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INVESTIGATION OF EVIDENCE BASED POLICIES AND STRATEGIES OF PROFESSIONAL DEVELOPMENT OF WOODWORK LECTURERS ON MACHINE WOODWORKING IN COLLEGES OF EDUCATION IN NORTH CENTRAL STATES, NIGERIA.

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ABSTRACT

Abstract
This study focused on Investigation of Evidence based Policies and Strategies of Professional Development of Woodwork Lecturers on Machine Woodworking in Colleges of Education in North Central States, Nigeria. The study was guided by ten specific objectives with their corresponding research questions and null hypotheses and relevant literature related to the objectives of the study were reviewed. The study adopted the descriptive survey research design and the study was conducted in Colleges of Education in North-Central States of Nigeria. The study had a population of forty-one respondents comprised 31 Experience Lecturers and 10 Inexperienced Lecturers of Woodwork Technology Education in Colleges of Education in the North-Central States of Nigeria. Total Population Sample (TPS) was used for the study and 35 questionnaire was returned for both respondents. The instrument for data collection was a structured questionnaire developed by the researcher and was validated by 5 research experts. Pilot study was conducted in Colleges of Education in North-East, Nigeria and the reliability coefficient of the instrument was found to be .830 and hence was found to be reliable. Statistical Package for Social Sciences (IBM SPSS) version 25 was used to analyze the data that was collected. The data obtained was analyzed using Descriptive Statistics of Mean and Standard Deviation to answer the research questions and independent t-test was used to test the null hypotheses at 0.05 level of significance. In line with the analysis of data collected for this study, the findings of the study among others revealed that: The current professional development practices for woodwork technology lecturers is high, Woodwork Technology Education lecturers need specific professional development to enhance their instructional delivery skills, the existing professional development programs is effective in improving instructional delivery outcomes among woodwork technology lecturers, evidence-based insights abound that can inform the development of policies / strategies to enhance the professional growth and instructional effectiveness of woodwork technology lecturers in Colleges of Education in North Central State of Nigeria among others. Based on these findings, the study recommends among others that: The government should provide professional development programs for woodwork technology lecturers, government and relevant stakeholders should provide Woodwork Technology Education lecturers with specific professional development to enhance their instructional delivery skills, more input by the government should be provided to the existing professional development programs to make it more effective in improving instructional delivery outcomes among woodwork technology lecturers, government and relevant stakeholders should encourage evidence-based insights abound that can inform the development of policies / strategies to enhance the professional growth and instructional effectiveness of woodwork technology lecturers in Colleges of Education in North Central State of Nigeria.

Background of the Study

Professional development of woodwork lecturers is a commitment to structured skills enhancement and personal or professional competence for effective service delivery. It is important for everyone, no matter their occupation, role or responsibility within an organization, to ensure that their skills and knowledge are up-to-date in order to meet up with the fast technological advancement. It is in the light of these Rajashree et al., (2024) stated that "Training is a systematic and organized learning process by which people learn skills, concepts, attitude and develop their knowledge so as to improve individual, team and organizational performance." Hence, the undertaking of staff development is particularly important in today's fast-moving technological World for the production of students with innovative and creative thinking. To buttress this; Umar et al., (2024) echoed that Professional development needs of woodwork technology lecturers could be seen as the modern trends in technological development needed to improve their instructional effectiveness.

Knowledge is said to be dynamic according to Saba and Quadhi (2023) there are new innovations in education that requires new approach, methodologies, skills and principles of operations and it is for these reasons, Yahaya et al., (2024) advocated that it is the 21st Century skills that is needed in today's work-place for effective employment and production; in addition, he stressed that "the 21st Century Woodwork lecturers needs the 21st Century skills for effective instructional delivery in Nigerian Colleges of Education." Since virtually all Woodwork Technology Education Lecturers lacks all aspects of 21st Century skills for effective instruction in our Institutions, there is need to engage them in 21st Century Relevant Conferences, workshops and Seminars as well as ICT related teaching and learning situations for update of knowledge and skills, as they are the direct implementers of educational curriculum; else, some operators (teachers, lecturers, instructors) will become obsolete, expired and outdated.

