type of model?  
 (a) a two-country, two-commodity and one- factor model (b) a multiple country , multiple-commodity and a factor model (c) a four- country , four -commodity and two- factor model (d) a three- country , two- commodity and one factor model
136. If you are to help John draw a scale of preference, what item will be in first- place in the list in figure 1 (a) a plate of food (b) a mathematical set (c) recharge card (d) 60 leaves exercise book.
137. What will be John's opportunity cost for the above decision (a) the 2<sup>nd</sup> item on his list of preference (b) the 3<sup>rd</sup> item on his list of preference (c) the last item on his list of preference (d) the first item on his list of preference.
138. An electrician's tools are example of (a) durable goods (b) producer- goods (c) electronic- goods (d) non durable goods
139. Primary production involves (a) the production of goods in their very natural form (b) the use of raw material to produce new commodities (c) the production of goods to meet the primary need of man (d) the production of goods and services for primary school children
140. Primary production involve the production of (a) consumer goods (b) basic raw materials (c) non-durable goods (d) durable goods
141. The factor of production that organizes the other factors to achieve production is (a) labour (b) government (c) entrepreneur (d) capital
142. What distinguishes skilled labour from unskilled labour (a) the employer (b) the employee (c) education (d) salary paid
143. Which of the following is not an advantage of division of labour ? (a) increase in output (b) use of machines (c) saving of time (d) production of standardized goods
144. The sole proprietorship form of business thrives in occupations in which (a) buying and selling is done in local currency (b) it is easy to start a business with very little capital (c) it is easy to operate without government intervention (d) limited liability is essential

145. One of the following is **not** a disadvantage of partnership form of business enterprise (a) unlimited liability (b) delays in decision making (c) greater continuity (d) relatively small capital

146. The maximum number of persons that can form a public limited liability company is (a) 50 (b) 200 (c) infinite (d) 7

147. The primary or main function of money is (a) measuring value (b) storing value (c) exchange (d) standard of deferred payments

148. The speculative demand for money is dependent on (a) the rate of inflation (b) the employment rate (c) the rate of interest (d) the level of prices

149. Which of the following is **NOT** a component of the balance of payment (a) financial account (b) liability account (c) capital account (d) current account

150. The reward to labour as a factor of production is (a) rent (b) interest (c) profit (d) wages and salary

**APPENDIX III**  
**MANUAL FOR THE DEVELOPMENT AND VALIDATION OF THE TEST OF**  
**ECONOMIC REASONING (TER)**

**Marking gUide for the TER**

In order to design a marking gUide for the TER the research used Kourilisky and Murray (1981) model for conceptualizing economic reasoning. They conceptualizing economic reasoning. They conceptualized economic reasoning economic reasoning in terms of a three-level hierarchy of decision making that integrate scarcity alternatives, and opportunity cost. Those at the level of the hierarchy can recognize the existence of scarce resources, such as money and times. Those at level 2 are able to identify specific alternative uses for the scarce resources, while individuals at level 3 are able to identify realistic alternative uses and ranicthem in terms of anticipated benefits. This students response to a question was scored at the highest level of economic reasoning exhibited.

The evaluation criteria in forms of point allocation are given here-in along with sample response to the time allocation question (question 15) “In school, there are free periods in the time-table. What do you do at such timer? How do you decide such activities

\* O = No recognition or use of economic reasoning. “I will play football. I like playing football”

\* 1= Recognition of the existence of scarce resources and identification of scarcity as a relevant decision- making issues. “ I will read my note it will take me about 40 minutes to do that, and I only have 40 minutes during the free- period.”

\* 2 = Ability to identify specific alternative uses for scarce resources. “ I could study my note in preparation for the next class, or do my assignment, revise my notes taken during the last class, there are lots of activities from which to choose”

\* 3 = Ability to identify these alternative uses that are realistically within one’s consideration set and prioritize them in terms of anticipated benefits....” I could do my assignment, in preparation for tomorrow: I also need to read the note taken to the just concluded lesson, for better understanding: however, I think I will study for the test

I have next period, because I need to do that the most, it is the next pressing thing it's coming of next period.”

Using the above model, the researcher developed a marking guide for each of the 15 questions that make up the TER. However in order to make the marking guide valid, I administered the TER to a class of 62 of SS2 economics students (38 males and 24 females). I used their response to modify the marking guide. I initially developed. The final marking-guide is contained on Table 1.2

**The initial 15 questions used for the validation are listed below. Out of these, the four questions that survived the IRT analyses as good items were selected (Items 4, 5, 12 and 15) and used for the test of economic reasoning TER.**

1 You are to plan a graduation party for a class of fifty students. Your goal is to cut cost, as much as possible and make as much money from the party, for the class/school.

The first task is to choose a suitable venue for the party. There are four venues available to choose from. Each venue comes with its own costs, dos and don'ts, and other attached benefits

#### **Venue A**

Open Air (They will have to rent chairs tables and canopies. Costing ₦ 30,000. The students will cook their food themselves and purchase drinks (food & drinks cost ₦ 100,000). Parents will be invited to make donation and spray money on the graduating students. on the require no extra transport cost for students. However, the Local Government Supervisory Council on education (LGSCE) will not be invited. The police will provide security for a fee of ₦5,000

#### **Venue B**

Owolagba Events Centre (Rent fee is ₦50,000: No. need for renting chairs and tables they are available. No need to invite police they have their own security men. Parents are invited and are allowed to make donations and spray money on the students on the dance floor. However, the LGSCE will not be invited food and drinks to cost ₦100,000

**Venue C:**

Indoor- at the PTA Chairman's compound venue is free student to pay ₦ 10,000 to rent more chairs and tables to add to the ones available. Food and drinks to cost N100,000. Parent are invited and will be allowed to make donations however dance floor spraying of money is not allowed. In addition, it will cost each student ₦ 400 to andfrothevenue.

**Venue D**

School Hall; the venue is free and no need for renting chairs and tables- however students will not be allowed to prepare the foods/drinks. The principal directed that if the school hall will be used then the school authority will be fully involved in the planning. The food/drinks will be contracted to a caterer, who charged ₦ 170,000. Parents will be invited, in addition, to others dignitaries such as the local government supervisory councilor in education, who is likely to make a large donation. Parents will make donations and will be allowed to spray money on the students, on the dance floor.

The take-off fund for the party is a sum of one hundred and fifty thousand naira (₦150,000) each student, of the class of fifty, paid ₦3000.00. for the graduation party.

**Question**

**(i) Which of the venues will you choose?**

**{ii) State why you made such a choice, support your answer with relevant economic reasoning, with facts and figures.**

2. Boma sells 'Ice-water' at the motor park, by the entrance of the city, where she lives. She makes an average of ₦ 1,000.00 per day; she pays transport of about ₦200.00 to and fro her home, to the park and has lunch of ₦200.00.

