

Experimentation/Innovation and Consumer Awareness as Determinants of Effective Teaching and Learning of Home Economics

Dijeh Ann Emani, Ph.D

emanidijeh@gmail.com

Department of Home Economics Education
University of Calabar, Calabar

Osedumme Igwebuike, Ph.D

Department of Curriculum and Teaching
University of Calabar, Calabar
osedumme82@gmail.com



Abstract

This study investigated the influence of experimentation/innovation and consumer awareness as determinants of effective teaching and learning of Home Economics. It was guided by two research questions and two hypotheses. The descriptive survey research design was used. The population of the study consist of forty (40) Home Economics students. Census sampling technique was adopted in adopting the whole population as the sample. Experimentation/Innovation and Consumer Awareness Questionnaire (E1CAQ) was the instrument used for gathering data. Mean, standard deviation and simple regression were used for data analysis; the hypotheses were tested at .05 level of significance. The results indicated, among others, that both experimentation/innovation and consumer awareness had significant influence on teaching and learning of Home Economics. The study recommended that consumers should be educated in order to make proper food choices and also know what they eat; and that the manufacturers of consumer goods should announce their activities intensively and on routine basis to the consumers, as this will increase the awareness of consumers on their products.

Keywords: experimentation/innovation, consumer awareness, effective teaching and learning, Home Economics, University of Calabar

Introduction

Home Economics provides students with subject matter that is not only relevant to their present lives but also continues to be applicable as they grow and adapt to societal needs. Home Economics occupies a vital position in the Nigerian educational system because it equips learners with relevant life skills that support personal development and career

success. Unlike many other disciplines, Home Economics combines both theoretical and practical knowledge, enabling students to succeed independently in their chosen career paths. The knowledge and skills gained through the subject remain useful throughout life, as they address daily living, family well-being, and entrepreneurship.

This fact corroborates with research carried out by Kofo (2018), which showed that the realities of the situation of inadequate infrastructure range from no science laboratories at all to one microscopic science laboratory. The author observed that what obtained was the existence of well-equipped laboratories, only on paper. Other studies like Adebisi et al. (2017), Clifford and Nwanya (2022), confirmed this shortage of laboratories in Nigerian secondary schools. Home Economics encourages ventilation for conducive practical in schools, because this affects effective teaching and learning of Home Economics in Nigeria. Consequently, in order to ensure better and improved learning, the need for provision of educational infrastructure like classroom blocks, laboratories, and others in teaching and learning of a science-oriented course like Home Economics cannot be over-emphasized (Etiubon & Udoh, 2020).

Experimentation is a simple yet extremely powerful tool. It is particularly so in Home Economics, where it has great potential to inform policy and shape Home Economics reform. The key feature of experiments, random assignment to an intervention, is considered the “gold standard” for programme evaluation and is increasingly being demanded by Home Economics policymakers as an essential tool for decision-making (Rockoff et al., 2011). Random assignment ensures that on average there are no underlying differences between the intervention (treatment group) and the comparison (control group). Therefore, any differences in outcomes between these two groups can be attributed to the intervention itself, allowing researchers to causally identify the impact of a given programme.

This is crucial for the evaluation of Home Economics policy. First, it allows for the movement of policy lever one at a time. Generally, Home Economics policies move together, making it difficult to isolate the question of interest. For example, successful schools are often characterized by a bundle of features including high-quality teachers, a specialized curriculum, engaged parents, and motivated students. Without experimentation, it is very difficult to identify the role each of these plays in Home Economics achievement. Relatedly, experiments allow researchers to avoid selection biases that plague many comparisons in Home Economics. Supposing that a researcher wants to measure the effectiveness of a supplemental tutoring programme, the factors that drive where these programmes are available and who attends them are largely

unobservable and are likely related to the outcomes the researcher wants to measure. For example, students willing to spend extracurricular time in an academic programme are likely more motivated (or their parents are) than students who do not attend the programme. Thus, differences in performance between tutored students and non-tutored students, could be either due to the programme or due to underlying differences in student motivation. More broadly, so much of educational achievement is driven by factors outside the school system (such as pre-schooling cognitive development, parental resources, and others) that identifying the effect of a particular policy is difficult without experimentation.

