

UPCYCLING CLOTHING ARTICLES: DIRECTIONAL PRACTICE AS ENTREPRENEURIAL SKILL FOR FAMILY SUSTAINABILITY

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ABSTRACT

The purpose of the study was to produce infant clothing articles using fabric waste and patchwork technique. Specifically, the study sought to: produce five infant clothing articles using fabric waste and patchwork technique for various infant activities and assessed the appropriateness of infant clothing articles produced from fabric waste using patchwork technique based on functional, expressive and aesthetic attributes. The study was guided by three hypotheses. The study was undertaken in two phases. The research and development design were adopted for phase I while a descriptive survey design was utilized for phase II of the study. Purposive sampling technique was used to select 15 judges for the study. infant clothing article assessment instrument for judges (ICAAIJ) was used in phase two of the study for data collection. The reliability of the instrument was determined using Cronbach Alpha coefficient which yielded as follows: functional attribute = 0.84, expressive attribute = 0.90 and aesthetic attribute = 0.82. ANOVA were used to test the hypotheses at 0.05 level of significance. Findings revealed that judge's acceptance was significantly related to aesthetic, expressive and functional attributes of infant clothing articles produced. Among recommendations made were that Schools in Rivers State should set up practical fabric recycling programmes and activities in schools to enlighten and encourage students on fabric waste utilization and that lecturers in the Department of Home Economics in tertiary institutions should carry out more practical work on utilization of fabric waste for the production of useful articles using different clothing construction techniques.

Keywords: *production, infant clothing, fabric waste, patchwork, acceptability*

INTRODUCTION

Patchwork is a sewing technique/craft in which small pieces of cloth in different designs, colours or textures are sewn together. According to Wickell (2019) patchwork also referred to as

pieced work is a form of needle work that involves sewing together pieces of fabric into a large design. The larger design is usually based on repeating patterns built up with different fabric shapes. These shapes are carefully measured and cut into basic geometric shapes making it easy to piece together. Patchwork can be used to make apparel, household clothing articles as well as infant clothing articles.

Infant clothing articles are items of clothing made for infants. These clothing articles are made from fabrics. Infant clothing articles are used to protect infants against, sun, rain and other environmental hazards as well as for adornment. These infants clothing articles include garments, bed covers, receiving blanket, hat, cot bumpers, duvet, bib, diaper bag, burp cloth, protective panties, jacket, toys, among others. An infant is a young person of either sex (birth to 2 years) that can be influenced by family norms, values and practices (Williams, 2018). According to Corley and Gurevich (2019) an infant is a very young human being from birth to 2 years of age, needing almost constant care and attention from adults. To care for an infant perfectly, certain infant clothing articles are needed. These clothing articles should be suitable as they are the basic necessities that must be provided for infants. To make these clothing articles comfortable and suitable the needs of infants must be considered before production.

Production is the process or procedures to transform a set of input to output having the desired unity and quality. According to Gersak (2018) production is an organized process of conversion of raw materials into useful finished products. Ayim (2018) defined production as the way fabric is being converted into a garment or any other finished product in a manufacturing system. The author added that production of garment or any finished product involving fabric involves the design or sketching of the product, production of pattern or template, cutting and sewing. These design process will be utilized in the production and designing of infant clothing articles using patchwork technique on fabric waste

Fabric waste also known as left over fabrics refers to fabrics that are thrown away or set aside as worthless in garment construction centres. According to Clark (2018) and (Brinkmann (2018), fabric waste are the cut-offs or scraps from fabrics found in garment production centres. Fabric waste/leftovers are resources that are abundant in every clothing construction centres, yet these valuable resources are wasted due mainly to poor economic knowledge, poor creativity and innovative ideas, poor entrepreneurial skills and inability to see opportunities in the environment. Within the clothing construction centres, the construction of garment products involves many processes for the transformation of textile fabric to a finished product. The basic steps for development up to product delivery to the final consumer include: collection planning; planning the production process; material stock; design; folding; cutting; preparation for sewing; sewing; finishing; ironing; packaging; product stock; shipping; and client (Pinheiro & de Francisco, 2016). during these steps, there is the generation of textile solid waste, and in addition at each step of the production cycle, waste is generated during the processes. Among the waste generated are paper, packaging packs, threads, fabrics and other materials, making the industry a large generator of negative impacts on the environment (Pinheiro & de Francisco, 2016; Centro