Hence, professional development needs of woodwork technology lecturers in the Colleges of Education include: new knowledge and skills to carry out their duties effectively, skills on research and development, ideas needed for knowledge creation and team spirits to deliver lectures appropriately Yahaya et al., (2024). It equally equips them with proper knowledge of the application and utilization of new technological devices or machines. Accordingly, professional development would manifest itself in staff performance and the quality of graduate produced. This is not only imperative but also indispensable to the achievement of educational and organizational goals. Hence, when lecturers are properly equipped with the professional development needs, it boosts up their morale of which they perform their duties effectively. This enhances the quality service delivery. Thus, professional development is aimed at equipping the woodwork lecturers with the skills to discharge their professional responsibility effectively and efficiently in ascertaining quality education. In other words, professional development of lecturers is aimed at providing knowledge and skills (both conceptual and intellectual) to members for system effectiveness. Madumere-Obike, Ukala and Nwabueze (2015) affirmed that teacher's professional development and capacity building improves their productivity at work, income earning capacity and living standard. As observed by Ajeyalemi (2002), an effective technical lecturer of any trade or discipline must demonstrate:

Mastery of the subject matter as well as the philosophy and goals of teaching that subject at that level;
Mastery of general and subject specific teaching strategies;
Knowledge of the learner, learning theories, principles and methods; and
Good personality as a leader and positive attitudes to the students and the subject matter.

Technology Education however, is a source of economic growth and development only if it

is anti-traditional to the extent that it liberates, stimulates and informs the individual and teaches him how and why to make demands upon him. Woodwork lecturers therefore enter the teaching profession with a body of knowledge and skills they received from universities. Colleges are playing an increasing role in the capacity building of staff and the colleges in which they start work. These colleges can be a source of learning and training for academic staff on their respective courses. Chappell and Johnston (2013) advocated that TVET lecturers and trainers have multiple identities. They have one identity located in being an industry specialist, with a detailed knowledge of a specific industry, its history, current challenges, equipment and training systems. One located in a training organization, they can also develop the identity of pedagogical specialist. These two identities differ between public and private sector teachers, whereas the identity of public provider lecturer concentrated more in the importance of education and training as a social or public good. On the other hand, it is argued that the focus of lecturers in private training organizations is more upon the outcomes for the individual student (Chappell & Johnston, 2013). A number of recent studies build upon understanding of the capabilities required of lecturers to operate in these multiple contexts that require a mix of industry specific, as well as more pedagogical capabilities.

In terms of skills in integration as well as innovation, Mitchell (2013) provides numerous examples of the creativity of leading TVET lecturers, and their capabilities around integration, innovation and clever assessment devices, since lecturers want to develop capabilities that will allow them to respond to what are to be the likely areas of greatest impact upon their professional roles. That is, new technologies, the increasingly competitive training environment, more flexible delivery, training packages, changes to funding, and more industry partnerships.

Callan (2015) identified five required capability areas for TVET teaching staff: expertise in teaching and learning to demonstrate an understanding of a range of learning theories and techniques that inform practice, adapts learning and teaching strategies to suit individual students and learners); flexible delivery and assessment (e.g. able to factor on-site assessment to suit the systems of the workplace, has knowledge and skills in forms of flexible delivery, including distances, blended, on-line or work-based learning); learner support a being able to customize learning resources for groups and personalize for individuals, knowledge of a range of behavior management strategies for responding with difficult people); and industry currency to demonstrate a technical expertise in their subject area, able to partner with industry). Dickie, (2014) draws the following areas of capabilities for TVET teachers from the material they reviewed:
Capability is more than competence. Competence is defined as what individuals know or are able to do in terms of knowledge, skills, and attitude, while capability is extent to which individuals can adapt to change, generate new knowledge, and continues to improve their performance (Fraser, 2001). Based on this differentiation between capability and competence; Schrembs, (2001) has stated that an instructor has to have a variety of competencies such as: Lecturers are not born as lecturers; they have to be trained. Some people might have a particular talent for teaching but most people don't. However, teaching can be learnt. A major prerequisite for this is that a person wants to teach. Someone who is urged to teach can never be a good teacher. Apart from abilities that can be trained, a lecturer should have some character capabilities. Some instructors have a well-balanced personality. This will help trainees to build up confidence in the instructor and lead to a good mood in the classroom. He/she should have natural authority and be able to guide young people. Stolte, (2009) has stated others personal competencies such as readiness for change, emotional stability, resilience, diligence, personal commitment and responsibility for own decisions. Pedagogical Competencies are types of qualities that can be acquired during the teacher training course. It can be regarded as the contents of a teacher's apprenticeship. First of all, a

teacher must be able to choose the correct and most important topics of a trade. Not everything can be learnt within the period of training. The second step is to group these topics into logical units and prepare proper lessons with it. Planning and running a lesson require competencies in the whole field of teaching techniques. He should be able to transfer theoretical knowledge as well as practical skills. Professional Competencies or abilities include the professional skills. A teacher should have acquired them during his own apprenticeship as a craftsman and his working experience. He/she must be a master of his/her trade.

