

Ascertaining The Knowledge and Skill Needs of E-learning in Pattern Drafting and Clothing Construction Among Home Economics Students of Universities in North Central Nigeria

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Abstract

This study ascertained the knowledge and skill needs of university Home Economics students in pattern drafting and clothing construction in North Central Nigeria. The study specifically identifies the level of knowledge of students on e-learning tools and platforms for pattern drafting, assess the digital skills required by students to participate in e-learning for pattern drafting. And examine the availability of e-learning tools in universities offering Home Economics in North Central Nigeria. Three research questions guided the study, and a Descriptive survey design was used. A population of 339 second-year undergraduate students from four universities in the region registered online for Home Economics including Joseph Sarwuan Tarka University, University of Ilorin, Nasarawa State University Keffi and Father Adasu University, Makurdi. The sample for the study was 184 Home Economics students who purposively were choosing using Taro yamen formular. A structured questionnaire titled the Knowledge and Skill Needs of E-Learning in Pattern Drafting was used to collect data. The questionnaire was validated by three experts from the Faculty of Vocational and Technical Education, University of Nigeria Nsukka. The instrument was trial tested to a sample of 20 second year students of Home Economics & Hospitality Management University of Nigeria Nsukka, that were outside the study area. Cronbach's Alpha gave the indexes of SKET =.84, DSPDCC=.79, and AEI =.87, indicating that instrument was reliable for the study. Data collection was online through Google form. The data were analyzed using mean and standard deviation to answer the research questions and the result shows the Mean of SKET as ($\bar{x}$ = 2. 21; SD = 0.01) and Mean of DSPDCC as ($\bar{x}$ = 3.68, SD=.03). While the mean of AEI as (= 1.10, SD=.01). Findings reveal significant gaps in students' familiarity with relevant e-learning platforms, limited digital tools for engaging in virtual learning. Based on these findings, the study concluded and was recommended, among others that Universities in North central Nigeria should integrate e-learning in the curriculum to improve e- learning knowledge and skills of undergraduates Home Economics students.

Keywords: E-learning, Pattern Drafting, Clothing Construction, Digital Skill

Introduction

Home Economics is a course of study and plays a crucial role in equipping individuals with essential life skills necessary for personal well-being. It is a

field of study that focuses on teaching practical life skills related to managing household and personal well-being (McCloat & Caraher, 2019). According to

Erjavšek (2021), Home Economics education is the education of people for family life, the promotion of their goods and services, the discovery of potential, and productivity, and aiding people to adjust to changes and reorganize the future lives through research.

Home Economics education is taught both at primary, secondary, and tertiary level including universities in Nigeria and is not restricted by gender; The philosophy of Home Economics at the University level focuses on training students to be knowledgeable, competent, and skill-oriented in exhibiting the necessary abilities for the work that they will be expected to do after graduating from university (Umoru, 2024). Home Economics at the University level is a multidisciplinary field of study that encompasses various aspects of household management, family well-being, and personal development (Umoru, 2024). It had been associated with the development of life skills and quality of life (Pridane, Vronska, & Lice-Zikmane, 2020). For example, clothing and textiles teach students skills in fabric production, pattern drafting, and clothing construction.

Pattern drafting is a technique used in garment construction to create custom patterns from scratch based on individual measurements and design specifications (Kim et al., 2020). It is a fundamental skill in fashion design and garment construction. It involves creating a custom pattern for a garment that can be used as a template for cutting and sewing the fabric. Pattern drafting and clothing construction are skill-based components of Home Economics that traditionally require hands-on instruction and close supervision. However, with the advancement of digital tools and platforms, it is now possible to simulate practical experiences and deliver instructional content through virtual

means. Despite these technological advancements, there remains a knowledge and skill gap among students and educators regarding the effective use of e-learning in these areas