Her Aunty, who she lives with suggested to her to stop the ice-water sales and switch over to helping the "well- to-do" in their neighbor-hood- to either baby sit or do general house cleaning for a fee. She says she can make as much as ₦5,000.00 or more per week. Boma is in a dilemma as to what to do.

**Question:** If you are to counsel Boma, what would be your suggestion, back up your point of view with appropriate economic reasoning with costs and benefits?

3. If you are were given N 100 as pocket money to school today, what would you do with your money? What things are you thinking about to help you decide?

4. You were given N 100 for transport from school back home but a neighbour brought you 4 4 If you were given N. 100 for transport, from school back home free in his car. What would you do with the N 100 transport money? How did you arrive at this decision? What guided your decision?

5. What amount would just be enough for you, as pocket money , to take to school daily? State the things you considered before arriving at this amount. How did you arrive at this amount ? What guided your decision?

6. Assuming you are living alone-outside of your parents guidance. About how much would you considered appropriate for your upkeep per week? what considered guided your decision . How did you arrive of this amount ? What things did you think about to help you decision this amount?

7. You are asked to choose between being given money to take to buy food at break time or given food to take to school. Which would you prefer? What things did you think about to help you decide?

8. Assuming you have a small safe where you keep money given you by family friends & neighbors , and money left over from your daily or weekly pocket . money your parents says you will be allowed to open your safe buy whatever you wish with your at

the savings what would you buy? What things did you think about to help you decide. State two or three reasons for your choice.

9. You have a choice of (i) helping your parents in their area of business with your free time (ii) attending private fee-paying lessons (iii) using it for private personal study or to (a) play and relax. What would be your choice? What things did you think about to help you decide?

10. An uncle sends you on an errand to purchase some item for him in a grocery shop in your street. You returned with a change of N 200 which the neighbor asked you to keep. What will you do with the N200?

11. You complained to your parents on why there seems not to be enough money to meet the needs in the family. In response they hand over to you the sum of N 20,000 which is the amount allocated per week from their income for the feeding & other expenses of the family. How will you allocate the amount to the needs of the family of six, with four children. The areas of needs include;

- a. Feeding
- b. Transport to work by Dad and Mum
- c. Transport to school by the children
- d. Daily household expenses
- e. Other miscellaneous expenses

How would you allocate the N 20,000 to these areas of need? What things did you think about to help you decide.

12. Write a short composition titled "How I spend my weekends" describing the way you went about deciding how to allocate time to each activity engaged in. What things did you think about to help you decide.

13. Describe how you spend each day of the week. Stating the step-by-step means of how you allot your time. What things did you think about to help you decide.

14. As a student, how do you decide what to do with your break time in school. Briefly outline the way you go about making your decision?



15. In school, usually there are free periods in the time table. What do you do at such time? Write out a short summary of what you do with your free periods and how you decide such activities.

#### APPENDIX IV

### STUDENTS ATTITUDE TOWARDS ECONOMICS SCALE (SATES)

Please tick as appropriate the column that represent your option on the items below

**KEY:** A- Agreed; SA – Strongly Agreed; D – Disagreed; SD – Strongly Disagreed

S/N	STATEMENT	SA	A	D	SD
1	The mathematics aspect of economics is very difficult.				
2	Economics is easy to pass in the WASSE compared to other subjects				
3	Economics is not as practical to life as other subject such as agricultural science and Geography				
4	Economics is as interesting as other subjects				
5	Economics as a subject is better than Commerce				
6	Commerce as a subject is better than economics				
7	There are too many calculations in economics				
8	Only social science students should study economic				
9	Economics is relevant to all areas of our life				
10.	Every educated person should have knowledge of economics				
11	Economics teachers are boring.				
12.	Economics teachers are exciting to be with.				
13.	Our teacher make economics clear and interesting				
14.	Economics is required for everyday living				
15.	One can survive in life without knowledge of economics				
16.	Going to school to study economics is a waste of time				
17.	Economics is meant for student who are good in mathematics				
18.	Economics is meant for student who are good in English language				
19.	Economics text books are boring				

- 
20. There are too many diagrams in economics
  21. Economics make one able to understand finance
  22. Most people can do without economics.
  23. The goal of becoming an economist in future is a good one.
  24. Economics should be made compulsory like English language and Mathematics
  25. Economics is not for lazy students
  26. One can easily pass economics in the SSCE
  27. Parents should encourage their children to offer economics.
  28. Most topics in economics are relevant to everyday living
  29. With the knowledge of economics, one can be a successful business man
  30. People who study economics are misery
  31. The knowledge of economics helps us to spend our money wisely
  32. There too many notes to copy in the economics class
  33. Some economics topics are too tough
  34. There are too many topics in economics compared to other subjects.
  35. The knowledge of economics helps us in developing entrepreneur skills
  36. Every trader on the street need knowledge of economics
  37. In the list of subjects offered in secondary schools, I will put economics among the first three
  38. The principles of economics are essential for daily decision making.
  39. The government of our nation should be run by economists
  40. The sturdy of economics should be made compulsory at higher education level.
  41. Economics should be included in the list of primary school subjects.
-

- 
42. With the knowledge of economics, we can solve a lot of problems that confronts us daily
  43. There are better alternatives to economics in the list of elective subjects in Secondary School.
  44. Other subjects offered in secondary schools should be taught the way economics is taught.
  45. The way economics is taught in schools need to be improved.
  46. Farmers and all artisans need some knowledge of economics.
  47. Economics text-books are expensive.
  48. Economics should be limited to higher institutions only.
  49. Secondary School age students are too young to understand the basic principles of economics.
  50. Economics should be removed from the secondary school curriculum.
  51. Economics should be included in the Junior Secondary school Curriculum.
  52. Economics should be made compulsory for high school graduation.
  53. Economics, like mathematics should be done in the early hours of the school time-table.
  54. The principles of economics are too technical for all citizens to understand.
  55. The principles of economics should be simplified and made available for all.
-

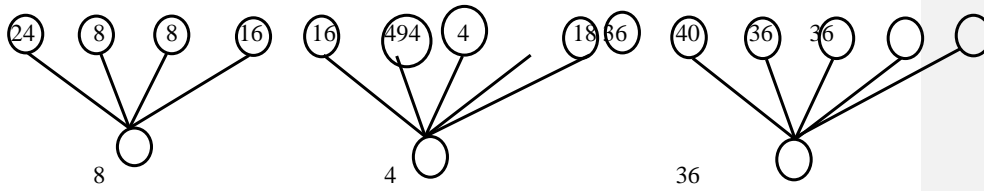
**Table A Showing the final SATES and the factors and their names**

