

*Full Length Research Paper*

# Motivation based on interest and confidence level at teaching core science subjects: Case study of Fouad Academy, Abuja

Ogori Friday Akama

Federal College of Education, Kontagora, Niger State, Nigeria.

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Motivational process can influence a child's understanding. Students' interest in some subjects being taught arouses confidence level, influences science students' performance and reaction to success and failure. Data were analyzed through randomized sampling techniques using an answered questionnaire from fifty four students (54) of senior secondary one to senior secondary three at Fouad Academy Abuja. The data showed that interest and confidence level were independently defined as motivating science subject cognition, transfer and knowledge among students successfully. From inferred chi – square analysis of the studied parameters from senior secondary one (SS1) to three (SS3) for subject interest and confidence level, these tools were not found to be associative for motivation in the learning of some science subjects. Sex differential was a motive able variable but tends to merge with incremental challenge on class gaining.

**Key words:** Motivation, confidence level, subject interest, science subjects, senior secondary (SS).

## INTRODUCTION

Motivation influences a child's acquisition, transfer and use of knowledge and skills for the science learning at the secondary level (high school). This study seeks to know motivational processes affecting learning of some science subjects using interest and confidence attributes. Motivational procedures like some applied methodology of teaching, peer group, counseling, historical facts and psycho cognitive approach or child's environment arouse interest or disinterest (Sanfeliz and Stalzer, 2003). Like many high schools, science teachers believe that one of their most important instructional responsibilities is to foster students 'motivation to learn. According to Sanfeliz and Stalzer (2003), motivated students enjoy learning sciences, believe in their ability to learn, and take responsibility for their learning. Certain parameter composed in the child's environment could affect learning generally. People are captured by different needs from the environment and the most important are silent

sometimes which solemn have critical impact on the person's behavior. The expectance theory asserts that motivation is determined by student's feelings regarding the relationship between his or her behaviour and the outcome of that behaviour. Once a need is met, motivation becomes effective. According to Glynn and Koballa (2006) and Albert and Sarah (2012), there are no correlations between male and female child in learning of sciences; the male is a systemizer with low intelligent quotient and the female is an empathizer with high IQ. Seguin (1999) argued that motivation is willful desire to direct one's behaviour towards achieving certain goals. Students' motivation can be affected by intelligence, school environment, tested feelings, tactfulness and sympathetic environmental issues. Science subject had been seen as difficult by our students at secondary school level or high school in West Africa – Nigeria due to undefined tools for motivational steps or processes.

Sometimes, these processes of influencing children on particular subject or alluring non- self confidence may affect learning ability, which however, is traceable to lack of cognitive know-how of the child or on the part of the child. Science subjects in Nigeria schools have been seen to be difficult and children tend to shift to the social sciences and the art classes. Learning the science subjects is a sure road to unlock and tap our national potential for all sector growth and development. The study seeks to unveil the effects of motivation based on subjects' interest and confidence level on the learning of science subjects using social and cognitive tools.

Students' definition of interest and confidence levels in science subject could affect their motivation for performance in the subject. A child is embodied by a lot of psychological, philosophical and social factors that operate via the mind. Such things could be environmental, peer group, sexuality, poverty, school nature, poor cognition and teaching, arousal theorem, drive theory, self actualization, libido, homunculus, satiation centre and the overall learning facilities at the child's disposal.

The concept of learning science subject is avidly entrenched in teaching tools, perception and cognition as well as sociality. The abstraction in science subject requires the need for motivation. Besides, the economy of any country is usually deepened in science and technology with which the cognitive, social and governmental policies are squally merged. This is not the case in our nation like Nigeria which requires the practicality of motivation to strike a balance on this. Science subjects have been discovered to be difficult to study at secondary school levels. This is evident in classroom population and gender preference. Others argued that people come to an experience with certain interests or capacities; some say that all people can become engaged with a new topic and can develop skills, interests and confidence accordingly. This debate extends to whether there is such a thing as intrinsic and extrinsic motivation to learn with no clear tool on this (Sanfeliz and Stalzer, 2003). Intrinsic motivation is the inherent satisfaction in drive learning science for its own sake (Eccles et al., 2006), efficacy is students' belief that they can achieve well in science (Baldwin et al., 1999), while determination is the control students believe they have over their learning of science (Black and Deci, 2000).