To be a master does mean being a model. It is not enough to be a craftsman but a good craftsman. An instructor should always keep his/her eyes open for changes and developments in his/her trade. Instructors should always be up-to-date and interested in further training and upgrading. It is very necessary to have a wide range of general knowledge too. Finally, there are organizational and administrative duties which an instructor has to do (Schrembs, 2001). In a bid to develop a didactic concept based on occupational performance competence, Nanga (2007) classifies the concept under three sub components: (discipline-related technical competence), which includes the skills and readiness to accomplish given tasks independently and correctly using suitable knowledge and methods, and to be able to evaluate the outcomes; (personality competence) referring to the skills and readiness to think over and analyze development chances in the profession, family and in public life, to judge one's own talents to realize them and finally, to set up a life plan for further development; and(Social competence) referring to the skills and readiness to interact and communicate effectively with others irrespective of their age, sex, educational level, background among others. Other competences such as language competence and methodical competence spread through the three categories. The field-related competence is based on the knowledge, abilities and skills needed to carry out tasks in a particular job. These include facts and purposefully job-oriented elementary knowledge that need constant updating to keep pace with the changes on the job. Methodic competence on the other hand refers to procedural competence needed in carrying out tasks. It involves the ability and skills in using suitable means to resolve problems, skills to work independently and to transfer experience gained in similar instances. Social competencies are more oriented to societal values and personal behaviors.

They relate to the ability and skills to communicate and cooperate with others. Social competences will also mean that workers cultivate the habit of self-critic and responsibility as motivational factors for his actions Nanga (2007). UNESCO/ UNIVOC (2019) proposed more practical competences for TVET lecturers, these are: - coordination of subject science and subject didactic knowledge and arguments in the planning, organization and execution of vocational lessons using appropriate methods, and the integration of new ICTs in the didactic design of lessons. These seems to be obvious challenges and gaps among woodwork lecturers in colleges of education in north central states in Nigeria, hence the need to investigate the professional development and capacity building needs.

i. Aim/Objectives
ii. Determine the evidence-based insights abound that can inform the development of policies and strategies to enhance the professional growth and instructional effectiveness of woodwork technology lecturers in Colleges of Education in North Central State of Nigeria.
iii. Determine the professional developments needs of lecturers for instructional delivery in machine woodworking in Colleges of Education in North Central State of Nigeria.

1.4 Research Questions

The following research questions were formulated to guide the study:

i. What evidence-based insights abound that can inform the development of policies and strategies to enhance the professional growth and instructional effectiveness of woodwork technology lecturers in Colleges of Education in North Central State of Nigeria?
ii. What are the professional development needs of lecturers for instructional delivery in machine woodworking in Colleges of Education in North Central State of Nigeria?

1.5 Hypotheses

This study was guided by the following null hypotheses tested at 0.05 level of significance:

H_{O4}: There is no significant difference in the mean responses of Experienced and Inexperienced lecturers on the evidence-based insights abound that can inform the development of policies / strategies to enhance the professional growth and instructional effectiveness of woodwork technology lecturers in Colleges of Education in North Central State of Nigeria.

H_{O5}: There is no significant difference in the mean responses of Experienced and Inexperienced lecturers on the professional development needs of lecturers for instructional delivery in machine woodworking in colleges of education in North Central State of Nigeria.

3.0 RESEARCH METHODOLOGY

The chapter presents method the adopted in conducting the study. The chapter was discussed under the following sub-headings**: -** Research Design, Area of the study, Population for the Study, Sample and Sampling Technique, Instrument for Data Collection, Validation of the Instrument, Reliability of the Instrument, Method for Data Collection, and Method for Data Analysis.

