

## ROLE OF MOTIVATION ON DATA PROCESSING AMONG STUDENTS IN COLLEGES OF EDUCATION IN PLATEAU STATE: MODERATING ROLE OF LEARNING ENVIRONMENT

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### Abstract

*The study examined the moderating role learning environment plays with in the motivation of students towards data processing in colleges of education in Plateau state, Nigeria. Five specific objectives with corresponding null hypotheses were tested. A survey research design was used for the study. The population of the study was 437 NCE II business education students and the entire population was used for the study. A validated structured questionnaire was used for data collection. The instrument yielded Cronbach reliability coefficient of 0.74. Four research assistants helped in the data collection. Statistical Package for Social Science 25 was used. The Linear Regression and Hierarchical Regression Analysis were used to test the null hypotheses at 0.05 level of significance. The study indicated that motivation and learning environments (physical, teachers, classroom, and learners) play significant role on attitude of colleges of education students towards data processing in Plateau state, Nigeria. It was concluded that motivation and learning environments could be the cause of negative attitude of business education students towards data processing which could affect their academic performance in the subjects. It was recommended among others that the federal and state governments should ensure that colleges of education in Plateau state have needed physical learning environment. Dilapidated physical environment such as classroom buildings should be renovated for conducive learning.*

**Keywords:** Moderating, Learning Environment, Motivation, Attitudes, Data Processing.

### Introduction

The use of computer applications, also referred to as data processing in business education is becoming more and more popular as a means of equipping students with the knowledge and abilities required in the technology age. In the technological revolution, data processing offers employment options, job performance, and career enhancement. Data processing, according to Usman and Madudili (2021), is the synchronization of all the data entered into the software with the goal of extracting the most valuable information possible. In the global labor market, candidates for jobs are highly sought after for their data processing abilities. According to a study by Adamu and Abdu (2014), students are becoming more enthusiastic about learning computers as a result of the increased demand for workers with technological competencies, including data processing.

National and international studies have shown that students have an intrinsic motivation to develop their data processing skills because it is important in the job market and workplace. Intrinsic motivators are motivated by a sense of purpose and the benefits of achieving a goal or objectives within themselves. Empirical evidence shows that intrinsic motivation plays a positive role in student attitude, performance, and proficiency. According to Nyamubi (2016), learners with intrinsic motivation develop a strong attitude towards learning and a high academic performance in language. In addition, according to the research papers by James (2014) and Samson (2017) and La (2019), motivation directs students' attitude towards education, English Language, and Mathematics.

Therefore, considering the role data processing plays in the job market, and the relationship between motivation and attitude, according to numerous scholars, students should be inquisitive and develop positive attitudes towards data processing.

Despite the motivation of students on data processing and the link between motivation on attitude as reported in the assertions, it is unfortunate that the attitude and performance of Colleges of Education students in data processing is not encouraging which may jeopardize its aims and objectives as stipulated in business education programme (Adamu & Abdu, 2014; Auwalu & Adamu, 2020). Interactions with business education lecturers in some selected Colleges of Education revealed that the attitude of students towards data processing is discourage. The situation according to some lecturers has been affecting the academic performance of students in the course. The problem was also reported by Adamu, Hamza and Abdullahi (2019) in the study conducted in North-east Nigeria. The authors maintained that the attitude of students in data processing has constituted not just an educational challenge but also a developmental challenge of providing students with technological skills and competencies for job opportunity, job performance, job enhancement and job security.

The trend of students' attitude and their poor performance in keyboarding, computer and other related subjects was attributed to teaching method, learning styles, motivation among others (Adamu, Hamza & Abdullahi, 2019; Auwalu & Adamu, 2020; Aliyu, Adamu & Bashir, 2021). In a different study conducted by Orlu (2013), it was reported that the major factors that affect the attitude of students towards learning despite motivation is learning environment. The author maintained that the poor attitude and academic performance of students in Nigeria are traced to be the learning environment. Orlu maintained that inability to check the problem of learning environment will result in graduating high numbers of students into labour market even if they are motivated. Supportive and favorable learning environment with rich human and material facilities makes students more comfortable, more concentrated on their academic activities that resulted in high academic performance (Mudassir, Norsuhaily & Ado, 2015). Thus, learning environment is of paramount importance in shaping student's attitude and academic performance. The outcome indicated that the attitude of students towards learning occurs as a result of interaction among various components such as motivation and learning environment.