Factor( Interpretation)	S/N	Item
F2 (Difficulty of economics)	1	ES48 Economics should be limited to higher institutions only
	2	ES49 Secondary School age students are too young to understand the basic principles of economics
	3	ES50 Economics should be removed from the secondary school curriculum.
F4 (Performance in economics)	4	ES2 Economics is easy to pass in the WASSE compared to other subjects
	5	ES26 One can easily pass economics in the SSCE
	6	ES35 The knowledge of economics helps us in developing entrepreneur skills
F5 (Benefits / Usefulness of economics)	7	ES24 Economics should be made compulsory like English language and Mathematics
	8	ES37 In the list of subjects offered in secondary schools, economics is among the first three
	9	ES39 The government of our nation should be run by economists
	10	ES40 The study of economics should be made compulsory at higher education level.
F6 (Pedagogy of economics)	11	ES8 Only social science students should study economic
	12	ES11 Economics teachers are boring
	13	ES16 Going to school to study economics is a waste of time
	14	ES19 Economics text books are boring

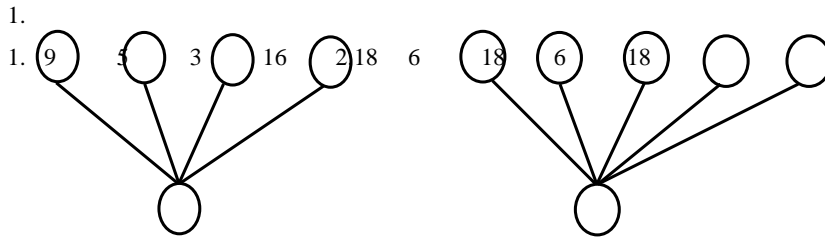
APPENDIX V

TEST OF QUANTITATIVE SKILL

Example

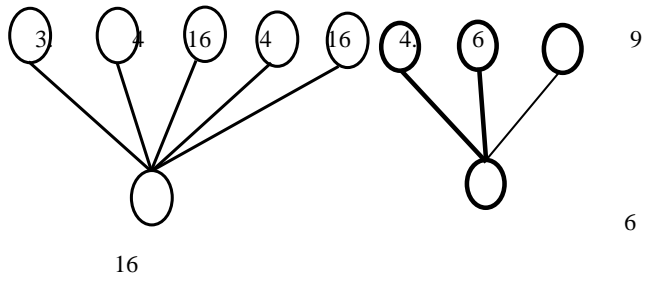


Now do Nos 1-5



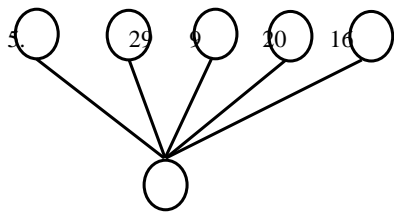
(A) 5 (B) 3 (C) 9 (D) 15

(A) 18 (B) 64 (C) 36 (D) 14



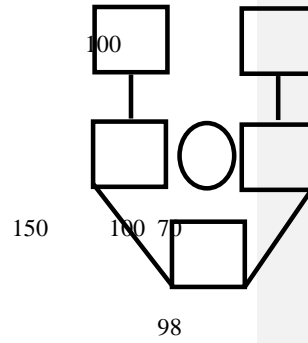
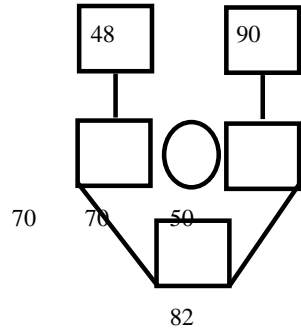
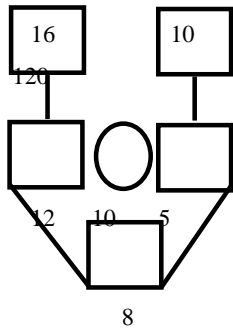
(A) 9 (B) 6 (C) 3 (D) 36

(A) 20 (B) 2 (C) 16 (D) 32

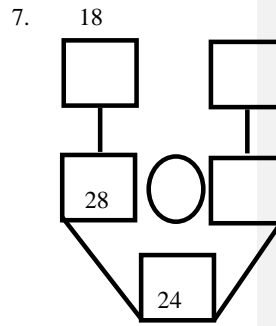
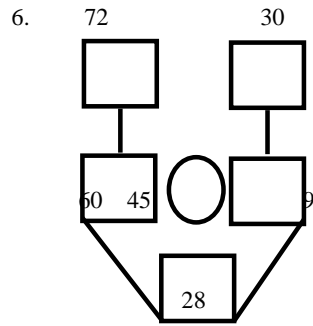


(A) 9 (B) 29 (C) 20 (D) 16

EXAMPLES TO DO NO 6 – 10



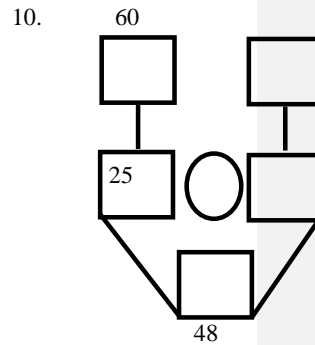
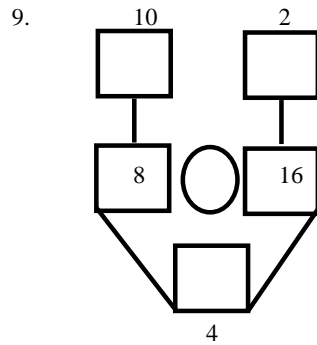
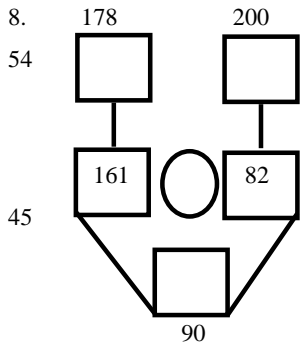
36



(A) 45 (B) 28 (C) 30 (D) 72

(A) 9 (B) 28 (C) 24

(D) 36



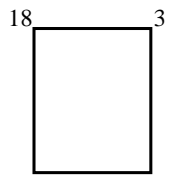


(A) 161 (B) 82 (C) 200 (D) 90  
(C) 45 (D) 48

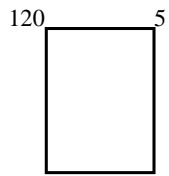
(A) 10 (B) 8 (C) 16 (D) 2

(A) 54 (B) 60

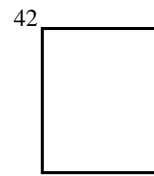
Sample: use the sample to Answer Question 11- 15.