3.1 Research Design

Descriptive Survey research design was adopted for the study. Creswell (2014) defined survey research design as procedures in quantitative research in which investigators administer survey to a sample or to the entire population of people to describe the attitudes, opinions, behaviors, or characteristics of the population sample and analyzing data from only a few people or item considered to be representatives of the entire group. Osakpa, Okonkwo, and Ejiogu (2018) defined descriptive survey as research design that involve the use of group of individuals or items in collecting and analyzing data from representative of the entire population of or items in which the result of the study is generalized. Kabir and Adamu (2019) stated that descriptive should be employed when study involve the use of questionnaire, interview or observation for data collection from sample of larger population, descriptive survey research should be adopted. Based on the above authors, the researcher considered the design suitable since the study involved the use of questionnaire to elicit the opinions of the target respondents.

3.2 Area for the Study

The study was carried out in North-Central States of Nigeria. According to Okorie (2013) there are six States in the North-Central of Nigeria, these include: Benue, Kogi, Kwara. Nasarawa, Niger, Plateau and the Federal Capital Territory (FCT) Abuja: Geographically, the Latitude and Longitude of the states is in the coordinate of 10^0 19' 60" N and 7^0 45' 0" in DMS (Degree Minutes Seconds). Its UTM position is LS 64 and its joint operation Graphics Reference is NC 32-06. Current Local time is 22:29; the Sun rises at 08:58 and sets at 21:05 Local time (Africa/Lagos UTC/GMT+1). There are the Colleges of education in the zone that offer WWT to train woodwork students. The Colleges of Education in this zone offering WWT fit this study as in Appendix B. Other factors that favour the zone for this study include; the increase and demand in modern residential, commercial, and industrial comfort facilities such as Reading and dining tables, cushions, chairs, maintenance and repairs of NC and CNC wood machines. Also Considering the developmental effect of FCT-Abuja the fastest growing city in Africa on the surrounding States (North Central Nigeria), the need for this study cannot be overemphasized considering the high demand of Woodwork Technology lecturers in Colleges of Education.

3.3 Population for the Study

The population for the study was 41 Woodwork Technology Education Lecturers from Colleges of Education in North Central States of Nigeria which comprises of 31 Experience Lecturers and 10 Inexperienced Lecturers. This population was sourced from the various Head of Departments (HODs) of the Colleges of Education in question. These respondents were selected for the study to respond to the questionnaire in order to determine the content areas in Woodworking that requires Professional Development.

Table 1: Population Distribution of the Study

S/N	Colleges of Education	State	Experienced Lecturers	Inexperienced Lecturers	Total
1.	College of Education, Oju	Benue	3	1	4
2.	College of Education, Katsina Ala	Benue	4	1	5
3.	College of Education, Ankpa	Kogi	4	2	6
4.	College of Education, Kabba	Kogi	6	2	8
5.	College of Education, Akwanga	Nasarawa	3	-	3
6.	Federal College of Education, Kantogora	Niger	5	2	7
7.	Federal College of Education Pankshin	Plateau	6	2	8
	Total		**31**	**10**	**41**

Source: HODs Office, (2024)

3.4 Sample and Sampling Techniques

According to Creswell (2014) sampling is the use of a definite procedure in the selection of a part for the express purpose of obtaining from its description or estimates certain properties and characteristics of the whole. Levy and Lemeshow (2013) argued that if the population is relatively low, the sample size should comprise a reasonably large percentage of the population. Since the population is manageable, the researcher used Total Population Sample

(TPS). Total Population Sample is a technique whereby the entire population that share common characteristics is used for the study (Crossman, 2018).

3.5 Instrument for Data Collection

The instrument for this study was a structured questionnaire developed by the researcher through extensive literature review. According to Dhalum (2021), structured questionnaire is one of the most appropriate instruments to collect data in a survey research design. The questionnaire titled Professional Development needs of Wood Work Lecturers (PDWWL) was developed based on the objectives of the study, and extensive review of literature. The literature reviewed helped the researcher to list and identify suitable contents (skills), Professional Development needs of woodwork technology lecturers in colleges of education in North central States of Nigeria. The researcher then developed the information obtained into questionnaire.