The link between motivation, learning environment and students' attitudes toward the use of different types of technology has been documented by many scholars. For instance, Yusuf and Balogun (2011) stated that positive attitude is the manifestation of one's experiences and environment. Sung, Chang and Liu (2016) maintained that motivation and learning environment plays a positive role in education. The study reported that conducive learning environment play significant role on attitude of students. Ironically, studies conducted in Nigeria have shown that learning environment is a serious problem in educational sectors in the country. For instance, Auwalu and Adamu (2020) reported that most institutions offering business education programme in Nigeria lack adequate and functional computers with acute problem of inappropriate learning environment. Specifically, Adamu (2015) revealed that there is problem of human and materials resource, inadequate furniture and environmental problem in Plateau state.

The negative role of unpleasant learning environment on motivation has been documented by scholars. For Baidi (2019) reported that the role of motivation is affected by problem of human and material resources. Similarly, Law *et al.* (2019) reported that physical, teachers, classroom and learners learning environment influence the attitude of students in school even if they are motivated. The authors maintained that an unpleasant learning environment can make students unenthusiastic and they become less willing to learn even if they are motivated. Also Earlier, Viau (2015) reported that poor learning environment negatively affect the role of motivation in education. Researchers such as

Duruji *et al.* (2014); Adamu (2015); Shamaki, (2015) and Mudassir *et al.* (2015) have connected poor students' achievement to poor learning environment which bedeviled the tertiary educational system. Furthermore, Samson (2017) and La (2019) reported the role of motivation on attitude and performance of students. However, to the best of the researchers knowledge, no empirical study on the moderating role of learning environment (major problem in educational sector in Nigeria) on the influence of motivation on attitude of data processing students has been conducted in Nigeria. This study intends to bridge this gap in the literature.

A preliminary survey of the Colleges of Education in Plateau state disclosed the problems of shortage of needed facilities and equipment such as computers and most of the available ones are dilapidated and not functional. In addition, there is problem in classroom environment such as tables, chairs, lightening, ventilation, sitting arrangement, spacing among others. During interview section, students attributed their negative attitude and poor performance in data processing to unfriendly learning environment. Researchers such as Duruji *et al.* (2014), Adamu (2015), Shamaki, (2015) and Mudassir *et al.* (2015) reported that motivation alone cannot yield desired objectives in education without considering the learning environment. Adamu added that motivation can significantly determine the attitude and achievement of learners but learning environment has the tendency of mediating or moderating it. It is in this context that this study investigated the moderating role of learning environment on attitude of Colleges of Education students towards Data Processing in Plateau state.

Specifically, this study set to: (1) determine the influence of motivation on attitude of Colleges of Education students towards data processing; (2) ascertain the moderating role of physical learning environment on the influence of motivation on attitude of Colleges of Education students towards data processing; (3) assess the moderating role of teachers' learning environment on the influence of motivation on attitude of Colleges of Education students towards data processing; (4) investigate the moderating role of classroom learning environment on the influence of motivation on attitude of Colleges of Education students towards data processing; and (5) evaluate the moderating role of learners learning environment on the influence of motivation on attitude of Colleges of Education students towards data processing in Plateau State.

### **Research Hypotheses**

The following hypotheses were formulated and tested at 0.05 level of significance.

1. Motivation has no significant influence on attitude of Colleges of Education students towards data processing in Plateau State.
2. Physical learning environment has no significant influence on moderating the relationship between motivation and attitude of Colleges of Education students towards data processing in Plateau State.
3. Teachers' learning environment has no significant influence on moderating the relationship between motivation and attitude of Colleges of Education students towards data processing in Plateau State.
4. Classroom learning environment has no significant influence on moderating the relationship between motivation and attitude of Colleges of Education students towards data processing in Plateau State.
5. Learners learning environment has no significant influence on moderating the relationship between motivation on attitude of Colleges of Education students towards data processing in Plateau State.

## Research Methodology

The design for the study was correlational survey. A correlational survey is the design that describes the characteristics of the population or sample or phenomenon that is being studied. According to Osakpa, Okonkwo and Ejiogu, (2018) described correlational survey design as one in which a group of individuals or items are studied by collecting and analyzing data from only a few individuals or items considered to be representative of the entire group. Based on this, the design was considered suitable for the study because it enabled the researchers to establish the relationships and interactions between two or more variables without direct manipulation. The population of the study was 437 NCE II students that are offering data processing in 2021/2022 academic year in the four Colleges of Educations in Plateau State, Nigeria. The population was manageable hence the total population of 437 Data Processing students, were used for the study. Total population sampling technique according to Crossman (2018) is a technique whereby the entire population that share common characteristic is used for a study.

