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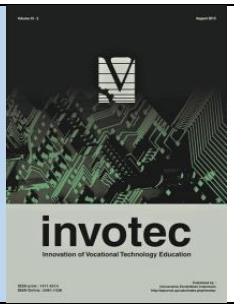

Predictive Effects of Motivation, Attitude, and Gender on Senior Secondary School Students' Performance in Woodworking Technology

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ABSTRACT

The study investigated the predictive effects of motivation, attitudes, and gender on senior secondary year two students' performance in woodworking technology in Lagos state. It employed the descriptive-correlation method of research and data were obtained using a woodworking proficiency test (WWPT) with a KR-20 reliability coefficient of 0.85 from the sample of 180 students randomly selected. Data were analysed using descriptive and inferential statistics, including mean, standard deviation, independent samples t-test and multiple regression analysis to test hypotheses at 5% level of significance. Findings revealed that motivation and attitude towards woodworking technology predicted students' performance in woodworking technology. The male students differed from female counterparts in woodworking technology performance. Male students were more motivated and have a positive attitude towards woodworking technology than females. However, no significant difference existed between the mean scores of the male and females in all the variables. It was recommended that educational institutions should have significant influence on students' motivation and attitude through provision of supportive services, training facilities to engender social creativity and achieving desired goals and meeting required students' academic performance.

1. Introduction

Technical and Vocational Education (TVE) is an essential tool of our life. TVE provides the necessary skills and knowledge that enable an individual to function effectively in specific occupations (Federal Republic of Nigeria, 2013). TVE reduces the level of unemployment and poverty in a given nation, both of which are causes of all antisocial behaviour capable of disintegration (Olabiyi & Chinedu, 2018). Woodworking Technology is one of the Technical and Vocational subjects offered and implemented in senior secondary schools in Nigeria. Woodworking Technology has always been one of the most popular of all TVE subjects. It is also one of our most popular leisure time activities. Despite many new materials and courses developed in recent years,

woodworking technology has increased rather than decreased in favour. The reasons, according to John (2016) and Olabiyi (2020), are that wood is one of our most abundant materials, easiest to work. Products made from wood have general usefulness. The tools and machines especially suited to school laboratories and home workshops are readily available.

The improvements in contemporary technology and the pressures from industries have significantly changed woodwork technology as a formidable and dynamic field of study. Development in computers has made woodworking an interesting vocational subject to the extent that it uses computers to solve problems. Computers used in woodworking construction and manufacturing, controls the cutting of logs into planks used to design and build energy-efficient houses, the inventory of materials in the home and school workshops (Olabiyi, 2014). Woodworking is a deliberate activity of skillfully making objects from wood and is associated with furniture making, wood sculpture, and woodturning. Olabiyi and Awofala (2019) describe Woodworking as the utilisation of technically creative knowledge and skill in the planning, assortment of materials, assembling, and fastening of two or more pieces of wood or wood to other structural materials to produce products. Woodwork technology at the senior secondary school level is design to enable candidates to gain knowledge and skills in woodworking and provide them with the necessary platform for technological growth.

The experiences gained at this level are fundamental and will be an avenue for continued growth in learning and entrepreneurship during and after school. Woodworking allows students to acquire knowledge and skills in designing and drawing, practical woodworking, method, and principles of construction, mass production, and (WAEC, 2016). The program for woodworking technology in senior secondary schools in Nigeria designed to produce competent technologists and artisans who are skilled in joinery work. Another objective is to provide people who can apply scientific knowledge to the improvement and solution of economic and environmental problems for the use and convenience of man. Woodworking technology promotes individuals' cognitive, affective and psychomotor skills needed to produce exact products from wood for human deployment and use. Among the objectives of woodwork technology is to make an individual student self-reliant, be an employer of labour thereby, reducing unemployment in society, and introduce professional studies in engineering and technological skills (Federal Republic of Nigeria, 2013).

Performance is an accomplishment, attainment, completion, fulfillment, or realisation; in educational institutions, the success and failure is measured in terms of academic performance of students. This shows how well a student, teachers or institutions has attained their short or long-tern educational goals set out by government and the institution itself. Completion of educational standard such as secondary schools, colleges and universities represent academic performance; academic performance involves meeting goals, and objectives set in the program or course student attends expressed through grades, which result from an assessment that passing or not tests, subjects (Lamas, 2015). Academic performance according to Narad and Abdullah (2016) refer to the knowledge attained and designated by marks, assigned by teacher. In educational context, academic performance is the educational goal to be achieved by a student, teacher or institution

over a certain period and is measured either by examinations or continuous assessments and the goal may differ from one individual or educational institution to another. It is the outcome of education, the extent to which a student, teacher or institution has achieved their educational goals.