The questionnaire is made up of two parts. Part one was used to obtain information on the personal characteristics of the woodwork lecturers, in the Colleges of Education, while part two consisted of items addressing the purposes of the study. Each item in part two of the instrument was assigned a five point Likert's type response scale of Strongly Agree (SA) 5 points, Agree (A) 4 points ,Moderately Agree (MA) 3 points, Disagree (D) 2 points, and Strongly Disagree (SD) 1 point on research question 1, 3 and while Very Highly Needed (VHN) 5-Points, Highly Needed (HN)4-Points, Moderately Needed (MN) 3-Points, Least Needed (LN)2-Points and Not Needed (NN) 1-Point on research questions 2 and 5 to 10 respectively, as provided below:

Key: on Research Question one (1), three (3) and four (4) (1,3&4)

Strongly Agreed (SA)	5-Points
Agreed (A)	4-Points
Moderately Agreed (MA)	3-Points
Disagreed (D)	2-Points
Strongly Disagreed (SD)	1-Point

Key: on Research Question two (2) and five-ten (2, 5-10)

Very Highly Needed (VHN)	5-Points
Highly Needed (HN)	4-Points
Moderately Needed (MN)	3-Points
Least Needed (LN)	2-Points
Very Least Needed (VLN)	1-Point

3.6 Validation of the Instrument

Validity is the development of sound evidence to demonstrate that the test interpretation matches its propose use (Creswell, 2012). The PDWWL instrument was subjected to face validation to ascertain the suitability of the items in the questionnaire. The initial draft of the questionnaire was subjected to face and content validation by five experts, three from the Department of Construction Technology Education, Abubakar Tafawa Balewa University,

Bauchi and two from Technical Education Department, Federal College of Education Pankshin. One from Educational Foundation Department, Abubakar Tafawa Balewa University, Bauchi. The title, the purpose of the study, hypotheses, and research questions was attached to the instrument to guide the Experts. They were requested to reward the items as they consider appropriate, correct any mistake such as ambiguous or unclear statement, wrongly conceived ideas, missing information, irrelevant items, and ascertain the adequacy of the items in the questionnaire for professional development of Woodwork lecturers. The expert's corrections was used to modify the questionnaire. Uzoagulu (1998) stated that face validation is a means of justifying the appropriateness of items in an instrument to be used for a study.

4.0 RESULTS AND DISCUSSION

This chapter presents data obtained, the results and findings of the study.

4.1 Data Presentation

4.1.4 Research question four

What evidence-based insights abound that can inform the development of policies / strategies to enhance the professional growth and instructional effectiveness of woodwork technology lecturers in Colleges of Education in North Central State of Nigeria?

Table 6 shows the Mean and Standard Deviation of the respondents on the evidence-based insights abound that can inform the development of policies / strategies to enhance the professional growth and instructional effectiveness of woodwork technology lecturers in Colleges of Education in North Central State of Nigeria. The table showed the mean of Experience Lecturers ranging from 3.52 to 3.93, the standard deviation also ranges from .783 to 1.022 and the mean of Inexperienced lecturers also ranges from 3.71 to 4.57 while the standard deviation ranges from .535 to 1.069 respectively. The cluster mean of experience lecturers is 3.67 while the standard deviation is .867 and 3.95 for Inexperienced lecturers with the standard deviation of .743, the grand mean of the respondents is 3.73 which means that evidence-based insights abound that can inform the development of policies / strategies to enhance the professional growth and instructional effectiveness of woodwork technology lecturers in Colleges of Education in North Central State of Nigeria.

Table 6: Mean and Standard Deviation of the Respondents on the Evidence-Based Insights Abound that can Inform the Development of Policies / Strategies to Enhance the Professional Growth and Instructional Effectiveness of Woodwork Technology Lecturers

S/N	ITEM	X_E	SD_E	X_N	SD_N	X_G	Remark
32.	Incorporating hands-on project-based learning in woodwork technology lecturer training.	3.55	.870	4.29	.756	3.69	Agree
33.	Incorporating hands-on project-based learning can significantly enhance instructional effectiveness.	3.59	.825	4.14	.690	3.67	Agree
34.	Tailored professional development programs, aligned with my specific needs leads to more	3.69	.806	3.86	.900	3.72	Agree