The instrument for data collection was structured questionnaire. The questionnaire items were adopted from previous studies as suggested by Adamu and Kabir (2019) who opined that a researcher(s) can adopt or adapt an instrument when his/their study and previous study(s) are found to be similar or closely similar. Based on this suggestion, the items were adopted from the studies of Marina, Douglas and Sofia (2016); Shawn, Peggy, Norris and Gita (2011); Debbie, Nana and Sebastian (2007); Peter and Reed (2008); Hill, and Kathryn (2010); and Martin-Dunlop (2004) The instrument contained 60 items with 10 for each construct structured in 4-point rating scale of Strongly Agreed (SA), 4-points; Agreed (A), 3-points; Disagreed (D), 2-points and Strongly Disagreed (SD), 1-point. David (2014) suggested that, a scale between four and seven points is more reliable than higher or lower scale and a scale with no midpoint may increase the measurement error, similarly, Esu and Inyang-Abia (2016) states that, a four or seven scale is likely to produce better results.

For any research instrument to ascertain its validity, the instrument, the instrument was given to a panel of three experts who determined the content and face validity. The research topic, research objectives and the instrument were given to two experts in the field of Psychology of Education from Nasarawa State University and Business Education from Federal University Lafia) who determined the validity of the instrument. The corrections and suggestions of the experts were incorporated in the construction of the final copy of the instrument. The researchers' further conducted a pilot study using 40 Business Education Students in Colleges of Education Kangere, in Bauchi state. The data collected from the pilot test were entered into Statistical Package for Social Science (SPSS) version 25 to run Cronbach alpha reliability test as suggested by Madiha and Walid (2016) who opined that Cronbach alpha is a statistic tool that measure the internal consistency of the items. The instrument yields a reliability coefficient of 0.74 and adjudged to be reliable as suggested by Madiha and Walid (2016) who opined that, the average value of survey instrument should not be less than 0.70.

The researchers assisted by four research assistants distributed the instrument. The research assistants were drawn from each of the institutions involved in the study. The decision is based on the submission of Adamu and Kabir (2019) who opined that the choice of a research assistant that is popular and acceptable helps to create good working relation and facilitates data collection. Direct contact was used for the data collection. The researchers visited each of the institution during data collection to coordinate and monitor the whole data collection exercise. The method enabled the researchers to retrieved high proportion of completed questionnaire. According to Adamu and Kabir (2019), direct contact enables researchers and their assistants to thoroughly explain the purpose, importance and confidentiality of all information to the respondents and has the advantage of

retrieving higher percentage of completed copies of the questionnaire. The data collection lasted for the period of four weeks.

The research hypotheses were analyzed using Simple Logistic Regression (SLR) to test null hypothesis one while null hypotheses two to five were tested using Hierarchical Regression Analysis. The decision of using SLR and HRA is based on suggestion of Niranjala (2019) who opined that SLR should be used to determine the predictive role of one variable on the other and HRA should be employed to determine moderating effect of a continuous variable. All the hypotheses were tested at 0.05 level of significance. Thus, any null hypothesis with a  $p < 0.05$  was rejected while any null hypothesis with a  $p \geq 0.05$  was retained. The Statistical Package for the Social Science (IBM SPSS) version 25 was used throughout the process.

### Estimation of Results

The results of the test of null hypotheses were presented in Tables 1 to 5.

#### Hypothesis One

Motivation has no significant influence on attitude of Colleges of Education students towards data processing in Plateau State.

**Table 1:** Regression analyses on the influence of motivation on the attitude of Colleges of Education students towards data processing in Plateau State.

Variable	Coef. Beta	t-value	p-value	Decision
Motivation	.672	15.467	.000	Rejected

*Source: Researchers' Fieldwork (2024)*

*Note: Coef. Beta= Standardized Coefficients Beta*

The statistical evidence documented in Table 1 indicated that the influence of motivation on attitude of Colleges of Education students towards data processing in Plateau State was significant ( $\beta=.672$ ;  $t=15.467$ ;  $p=.000$ ). This result did not support the prediction of hypothesis 1 that motivation has no significant influence on attitude of Colleges of Education students towards data processing in Plateau State. Furthermore, the result also indicated that a unit of improvement in students' motivation will enhance their attitude towards data processing positively by .672 (Beta coefficient).