In a related development, Sadoff (2018) conducted a study on the role of experimentation in education policy. As the gold standard for programme evaluation, experimentation is gaining increasing attention from education researchers and policymakers. In the study, the researcher discussed how experimentation can be used to shape education policy. The researcher first discussed how well-designed experiments can both build upon and inform a general framework for the education production function. Experiments within this framework can be particularly powerful when they draw on a wide range of disciplines including child development, psychology, and behavioural economics. Insights from these areas can help identify underlying mechanisms of the education production function and inform the design of interventions in ways that increase (cost-) effectiveness. Additionally, the researcher argued that there should be a rich array of experiments in education, ranging from lab-like basic research to policy-level efficacy trials. Finally, the researcher discussed the policy-maker's role in integrating experimentation into policy decision-making, including how to address concerns commonly raised with experimentation in education.

Consumer awareness plays a crucial role in encouraging teaching and learning (Trudel, 2019; Teufer & Grabner-Krauter, 2023). Informed consumers who are aware of the environmental and social consequences of their choices are more likely to choose sustainable products and practices (Zhang et al., 2023). Sustainable mindful consumption, supported by consumer networks, can overcome barriers to sustainable consumption and promote mindful behaviour, health, and well-being (Mohammed & Raze, 2023). Gen-Z consumers in China are actively engaged in sustainable fashion consumption, valuing classic design, high quality, and sustainability knowledge (Liu et al., 2023). The behaviour of consumers in the diversity of Calabar highlights critical barriers to sustainable fashion consumption, which can be mitigated through appropriate strategies. Consumer neuroscience research is gaining ground and can contribute to promoting sustainable consumption, with studies focusing on decision-making, emotion-specific brain regions, and optimization models. The literature underscores the role of awareness campaigns,

information dissemination, and accessibility of information in influencing consumer choices.

Home Economics laboratory is important for the consumers; so it needs the consumer awareness of it when they consume consumer products. Consumers will be aware of the company's practices and behaviour, especially if the consumers feel that either employees or companies have a good influence on the society and surroundings (Manimala & Sudha, 2015). They will look for products or services provided by the firms who are responsible socially (Singh, 2014). Towards daily consumption, the consumers now are more aware of the company's Home Economics laboratory practices on their environment and social life (Manimalar & Sudha, 2015). The previous research found that consumers' awareness of Home Economics laboratory has correlation with the Home Economics laboratory practice of consumer goods manufacturer (Sardianou et al., 2017). The consumer awareness is the precedent of the Home Economics laboratory practice success (Manimalar & Sudha, 2015).

A study by Sari and Mahardhika (2020) examined the factors influencing the awareness among the consumers about the CSR of consumer goods manufacturers in Surabaya, Indonesia. Using the quantitative research methods, the data collected from 100 respondents were processed in exploratory factor analysis. The respondents were chosen if they are more than 18 years old and buyers of consumers' products. The results indicate four factors influencing the respondents' awareness of CSR practices executed by consumer goods manufacturers are company's exposed performance, consumer's perceived CSR, company's exposed activities and company's treatment to employees. Consumer awareness on consumer goods manufacturers' CSR consists of two dimensions, internal and external dimensions. Internal dimensions are about consumers' perceived CSR, and external dimension is supported by three other factors namely company's exposed performance, company's exposed activities and the company's treatment to employees; so, the consumer goods manufacturers was considered responsible to its social environment, if the companies give attention not only to the performance, activities but also their treatment to their employees.

Research questions

The following questions were derived from objectives of the study:

1. What influence does experimentation/innovation role have on teaching and learning of Home Economics?
2. How does consumer awareness role influence teaching and learning of Home Economics?

Hypotheses

The following hypotheses were formulated to guide the study:

Ho1: Experimentation/innovation role has no significant influence on teaching and learning of Home Economics.

Ho2: Consumer awareness has no significant influence on teaching and learning of Home Economics.

Methodology

This study adopted a survey research design. It was guided by two research questions and two hypotheses. The population of the study consisted of forty (40) Home Economics students. Due to the manageable size of the population, a census sampling technique was adopted, allowing all 40 students to participate in the study.

The instrument used for data collection was a structured questionnaire titled Experimentation/Innovation and Consumer Awareness Questionnaire (EICAQ). The questionnaire was divided into two sections. Section A elicited information on the demographic characteristics of the respondents such as age, gender, and level of study. Section B consisted of 15 items designed to measure the variables of the study, specifically experimentation/innovation and consumer awareness. The questionnaire items were structured on a four-point Likert scale with response options of: Strongly Agree (SA) = 4, Agree (A) = 3, Disagree (D) = 2, and Strongly Disagree (SD) = 1. The scoring was done by assigning numerical values to each response option, and the total score for each respondent was obtained by summing their responses across all items. Higher scores indicated a higher level of experimentation/innovation and consumer awareness.