Academic performance is measured by examination or continuous assessment but still, there is no general agreement on how or which aspects are most important, the procedural knowledge such as skills or the declarative knowledge such as facts. Whichever knowledge and whatever tested, academic performance is the level of the individual attainment on learning tasks, which may be high or low. The high and low is due to individual differences, and the individual differences influence academic performance (Von Stumm, Hell, & Chamorro-Premuzic, 2011). Furthermore, academic performance is a measure of how much an individual has accomplished after a course of instruction or training; in the school setting, it is measured by the student's score with others in the class test or examination, student's performance in woodwork technology determined by the final grade in the subject (Olabiyi et al., 2020).

As job competition grows stronger in the workplace, the importance of academic performance in school has caught the attention of parents, government and society. Also, employers of labor are also paying close attention to the education and student performance as well as they look to employ new graduates (Bell, 2018). Efforts are made to identify, evaluate, track and encourage the progress of students in schools, because parents believed that good results may provide more career opportunities and job security for their children, schools are also concerns about its reputation and the possibility of monetary aid from government institutions, which can hinge on the overall academic performance of the school. Academic performance in students' school career need to be evaluated to foster improvement and make full use of learning process. Different studies have been conducted in the area of students performance and these studies identify and analyze the number of factors that influence academic performance of the student (Allan & Fryer, 2011; Reeve, 2015).

They identify students effort, attitudes, previous schooling, parent's educational background, family income self motivation of students, age of student, learning preferences and entry qualification of students, attitude, as important factors that influence student's academic performance in different setting. The usefulness of these studies lies in the need to undertake corrective measures that improve the academic performance of graduate students (Ali et al., 2013). Motivation is the process that initiates, guides, and maintains goal-oriented behaviors. It is what causes individual to act. Motivation involves the biological, emotional, social, and cognitive forces that activate behavior. It is frequently used to describe why a individual does something. It is the driving force behind human actions (Kendra, 2017). Motivation is an internal process that can be viewed as a drive or a need, motivation is a condition inside individual that desires a change, either in the self or the environment, motivation enable someone with the drive and direction needed to engage with the environment in an adaptive, open-ended, and problem-solving sort of way (Reeve, 2015).

Allan and Fryer (2011) in the Power and Pitfalls of Education Incentives explains two types of motivator: input- and output-based motivator. The study found that motivator programmes that

reward academic output do not have a significant impact on student performance. However, input-based incentives, such as paying students for the quantity of books read or for competing in competitions could have a greater impact on test scores because it builds proficiency and helps students in the long run (Nesa, 2017). Students who are personally, or intrinsically, motivated do not necessarily require rewards such as money or grades. Teachers who encourage students to visualize their success help them to accomplish their goals and fulfill the expectations that adults around them communicate. Some students perform their best on state exams because they are simply self-motivated to do their best without external rewards. Students who are personally, or intrinsically, motivated do not necessarily require rewards such as money or grades. Teachers who encourage students to visualize their success help them to accomplish their goals and fulfill the expectations that adults around them communicate.

Attitude is also considered to be an important determinant of students' academic performance, teachers therefore, need to pay close attention to students' attitudes. It is very important for teacher to know the important aspects of students' attitude. Allport in Schiffman and Kanuk (1998) explained an attitude as a mental state of readiness, organised through experience, exerting a directive influence upon the individual's response to all objects and situations with which it is related. Also, attitude is an expression of a favorable or unfavorable evaluation of a person, place, thing, or event. These are fundamental determinants of people's perceptions of and actions toward all aspects of our social environment, it involve a complex organization of evaluative beliefs, feelings, and tendencies toward certain actions. Berkman and Gilson (1978) citing D. J. Bem, described attitudes as someone likes and dislikes, affinities for and aversions to situations, objects, persons, groups, or any other identifiable aspects surrounding us. It refers to the positive or negative feelings directed at some object, issue, or behavior. It is a learned predisposition to respond in a consistently favorable or unfavorable way with respect to a given object.

Gender refers to the socially constructed roles, behaviours, expressions and identities of girls, women, boys, men, and gender diverse people. It influences how people perceive themselves and each other, how they act and interact, and the distribution of power and resources in society. There is considerable diversity in how individuals and groups understand, experience and express gender through the roles they take on, the expectations placed on them, relations with others and the complex ways that gender is institutionalized in society (Canadian Institutes of Health Research, 2020). In Nigeria patriarchal culture men are believed to be superior and more intellectual then female, where men role is bread earner and female is nurturer (Bhasin, 2005; Yaduvanshi & Singh, 2018). Student's motivation, attitude and gender are considered effective learning component for improving the quality of woodworking technology education. This study is significant as there is a lack of knowledge as regards to woodworking students' motivations, attitude and gender as predictor of academic performance in the local research. It is hoped that the findings of the current study are used as a quality indicator to direct existing efforts in renovating woodworking technology programme and the achievement of excellence in technical education in general.