National de Technologies Limpass (CNTL), 2015). Fabrics waste/leftovers are considered as waste and useless in many clothing construction centres, but these wastes could serve as an enormous source of income generation for clothing entrepreneurs. This is because useful clothing articles could be produced from them for clothing entrepreneurship. These fabric waste resources need to be utilized for job creation, generation of income and economic sustainability. Clothing entrepreneurs that are creative and innovative can utilize and design fabric waste/leftovers into excellent and useful finished products for use by using different clothing construction techniques. Hence a need existed to produce useful infant clothing articles from fabric waste gathered from clothing construction centres using patchwork technique which has not been provided in the market by clothing entrepreneurs.

Purpose of the Study

The major purpose of the study was to produce infant clothing articles using fabric waste and patchwork technique. Specifically, the study sought to:

1. Produce five infant clothing articles using fabric waste and patchwork technique for various infant activities.
2. assessed the appropriateness of infant clothing articles produced from fabric waste using patchwork technique based on functional, expressive and aesthetic attributes.

Hypotheses

1. There is no significant relationship between Judges who assessed the infant clothing articles produced and their acceptance based on functional attributes of infant clothing articles produced using fabric waste and patchwork technique.
2. There is no significant relationship between Judges who assessed the infant clothing articles produced and their acceptance based on expressive attributes of infant clothing articles produced using fabric waste and patchwork technique.
3. There is no significant relationship between Judges who assessed the infant clothing articles produced and their acceptance based on the aesthetic attributes of infant clothing articles produced using fabric waste and patchwork technique.

METHODOLOGY:

Design of the Study: The study utilized Research and Development (R & D) for phase I of the study and descriptive survey design for phase II of the study.

Area of the Study: The study was carried out in Rivers State, Nigeria. Rivers state is located in Southern Nigeria. It is bounded in the North by Imo, Abia and Anambra States, on the east by Akwa-Ibom State, on the West by Bayelsa and Delta States and on the South by Atlantic Ocean. Rivers state has a good number of clothing construction centres that operates as small and medium industries that produces waste fabrics and there is a huge market for infant clothing.

Population for the Study: Population for phase II of the study was 15,833. This comprised of three groups: 555 registered clothing entrepreneurs (Rivers State Ministry of Commerce 2020/2021 update); 15,269 mothers (Rivers State Health Centres Post-natal records) and 9 clothing and textile lecturers in the two Tertiary institution in Rivers State that were used as judge's population. These sets of population were used because of their knowledge in infant clothing article requirement; designing and educating of students in appropriate use of clothing craft;

Sample and Sampling Technique: The sample size for phase II (the judge's population) was 15 made up of 5 mothers, 5 clothing entrepreneurs, 5 Clothing and textile lecturers that were purposively selected to assess the appropriateness of the prototype infant clothing articles produced based on the variables under study.

Instrument for Data Collection: The instrument used for data collection for phase II of the study was a structured questionnaire developed from literature reviewed and based on the specific objectives of the study. Infant Clothing Article Assessment Instrument for Judges (ICAAIJ) was used. This instrument contained two parts. Part I contained the demographic information of respondents. This includes judge's status (Mothers, clothing entrepreneurs and Clothing and textile lecturers), Part II contained three sections (I, II and III). Section I focused on functional attributes, section II on expressive attributes and section III on aesthetic attributes of infant clothing articles. A five –point rating scale of like Extremely (LE) = 5; Like very much (LVM) = 4; Neither like nor dislike (NLND) = 3; Dislike very much (DVM) = 2 and Dislike extremely (DE) = 1 was used in rating the functional, expressive and aesthetic attributes of infant clothing articles. The Infant Clothing Article assessment instrument for judges (ICAAIJ) for was subjected to face validation by three experts. The validates assessed the clarity, relevance, appropriateness of the instruments for data collection based on the purpose of the study and hypotheses. The reliability of the instrument was determined by test retest using 9 respondents. This consisted of 3 clothing entrepreneurs, 3 mothers and 3 clothing and textile lecturers judges from Yenegoa in Bayelsa State who were not part of the study. From the data collected in test retest, the reliability coefficients obtained from different sections of the two instruments using Cronbach alpha reliability technique are as follows: – functional attribute= 0.84, expressive attribute = 0.90 and aesthetic attribute = 0 .82.