	impactful educational outcomes.						
35.	Integrating modern technology into woodwork education, emphasizing the role of digital tools in enhancing instructional methods.	3.83	.805	4.00	.816	3.86	Agree
36.	The inclusion of sustainable practices and environmental awareness is needed within woodwork technology curricula to align with global trends.	3.52	1.022	4.57	.535	3.72	Agree
37.	Fostering a collaborative learning environment among woodwork technology teachers contributes to their professional knowledge and growth	3.55	.870	3.57	.535	3.55	Agree
38.	The implementation of mentorship programs, showcases positive effects on educator's professional development	3.93	.998	4.00	.577	3.94	Agree
39.	There is need for continuous assessment methods to monitor the effectiveness of woodwork instruction in colleges of education.	3.55	.783	4.00	1.000	3.64	Agree
40.	Exposure to industry trends enhances the relevance and quality of woodwork education.	3.76	.830	3.71	.488	3.75	Agree
41.	Highlights on the importance of policy framework that incentivize ongoing professional development opportunities for woodwork technology teachers.	3.69	.850	3.86	1.069	3.72	Agree
42.	Promoting a culture of research and innovation in woodwork technology education enhances development of cutting-edge instructional strategies and practices.	3.72	.882	4.00	.816	3.77	Agree
	Cluster Mean	**3.67**	**.867**	**3.95**	**.743**	**3.73**	**Agree**

Source: Field Work, (2025)

4.1.5 Research question five

What are the professional development needs of lecturers for instructional delivery in machine woodworking in Colleges of Education in North Central State of Nigeria?

Table 7 shows the Mean and Standard Deviation of the respondents on the professional development needs of lecturers for instructional delivery in machine woodworking in Colleges of Education in North Central State of Nigeria. The table showed the mean of Experience Lecturers ranging from 3.52 to 4.00, the standard deviation also ranges from .636 to 1.037 and the mean of Inexperienced Lecturers also ranges from 3.14 to 4.29 while the standard deviation ranges from .535 to 1.069 respectively. The cluster mean of Experience Lecturers is 3.76 while the standard deviation is .906 and 3.78 for Inexperienced Lecturers with the standard deviation of .753, the grand mean of the respondents is 3.76 which indicates that the Lecturers needs professional development for instructional delivery in machine woodworking in Colleges of Education in North Central State of Nigeria.

Table 7: Mean and Standard Deviation of the Respondents on the Professional Development Needs of lecturers for Instructional Delivery in Machine Woodworking

S/N	ITEM	X_E	SD_E	X_N	SD_N	X_G	Remark
43.	Need for developing modern skills in woodwork machine troubleshooting.	3.66	.974	3.57	.787	3.64	Highly Needed
44.	Developing expertise in the latest woodworking software tools is essential for lecturers to stay current in the field.	3.83	.848	3.43	.535	3.75	Highly Needed
45.	Training on safety protocols and risk management in machine woodworking.	3.76	.912	3.86	.690	3.78	Highly Needed
46.	Capacity building in incorporating sustainable practices within woodworking instruction.	3.97	.778	4.00	.577	3.98	Highly Needed
47.	Professional development on CAI for instructional delivery in machine woodworking.	3.72	.922	4.00	.577	3.77	Highly Needed
48.	Professional development on CAD for instructional delivery in machine woodworking.	3.72	.922	3.43	.976	3.66	Highly Needed
49.	Professional training on CNC wood carving and engraving machine tools.	4.00	.802	3.71	.951	3.94	Highly Needed
50.	Need for Lecturer's professional update on CNC cutting, milling, drilling, and grooving on different materials, like wood, foam, stone, plastic, acrylic, glass, ACM, copper, brass, Aluminium, PVC, MDF.	3.62	.942	4.00	.816	3.69	Highly Needed

51.	Professional training on Fault diagnosing and Repair system for instructional delivery in machine woodworking.	3.52	.738	4.29	.756	3.67	Highly Needed
52.	Professional training on the need for continuous learning on emerging trends in woodwork industry	3.83	.966	3.14	1.069	3.70	Highly Needed
53.	Need for professional training on adaptation to diverse learning styles in machine woodworking.	3.69	.930	3.50	.548	3.66	Highly Needed
54.	Professional updates in project-based teaching methodologies to enhance lecturer's impartation of practical skills to students in machine woodworking.	3.76	.636	4.00	.816	3.81	Highly Needed
55.	Professional training incorporation into real-world of industry scenarios into lectures for effective instructional delivery in machine woodworking.	3.83	1.037	4.14	.690	3.89	Highly Needed
	Cluster Mean	**3.76**	**.906**	**3.78**	**.753**	**3.76**	**Highly Needed**

Source: Field Work, (2025)

4.2.4 Null hypotheses four

There is no significant difference in the mean responses of Experienced and Inexperienced Lecturers on the evidence-based insights abound that can inform the development of policies / strategies to enhance the professional growth and instructional effectiveness of woodwork technology lecturers in colleges of education in North Central State of Nigeria.