1.1 Purpose of the study

The study was designed to identify the predictors of performance in woodworking technology of senior secondary school students. The study aimed to determine the predictive effects of motivation, attitudes, and gender on senior secondary school students in public school in Lagos State, Southwest, Nigeria in relation to their performance in woodworking technology.

1.2 Research questions

The study was designed to answer the following questions:

- How can the senior secondary school students be described in terms of (i) motivation and (ii) attitudes towards woodworking technology?
- Is there significant difference in the mean rating of male and female students regarding (i) motivation and (ii) attitude towards woodworking technology?
- Which of the independent variables (attitude, motivation and gender) predict woodworking technology performance?

2. Conceptual Framework of the Study

The cumulative score often determines the performance of students in woodwork technology. In Nigeria, achievement tests also used as the basis for national input policy formulation; in other words, a student who passes in the subject is expected to have mastered the skills and knowledge needed and it correlates with student's success. It is necessary to determine students' performance in woodworking and how their skills integrated into the recent development in woodwork technology. Academic performance refers to the knowledge, skills, and attitudes that students have learned in a particular subject or course of study. Academic performance is an element in any education program (Rono, 2013), and different authors have explained it. It is the centre around which the whole education system revolves. Academic performance, according to Narad and Abdullah (2016), is the knowledge acquired assessed using marks through teacher and educational goals set by students and teachers to be achieved over a specific period using continuous assessment and examination results. Also, it is a measure of indicative and responsive abilities that express, in an estimated way, what student learned as a result of education or training (Lamas, 2015).

Narad and Abdullah (2016) opined further that academic performance determines the success or failure of any institution. It has a direct bearing on the socio-economic development (Singh, Malik & Singh, 2016). Equally, Farooq et al. (2011) affirmed that students' academic performance serves as the basis for knowledge acquisition and skill development. Farooq et al. stressed that the priority of all instructors is the academic performance of students. Similarly, academic performance, according to Yusuf, Onifade, and Bello (2016), is a measurable and observable behaviour of a

student within a given period. Yusuf et al. (2016) emphasised that it consists of scores obtained by the students in class tests, mid-semester, mock examinations, and end of semester examinations. Various explanations on the academic performance given by different authors indicate that performance results from the learning experience prompted by the teaching activities by the teacher and produced by the students based on measurable outcomes such as class exercise, tests, and examination results. Academic performance is to achieve an educational goal. Academic performance is important because it a correlates with individual's success. Students who are more successful have higher academic performance, and those who are more successful also show higher levels of well-being.

The determining factors of student performance in woodworking technology is an issue that concerns stakeholders in education: students, parents, teachers, employers of labour, school authorities and academic researchers not only in Nigeria but also in many other countries of the world. They have tried to determine which variables impact student performance in positive and negative direction. Research studies about this subject have been conducted by various academicians in various countries and areas (Cheung & Kan, 2002; Kruck & Lending, 2003; Sugahara & Boland, 2014; Steenkamp, Baard, & Frick, 2009). The academic performance of students reflects on their ability to demonstrate the knowledge they have learn in tests, quizzes, presentations and final examination (Barkley, 2004). The importance of students' performance is not only evident to the students but also to the educational institutions as it is a measure of the success of their education process. Studies in the education literature have examined the factors that may influence students' performance that include physical facilities and qualified educators, students' attitudes, aspirations and self-awareness (Al-Hadrami & Morris, 2014; Hijazi & Naqvi, 2006).

Performance varies with circumstances and environmental conditions that determine skills and experiences (Lamas, 2015). Academic performance determines the human capital development of an economy; it enables parents determines the current status of their children; and it determines the failure and success of an institution (Narad & Abdullah, 2016). One of the essential elements that lead students to reach their goals is the drive known as motivation. It is a passion and determination with excitement that students to persevere to reach greater heights (Singh, 2011) Motivation involves internal and external factors that stimulate desire and energy in individuals to be interested and committed to job, role, or subject, or to make a concerted effort to achieve an objective (Anthony, 2018). Furthermore, Gasco, Goñi, and Villarroel (2014) observed that motivation plays a significant role in learning because it explains academic performance. Students expect to be proficient in instigating, modifying, and sustaining information. Similarly, Dornyei (2010) contended that motivation explains why individuals resolve to do something, no matter how hard they pursue it. They are willing to sustain the activity, are what gets an individual going, and determine where the individual is trying to go. Students that set goals or plans and try to monitor and control their cognition, motivation, and behaviour are more likely to perform better in their academic programs.