It is important to note here, however, that the same authors do not discuss how subject interest and confidence factors may shape students' motivation dependently or independently. Indeed, this study raises questions about the complex nature of group or an individual's motivation to learn or engage in science.

### Objective of the study

To elucidate interest and/or confidence as tools for

motivational process for learning of core science subject in Fouad Academy Abuja

### Research questions/hypothesis

1. Do interest levels motivate learning of core science subjects?
- 2 Do confidence levels motivate learning of core science subjects?

### RESEARCH DESIGN AND METHODOLOGY

The study adopted a descriptive research with emphasis on survey approach .That is, the opinion of student on what effect or tools their motivation for learning of science subject (from senior secondary one to three; SS1-3) hangs on.

The study population consists of all senior classes taking core sciences subjects like chemistry, physics, biology and mathematics at Fouad Academy in Federal Capital Territory Abuja .The student population was( 54) fifty four including both male and female students which took chemistry, physics, biology and mathematics from each class respectively. Eighteen student (18) between the ages of 15-19, out of twenty five (25) in a class were the population of this study: 9 male and 9 female students at senior secondary one; nine (9) male and nine (9) female students at senior secondary two and nine (9) male and nine (9) female students at senior secondary three (50 %) respectively

The researcher visited each of the three classes, that is, senior secondary one to three personally for on spot assessment through the use of questionnaire. The researcher waited for eight hours before collecting the questionnaire from the students. The questionnaire contains six (6) items: low, average, high, very low, very high and average characteristics. They were divided into two parts, the first part deals with students' interest level; the second part dwells on confidence level. Guttman scale for multidimensional variable measurement was used for the stratified random sampling on parameters based on subject's interest and confidence level

### Data analysis

For this study, each data collected through the use of stratified random sampling were subjected to mean rating used in analyzing the responses of the students to the questionnaire. Thereafter, the frequency values from each student's score in the categorized classes were subjected to mean rating and chi-square test in order to ascertain sample difference and association amongst the values. The raw data from the questionnaire were statistically analyzed using chi -square and mean score rating. The mean was computed by adding the frequency (f) of the response and dividing the sum by the number of respondent. The (gx) grand mean was computed by summing up the mean of all the items for a particular group calculated as item mean,

$$X = \frac{\sum F}{N}$$

X = mean rating;  $\sum$  = summation; F = frequency; N = Numbers of response.

The referred cut off point for each parameter was calculated thus,

**Table 1a.** Subject interest mean rating for male/female students.

Male						Female					
Low		Average		High		Low		Average		High	
$\Sigma f$	N	$\Sigma f$	N	$\Sigma f$	N	$\Sigma f$	N	$\Sigma f$	N	$\Sigma f$	N
0	0	18	9	17	9	0	0	20	9	16	9
0		2		1.8		0		2.2		1.7	

gx=3.8; RM=2.25; gx=3.9; RM=2.25.

**Table 1b.** Confidence level of mean rating for male / female students.

Male						Female					
Low		Average		High		Low		Average		High	
$\Sigma f$	N	$\Sigma f$	N	$\Sigma f$	N	$\Sigma f$	N	$\Sigma f$	N	$\Sigma f$	N
0	0	18	9	17	9	0	0	20	9	16	9
0		2		1.8		0		2.2		1.7	

gx=3.6; RM=2.25; gx=3.9; RM=2.25.

**Table 1c.** Chi-square subject interest in SS one for male students.

Male student	$f_o$	$f_e$	$f_o-f_e$	$(f_o-f_e)^2$	$(f_o-f_e)^2/f_e$
1	0	0.5	-0.5	0.25	0.5
2	0	0.4	-0.4	0.16	0.40
3	0	0.4	-0.4	0.16	0.40
4	2	0.4	1.6	2.56	0.40
5	4	4.8	-0.8	0.64	0.13
6	2	4.3	-2.3	1.53	1.23
7	5	4.3	0.17	0.49	0.11
8		4.3	2.5	6.25	1.45
9	6	4.5	1.5	2.25	0.50
10	7	4.1	2.9	8.41	2.05
11	4	4.1	-0.1	0.01	0.002
12	0	4.1	-4.1	16.81	4.1
$X^2$ calculated					11.27

$X^2$  critical from table at  $df=6$  and 0.05 significant level;  $X^2$  critical=12.5> $X^2$ cal=11.27.

$$\text{Referred mean} = \frac{NS}{NSS}$$

NS= Number of responses;  
NSS = Number of science subjects or item listed for evaluation.