#### Hypothesis Two

Physical learning environment is not a significant moderator of the influence of motivation on attitude of Colleges of Education students towards data processing in Plateau State.

**Table 2:** Regression result for physical learning environment as a moderator of the influence of motivation on attitude of Colleges of Education students towards data processing in Plateau State.

Variable	Coef. Beta	t-value	p-value	Decision
Motivation	.523	5.825	.000	
Int_1	.688	10.326	.000	Rejected

*Source: Researchers' Fieldwork (2024)*

*Note: Coef. Beta= Standardized Coefficients Beta*

The statistical evidence documented in Table 2 revealed that Physical learning environment is a significant moderator of the influence of motivation on attitude of Colleges of Education students towards data processing in Plateau State ( $\beta=.688$ ;  $t=10.326$ ;  $p=.000$ ). Hypothesis 2 which stated that

physical learning environment is not a significant moderator of the influence of motivation on attitude of Colleges of Education students towards data processing in Plateau State was rejected.

### Hypothesis Three

Teachers' learning environment is not a significant moderator of the influence of motivation on attitude of Colleges of Education students towards data processing in Plateau State.

**Table 3:** Regression result for teachers' learning environment as a moderator of the influence of motivation on attitude of Colleges of Education students towards data processing in Plateau State.

Variable	Coef. Beta	t-value	p-value	Decision
Motivation	.537	11.409	.002	
Int_1	.680	16.816	.000	Rejected

*Source: Researchers' Fieldwork (2024)*

*Note: Coef. Beta= Standardized Coefficients Beta*

The result reported in Table 3 revealed that the influence of motivation on attitude of Colleges of Education students towards data processing in Plateau State was significantly moderated by teachers' learning environment ( $\beta=.680$ ;  $t=16.816$ ;  $p=.000$ ). Therefore, the result lead to the rejection of hypothesis 3 which sated that teachers' learning environment is not a significant moderator of the influence of motivation on attitude of Colleges of Education students towards data processing in Plateau State. Hence, hypothesis 3 was rejected.

### Hypothesis Four

Classroom learning environment is not a significant moderator of the influence of motivation on attitude of Colleges of Education students towards data processing in Plateau State.

**Table 4:** Regression result for classroom learning environment as a moderator of the influence of motivation on attitude of Colleges of Education students towards data processing in Plateau State.

Variable	Coef. Beta	t-value	p-value	Decision
Motivation	.542	10.635	.000	
Int_1	.679	12.417	.000	Rejected

*Source: Researchers' Fieldwork (2024)*

*Note: Coef. Beta= Standardized Coefficients Beta*

The statistical evidence documented in Tables 4 revealed that classroom learning environment is a significant moderator of the influence of motivation on attitude of Colleges of Education students towards data processing in Plateau State ( $\beta=.679$ ;  $t=12.417$ ;  $p=.000$ ). Hypothesis 4 which stated that classroom learning environment is not a significant moderator of the influence of motivation on attitude of Colleges of Education students towards data processing in Plateau State was rejected.

### Hypothesis Five

Learners learning environment is not a significant moderator of the influence of motivation on attitude of Colleges of Education students towards data processing in Plateau State.

**Table 5:** Regression result for learners learning environment as a moderator of the influence of motivation on attitude of Colleges of Education students towards data processing in Plateau State.

Variable	Coef. Beta	t-value	p-value	Decision
Motivation	.320	4.530	.000	
Int_1	.727	6.338	.000	Rejected

Source: Researchers' Fieldwork (2024)

Note: Coef. Beta= Standardized Coefficients Beta

The result reported in Table 5 revealed that the influence of motivation on attitude of Colleges of Education students towards data processing in Plateau State was significantly moderated by learners learning environment ( $\beta=.727$ ;  $t=6.338$ ;  $p=.000$ ). Therefore, the result lead to the rejection of hypothesis 5 which sated that learners learning environment is not a significant moderator of the influence of motivation on attitude of Colleges of Education students towards data processing in Plateau State. Hence, hypothesis 5 was rejected.