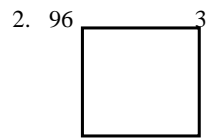
3            2  
              2



8            3



3



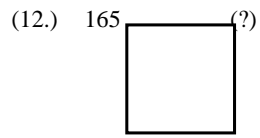
8            (?)  
              3

(A) 48

(B) 4

(C) 8

(D) 11



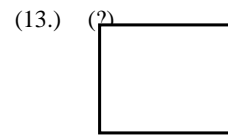
3            5

(A) 11

(B) 5

(C) 3

(D) 7



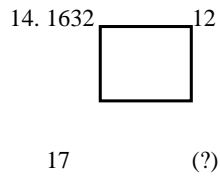
6

(A) 42

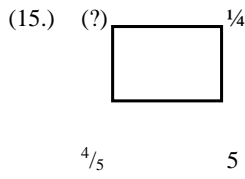
(B) 124

(C) 126

(D) 18

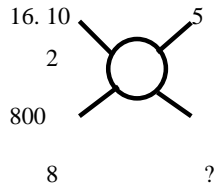
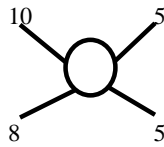
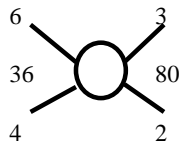
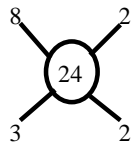


- (A) 204
- (B) 8
- (C) 96
- (D) 48

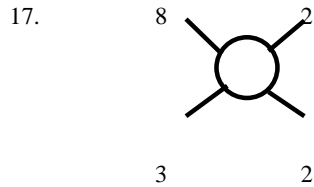


- (A) 3/4
- (B) 5
- (C) 1
- (D) 4

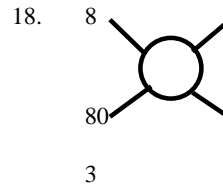
Use the Sample below to answer question 16 -20



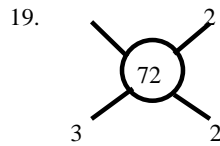
- (A) 2
- (B) 1/2
- (C) 40
- (D) 20



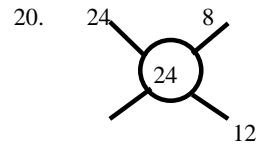
- (A) 147



- (A) 4
- (B) 10
- (C) 14

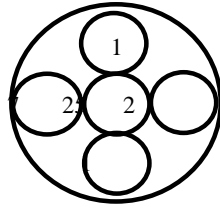
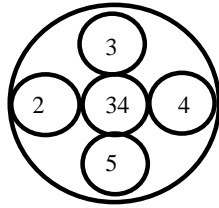
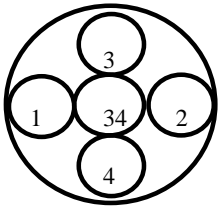


- (A) 60
- (B) 30
- (C) 20
- (D) 24

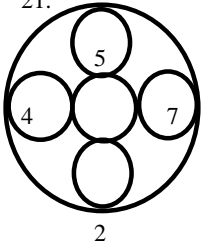


- (A) 12
- (B) 18
- (C) 9
- (D) 8

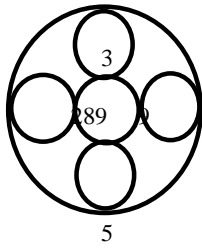
Use the sample below to answer question 21 – 26.



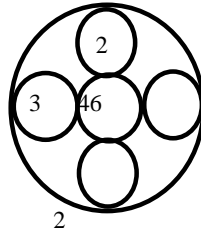
21.



22.



23.



(A) 280 (B) 298 (C) 18 (D) 70

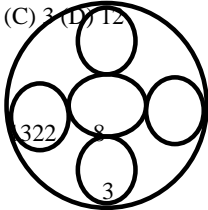
(A) 4 (B) 3 (C) 27 (D) 2

(A) 10

(B) 36 (C) 3 (D) 12

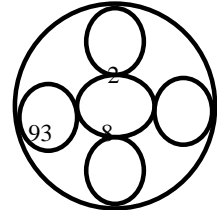
24.

9



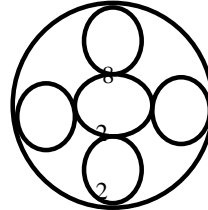
25.

5



26.

5



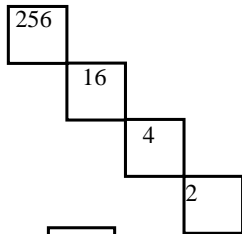
(A) 6 (B) 5 (C) 12 (D) 7

(A) 10 (B) 4 (C) 10 (D) 9

(A) 80 (B) 81

(C) 96 (D) 92

Use these samples to answer question 27-30

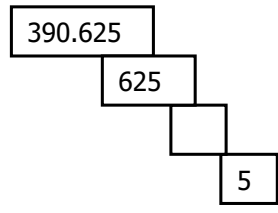


27.

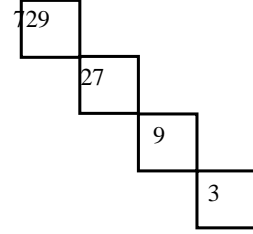
- (a) 266
- (b) 256.2
- (c) 23.53
- (d) 23.34

- (a) 65536
- (b) 65356
- (c) 63536
- (d) 65636

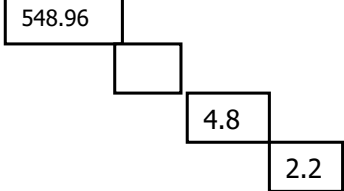
29.



- a) 52
- (a) 14
- (b) 25
- (b) 49
- (c) 20
- (c) 98
- (d) 125

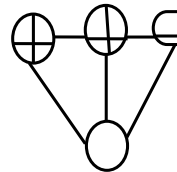
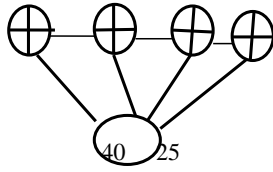
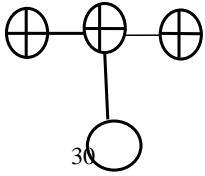


28.

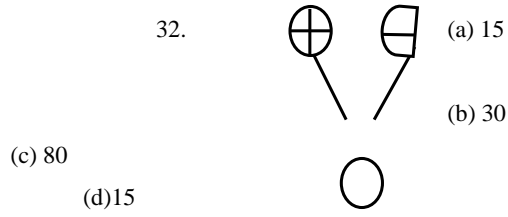
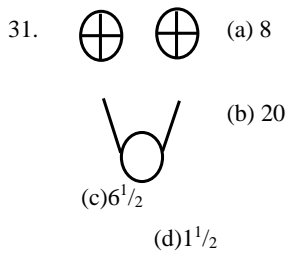


30.