To ensure the validity of the instrument, the questionnaire was subjected to face and content validation by experts in Home Economics and Measurement and Evaluation. Their suggestions and corrections were incorporated to improve the clarity, relevance, and adequacy of the items. The reliability of the instrument was established using the Cronbach Alpha method. The instrument was pilot-tested on a sample of students outside the study area but with similar characteristics to the study population. The analysis yielded a reliability coefficient of 0.82, indicating that the instrument was reliable for the study. For data analysis, descriptive statistics (mean and standard deviation) were used to answer the research questions, while simple regression analysis was employed to test the hypotheses at a 0.05 level of significance.

Presentation of results

Research question 1: What influence does experimentation/innovation role have on teaching and learning of Home Economics?

Table 1: Means and standard deviation of experimentation/innovation on teaching and learning of Home Economics

S/N	Experimentation/innovation	Mean	SD	Remarks
1	Supports permanence	2.52	1.53	Agreed
2	Helps students to learn skills	2.15	1.59	Agreed
3	Specialized instruction	3.10	1.61	Agreed
4	Documentary results	3.01	1.57	Agreed
5	Creativity and innovation	3.49	1.54	Agreed

Key: SD = Standard Deviation, N = 40

To provide answers to research question one, weighted mean and standard deviation of respondents' scores were used. The result is presented in Table 1. Table 1 presents the mean ratings of respondents on experimentation/innovation on teaching and learning of Home Economics. The Table shows that the five (5) isolated items recorded mean rating between 2.52 and 3.49 which were above 2.50 cut-off point on a four-point scale. The result shows that the five (5) items on experimentation/innovation are required for teaching and learning of Home Economics. The standard deviation ranged from 1.53 to 1.61 which revealed that respondents were not too far from the mean and from one another in their responses.

Ho1: Experimentation/innovation role has no significant influence on teaching and learning of Home Economics.

Simple regression test statistic was employed in testing this hypothesis. The results of the analysis were presented in Tables 2.

Table 2: Simple linear regression analysis on influence of experimentation/innovation on teaching and learning of Home Economics

Model		R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1		.401a	.161	.156	2.406	1.235
Model		Sum of Squares	Df	Mean Square	F	Sig.
	Regression	194.005	1	194.005	33.501	.000 ^b
1	Residual	1013.430	175	5.791		
	Total	1207.435	176			
Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
	Constant	7.914	1.361		5.813	
	experimentation/innovation	.464	.080	.401	5.788	

a. Dependent Variable: Teaching and learning of Home Economics

Results of analysis in Table 2 show the predictive composite influence of experimentation/innovation role on teaching and learning of Home Economics. The results indicate that the calculated f-value of 33.501 is greater than the critical f-value of 3.86 at 0.05 level of significance with 1 and 38 degrees of freedom. This means that experimentation/innovation role has a significant influence on teaching and learning of Home Economics. By these results the null hypothesis is rejected and the alternate upheld.

The R^2 of the simple regression in Table 2 measures the degree of determination coefficient of predictor (experimentation/innovation role) on teaching and learning of Home Economics. It predicts that 16.1% of the variation on teaching and learning of Home Economics is explained by the variation of predictor (experimentation/innovation role), while 83.9% of the variations in the teaching and learning of Home Economics is explained by other variables which are extraneous to the study.

The .464 coefficient in Table 2, (46.4 percent) shows that a percentage increase in experimentation/innovation role, while other variables are held constant, would lead to 46.4 percent increase on teaching and learning of Home Economics. The t-statistics in the Table show that the calculated t-value for experimentation/innovation role (5.788) is greater than the critical t-value of 1.966 at 0.05 level of significance with 1 and 38 degrees of freedom. This means that experimentation/innovation role has a significant influence on teaching and learning of Home Economics. That is the higher the level of experimentation/innovation role, the higher the level of teaching and learning of Home Economics and vice-versa.

Research question 2: How does consumer awareness role influence teaching and learning of Home Economics?