The result of the independent t-test is presented in Table 16 showed that there is significant difference in the mean responses of Experienced and Inexperienced Lecturers on the evidence-based insights abound that can inform the development of policies / strategies to enhance the professional growth and instructional effectiveness of woodwork technology lecturers in colleges of education in North Central State of Nigeria within the degree of freedom of 34, t-value = -2.548, *p*- value = .016. Since the *p* value is less than the confidence level ($P<0.05$) therefore, the null hypothesis was also rejected. This implied that there is significant difference in the mean responses of Experienced and Inexperienced Lecturers on the evidence-based insights abound that can inform the development of policies / strategies to enhance the professional growth and instructional effectiveness of woodwork technology lecturers in colleges of education in North Central State of Nigeria.

Table 16: t-Test Analysis of the Mean Responses of Experienced and Inexperienced Lecturers on the Evidence-Based Insights Abound that can Inform the Development of Policies to Enhance the Professional Growth and Instructional Effectiveness of the Lecturers

	N	X	S.D	Df	t-val	*p*-val	Decision
Experience Lecturers	29	3.67	.867				
				34	-2.548	.016	Rejected
Inexperienced Lecturers	7	3.95	.743				

Source: Field Work, (2025)

4.2.5 Null hypotheses five

There is no significant difference in the mean responses of Experienced and Inexperienced Lecturers on the professional development needs of lecturers for instructional delivery in machine woodworking in colleges of education in North Central State of Nigeria.

The result of the independent t-test is presented in Table 17 showed that there is no significant difference in the mean responses of Experienced and Inexperienced Lecturers on the professional development needs of lecturers for instructional delivery in machine woodworking in colleges of education in North Central State of Nigeria within the degree of freedom of 34, t-value = -.150, *p*-value = .881. Since the *p* value is greater than the confidence level (P>0.05) therefore, the null hypothesis was also accepted. This implied that there is no significant difference in the mean responses of Experienced and Inexperienced Lecturers on the professional development needs of lecturers for instructional delivery in machine woodworking in colleges of education in North Central State of Nigeria.

Table 17: t-Test Analysis of the Mean Responses of Experienced and Inexperienced Lecturers on the Professional Development Needs of lecturers for Instructional Delivery in Machine Woodworking

	N	X	S.D	Df	t-val	*p*-val	Decision
Experience Lecturers	29	3.76	.906				
				34	-.150	.881	Accepted
Inexperienced Lecturers	7	3.78	.753				

Source: Field Work, (2025)

.3 Findings of the Study

The following are the summary of findings for this study

i. Woodwork Technology Education Lecturers disagrees on their evidence-based insights abound that can inform the development of policies / strategies to enhance the professional growth and instructional effectiveness of woodwork technology education lecturers in Colleges of Education in North Central State of Nigeria.

ii. Woodwork Technology Education Lecturers highly need professional development for instructional delivery in machine woodworking in Colleges of Education in North Central State of Nigeria.

4.4 Discussion of Findings

Woodwork Technology Education Lecturers agreed on their current professional development practices for woodwork technology lecturers in Colleges of Education in the North Central States of Nigeria and hence null hypothesis one (HO_1) was accepted which implied that there is no significant difference in the mean responses of Experienced and Inexperienced Lecturers on their current professional development practices in woodwork technology in Colleges of Education in North Central State of Nigeria. This finding is in agreement with that of Hafidulloh, Budiyanto, and Suhermin, (2017) that maintain that professional development level of lecturers in tertiary institutions is very as most tertiary institutions have adequate provision for professional development of its academic staff which in turn has improve their professional display. This finding however, disagrees with that of Gasper, (2011) who observed that lecturers lack professional development and suggest that lecturers need retraining through capacity building in North Central Nigeria, considering the demand for professional teachers in Nigeria.