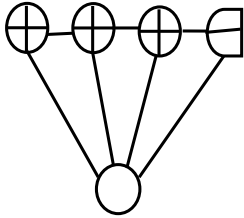
- (d) 7



Now do 31-38



33.



a) 40

(b) 5

(c) 35

(d) 32

34.



(b) 70

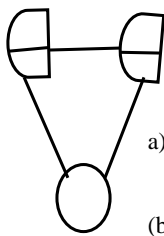
?

(a) 10

(c) 1

(d) 4

35.



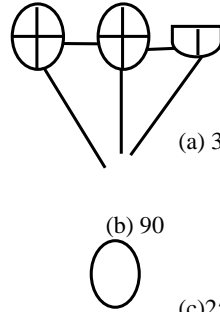
a) 2

(b)  $2\frac{1}{2}$

(c) 10

(d) 20

36



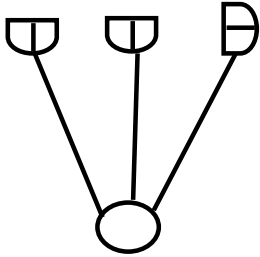
(a) 30

(b) 90

(c) 25

(d)  $2\frac{1}{1}$

37.



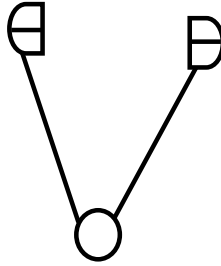
(a) 3

(b) 15

(c) 30

(d) 25

38.



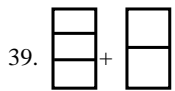
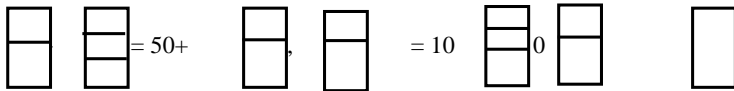
(a) 5

(b) 2

(c)  $1/2$

(d) 10

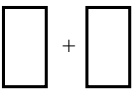
Use the sample below to answer question 39-46



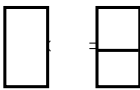
(a) 40 (b) 4 (c) 30 (d) 31



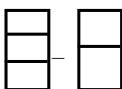
(a) 4 (b) 10 (c) 50 (d) -50

41. 

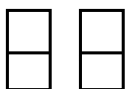
- (a) 20 (b) 0 (c) 10 (d) 5

42. 

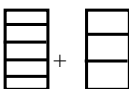
- (a) 0 (b) 2 (c) 20 (d) 02

43. 


- (a) 1 (b) 20 (c) 10 (d) 10

44. 

- (a) 4 (b) 40 (c) 400 (d) 4,000

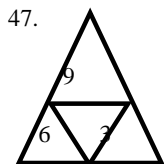
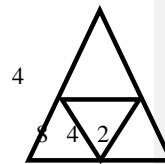
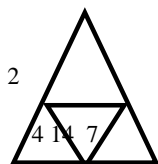
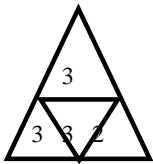
45. 

- (a) 7 (b) 70 (c) 40 (d) 120

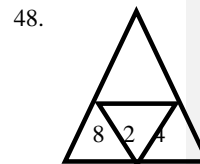
46. 

- (a) 4 (b) 30 (c) 40 (d) 60

Use the sample below to answer question 47-52



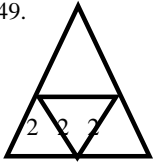
- (a) 2 (b) 27 (c) 18 (d) 9



- (a) 8 (b) 32 (c) 16 (d) 64

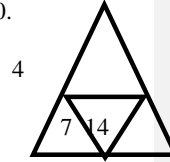


49.



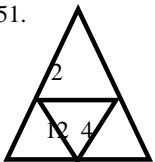
(a)4 (b)2 (c)8 (d)16

50.



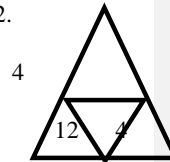
(a)2 (b)10 (c)28 (d)8

51.



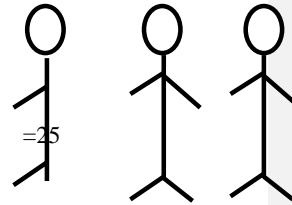
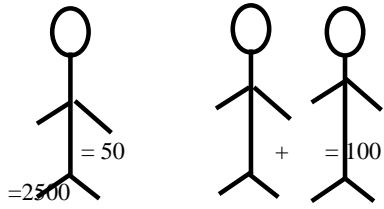
(a)6 (b)24 (c)8 (d)3

52.

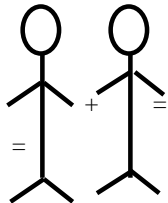


(a)4 (b)16 (c)12 (d)48

Use the sample below to answer question 53-58

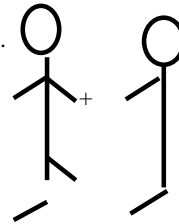


53.

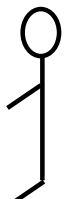
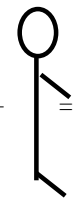


(a)100 (b)2500 (c) 200 (d)150


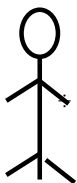

54.



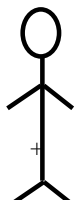

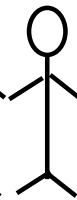
(a)75 (b)50 (c) 1250(d)2000

55.  +  =

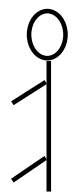
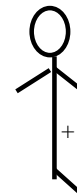

(a)100 (b)75 (c) 50 (d)150

56.    =

(a)100 (b)500 (c)50(d)150

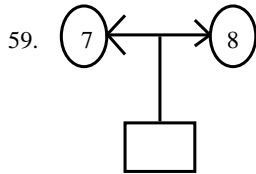
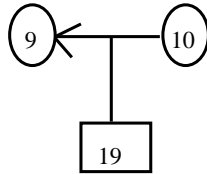
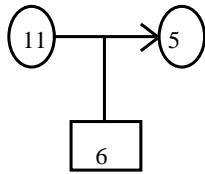
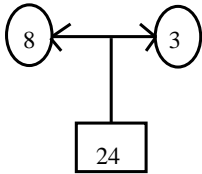
57.  +  -  =

(a)100 (b)150 (c) 20 (d)50

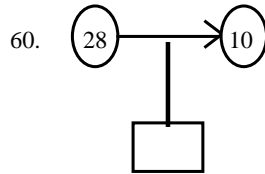
58.  +  +  =

(a)150 (b)100 (c)75(d)25

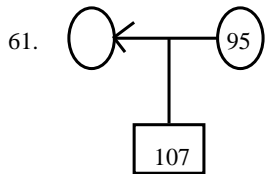
Use the Sample below to answer question 59 -62