Method of Data Collection: Judges were invited to clothing and textile laboratory to assess the eight infant clothing articles produced. Each of the judges were given a copy of the (ICAAIJ) instrument. A total of 15 copies of (ICAAIJ) were given out for assessment attributes of function, expressive and aesthetic. All the copies used for assessment were returned after rating. The data collected were used for mean responses of the judges.

Method of Data Analysis: The 3 null hypotheses generated were tested using Analysis of Variance (ANOVA). Null hypothesis with P value of 0.05 level of significance was considered

significant while p value less than 0.05 was considered not significant. All data collected were analyzed using statistical package of social sciences (SPSS) version 25.0.

RESULTS:

Table 1: Analysis of variance of regression of judges (mothers, clothing entrepreneurs and clothing and textiles lecturers) on functional attributes of infant clothing articles produced using fabric waste.

Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	30657.038	1	6271.686	1724.628	.000 ^b
Residual	7074.860	14	33.8395		
Total	37731.898	15			

- a. Dependent variable: functional attributes
- b. Predictor: (Constant): judges' acceptance

Table 1 shows the analysis of variance of regression of judges (mothers, clothing entrepreneurs and clothing and textiles lecturers) on functional attributes. The result indicates that F-value of 1724.628 is significant at 0.000 ($P > 0.05$). This indicated that the judgement of the judges was significantly related to functional attributes of infant clothing articles produced using fabric waste. Therefore, the null hypothesis of no significant linear relationship between judge's acceptance on the functional attributes of infant clothing articles produced using fabric waste was rejected.

Table 1b: Model Summary on functional attributes.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
	.901 ^a	.812	.812	4.21616

Predictor: (constant), Acceptance

The coefficient of determination (R^2) is 0.812. This indicates that 81.2% of the variance in functional attributes of infant clothing articles produced using fabric waste is caused by variations in the predictor variable (judge's responses). Therefore, 81.2% of the variance in functional attributes of infant clothing articles produced using fabric waste is predicted by judge's level of acceptance.

Table 2: Analysis of variance of regression of Judges (mothers, clothing entrepreneurs and clothing and textiles lecturers) acceptance on expressive attributes of infant clothing articles produced using fabric waste.

Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	32521.606	1	32521.606	2484.237	.000 ^b
Residual	5210.291	14	13.091		
Total	37731.898	15			

- a. Dependent variable: Expressive attributes
- b. Predictor: (Constant): Judges acceptance

Table 2 shows the analysis of variance of regression of judges (mothers, clothing entrepreneurs and clothing and textiles lecturers) on expressive attributes. The result indicates that F-value of 2484.237 is significant at 0.000 ($P > 0.05$). This indicated that judge’s acceptance was significantly related to the expressive attributes of infant clothing articles produced using fabric waste. Therefore, the null hypothesis of no significant linear relationship between judge’s acceptance on the expressive attributes of infant clothing articles produced using fabric waste was rejected.

Table 2b: Model Summary on Expressive attributes.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
	.928 ^a	.862	.862	3.61817

Predictor: (constant), Judges acceptance

The coefficient of determination (R^2) is 0.862. This indicates that 86.2% of the variance in expressive attributes of infant clothing articles produced using fabric waste is caused by variations in the predictor variable (judge’s acceptance). Therefore, 86.2% of the variance in expressive attributes of infant clothing articles produced using fabric waste is predicted by judge’s level of acceptance.

Table 3: Analysis of variance of regression of Judges (mothers, clothing entrepreneurs and clothing and textiles lecturers) acceptance on Aesthetic attributes of infant clothing articles produced using fabric waste.

Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	31313.949	1	31313.949	1941.890	.000 ^b
Residual	6417.949	14	16.126		
Total	37731.898	15			

a. Dependent variable: Aesthetic attributes

b. Predictor: (Constant): Judges acceptance

Table 3 shows the analysis of variance of regression of judges (mothers, clothing entrepreneurs and clothing and textiles lecturers) on aesthetic attributes. The result shows that F-value of 1941.890 is significant at 0.000 ($P > 0.05$). This indicated that judge’s acceptance was significantly related to aesthetic attributes of infant clothing articles produced using fabric waste. Hence, the null hypothesis of no significant linear relationship between judge’s acceptance on aesthetic attributes of infant clothing articles produced using fabric waste was rejected.