The referred mean RM is the criterion for decision making,

$$RM = \frac{9}{4} = 2.25$$

9 = Number of respondents for male;  
4 = Number of science subjects used.

$$\text{CHI - SQUARE } X^2 = \frac{\sum(F_o - F_e)^2}{F_e} = \text{CHI - SQUARE TEST}$$

$F_o$  = Observed frequency;  
 $F_e$  = Expected frequency

But,

$$F_e = \frac{\text{raw total} \times \text{column total}}{\text{grand total}} \text{ or } \frac{Rt \times Ct}{\text{grand total}}$$

## RESULTS AND DISCUSSION

The results of the study are shown in Tables 1 to 3. Tables 1a and 1b showed mean rating for subject interest, confidence level responses of students in senior secondary one. The interest / confidence level correlates with motivation for achievement. Students in SS1 had average mean rating for subject interest for both sexes. This will increase their performance to either negative or positive orientation in a balance form because incremental theory leads to learning goals.

Mean rating for confidence level for male was 2.0 and 1.8 on the average characteristics. This indicates equal competency in male student. But female students had 2.2 mean for average and 1.7 mean for high characteristics confidence level, showing that female learning orientation is based on increasing competence (Deci, 1995). The grand total (gx) for both subject interest and confidence level was however above referral mean rating of 2.25.

From Tables 1c to 1f, both subject interest and confidence level reject the null hypothesis because  $X^2$  critical at  $df = 6$  and 0.05 significant level was 12.59 less than  $X^2$  critical from the table. This indicates that subject interest and confidence level on Chemistry, Physics, Biology and mathematics at this class level do not drive their motivation. Stimulating student's interest and confidence level through reinforcement would increase

**Table 1d.** Chi-square subject interest in SS one for female students.

Female students	$f_o$	$f_e$	$f_o-f_e$	$(f_o-f_e)^2$	$(f_o-f_e)^2/f_e$
1	0	0	0	0	0
2	0	0	0	0	0
3	0	0	0	0	0
4	0	0	0	0	0
5	5	5.8	-0.8	0.64	0.11
6	7	5.8	1.2	1.44	0.24
7	5	5.8	0.8	0.66	0.11
8	3	5.2	5.8	-2.2	0.93
9	4	3.1	0.9	1.81	0.26
10	3	3.1	0.1	0.01	0.032
11	4	3.1	0.9	0.81	0.26
12	5	2.2	2.3	5.29	1.95
$\chi^2$ calculated					3.89

$\chi^2$ critical from table at  $df=6$ ; 0.05 significant level= $12.59$   
 $\chi^2_{cal}=3.89$ .

**Table 1e.** Chi- square confidence level in SS one class for male student.

Male students	$f_o$	$f_e$	$f_o-f_e$	$(f_o-f_e)^2$	$(f_o-f_e)^2/f_e$
1	0	0	0	0	0
2	0	0	0	0	0
3	0	0	0	0	0
4	0	0	0	0	0
5	3	4.5	-1.5	2.25	0.5
6	3	4.5	-1.5	2.25	0.5
7	5	4.5	0.5	0.25	0.06
8	6	3.5	2.5	6.25	1.78
9	6	4.5	1.5	2.25	0.5
10	6	4.5	1.5	2.25	0.5
11	4	4.5	-0.5	0.25	0.05
12	1	3.5	-2.5	6.25	1.78
$\chi^2$ calculated					5.67

$\chi^2$ critical from table at  $df=6$ ; 0.05 significant level= $12.59$   
 $\chi^2_{cal}=5.67$ .

the level of interest in student to learn more. Intrinsic motivation either of subject interest or confidence level would allow the student to perform extra ordinary in science subject at the beginning of his/her career in science. This may have a long lasting effect on their science career.