Chamorro-Atalaya, et al (2022), E-learning in pattern drafting utilizes digital technologies, online platforms, and virtual tools to enhance the learning process associated with garment pattern creation. This modern educational approach integrates traditional drafting skills with innovative techniques, making learning more interactive and accessible. Research indicates that the use of 3D simulation technologies significantly enhances spatial visualization skills, which are essential in apparel design education. This demonstrates how virtual platforms can improve engagement with learning materials and facilitate a deeper understanding of the drafting process

Pattern drafting and clothing construction is a course in the new curriculum document of the National University Commission (NUC) as one of the 70% Core Curriculum Academic Standards for Home Economics Education in Nigerian Universities (CCMAS, 2022). The objectives of the course specify that students should be able to draft patterns of basic blocks, present patterns for different clothing styles, and construct a garment. The CCMAS (2022) document specifies that this course should be taken at two hundred (200) levels to enable the student to form a strong base for advanced clothing design and construction in the final year of study.

In universities across North Central Nigeria, the integration of e-learning into the Home Economics curriculum is still in its developing stages. Challenges such as inadequate digital infrastructure, limited access to internet connectivity, lack of institutional support, and insufficient training often hinder the effective use of e-learning. As a result,

many students may lack the necessary knowledge and skills to fully benefit from digital learning environments, especially in highly practical subjects like pattern drafting and clothing construction.

There is a pressing need to assess the current level of e-learning in pattern drafting among Home Economics students in the region, identify specific knowledge and skill gaps, and determine how these gaps can be addressed to enhance learning outcomes. Understanding these needs is crucial for designing relevant training programs, improving curriculum content, and equipping students with the competencies required to excel in both academic and professional settings. This study, therefore, aims to ascertain the knowledge and skill needs of university students studying Home Economics in North Central Nigeria for effective e-learning in pattern drafting and clothing construction. The outcome of the research will inform educators, curriculum developers, and policy makers on how best to support students in adapting to modern learning environments in a technology-driven world.

Statement of the Problem

The growing integration of e-learning in higher education has transformed the delivery of academic content across various disciplines. For practical and skill-oriented subjects like pattern drafting and clothing construction in Home Economics, effective adoption of e-learning presents unique challenges. Home Economics traditionally rely on hands-on learning, direct interaction with materials and real-time feedback, all of which can be difficult to replicate in a virtual environment without proper knowledge and technical competencies.

In universities across North Central Nigeria, the shift towards e-learning is ongoing, but there appears to be a

significant gap in the preparedness of Home Economics students to effectively engage with digital platforms for acquiring practical skills. Many students lack the foundational knowledge and digital literacy needed to navigate e-learning tools relevant to pattern drafting and clothing construction. Furthermore, limited exposure to specialized e-learning software and inadequate institutional support hinder the ability to fully benefit from online or blended learning environments. If these knowledge and skill gaps are not properly identified and addressed, students may continue to struggle with mastering essential competencies required for academic and professional development. This not only affects the quality of education to receive but also impacts on the readiness to meet the demands of the modern workforce, where digital proficiency is increasingly important.

This study seeks to ascertain the knowledge and skill needs of university-level Home Economics students in North Central Nigeria for effective participation in e-learning, particularly in the areas of pattern drafting and clothing construction. Identifying these needs is crucial for developing appropriate strategies to enhance student engagement and improve learning outcomes in e-learning, it is upon this background that this research is necessary.

Objective of the Study

The main objectives of the study are to ascertain the e-learning knowledge and skill needs in pattern drafting and clothing construction among Home Economics students in universities located in North Central Nigeria. Specifically, the study sought to:

1. identify the current level of knowledge of home economics students on e-learning tools and

- platforms in pattern drafting and clothing construction
2. Assess the digital skills required by students to effectively participate in e-learning for practical Home Economics courses.
3. Examine the availability and accessibility of e-learning resources and infrastructure in universities offering Home Economics in North Central Nigeria.

Methodology

Design of the Study

The study adopted a descriptive survey research design. The descriptive survey method is appropriate for this research as it allows for the systematic collection and analysis of data from a defined population to describe the existing conditions, opinions, and perceptions regarding the knowledge and skill needs of e-learning in pattern drafting and clothing construction among Home Economics students.