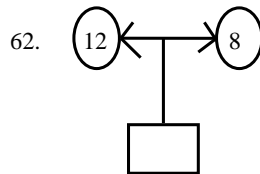
- (A)  
(B) 15 (B) 56 (C) 1 (D) -1



- (A) 18 (B) 38 (C) 280 (D) 2.8

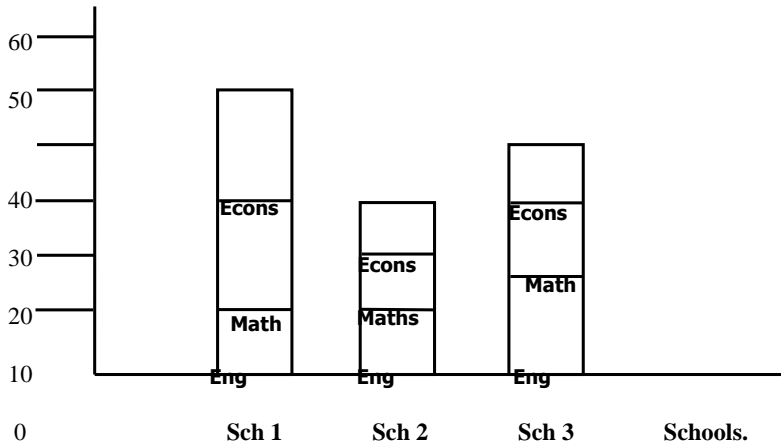


- (A)  
(B) 85 (B) 202 (C) 0 (D) 12



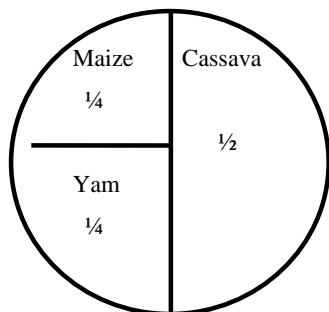
- (A) 96 (B) 69 (C) 20 (D) 4

The component bar charts below, represent the number of students offering various subjects in some schools. Use the chart to answer question. 63 – 70



63. How many students offer English in School 1?(A) 0 (B) 20 (C) 40 (D) 10
64. How many students offer Economics in School 1?(A) 50 (B) 120 (C) 20 (D) 150
65. How many students all together are in School 1?(A) 30 (B) 90 (C) 50 (D) 150
66. How many students offer Maths in School 1,2&3?(A) 50 (B) 40 (C) 30 (D) 90
67. How many students offer English in School 3?(A) 20 (B) 30 (C) 50 (D) 40
68. How many students are offering English in all the three Schools?(A) 40 (B) 50 (C) 30 (D) 70
69. How many students offering Economics in School 1,2&3?(A) 60 (B) 50 (C) 40 (D) 90
70. How many students are in schools 1, 2 & 3 altogether? (A) 1000 (B) 120 (C) 200 (D) 500

The pie-chart below represent the division o farm land. Use the diagram to answer questions 71-100



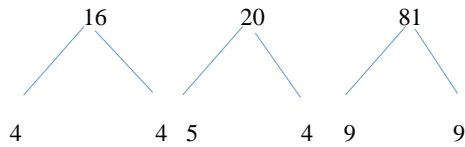
71. What percentage of the farmland is used for cassava?(A) 60% (B)  $\frac{1}{2}$  % (C) 80% (D) 50%
72. What percentage of the farmland is used for yam?(A) 25% (B) 36% (C)  $\frac{1}{4}$ % (D) 40%
73. In drawing the pie-chart what degree will represent farmland used for cassava?  
(A)  $90^\circ$  (B)  $360^\circ$  (C)  $180^\circ$  (D)  $55^\circ$
74. What degree of the pie-chart represent farmland used for maize?  
(A)  $95^\circ$  (B)  $60^\circ$  (C)  $90^\circ$  (D)  $180^\circ$
75. What Percentage of the farmland used for both maize and yam?(A)  $360^\circ$  (B)  $100^\circ$  (C)  $50^\circ$  (D)  $180^\circ$
76. If the land is about 540 acre, how many acre is used for maize  
(A) 135 (B) 270 (C) 180 (D) 250
77. Out of the 540 acre how many is use for cassava?(A) 280 (B) 270 (C) 360 (D) 190
78. How many acre is used for Yam?(A) 130 (B) 133.3 (C) 135mm (D) 190
79. How many acre is used for both yam and maize?(A) 270 (B) 360 (C) 180 (D) 90
80. What percentage of the farmland is used for both yam and maize.(A) 60 (B) 50 (C) 100 (D)360

Use the sample below to answer question 81-83

$$2^3 \times 5 = 40; \quad 3^2 \times 7 = 63; \quad 2^3 \times 5^2 \times 7 = 1400$$

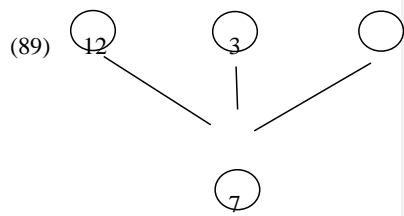
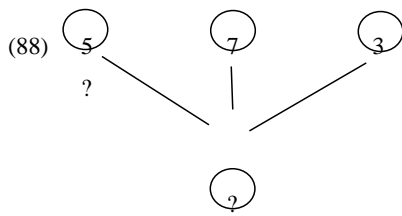
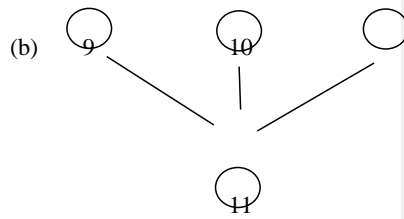
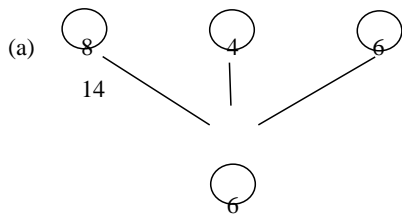
- (81)  $2^3 \times \square \times 5 = 80$       (a)  $2^0$       (b)  $2^2$       (c)  $2^1$       (d)  $2^3$
- (82)  $\square \times 9 = 441$       (a)  $8^2$       (b)  $7^2$       (c)  $5^2$       (d)  $5^2$
- (83)  $2^4 \times 3^4 \times 5 = \square$       (a) 6480      (b) 8064      (c) 8604 (d) 4680