Subject interest and confidence level when used independently on these students could intrinsically foster learning by using local examples, teaching with models and event in view, using pop technology culture and social life connectivity.

Tables 2a and 2b showed means rating for subject

**Table 1f.** Chi-square confidence level in SS one for female student.

Female students	$f_o$	$f_e$	$f_o-f_e$	$(f_o-f_e)^2$	$(f_o-f_e)^2/f_e$
1	0	0	0	0	0
2	0	0	0	0	0
3	0	0	0	0	0
4	0	0	0	0	0
5	3	6	-3	9	1.5
6	7	6	1	1	0.16
7	7	6	1	1	0.16
8	7	6	1	1	0.16
9	6	3	3	9	3
10	2	3	-1	1	0.33
11	2	3	-1	1	0.33
12	2	3	-1	1	0.3
$\chi^2$ calculated					5.97

$\chi^2$  critical at  $df=6$ ; 0.05 significant level= $12.59$   
 $\chi^2_{cal}=5.67$ .

interest/confidence of students in SS2 class. 1.4 and 2.4 mean showed on average and high subject interest characteristics, while 1.5 and 2.2 mean average was for high confident level characteristics respectively. Both sexes have subject interest and confident level of 0.11 and 0.2 mean at low characteristics. However, their mean ratings were higher than the referral recorded for male and female respondents. The female students having equal subject interest and confidence level may be due to their ability to endure difficult task. The reasons may also be due to challenges. At this level, there is ascendancy in class hence with more challenges and abstractions of the subjects

The 3.9 mean rating and 4.02 mean rating confidence levels from the side of the male may be because of their ability to face challenges. This contrast Weiner (1993)'s view who asserts that ability, difficult tasks, effort and luck are the four major factors that influences motivation in educational pursuit.

Tables 2c to 2f showed chi-square analysis table for subject interest and confidence level.  $\chi^2$  critical is less than  $\chi^2$  critical from the table, for male and female students. This indicates that subject interest and confidence level do not influence motivation for learning of science subjects at this level. This may be due to mutual assertions. However, when students are given environment which is interesting to learn in, like classroom and incentive, this would increase their confidence level in science subjects. This agrees with Dweck (1989)'s ideas that interest scores predict success in some studies. Dweck (1989) asserts that though interest varies with sexes however such variation or differences could be good for school performance. This inferred that on an associative scale, using both the interest and confidence characteristics would not foster motivation except independently asserted.

**Table 2a.** Subject interest of means rating for SS2 male / female students.

Male						Female					
Low		Average		High		Low		Average		High	
$\Sigma f$	N	$\Sigma f$	N	$\Sigma f$	N	$\Sigma f$	N	$\Sigma f$	N	$\Sigma f$	N
1	9	13	9	22	9	0	0	20	9	16	9
0.11		1.4		2.4		0.2		2.2		1.7	

gx=3.9; RM=2.25; gx=3.9; RM=2.25.

**Table 2b.** Confidence level of mean rating for SS 2 male /female students.

Male						Female					
Low		Average		High		Low		Average		High	
$\Sigma f$	N	$\Sigma f$	N	$\Sigma f$	N	$\Sigma f$	N	$\Sigma f$	N	$\Sigma f$	N
1	9	20	9	15	9	0	0	20	9	17	9
0.11		2.22		1.69		0.11		2		1.89	

gX=3.6; RM=2.25; gx=3.99; RM=2.25.

**Table 2c.** Chi-square analyses for subject interest in SS2 male student.

Male students	$f_o$	$f_e$	$f_o-f_e$	$(f_o-f_e)^2$	$(f_o-f_e)^2/f_e$
1	0	0.25	-0.25	0.063	0.25
2	0	0.25	-0.25	0.063	0.25
3	1	0.25	-0.75	0.56	0.25
4	0	0.25	-0.25	0.063	0.25
5	3	3.25	0.25	0.063	0.25
6	1	3.25	-2.25	5.06	1.55
7	3	3.25	-2.25	0.063	0.25
8	6	3.25	2.75	7.56	2.32
9	6	5.5	0.5	0.25	0.045
10	8	5.5	2.5	6.25	1.13
11	5	5.5	-0.5	0.25	0.045
12	3	5.5	2.5	6.25	1.13
$\chi^2$ calculated					9.47

$X^2$  critical at df=6 and 0.05 significant level  $X^2$  critical=12.94> $X^2$  cal=9.47.