Population of the Study

The population for this study was three hundred and thirty-nine (339) students, comprising of all year two undergraduate Home Economics students enrolled in four universities that registered online to be offering Home Economics in North Central Nigeria including Joseph Sarwuan Tarka University, (JOSTUM), University of Ilorin (UNILORIN), Nasarawa State University Keffi (NSU) and Father Adasu University, Makurdi (FAU) (Admission offices of the four Universities, 2023/2024 session).

Sample and Sampling Technique

The sample for the study was one hundred and eighty-four (184) students purposively selected from the four Universities comprised of two federal

and two state-owned Universities that offer Home Economics in north-central Nigeria. Including Joseph Sarwuan Tarka University Makurdi (JOSTUM) 217, University of Ilorin (UNILORIN) 83, Nasarawa State University Keffi (NSU) 23 and Moses Orshio Adasu University (MOAU, formerly, BSU) 16.

Method of Data Collection

The instrument for data collection was a structured questionnaire titled 'E-Learning in Pattern Drafting and Clothing Construction' (ELPDQ). The questionnaire, which consists of both sections A, B and C was designed to gather information on; Students' knowledge of e-learning Tools, Digital Skills related to Pattern Drafting and Clothing Construction and Access to e-learning Infrastructure.

A WhatsApp group account was created by the researcher and 184 Home Economics students from the four universities were added to the group, and a google form structured questionnaire link was shared to the members. The students filled in the questionnaire and submitted it through their emails within the space of 7 days. To ensure availability of the internet, students were asked to use their various school Wi-Fi, also some amounts of data were provided for some who were having some challenges of data in their various universities during the exercise. Data collected was analyzed using SPSS version 24.

Method of Data Analysis

Data collected were analyzed using descriptive statistical methods, such as, means and standard deviations were used to summarize the data. The statistical analysis was carried out using SPSS (Statistical Package for the Social Sciences).

Results

The findings from Table 1 show that Home Economics students have limited knowledge of e-learning tools and platforms specifically related to pattern drafting and clothing construction. Only one item "I am familiar with e-learning

platforms (Google Classroom, Moodle) had a mean score of 2.93 and was accepted. All other items scored below the benchmark of 2.50 and were declined, indicating a general lack of familiarity and confidence among students in using digital tools for practical learning.

Table 1: Responses of the Respondents on the Level of Knowledge Home Economics Students have about E-learning Tools and Platforms used in Pattern Drafting and Clothing Construction.

S/N	Knowledge and Skill Needs of E-Learning in Pattern Drafting and Clothing Construction	X(mean)	SD
1	I am familiar with e-learning platforms (e.g., Google Classroom, Moodle).	2.93	.68
2	I have been taught how to use online tools for academic purposes.	2.30	.70
3	I can confidently navigate digital learning environments.	1.66	.60
4	I have used e-learning tools specifically for pattern drafting.	1.97	.78
5	I understand how to access learning content online.	2.23	.77
	Cluster Means	2.21	0.01

Results in Table 2 below demonstrate that students recognize the importance of digital skills for participating in e-learning. All five items scored above the acceptable mean benchmark (e"2.50), with mean scores ranging from 3.37 to 3.97.

These results suggest that while students may lack current knowledge, students are aware of and value the digital competencies necessary for effective e-learning in pattern drafting and clothing construction.

Table 2: Responses to Assess the Digital Skills Required by Students to Effectively Participate in E-Learning for Practical Home Economics Courses

S/N	Digital Skills in Pattern Drafting and Clothing Construction that students need	X(mean)	SD
1	Using digital drawing tools for pattern drafting	3.93	.79
2	Navigating virtual design software (e.g., Adobe Illustrator, CLO 3D)	3.37	.77
3	Submitting assignments and practical work through e-learning platforms	3.66	.75
4	Participating in virtual sewing or pattern drafting tutorials	3.97	.80
5	Recording and uploading personal design or construction work online	3.63	.76
6	Cluster Mean	3.68	0.03

Table 3 highlights a significant deficiency in the availability and accessibility of e-learning infrastructure in universities. All items in this section scored below the 2.50 benchmark and were declined. The lowest score was 1.37 for "I have regular access to a

reliable internet connection on campus," showing poor connectivity. Similarly, students reported insufficient institutional support and a lack of digital labs/studios and practical teaching support using e-learning tools.