Use the sample below to answer question 84-87



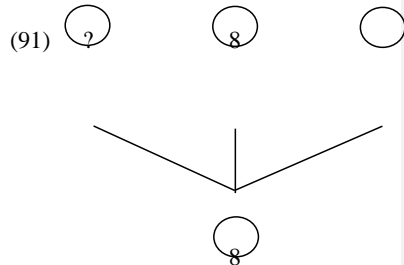
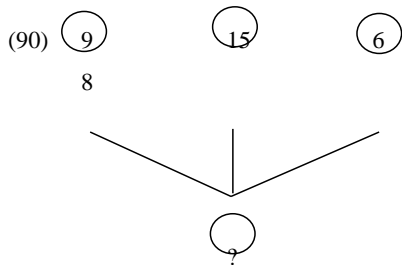
- (84)      (a) 5    (b) 7    (c) 8    (d) 6
- (85)      (a) 4    (b) 5    (c) 6    (d) 7
- (86)      (a)  $75 \frac{1}{2}$     (b)  $28 \frac{1}{4}$     (c)  $70 \frac{1}{8}$     (d)  $75 \frac{1}{4}$
- (87)      (a) 76    (b) 84    (c) 72    (d) 70

Use Example a & b to answer question 88 – 92



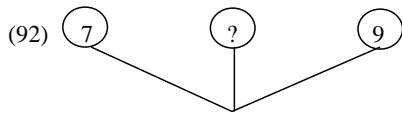
(a) 6 (b) 5 (c) 3 (d) 15

(a) 12 (b) 3 (c) 6 (d) 7



(a) 10 (b) 15 (c) 6 (d) 30  
(d) 0

(a) 16 (b) 24 (c) 8



(12)

- (a) 9 (b) 7 (c) 20 (d) 36

Given that  $y = 4 + 3x - x^2$  and  $y = x^2 - 2x - 1$ ,

complete the tables below for questions 93 – 105

x	-1	0	1	2	3	4
4	4	4	4	4	4	4
+3x	-3	(93)	3	(100)	9	(95)
-x <sup>2</sup>	-1	(97)	-1	(94)	-9	-16
y	0	(96)	6	(98)	4	(99)

- (93) \_\_\_\_\_ (a) -2 (b) 0 (c) 4 (d) -4  
 (94) \_\_\_\_\_ (a) -4 (b) 1 (c) 2 (d) -1  
 (95) \_\_\_\_\_ (a) 16 (b) 18 (c) 12 (d) -4  
 (96) \_\_\_\_\_ (a) 14 (b) 4 (c) -24 (d) 24  
 (97) \_\_\_\_\_ (a) 16 (b) 6 (c) -6 (d) 26  
 (98) \_\_\_\_\_ (a) 0 (b) -8 (c) 2 (d) 6  
 (99) \_\_\_\_\_ (a) 4 (b) -1 (c) 0 (d) 2  
 (100) \_\_\_\_\_ (a) 9 (b) 6 (c) -9 (d) 8



X	-2	-1	0	1	2	3	4
X <sup>2</sup>	4	1	0	1	4	(103)	(101)
-2x	4	1	0	-2	-4	-6	-8
-1	-1	-1	-1	-1	-1	-1	-1
y	7	2	(104)	-2	-1	(102)	(105)

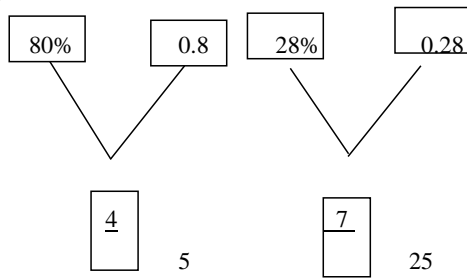
- (101) \_\_\_\_\_ (a) -5 (b) -2 (c) 2 (d)4
- (102) \_\_\_\_\_ (a) 16 (b) 3 (c) 9 (d)24
- (103) \_\_\_\_\_ (a) -3 (b) 6 (c) 9 (d) 12
- (104) \_\_\_\_\_ (a) 0 (b) -1 (c) 1 (d)3
- (105) \_\_\_\_\_ (a) 7 (b) -9 (c) 11 (d)12

Put > or < in the box to make the statement true when  $n = 3$ . The first one has been done.

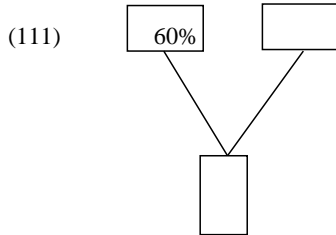
$$5n - n < \boxed{7} + 2n$$

- (106)  $3n - 4 \quad \square \quad 2$  (a) > (b) < (c) =
- (107)  $7 + n \quad \square \quad 4n$  (a) = (b) > (c) <
- (108)  $0 - n \quad \square \quad n - 13$  (a) < (b) > (c) =
- (109)  $4n^2 \quad \square \quad 32$  (a) > (b) = (c) <
- (110)  $1 - n^2 \quad \square \quad 21 - 10n$  (a) < (b) > (c) >

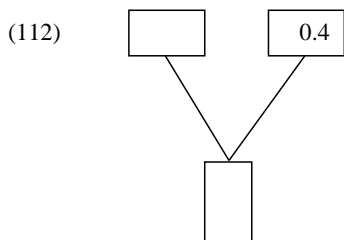
Study the fraction patterns below



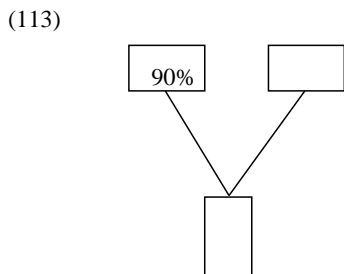
Based on the above patterns, fill in the empty boxes below



- (a) 0.006,  $\frac{3}{500}$  (b) 0.6,  $\frac{3}{5}$  (c) 0.06,  $\frac{3}{50}$   
 (d) 0.003,  $\frac{4}{5}$

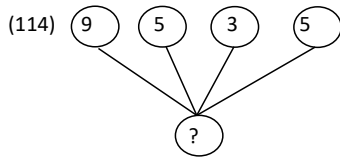
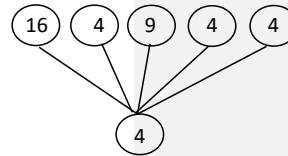
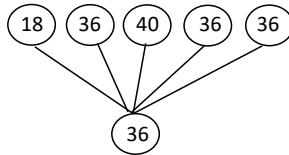
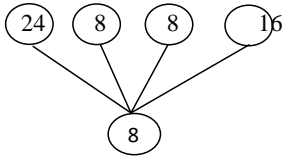


- (a) 4%,  $\frac{1}{25}$  (b) 40%,  $\frac{2}{5}$  (c) 400%, 4  
 (d) 20%

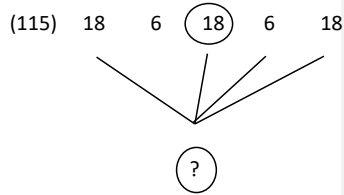


- (a) 0.09,  $\frac{9}{100}$  (b) 9.0,  $\frac{9}{10}$  (c) 0.9,  $\frac{9}{10}$   
 (d) 0.9/11