**Table 2 d.** Chi-square analyses for subject interest in SS2 female students.

Female students	$f_o$	$f_e$	$f_o-f_e$	$(f_o-f_e)^2$	$(f_o-f_e)^2/f_e$
1	2	0.39	1.61	2.59	6.64
2	0	0.39	-0.39	0.152	0.39
3	0	0.31	-0.39	0.152	0.39
4	0	0.39	-0.39	0.152	0.39
5	3	2.73	-0.27	0.073	0.026
6	5	2.73	2.27	5.15	1.88
7	2	2.73	-0.73	0.53	0.20
8	4	2.73	1.27	1.61	0.59
9	4	5.86	-1.86	3.46	0.59
10	4	5.86	-1.86	3.46	0.59
11	7	5.86	1.14	1.30	0.22
12	5	5.86	-0.86	1.74	0.13
$\chi^2$ calculated					12.04

$X^2$  critical at df=6; 0.05 significant level 12.94> $X^2$ cal=12.0.

Tables 3a to 3b showed subject interest mean rating for both male and female respondent in senior secondary three (3). Both sexes showed vivid interest in science subjects with equal mean rating of 3.99 above the referral mean of 2.25. The female students showed higher mean rating which was closely followed by 1.44 mean for high characteristic. The male student showed a reverse mean value of 1.44 average and 2.44 mean for high characteristics. These differences might be due to convert idea that females learn quicles than males do (Glynn and Koballa, 2006).

Table 3a to 3b showed confidence level characteristic. The average mean rating characteristic of 2.00 was reported for females.

Confidence level and 0.22 mean were reported for male confidence level. Males had high characteristics mean rating of 1.72 and 1.89 than females. This shows that females' confidence level denudates possibly as challenges increase and tends to allow the males which might have rigid focus. At the beginning, the females' confidence level might increase as indicated by the 0.11 confidence level at low mean characteristic responses. Dweck (1989) asserts that it is obvious that there exists age differences and gender which could cause subject specific interest and confidence levels.

Tables 3c, 3d to 3f showed that  $X^2$  critical calculated is less than  $X^2$  critical from the table. This infers that subject interest and confidence level do not motivate learning of

**Table 2e.** Chi-square analysis for confidence level in SS 2 male students.

Male students	f <sub>o</sub>	f <sub>e</sub>	f <sub>o</sub> -f <sub>e</sub>	(f <sub>o</sub> -f <sub>e</sub> ) <sup>2</sup>	(f <sub>o</sub> -f <sub>e</sub> ) <sup>2</sup> /f <sub>e</sub>
1	0	0.2	-0.2	0.04	0.2
2	1	0.2	0.8	0.64	3.2
3	0	0.2	-0.2	0.04	0.2
4	0	0.2	-0.2	0.04	0.2
5	3	4	1	1	0.25
6	4	4	0	0	0
7	7	4	3	9	2.25
8	6	4	2	4	1
9	6	3	3	9	3
10	4	3	1	1	0.33
11	2	3	-1	1	0.33
12	3	3	0	0	0
$\chi^2$ calculated					11.16

X<sup>2</sup> critical at df=6; and 0.05 significant level 12.94>Xcal=11.16.

**Table 2f.** Chi-square analysis for confidence level in SS 2 female students.

Female students	f <sub>o</sub>	f <sub>e</sub>	f <sub>o</sub> -f <sub>e</sub>	(f <sub>o</sub> -f <sub>e</sub> ) <sup>2</sup>	(f <sub>o</sub> -f <sub>e</sub> ) <sup>2</sup> /f <sub>e</sub>
1	1	0.2	0.8	0.64	3.2
2	0	0.2	-0.2	0.04	0.2
3	0	0.2	-0.2	0.04	0.2
4	0	0.2	-0.2	0.04	0.2
5	3	3.6	-0.6	0.36	0.1
6	6	3.6	2.4	5.76	0.60
7	5	3.6	1.4	1.96	0.54
8	4	3.6	0.4	0.16	0.44
9	5	3.4	3.6	2.56	0.75
10	3	3.4	0.4	0.16	0.05
11	4	3.4	0.6	0.36	0.11
12	5	3.4	1.6	2.56	0.75
$\chi^2$ calculated					8.14

X<sup>2</sup> critical at df=6; and 0.05 significant level=X<sup>2</sup> table 12.59>X<sup>2</sup>cal=8.14.