Alderman (2004) emphasises that students with high motivation have an advantage because they have adaptive attitudes and strategies, such as maintaining intrinsic interest, goal setting, and self-monitoring. Besides, motivational variables interact with cognitive, behavioural, and contextual factors. Furthermore, motivational beliefs are essential to the academic performance of learners because they help to determine the extent to which learners will consider, value, put in the effort, and show interest in a particular task. For example, self-efficacy influences how students feel, think, encourage themselves, and behave. Research studies indicate that students' problem-solving performance relates to their self-efficacy beliefs (Lamas, 2015). Afzal et al. (2010) emphasised that students' motivation plays a role in their academic performance. Afzal et al. (2010) established that both intrinsic and extrinsic motivation have a positive influence on students' academic performance. Afzal et al. (2010) added that intrinsic motivation is a strong predictor of academic performance than extrinsic motivation. Equally, Haider et al. (2015) concluded that motivation plays a role in the achievement of student performance. Haider et al. (2015) found that intrinsic and extrinsic motivation had a positive statistical significance relationship with academic performance.

The authors outlined that student's motivational characteristics such as self-exploration, altruism, and career-focused and managing social pressure have a positive impact on academic performance. Lamas (2015) stressed that self-efficacy, task value, and goal orientation are the three components of motivation. According to Doronilla (2012), self-efficacy plays a role in student performance since confident student's use better learning and problem-solving strategies, work harder, persist longer, and have higher academic expectations. Therefore, self-efficacy is believed in one's capabilities to attain a goal or learning outcome (Kirk, 2013). Thus, Kirk further asserts that students with a sense of efficacy are likely to challenge themselves with tasks motivated; in contrast, students with low self-efficacy believe they cannot be successful. Thus, resulting in unsatisfactory academic performances (Kirk in the view of Hemin et al. (2010), students' motivation to develop relevant skills is dependent upon two components: they are expectations for academic performance and value attributed to the task. Task value refers to students' perceptions of the interest, usefulness, importance, and cost (Wigfield & Eccles, 2002).

Task value is the incentive for engagement in academic activities and consists of four components, namely attainment value, intrinsic value, utility value, and cost (Hemin et al., 2010). Research suggests that students who attach a high value to the task will use deeper cognitive and metacognitive strategies (McWhaw & Abrami, 2001). Seo and Taherbhai (2009) observed that students who can perform were more likely to find their class interesting and useful. Goal orientation is an integrated pattern of motivational beliefs that represented by different ways of approaching, engaging in, and responding to achievement activities (Dupeyrat & Mariné, 2001). Studies have revealed that different goal orientations determine students' cognitive and behavioural reactions and academic performance (Valle et al., 2003). Students who pursue mastery orientation are more satisfied and achieve better academic performance.

Another related factor that leads learners to achieve optimum academic performance is attitude. Jimoh, Adenle, and Olabiyi (2012) defined attitude as a mental or neural state of readiness, organised through experience, exerting a direct or dynamic influence on the individual's response to all objects and situations it is related to. Attitude toward woodworking technology influence not only academic performance but also future behaviour in the profession. If a student's perceived woodworking technology as neither fulfilling their needs, likely, their performance in the subject will not be satisfactory, the attitude of students towards learning found to have a significant relationship with academic performance. For example, Awang et al. (2013) found that there is a statistically significant relationship between student's attitudes towards learning. Janssen and O'Brien (2014) observed that students attitude have impact on academic performance indirectly. Notwithstanding, the findings, Manoah, Indoshi, and Othuon (2011) confirmed the case of mathematics, students 'attitude towards the subject has a direct impact on their academic performance. However, Jimoh et al. (2012) found that student's positive attitudes influence their academic performance in technical drawing. Also, Awofala et al. (2017) found that attitudes toward computer and computer anxiety are correlated factors with computer self-efficacy.

Besides attitude, gender is another factor that influences the performance of students. It is a social perception of being regarded as male (masculine) or female (feminine) within a society. Gender according to Tim (2021) refers to the socially constructed characteristics of women and men, such as norms, roles, and relationships of and between groups of women and men. It varies from society to society and can be changed. Gender roles in some societies in view of Tim are more rigid than in others, gender includes a person's perception, understanding, and experience of themselves and roles in society. It is their inner sense about who they are meant to be and how they want to interact with the world. However, these are not always set in stone, and roles and stereotypes can shift over time. The gender issue is a vital concern, especially among academics and policy formulators. Intellectuals are worried about the role of males and females in the psychological, political, social, economic, religious, scientific, and technological development of nations. Gender is one of the personal variables that have been related to differences found in motivational functioning and in self-regulated learning.

Different researches have demonstrated the existence of different attribution patterns in boys and girls, such that while girls tend to give more emphasis to effort when explaining their performance (Georgiou, 1999; Lightbody et al., 1996), boys appeal more to ability and luck as causes of their academic achievement (Burgner & Hewstone, 1993). Regarding gender differences in academic self-concept, there is no evidence of such differences existing (Gabelko, 1997), and when such differences do occur, it is to the detriment of the girls (Hilke & Conway, 1994). Meanwhile, concerns about academic performance concerning males and females have generated considerable interest in TVE over the years. Differences in academic performance of the two genders are likely to contribute to differences in the sharing of responsibilities in the world of work. There is a remarkable difference in academic performance in technical and vocational subjects based on gender (Olabiyi

& Awofala, 2019). Motivation, attitude, and gender are contributing factors to the academic performance in woodworking technology. These variables play roles in students' woodworking performance. Some researcher found that academic performance increased if students' attitude is regularly renewed and stimulated. Lamas (2015) mentioned that students' motivation in education influence academic performance. In this study, the independent variables are motivation, attitude, and gender, while the dependent variable is the performance in woodworking technology. Therefore, the study sought to determine if the independent variables (motivation, attitude, and gender) and dependent variables (woodwork technology performance) are significantly correlated. The relationship between the independent variables and the dependent variable is schematically represented below (See Figure 1).