Table 3: Responses on the Extent the E-learning Resources and Infrastructure Available and Accessible to Home Economics Students in Universities in North Central Nigeria N=184

S/N	Access to E-Learning Resources and Infrastructure	X(mean)	SD
1	My university provides adequate e-learning resources for my course.	1.93	.68
2	I have regular access to a reliable internet connection on campus.	1.37	.63
3	Digital labs or studios are available for practical Home Economics tasks.	1.66	.80
4	There is institutional support for troubleshooting e-learning issues.	1.97	.78
5	Lecturers use e-learning tools effectively for teaching practical topics.	1.63	.77
6	Cluster Mean	1.10	0.01

Discussion

The results from the three tables offer critical insights into the digital preparedness of Home Economics students in North Central Nigeria, particularly in relation to pattern drafting and clothing construction. These findings are congruent with existing literature, which emphasizes the growing significance of e-learning in practical and skill-based disciplines.

The findings in Table 1 reveal a concerning gap in students' knowledge and confidence with e-learning platforms tailored to practical coursework. While familiarity with platforms like Google Classroom and Moodle received an acceptable mean score (2.93), more specific competencies such as navigating digital environments or using tools for pattern drafting were significantly lacking. Asare et al. (2023), highlights how students' perceptions and familiarity with educational apps influence the success of e-learning implementation. Similarly, Karaksha et al. (2014) argue that structured engagement with digital tools enhances student comprehension of relationships notably absent in the current context. Moreover, Sundqvist et al (2020) underline the pivotal role of teachers in bridging digital gaps, emphasizing that insufficient educator training often translates to limited student exposure. These findings align with the low score (1.63) for lecturers' effective use of e-learning tools noted in table three

Students expressed strong agreement on the importance of digital skills for Home Economics, as all items in Table 2 scored well above the 2.50 benchmark. Skills like participating in virtual sewing tutorials (3.97) and using digital tools for submitting work (3.66) show that students value the integration of technology even if they currently lack the skills. with Taar et al. (2022), stress the importance of digital competence in modern Home Economics education. Similarly, Zhao et al. (2021) define digital competence as not only technical proficiency but also critical engagement with technology a vision reflected in students' awareness of skill needs. Furthermore, Umeh-Idika (2024) emphasizes that digital literacy in Home Economics fosters sustainability and enhances learning outcomes, aligning with students' recognition of the skills they need.

The most critical challenge highlighted is infrastructure. Every item in Table 3 scored poorly, indicating a stark lack of institutional support, internet connectivity (mean = 1.37), and digital facilities such as labs or studios. These infrastructural deficiencies severely hinder the effectiveness of digital skill development. This agrees with Eltayeb (2020), who highlights that institutional readiness is a prerequisite for successful e-learning adoption, while Mousa et al. (2024), also stress the positive correlation between the availability of digital tools and both teacher and student performance.

Additionally, Oluwagbemileke (2024) notes that the integration of ICT into Nigerian schools is often uneven, especially in resource-intensive disciplines like Home Economics. This reinforces the necessity for targeted investment in digital infrastructure and faculty training.

Conclusion and Recommendations

The discrepancy between students' low current knowledge in digital knowledge and access and the high awareness of digital skill needs, combined with the lack of institutional support, calls for an urgent need for institutions to provide the necessary support interventions for technological advancement in creating an e-learning environment. Based on the findings, the study recommends that:

1. Universities in North Central Nigeria should integrate development of E-learning package approach in their curriculum to improve E-learning skills of undergraduates Home Economics students; of digital tools and resources to complement traditional teaching methods.
2. Funding of the university school system by government will ameliorate the provisions for teachers and learners to be equipped with the skills necessary to implement developed E-learning package

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