**Table 3A.** Subject interest of mean rating for SS3 male/female students.

Male						Female					
Low		Average		High		Low		Average		High	
Σf	N	Σf	N	Σf	N	Σf	N	Σf	N	Σf	N
1	9	13	9	21	9	0	0	20	9	16	9
0.11		1.44		2.44		0.33		2.22		1.44	

gx= 3.99; RM=2.25; gx=3.99; RM=2.25.

science subjects. However, the more interested they are in the face of difficulty, the more confident they might become. The females are geared easily to motivation for

learning of science subjects than the males. However, female students are more confident than the male students.

**Table 3b.** Confidence level of mean rating for male/female students.

Male						Female					
Low		Average		High		Low		Average		High	
$\Sigma f$	N	$\Sigma f$	N	$\Sigma f$	N	$\Sigma f$	N	$\Sigma f$	N	$\Sigma f$	N
0	9	20	9	16	9	1	9	18	9	17	9
0		1.22		1.72		0.11		2		1.89	

gx=3.6; RM= 2.25; gx=3.99; RM=2.25.

**Table 3c.** Chi-square analysis for subject interest in SS 3 male students.

Male students	$f_o$	$f_e$	$f_o-f_e$	$(f_o-f_e)^2$	$(f_o-f_e)^2/f_e$
1	0	0.2	-0.2	0.04	0.2
2	0	0.2	-0.2	0.04	0.2
3	0	0.2	-0.2	0.04	0.2
4	1	0.2	0.8	0.04	3.20
5	4	2.6	1.4	1.96	0.75
6	3	2.6	0.4	0.16	0.061
7	2	2.6	-0.6	0.36	0.13
8	4	2.6	1.4	1.96	0.75
9	5	4.4	0.6	0.36	0.08
10	6	4.4	1.6	2.56	0.58
11	7	4.4	2.6	6.76	1.53
12	4	4.4	-0.4	0.16	0.036
$\chi^2$ calculated					7.72

$\chi^2$  critical at df=6; and 0.05 significant level=12.94>;  $\chi^2_{cal}=7.72$ .

**Table 3e.** Chi-square analysis for confidence level in SS 3 male students.

Male students	$f_o$	$f_e$	$f_o-f_e$	$(f_o-f_e)^2$	$(f_o-f_e)^2/f_e$
1	0	0	0	0	0
2	0	0	0	0	0
3	0	0	0	0	0
4	0	0	0	0	0
5	4	5	-1	1	0.2
6	5	5	0	0	0
7	6	5	1	1	0.2
8	5	5	0	0	0
9	5	4	1	1	0.25
10	4	4	0	0	0
11	3	4	-1	1	0.25
12	4	4	0	0	0
$\chi^2$ calculated					0.9

$\chi^2$  critical at df=6; and 0.05 significant level=12.94> $\chi^2_{cal}=0.9$ .

**Table 3d.** Chi-square analysis for subject interest in SS 3 female students.

Female students	$f_o$	$f_e$	$f_o-f_e$	$(f_o-f_e)^2$	$(f_o-f_e)^2/f_e$
1	3	0.75	2.25	5.06	6.65
2	0	0.75	-0.75	0.56	0.75
3	0	0.75	-0.75	0.56	0.75
4	0	0.75	-0.75	0.56	0.75
5	2	5	3	9	1.8
6	7	5	2	4	0.8
7	6	5	1	1	0.2
8	5	5	0	0	0
9	4	3.25	0.75	0.56	0.17
10	2	3.25	-1.25	3.56	0.48
11	3	3.25	1.25	0.063	0.019
12	4	3.25	-0.75	0.56	0.17
$\chi^2$ calculated					11.89

$\chi^2$  critical at df=6; and 0.05 significant level 12.94> $\chi^2_{cal}=11.89$ .