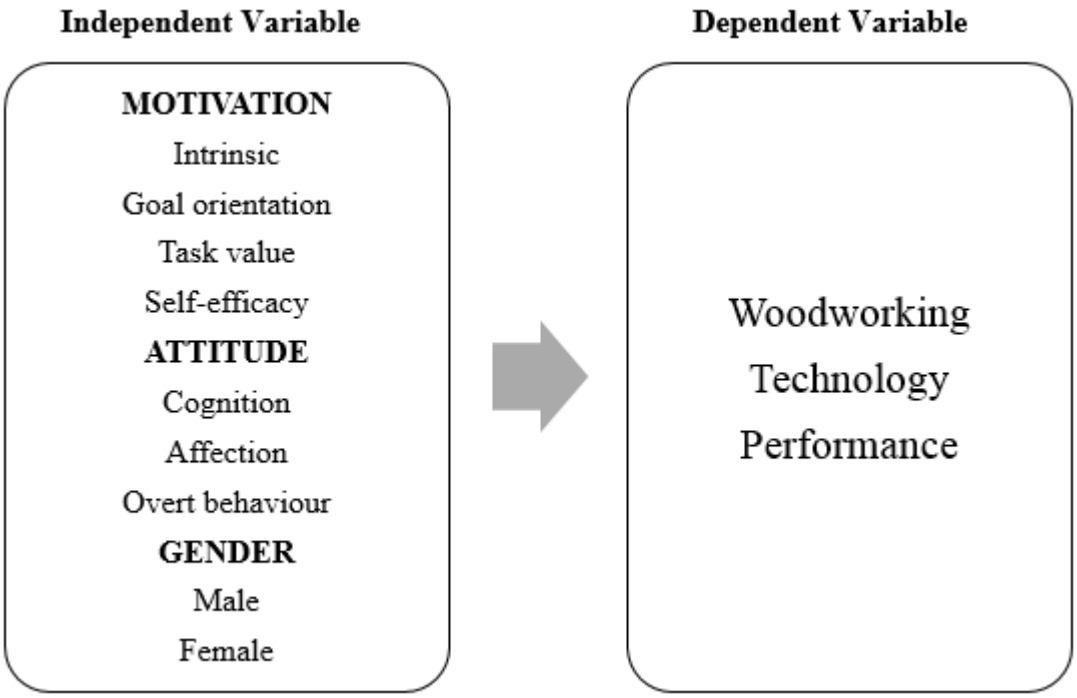

Figure 1. Framework for the study

3. Methodology

3.1 Design

The study make use of descriptive-correlational research design to collect information about existing conditions needed in the chosen field of study. It allows researchers to interpret the theoretical meaning of the findings and hypotheses. According to Calderon and Gonzales (1993), descriptive research describes relationships, practices, beliefs, processes, effects, or trends. This study is descriptive in nature since it deals with the investigation of the possible factors which contributes to academic performance of woodwork technology students.

3.2 Participants

The target population comprised of 180 respondents, 129 males and 51 females Senior Secondary School year two general woodworking students in Lagos State. The participants of this study belonged to four (4) sections with 45 students each, consisting of 33 boys and 12 girls. Purposeful sampling technique was used to select students from each of four educational districts, the whole sample size were used since the population is relatively small to manage, no sampling was carried out. The students' sample comprised 71.7% and 28.3% of male and female students respectively, relative to their enrolment in woodwork. In terms of age, 86.8% of both male and female students were in 14-17 age bracket. The criteria for selection of schools as sample population is based on the schools (i) that offer woodwork as a subject (ii) having been registering students for external examination for over five years (iii) the willingness of required woodwork teachers to participate in the study and (iv) the school must be co-educational.