Table 3: Mean and standard deviations of Consumer awareness role on teaching and learning of Home Economics

S/N	Consumer awareness role	Mean	SD	Remarks
1	Consumers would be aware on where to purchase a product	3.11	1.53	Used
2	The level of education is translated into effective consumer action	3.15	1.59	Used
3	Consumer would be aware of their immediate need	3.10	1.61	Used
4	Consumer would have the importance of any product they desire	3.05	1.57	Used
5	Consumer would be aware on the choice to make based on their scale of preference	3.49	1.55	Used

Key: SD = Standard Deviation, N = 40

To provide answers to research question 2, weighted mean and standard deviation of respondents' scores were used. The result is presented in Table 3. Table 3 presents the mean ratings of respondents on consumer awareness role required for teaching and learning of Home Economics. It shows that the five (5) isolated items recorded mean rating between 3.05 and 3.49 which were above 2.50 cut-off point on a four-point scale. Hence, all the five (5) items on consumer awareness are used on teaching and learning of Home

Economics; the standard deviation ranged from 1.53 to 3.61 which revealed that respondents were not too far from the mean and one another in their responses.

Ho2: Consumer awareness role has no significant influence on teaching and learning of Home Economics.

Simple regression test statistic was employed in testing this hypothesis. The results of the analysis were presented in Tables 4.

Table 4: Simple regression analysis on influence of consumer awareness on teaching and learning of Home Economics

Model		R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1		.420a	.177	.172	2.383	1.006
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	213.433	1	211.433	36.576	.000 ^b
	Residual	894.002	175	5.680		
	Total	107.435	176			
Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error		Beta	
1	(Constant)	9.815	.980			
	Consumer awareness role	.405	.066		.420	

a. Dependent Variable: Teaching and learning of Home Economics

Results of analysis in Table 4 show the predictive composite influence of consumer awareness role on teaching and learning of Home Economics. The results indicate that the calculated f-value of 36.576 is greater than the critical f-value of 3.86 at .05 level of significance with 1 and 38 degrees of freedom. This means that consumer awareness role has a significant influence on teaching and learning of Home Economics. By these results the null hypothesis is rejected and the alternate upheld.

The R^2 of the simple regression in Table 4 measures the degree of determination coefficient of predictor (consumer awareness role) on teaching and learning of Home Economics. It predicts that 17.7% of the variation on teaching and learning of Home Economics is explained by the variation of predictor (consumer awareness role), while 82.3% of the variations in the teaching and learning of Home Economics is explained by other variables which are extraneous to the study. The coefficient of .405 (40.5 percent) in Table 4 shows that a percentage increase in consumer awareness role, while other variables are held constant, would lead to 40.5 percent increase on teaching and learning of Home Economics. The t-statistics in the Table show that the calculated t-value for consumer awareness role (6.130) is greater than the critical t-value of 1.966 at 0.05 level of significance with 1 and 38 degrees of freedom. This means that consumer awareness role has a significant influence on teaching and learning of Home Economics. That is the higher the level of consumer awareness role, the higher the level of teaching and learning of Home Economics and vice-versa.

Discussion of the findings

The first hypothesis examines the significant influence of experimentation/innovation role on teaching and learning of Home Economics. The results of analysis using simple regression Test Statistic shows the predictive composite influence of experimentation/innovation on teaching and learning of Home Economics. This means that experimentation/innovation role has a significant influence on teaching and learning of Home Economics. That is the higher the level of experimentation/innovation role, the higher the level of teaching and learning of Home Economics and vice-versa. This finding is in agreement with Sadoff (2018), who emphasized the importance of experimentation in education policy. He noted that experimentation helps generate evidence-based insights that guide effective decision-making. As the gold standard for programme evaluation, experimentation is gaining increasing attention from education researchers and policymakers. In the study, the researcher discussed how experimentation can be used to shape education policy. The researcher first discussed how well-designed experiments can both build upon and inform a general framework for the education production function. Experiments within this framework can be particularly powerful when they draw on a wide range of disciplines including child development, psychology, and behavioural economics. Insights from these areas can help identify underlying mechanisms of the education production function and inform the design of interventions in ways that increase (cost) effectiveness. Additionally, the researcher argued that there should be a rich array of experiments in education, ranging from lab-like basic research to policy-level efficacy trials. Finally, the researcher discussed the policy-maker's role in integrating

experimentation into policy decision-making, including how to address concerns commonly raised with experimentation in education.