**Table 3f.** Chi-square analysis for confidence level in SS3 female students.

Female student	$f_o$	$f_e$	$f_o-f_e$	$(f_o-f_e)^2$	$(f_o-f_e)^2/f_e$
1	0	0.2	-0.2	0.04	0.2
2	1	0.2	0.8	0.04	3.2
3	0	0.2	-0.2	0.04	0.2
4	0	0.2	-0.2	0.004	0.2
5	3	4	1	1	0.25
6	4	4	0	0	0
7	7	4	3	9	2.25
8	6	4	2	4	1
9	6	3	3	9	3
10	4	3	1	1	0.33
11	2	3	-1	1	0.33
12	3	3	0	0	0
$\chi^2$ calculated					10.96

$\chi^2$  critical at df=6; and 0.05 significant level=12.94> $\chi^2_{cal}=10.96$ .

**Conclusion**

The study conceptualized on intrinsic, cognitive and

positive motivation for teaching-learning process and asserting possible empirical solution was carried out involving senior secondary one to three students, respectively.

It was discovered that interest level was marred at the beginning of learning of science subjects; the confidence level had a defined orientation against the students' motivation at this level. As they advanced with class gained, interest level and confidence level, they begin to have correlation convergence with motivation for teaching-learning science subjects with maturity.

Motivational process based on subject interest and confidence levels influences student as they progress in class. The input of subject interest or confidence level as extrinsic, intrinsic motivational tools to a large extent can change the notion that science subjects are hard or difficult to study. It was observed that interest and confidence levels could motivate teaching for learning at senior secondary one class. Applying these two tools simultaneously at teaching may not yield motivational learning process. Getting this through by teachers could help a nation like Nigeria to harness her economic, health, agricultural, engineering and political potentials.

#### REFERENCES

- Albert Z, Sarah W (2010). Relationship between brain type, sex and motivation to learn science. *Int. J. Sci. Educ.* 173:2217-2233
- Baldwin J, Ebert-May D, Burns D (1999). The development of a college biology self-efficacy instrument for non-majors. *Sci. Educ.* 83:397-408.
- Black AE, Deci EL (2000). The effects of instructors' autonomy support and students' autonomous motivation on learning organic chemistry: A self-determination theory perspective. *J. Sci. Educ.* 84:740-756.
- Dweck CS (1989) Motivational process affecting learning. *J. Am. Psychol.* 41:1040-1048
- Deci ED (1995). Why we do what we do; understanding of self-Motivation. In: Messali J (ed.). Effect of motivation on Academic achievement. Academic press WDC pp. 67-70.
- Eccles JS, Simpkins SD, Davis Kean PE (2006). Math and science motivation: A longitudinal examination of the links between choices and beliefs. *Dev. Psychol.* 42:70-83.
- Glynn SM, Koballa Jr. TR (2006). Motivation to learn college science. In: Mintzes JJ and Leonard WH (Eds.), *Hand book of college science teaching* Arlington, V.A: National Science Teachers Association Press pp.25-32.
- Sanfeliz M, Stalzer M (2003). Science motivation in the multicultural class room. *Sci. Teach.* 70(3):64-66.
- Seguin EJ (1999). Communication variables that influence Performance. *J. Pers. Soc. Psychol.* 76:628-644
- Weiner B (1993). Theories of motivation for mechanism to cognition. *J. Educ. Psychol.* 78:32-35.

## Appendix

Questionnaire on motivation based on subject interest and confidence level (mosaic).  
Please tick where appropriate, that suits your view and understanding.

1. How do the following subjects interest you?

	Maths,	Physics,	Chemistry,	Biology
a. Low	Low	Low	Low	Low
b. Average	Average	Average	Average	Average
c. High	High	High	High	High

2. What is your confidence level in the following subjects?

	Maths,	Physics,	Chemistry,	Biology
a. Very low	Very low	Very low	Very low	Very low
b. Very high	Very high	Very high	Very high	Very high
c. Average	Average	Average	Average	Average

Please note out your feelings in taking core sciences subject based on mosaic

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