3.3 Instrument administration and validation

The instrument has three sections A to C. Section A sought information on personal data of the respondents such as educational district, name of the school, class, and gender. Section B contains twenty items used to determine how woodworking technology students can describe their motivation using motivation inventory adapted from Jaen and Baccay (2016). It has three components, namely, goal orientation, self-efficacy, and task value. Section C contains twenty-six items to determine how students can describe their attitude using attitude inventory adapted from (Moore and Foy, 1997). The instrument is structured on a five-point Likert scale of Strongly Agree (SA), Agree (A), Undecided (U), Disagree (D) and Strongly Disagree (SD) with numerical values of 5, 4, 3, 2, and 1 respectively. Using upper real limits, any items with means of 3.50 and above were considered agreed and items less than 3.50 were considered disagree. The instrument was subjected to face and content validity by three lecturers in the Department of Science and Technology Education, University of Lagos to ensure that the questions covered the range of meaning included with the concept (content validity) and that the research instrument relates to statement of the problem and research questions. Experts' suggestions and recommendations were incorporated into the final draft of the instrument. The questionnaires were pilot-tested on 25 students in education district five using Federal Government College, Ijanikin. Cronbach alpha value obtained for section B (motivation inventory) was $\alpha = .82$ and section C (attitude inventory) was $\alpha = .83$. This being in line with Uzoagulu (2011) who noted that reliability coefficient above 0.6 indicates that the instrument is reliable.

The researcher designed Woodworking proficiency Test (WWPT) for data collection to determine academic performance. The WWPT used involved 25 multiple-choice items with options A to D selected from past West African Examinations Council (WAEC) questions papers in general woodworking and covered topics related to wood abrasives, wood adhesives, wood fittings and

fasteners, non-wood materials, veneers and veneering, and design and drawing as enshrined in the senior secondary year two woodwork curriculum. The initial 30–items of WWPT was given out to two experts in woodwork technology at the University of Lagos, Akoka, Lagos, for face and content validation. The validation involved scrutinizing the items of WWPT against the contents and topics of the lesson note, language editing, and appropriateness of the test to the target participants. Five items were removed based on experts' recommendation and the face validated WWPT was tested for difficulty index and discrimination power. Items with difficulty power of 0.4-0.6, discrimination power of 0.2 and above, and distractor index of negative decimal were retained (Akinsola & Awofala, 2009). Based on this, five items were removed leaving the final 25 items for the WWPT which was trial-tested in Federal Government College, Ijanikin. Each item on the WWPT scored one mark; thus, a total score of 25 was obtainable. Kuder-Richardson 20 formulae used to calculate the reliability coefficient of the WWPT, and a value of 0.85 was obtained. The WWPT covered the first three levels (knowledge, comprehension, and application) of Bloom's taxonomy, called the lower-order cognitive domain, as contained in the table 1 of specifications below.

Table 1. Test item specifications in woodworking on WWPT

Topics		**Level of the cognitive domain**			
S/No		**Knowledge**	**Comprehension**	**Application**	**Total**
1	Wood abrasive and adhesive	1	2	2	5
2	Wood fittings and fasteners	1	2	2	5
3	Non-wood materials	2	2	2	6
4	Veneers and veneering	1	1	1	3
5	Design and drawing	2	2	2	6
	Total	**7**	**9**	**9**	**25**

4. Data Analysis

Data analysed using descriptive and inferential statistics of the Statistical Package for Social Sciences (SPSS) version 17.0. Raw data were first coded and fed into the SPSS program, and mean, standard deviation, independent t-test, and multiple regression used to analyse the data. Any items with mean values of 3.50 and above were accepted, while items below 3.50 rejected. The relationships tested using multiple regression at 5% level of significance.

Research Question One: How can students in senior secondary school year two be described in terms of their (i) motivation and (ii) attitudes towards woodworking technology?

Table 2. Learners perception

Components	Mean	SD	Decision
Learners' Perception on Motivation			
Goal orientation	4.44	.43	Agree
Self-efficacy	4.40	.36	Agree
Task values	4.46	.42	Agree
Overall	**4.45**	**.42**	**Agree**
Learners' Perception on Attitude			
Cognition (cognitive)	4.43	.43	Agree
Affection (feeling)	4.11	.87	Agree
Overt behaviour (action)	4.31	.62	Agree
Overall	**4.05**	**.82**	**Agree**

Table 2 above shows the summary of the mean perception on motivation and attitude towards woodworking technology. On the mean perception on motivation, task values obtained the highest mean of 4.46 with a standard deviation of 0.42, while goal orientation obtained the mean value of 4.44 with a standard deviation of 0.43. The lowest mean of 4.40 with a standard deviation of 0.36 was obtained by self-efficacy. Thus, it implies that students were confident enough to perform the specific task. Motivation directly influenced the students' perception regarding academic performance. The drive of the students, since they were motivated, made them excited and attentive to woodworking technology. Students with a strong sense of efficacy are more likely to challenge themselves with difficult tasks and be intrinsically motivated (Margolis & McCabe, 2006). Students with task values and goal orientation will acquire in-depth knowledge of the subject matter and perform credibly well. Students with goals orientation are primarily concerned with new skills or improving competencies and seek to demonstrate their competence (Dupeyrat & Mariné, 2001). Students need to engage in different activities such as setting learning goals, integrating information, controlling motivation, cognition, and progress towards their goals (Neuville, Frenay, & Bourgeois, 2007). Students that attach value to the task use cognitive and metacognitive approaches (McWhaw & Abrami, 2001). Students with self-efficacy use deep cognitive strategies and engage in self-regulation than students with low self-efficacy (Li & Cheung, 2001).