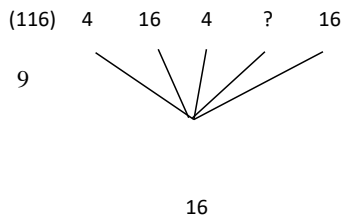
Use the sample below to attempt no. 114- 118



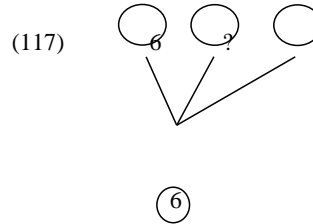
(A) 5 (B) 3 (C) 9 (D) 15



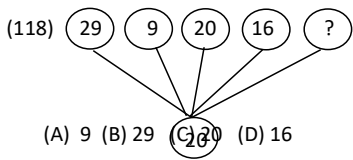
(A) 18 (B) 64 (C) 36 (D) 14



(A) 20 (B) 2 (C) 16 (D) 32



(A) 9 (B) 6 (C) 3 (D) 36



Put  $>$  or  $<$  in the box to make the statement true when  $n = 3$ . The first one has been done.

$$5n - n < \boxed{7} + 2n$$

(119)  $3n - 4 \quad \square \quad 2 \quad (a) > \quad (b) < \quad (c) =$

(120)  $7 + n \quad \square \quad 4n \quad (a) = \quad (b) > \quad (c)$

**APPENDIX VI**  
**INTERNATIONAL CENTRE FOR EDUCATIONAL EVALUATION INSTITUTE OF EDUCATION, UI, IBADAN**  
**STUDENTS LEARNING STYLE INVENTORY (SLSI)**

**SECTION A:** Demographic information (please tick the appropriate box)

1. **Type of School:** Private  Public

2. **Class:** SS 1  SS 2  SS 3

3. **Gender:** Male  Female

4. **Department:** Science  Social  Art

5. **School Location:** Urban

**SECTION B**

**Task**

This survey is designed to explore the way you prefer to learn.

Look at the four statements in each row, and decide how they refer to you. Give **four** marks for the statement nearest to you, **three** to the second, **two** for the third and **one** for the statement least appropriate to you. *There is no right or wrong answer.*

	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>
1	I like to be deeply involved in whatever I do	I like to take my time before acting	I am particular about what I like	I like things to be useful
Scores				
2	I like trying out new ideas	I like to analyze things and break them into parts	I am open to new experiences	I like to look at all sides of issues
Scores				
3	I like to watch	I like to analyze things and break them into parts	I am open to new experiences	I prefer to think things through before taking action
Scores				
4	I accept people and situations the way they are	I like to be aware of what is around me	I like to evaluate issues before jumping into conclusion	I like to take risks
Scores				
5	I tend to understand things or situations based on inner feelings or hunches	I like asking lots of questions about how things work	I believe problems should be solved through rational, logical thinking	I am hardworking and get things done
Scores				
6	I like concrete things; things I can see, feel, touch or smell	I like to be active	I like to observe	I like ideas and theories
Scores				
7	I prefer learning in the here and now	I like to consider and reflect about what I'm doing	I tend to think about the future	I rely on my feelings
Scores				
8	I have to try things out myself	I rely on my own ideas	I rely on my own observations	I rely on my feelings
Scores				
9	I am quiet and reserved	I am energetic and eager about what I do	I tend to reason things out	I am responsible about things
Scores				

## APPENDIX VII

### Diagrammatical representation of the Experiential Treatment

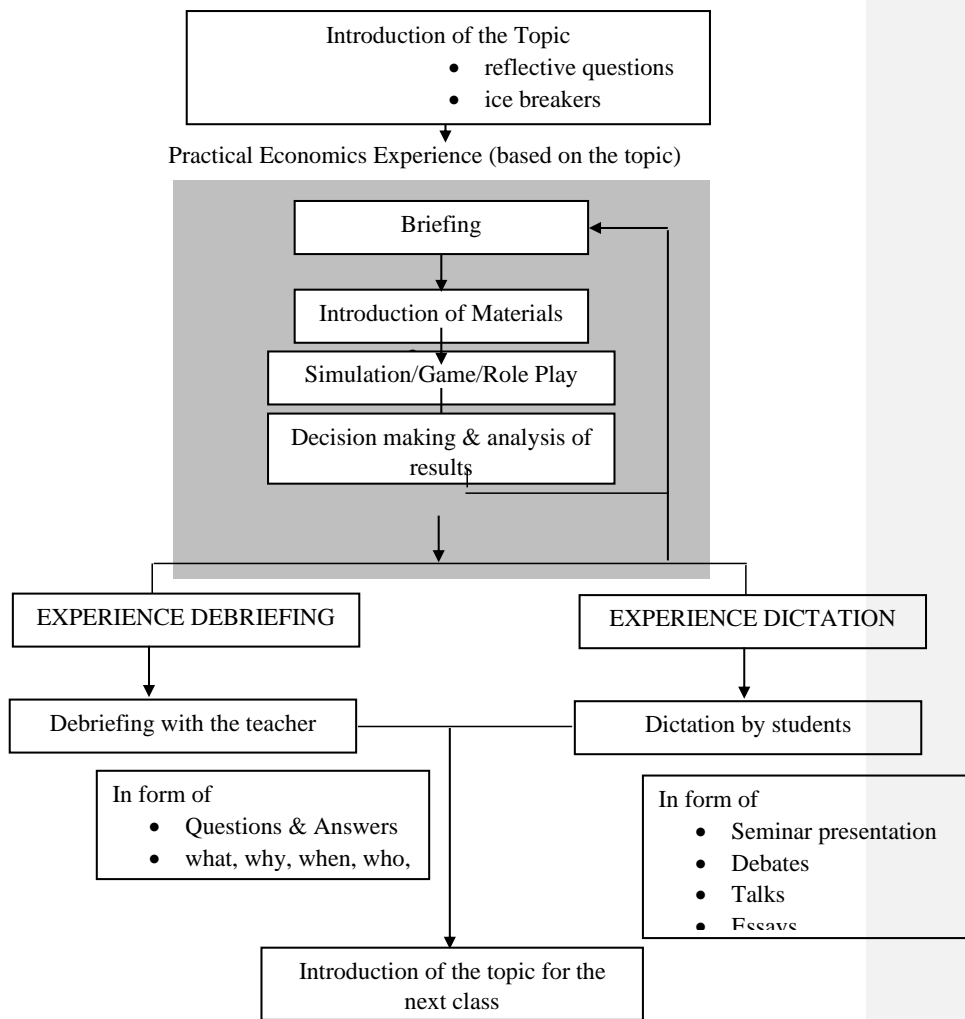


Figure 3.1: Scheme of classroom activities for the treatment (Experience Debriefing and Experience Dictation)