Woodwork Technology Education Lecturers need professional development for instructional delivery in machine woodworking in Colleges of Education in North Central State of Nigeria and hence null hypothesis five (HO_5) was accepted which implied that there is no significant difference in the mean responses of Experienced and Inexperienced Lecturers on the professional development needs of lecturers for instructional delivery in machine woodworking in colleges of education in North Central State of Nigeria. This finding is in agreement with that Camci, Temur, and Beskese, (2018) who also states that tertiary institution lecturers need professional development for instructional delivery in in their areas of specialization.

Woodwork Technology Education Lecturers need professional development for instructional delivery in Wood design, Construction and Finishing in Colleges of Education in North Central State of Nigeria. Furthermore, null hypothesis six (HO_6) was also upheld and this implied that there is no significant difference in the mean responses of Experienced and Inexperienced Lecturers on the professional development needs of lecturers for instructional delivery in Wood design, Construction and Finishing in Colleges of Education in North Central State of Nigeria. This finding is in agreement with that of Jibrin, Okwori, Hassan Jatau, (2018) that states that revealed that teachers need re-training in construction of wooden articles and finishing and also recommended that teachers should regularly be sent on professional courses (development) and engages in commercial activities to update and boost their competencies in skills for teaching activities in school workshops.

5.0 SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Summary

The aim of this study is to investigate the Professional Development needs of Woodwork Technology Education Lecturers in Colleges of Education in North Central States of Nigeria. Based on the aim and objectives of the study, ten research questions were raised with corresponding ten null hypotheses for the study. The research design adopted for the study was a descriptive survey design. The population of the study comprise of 41 Woodwork technology Education Lecturers which consist of 31 Experience Lecturers and 10

Inexperienced Lecturers in Colleges of Education in North Central States of Nigeria and Total Population Sample (TPS) was used as sample and sampling technique.

The instrument for data collection in this study was a structured questionnaire developed by the researcher. The instrument was validated by one experts from Building Technology Education of the Department of Construction Technology Education (DCTE), two from Moddibo Adama University, Yola and two from the Department of Technical Education, Federal College of Pankshin now Federal University of Education, Pankshin. The data was collected with the help of five trained research assistants and data was analyzed using SPSS version 25 and the statistical tool used were descriptive statistics of mean and standard deviation while independent t-test was used to test the null hypotheses at 0.05 level of significance.

5.2 Conclusion

In conclusion, based on the findings of this study which shows that The current professional development practices for woodwork technology teachers in Colleges of Education in the North Central States of Nigeria is high, Woodwork Technology Education lecturers need specific professional development to enhance their instructional delivery skills in Colleges of Education in North Central State of Nigeria, the existing professional development programs is effective in improving instructional delivery outcomes among woodwork technology lecturers in Colleges of Education in North Central State of Nigeria, evidence-based insights abound that can inform the development of policies / strategies to enhance the professional growth and instructional effectiveness of woodwork technology lecturers in Colleges of Education in North Central State of Nigeria, lecturers need professional development for instructional delivery in machine woodworking in Colleges of Education in North Central State of Nigeria, lecturers need professional development for instructional delivery in Wood design, Construction and Finishing in Colleges of Education in North Central State of Nigeria among others.

5.3 Recommendations

Based on the findings of this study, the following recommendations were made:

i. More input by the government should be provided to the existing professional development programs to make it more effective in improving instructional delivery outcomes among woodwork technology lecturers in Colleges of Education in North Central State of Nigeria.
ii. The government and relevant stakeholders should encourage evidence-based insights abound that can inform the development of policies / strategies to enhance the professional growth and instructional effectiveness of woodwork technology lecturers in Colleges of Education in North Central State of Nigeria.

5.4 Limitation of the Study

During the cause of the study, the researcher was faced with some constraints during the administration and retrieval of the questionnaire despite the use of introductory letter issued by the researcher's department. Another challenge encountered was finance and training the research assistant was also another area of challenge Experienced by the researcher in undertaking this study.

5.5 Suggestion for Further Studies

The researcher wishes that such a study should be replicated in other Geo-Political Zones of the Federation.

5.6 Contribution of Findings to Knowledge

This study has contributed to the body of knowledge by investigate the Professional Development needs of Woodwork Technology Lecturers in Colleges of Education in North Central States of Nigeria and it is also a reference material to future researchers in Nigeria and beyond.

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