As it can be seen from the summary of the mean perception on the attitude, cognition obtained the highest mean value of 4.43 and a standard deviation of 0.43, affection (feeling) obtained the mean value of 4.11 with a standard deviation of 0.87, while overt behaviour (action) obtained mean value of 4.31 with a standard deviation of 0.62. Attitude contributed a lot to the perception of woodworking technology. In life, attitude allows individuals to make sense of themselves, make sense of relationships, and make sense of the world around them (Mubeen, Saeed & Arif, 2013). The important function of an attitude can be ascertained by considering the persons who hold it and the environment in which they operate. Attitude is considered to be the most important determinant of academic performance, thus, an understanding of what an attitude is, how it is organised, what functions it performs, how it can be measured, and how teacher can change an existing attitude is very important for a teacher to successfully enhance students' academic performance (Jaen & Baccay, 2016). Teachers therefore, need to pay close attention to students' attitudes. It is very

important for a teacher to know the important aspects of students' attitude. Equally important for teacher is to understand how attitude is organised. Jaen and Baccay (2016) who advocate three component model of attitude believe that, these three components (cognition, feeling and overt behaviour) are the integral part of an attitude, that is, they work together. In other words, in every attitude, these three components work together with varying degrees. It is also argued that, there are consistencies among the components. If one connotes positive meaning, the other two will also connote the same.

Research Question Two: Is there any significant difference between male and female students' (i) Motivation and (ii) Attitude towards woodworking technology?

Table 3. Mean, standard deviation and t-value of motivation and attitude towards woodworking technology

Components	**Gender**	**No of students**	**Mean**	**SD**	**t- value**	**p-value**
Motivation	M	129	4.45	.26	1.253	.212
	F	51	4.40	.25		
Attitude	M	129	3.15	.23	1.028	.305
	F	51	3.12	.24		

The result in Table 3 presents the summary of the mean, standard deviation and t-value of motivation and attitudes towards woodworking technology. As contained in the table there was no significant difference between male and female students in motivation towards woodworking technology ($t= 1.253$, $p>.05$). This implies that there was no significant difference between the mean responses of male and female students' motivation towards woodworking technology. On attitude towards woodworking technology, there was no significant difference between male and female students ($t= 1.028$, $p>.05$). Generally, the male students were more motivated and had a more positive attitude towards woodworking technology. The higher mean score recorded by the male students showed that they were more inclined and dedicated to learning woodworking technology than the female students. This result is in line with earlier studies, which indicated that highly motivated students can simultaneously demonstrate high academic performance (Entwistle & Peterson, 2004; Mohamed & Waheed, 2011; Wu et al., 2020).

Research Question Three: Which of the independent variables predicts Woodworking Technology Performance?

Table 4. Regression value

Mode	Beta	t-value	p-value	R	Decision
Motivation	.441	5.33	.000	.710	Significant
Attitude	.170	2.05	.045		Significant
Gender	-.043	-.69	.488		Not Significant

Table 4 above presents the independent variables that can predict woodworking technology performance. As contained in the table the independent variables jointly contributed 50.41% to the prediction of performance in woodworking technology. The result as shown in the table, revealed that among the independent variables (motivation, attitude, and gender), the best predictor of woodworking technology performance is motivation with a beta value of 0.441. Motivation is the driving force that makes students persist in reaching greater heights (Singh, 2011), an internal drive that helps activate one's behaviour and determination to achieve the goals in life. Garut (2011) indicated that motivational beliefs are the outcomes of the direct learning experience. Motivation acts as an encouraging context of learning and refers to the students' efficiency and effectiveness of learning (Boekaerts, 2002). Research findings showed student's characteristic variables such as motivational orientations, self-esteem, and learning approaches are factors influencing academic performance (Tella, 2007). Students perform better on those skills they value, influenced by the underlying motivation to master the skill. The higher the students' motivation, the higher the effect was on woodworking performance of the students.