### Discussion of Findings

The finding of null hypothesis one indicated that motivation had positive and significant influence on attitude of Colleges of Education students towards data processing in Plateau State, Nigeria. The outcome was found to be similar to that of Muenks, Yang and Wigfield (2018) who maintained that motivation plays a crucial role on attitude and achieving meaningful science learning in the classes. Also, Schumacher and Ifenthaler (2018) reported that motivation is an important psychological variable that drives teachers and students action in a task. Filgona *et al.* (2020) reported that for a learner to make effort, there must be a motive. He classified these motives and their sources as (i) motives as behavior change (ii) motives as goals (iii) motives as interests (iv) motives as attributions about success (v) motives as beliefs about self-efficacy and (vi) motives as self-determination.

The result of hypothesis two revealed that physical learning environment is a significant moderator of the influence of motivation on attitude of Colleges of Education students towards data processing in Plateau State, Nigeria. The result concurred with that Ezike (2018) who stated that a school with adequate learning environment contributes to stir up expected outcomes of learning that will facilitate good academic performance and motivation, by encouraging effective teaching and learning. The study of Sivrikaya (2019) also revealed that the importance of physical learning environment to attitude and educational development of students cannot be overestimated. Physical learning environment remains an important area that should be studied and well managed to enhance attitude and students' academic performance (Balog, 2018). The author stressed that the learning environment is a composite of human practices and material systems, much as ecology is the combination of living things and physical environment.

Test of hypothesis three disclosed that the influence of motivation on attitude of Colleges of Education students towards data processing in Plateau State, Nigeria was significantly moderated by teachers learning environment. The result agreed with that of Waldman (2016) who reported the attitude of students feel supported when connected with their learning experience like teachers, classmates, administrators, family, and community members for a higher academic feat. Also, Balog (2018) opined that teachers' methodology and skills learning environments that provide frequent, ongoing, and varying opportunities for assessment, including opportunities for revision and self and peer assessment play significant role on attitude of students in a class. Personalizing learning adopted by teaches helps students develop attitude, skills including thinking critically, using knowledge and

information to solve complex problems, working collaboratively, communicating effectively, learning how to learn, and developing academic mindsets that would greatly increase student's engagement (Raccoon, 2018).

The outcome of hypothesis four shows that classroom learning environment is a significant moderator of the influence of motivation on attitude of Colleges of Education students towards data processing in Plateau State, Nigeria. The finding is in line with that Adamu (2015) who reported the attitude and performances of the two groups (Experimental and Control) implying that a classroom building, class with adequate furniture, class with small class population and the use of instructional materials has positive impact on the performance of students in junior Secondary schools. Similarly, Eimuhi and Ogedegbe (2016) argued that the attitude of students and quality of education not only depends on the teachers performing their duties, but also in the effective coordination of the school's learning environment such as classroom spaces planning, administrative places planning, circulation spaces planning, spaces for conveniences planning, general infrastructure planning, the teachers as well as the students themselves are essential in teaching-learning process.

The test of hypothesis five revealed that the influence of motivation on attitude of Colleges of Education students towards data processing in Plateau State in Plateau State, Nigeria was significantly moderated by learners learning environment. The outcome is in agreement with that of Brown (2015) who reported that students learning environment such as instincts and emotions, and social factors, such as cooperation and rivalry, are directly related to a complex psychology of motivation. He added that the way in which his personality interacts with the personalities of the pupils helps to determine the kind of behavior which emerges from the learning situation. Also, Eimuhi and Ogedegbe (2016) reported that enriched the learning environments is, the greater and more widespread are the benefits for academic performance and other student outcomes. Productive learning environments are crucial to students' academic, emotional and social success in school.

## **Conclusion**

The outcome of the study shows that motivation and learning environments play important role on the attitude of business education students towards data processing. By implication, motivation and conducive learning environment are imperative for business education students to develop positive attitudes to data processing. Hence, lack of adequate motivation and poor learning environment in areas of classroom, furniture, facilities, equipment, library, teachers among others could be the causes of poor attitude of students towards data processing. It was therefore concluded that the aforementioned factors that could be the cause of negative attitude of business education students towards data processing that could affect their academic performance in the subjects.

## **Recommendations**

On the basis of the outcome of the study and conclusions made, the following recommendations were made:

- i. The federal and state governments should ensure that colleges of education in Plateau state have needed physical learning environment.
- ii. Business education lecturers should create enabling classroom learning environment that will motivate learners to develop positive attitude towards data processing
- iii. Data processing lecturers should be friendly, motivating, accommodating and encourage students to develop positive attitude towards their course,
- iv. Management of colleges of education in plateau state should ensure that school environment is conducive enough by controlling anything that will distracted the attention of students.

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