The results of the second hypotheses indicate significant influence of consumer awareness on teaching and learning of Home Economics. The results of analysis using simple regression test statistic show the predictive composite influence of consumer awareness role on teaching and learning of Home Economics. This means that consumer awareness role has a significant influence on teaching and learning of Home Economics. This implies that as the level of consumer awareness increases, the effectiveness of teaching and learning in Home Economics also improves, and vice versa. This finding aligns with Trudel (2019), who highlighted the complex relationship among education, consumer consciousness, government regulation, and sustainable consumption practices in the Ciawitali Market area of Garut Regency. Insights regarding the demographic profiles, educational attainment, consumer awareness, perception of government regulation, and sustainable consumption behaviour of 195 participants were obtained from the sample. The relationships between these variables were analyzed utilizing Structural Equation Modeling Partial Least Squares (SEM-PLS). According to the findings, positive correlations were found between education and sustainable consumption behaviour, consumer awareness and sustainable consumption, and government regulation and both consumer awareness and sustainable consumption behaviour. The model demonstrated a strong correspondence with the data, underscoring the importance of effective government regulations, consumer education, and consumer awareness in promoting sustainable practices. By utilizing these insights, policymakers, educators, and market stakeholders can effectively develop focused interventions that promote sustainable development in the Ciawitali Market.

Conclusion

The main purpose of this study was to determine the role of experimentation/innovation and consumer awareness in teaching and learning outcomes in Home Economics. It was therefore concluded that experimentation/innovation and consumer awareness enhances teaching and learning outcomes in Home Economics.

Recommendations

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

1. Consumers should be educated in order to make proper food choices and also know what they eat.
2. Consumer goods manufacturers should announce and inform their activities intensively and on routine basis to the consumers as it may increase the awareness of

consumers towards their activities, so the consumers not only buy the products, but they will react positively to the companies' image and goodwill.

References

- Adebisi, T. A., Tewogbade, T. A. & Olajide, S. O. (2017). Assessment of Laboratory Resources, Teachers' and Students' Involvement in Practical Activities in Basic Science in Junior Secondary Schools in Osun State Nigeria. *Journal of Educational and Social Research*, 7(3), 144-152.
- Clifford, U. & Nwanya, F. (2022). Laboratory management skills and chemistry teachers' effectiveness in public secondary schools in Ihitte Uboma Local Government Area of Imo State. *International Journal of Research in Education and Sustainable Development*, 2(3), 58-65.
- Etiubon, R. U. & Udoh, N. M. (2020). Availability and utilization of laboratory facilities for teaching carbohydrates in Senior Secondary Schools in Uyo Education Zone, Akwa Ibom State. *International Journal of Education and Research*, 8(5), 91-104.
- Kofo, A. A. (2018). Laboratories and sustainable teaching and learning about Senior Secondary School (SSS) geography in Nigeria. *Journal of Educational and Social Research*, 2(4), 55-67.
- Liu, Zhao, Y., Xiong, X. & Ren, X. (2023). A bibliometric analysis of consumer neuroscience towards sustainable consumption. *Behavioral Science (Basel)*, 13(4).
- Manimalar, R. & Sudha, S. (2015). Consumer Awareness towards CSR Initiatives by FMCG Industries Using Multiple Regression. *International Research Journal of Engineering and Technology (IRJET)*, 2(7), 567-572.
- Mohammed, V. & Raze, A. (2023). Towards sustainable fashion consumption: An exploratory study of consumer behavior in a developing country. *Journal of Sustainable Marketing*, 4(1), 90-109.
- Rockoff, J. E., Jacob, B. A., Kane, T. J. & Staiger, D. O. (2011). Can you recognize an effective teacher when you recruit one?. *Education Finance and Policy*, 6(1), 43-74.
- Sadoff, S. (2018). The role of experimentation in education policy. *Oxford Review of Economic Policy*, 30(4), 597-620.
- Sari, E. & Mahardhika, S. (2020). Consumers' awareness factors Son CSR of consumer goods manufactures in Surabaya, Indonesia. *International Journal of Economics, Business and Management Research*, 4(1), 312-344
- Sardianou, E., Staupoulou, A. & Kostakis, I. (2017). Analyzing consumers' awareness towards CSR focusing on environmental management. *Environmental Management and Sustainable Development*, 6(2), 51-64.

- Singh, J. (2014). Consumer behavior and corporate social responsibility. *Journal of Business Ethics*, 125(2), 123–135.
- Teufer, B. & Grabner-Kräuter, S. (2023). How consumer networks contribute to sustainable mindful consumption and wellbeing. *Journal of Consumer*, 2(1), 23-45.
- Trudel, R. (2019). Sustainable consumer behavior. *Consumer Psychology Review*, 2(1), 85–96.
- Zhang, Y., Liu, S. & Lyu, Y. (2023). Profiling consumers: Examination of Chinese gen Z consumers' sustainable fashion consumption. *Sustainability*, 15(11), 8447.