Also, attitude is significant in predicting students' performance in woodworking technology with a Beta value of 0.170. The positive attitude of students will result in high academic performance in woodworking technology. The finding of the present study confirms earlier findings of the significant relationship between the attitude of students and their academic performance in mathematics (Evans, 2007; Michelli 2013; Mohamed & Waheed, 2011; Sarwar, 2004), in calculus (Li, 1999), and biology (Adodo & Oyeniyi, 2013). Individuals having a positive attitude pay attention to woodworking rather than challenges in the study, mistakes or failure are considered as an opportunity to learn from mistakes and move forward in life. People with a negative attitude ignore the benefits of studying woodworking and pay attention to challenges; at times, they might blame their failure on others. If students' attitude is found favorable toward studying woodworking technology, they are likely to make positive responses toward it, and this tendency is likely to be fairly consistent. In case of a negative attitude, negative responses are likely to happen, and happen consistently again. Ghasemi, Moonaghi, and Heydari (2008) emphasized the role of learning attitudes and learning motivations, as being crucial student-related factors affecting students' academic performance in learning process. Motivation according to Bayoumy and Alsayed (2021) is frequently cited in the literature as being significant predictor of academic performance among nursing students contributing to study success. Students who are intrinsically motivated see learning as opportunities to fulfill their own inquisitiveness and eagerness to learn. In contrast, students with an extrinsic motive aim to please others (Rose, 2011). Though, some research studies have demonstrated positive associations between intrinsic motivation and student's grades and a negative relationship between extrinsic motivation and academic outcomes (Lepper, Corpus, & Iyengar, 2005; Reeve & Lee, 2014; Reeve & Tseng, 2011). In turn, students should identify their goals of study and be motivated to commit and engage in this process (Bowcock & Peters, 2016). Leong and Clutter (2015) emphasized that what

motivates student performance toward successful academic performance is an area of concern and controversy to educators.

As observed in Table 4, gender was not significant in predicting woodwork technology students' performance with a beta value of -.043. The results are in agreement with Oviawe (2021) whose study revealed that there was no significant influence of gender on students' academic performance in general woodwork in Nigeria. The present study has shown that there was no differential treatment of male and female students in woodworking technology. Thus, gender differences in woodworking technology may be waning. This is against the gender stereotypes in Nigeria that science, mathematics and technology subjects are masculine domains. According to Yaduvanshi and Singh (2018) gender issue in education, is commonly observed that boys are mostly given the task related to authority and leadership. Therefore, the girls' participation in school and teaching-learning process is not encouraged in conventional classroom. Also, the findings of this study is in agreement with that of Ndirika and Ubani (2017); Oludipe (2012); Oviawe, Ezeji, and Uwameiye (2015) found no significant difference in the Mean scores of male and female students in basic technology.

5. Conclusion

The study examined the predictive effects of motivation, attitude, and gender on senior secondary woodworking technology students in Lagos State, Nigeria. Motivation was considered under goal orientation, self-efficacy and task value, attitude components were cognition, affection and overt behaviour, while gender was grouped into male and female. The study established that motivation and attitude were significant predictors of woodworking technology performance. Students who attach a high value to the task will use deeper cognitive and metacognitive strategies. Positive attitudes among students strengthen motivation and engagement to study woodworking technology. However, this study established that gender was not a variable in students' performance in woodworking technology. Thus, regardless of gender, students could still maintain enhanced performance in woodworking technology when found woodworking worthwhile, believed that they were capable, focused on knowledge and skills development and would be more likely to perform better than other students with low task value. The study concluded that motivation and attitude are significant variables that predict students' performance in woodworking technology.

5.1 Educational implication

Motivation is a significant predictor variable of woodworking technology performance. Positive attitudes among students can strengthen their motivation to improve their academic performance. The results of the present study would be helpful for the policy makers/ curriculum planners, woodwork teachers, and their students, parents as well as school authorities. The findings have implication for school authorities as it show that the creation of a supportive and motivating learning

environment is an important factor in promoting students' academic performance. An educational institution needs to understand what motivates the students to learn and to actively engage in learning woodwork activities. Educational institutions have a responsibility to society to make education a successful experience. The findings also have implication for curriculum planners as it revealed that greater learning would take effect when the curriculum includes meaningful topics/contents that reflect students' personal goals and interests. Students who viewed themselves as having control over opportunities to show their competencies are more likely to improve academic performance. The implication for woodworking teachers is that they must use more suitable learning strategies to make the subject important and useful to students in order to prevent negative outcomes and motivation and attitude are factors that must be considered when trying to increase students' academic performance in woodworking technology. Teachers should provide students with woodworking activities that will increase their cognitive performance in woodworking technology and motivate them to make them hook on the topic presented. The policy makers can be aware of the importance of these factors on students' performance in designing well-targeted policy interventions.

5.2 Recommendations

Based on the findings, the subsequent discussion, and their implications, recommendations made include:

- Educational institutions should have a significant influence on students' motivation and attitude through provision of supportive services, training facilities to engender social creativity and achieving desired goals and meeting required academic performance of students.
- Woodworking technology teachers must use more suitable instructional design and learning strategies to make the subject important, useful and relevant to students to prevent undesired outcomes.
- Senior secondary school students should participate in classroom and workshop activities and freely interact with their teachers, their peers. The quality of relationships with peers has an important critical role for peer academic support that can foster students' sense of belonging and academic performance.
- The government, through the Ministry of Education in Lagos State, should motivate woodworking teachers by organising workshops and seminars for them on strategy and provision of required training facilities that could improve students' academic performance in school subjects.

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