Table 3b: Model Summary on Aesthetic attributes.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
	.911 ^a	.830	.829	4.01566

Predictor: (constant), judge’s acceptance

The coefficient of determination (R^2) is 0.830. This indicates that 83.0% of the variance in aesthetic attributes of infant clothing articles produced using fabric waste is caused by variations in the predictor variable (judge’s acceptance). Therefore, 83.0% of the variance in aesthetic attributes of infant clothing articles produced using fabric waste is predicted by judge’s acceptances.

Infant Clothing Articles produced



Fig 1: Baby mat



Fig 2: Baby cap



Fig 3: Baby toy for play



Fig 4: Baby carrier



Fig 5: foam cover

DISCUSSION OF FINDINGS

Results presented in Table 1 shows the appropriateness of the infant clothing articles produced based on functional attributes. Findings revealed that the judges were satisfied with the functional attributes that included length of product, width of product, type of fabric used, relationship between product and lining and general acceptability of the produced articles. This finding is in line with Offiong (2018) who noted that the length and width of household clothing articles produced using fabric waste were accepted by the judges who rated them. The findings also confirm the report of Elado, Shaker, Mahmoud, Fathy & Sharaf (2016) who stated that newly designed craft work from fabric waste will further change available waste fabric appearance and style to useful articles that will be appreciated and regarded as appropriate for use. Findings also agreed with the report of Kaur and Kaur (2014) who recorded high mean acceptance of clothing accessories produced from fabric waste. Test of hypothesis 2 indicated that the judgement of the judges was significantly related to functional attributes of infant clothing articles produced using fabric waste. Findings on hypothesis 2 indicated that F-value of 1724.628 is significant at 0.000 ($P > 0.05$). This indicated that the judgement of the judges was significantly related to functional attributes of infant clothing articles produced using fabric waste.

Results in Table 2 shows the appropriateness of the infant clothing article produced based on expressive attributes. Expressive attributes of infant articles produced revealed that the judges were satisfied with the expressive attributes. This indicates that the infant clothing articles produced is appropriate for promoting play value, role identification, promote social status, promotes independence, promote personality and gives satisfaction Therefore, the infant clothing articles are appropriate in expressive attributes for clothing entrepreneurship. This finding confirms the finding of Sonye (2019) who reported that the expressive criteria of the safety playground apparel for school age children which actually control the non-verbal message sent included promoting play value, role identification, social status, independence, personality and satisfaction. In line with the finding, Lamb and Kallal (1992) cited in Cho (2010) noted that expressive garment elements can be defined as that which relate to the communicative and symbolic aspect of dress. Also, in agreement with the finding, Guy and Benim (2000) stated that clothing use is part of the process of self-actualization which reveals both unique and socially shared meanings. This lends itself to the idea that a woman's identity is developed through the use of clothing and this could apply to infants as well. Hwang (2014) noted that expressive clothing dimension proposes symbolic communicative characteristics such as values, roles, and self-esteem that establish identity. Findings from the test of hypothesis 2 showed that F-value of 2484.237 is significant at 0.000 ($P > 0.05$). This indicated that judge's acceptance was significantly related to the expressive attributes of infant clothing articles produced using fabric waste.

Result presented in Table 3 shows the appropriateness of the infant clothing article produced based on aesthetic attributes. Aesthetic attributes of infant clothing articles produced

revealed that the judges were satisfied with the aesthetic attributes. The aesthetic attributes included that the texture, colour, lines, rhythm, style designs of infant clothing articles produced were appropriate. This indicates that the infant clothing articles produced with fabric waste were appropriate in aesthetic attributes for clothing entrepreneurship. In line with the findings, Azonuche (2016) found out that desired aesthetics were actualized in the development of functional clothing for caregivers. Also, in support of the findings Agbo (2013) reported the acceptability of all the aesthetic attributes of prototype garment as beauty, colour, and texture of fabrics, shape, style among others. Sindicich (2008) reported that aesthetic concerns of garment such as texture, colour, styling, design, fabric colour and type were the most criteria affecting women decisions in garment selection during the interest phase of their purchase. Findings from the test of hypothesis 3 shows that the result shows that F-value of 1941.890 is significant at 0.000 ($P > 0.05$). This indicated that judge's acceptance was significantly related to aesthetic attributes of infant clothing articles produced using fabric waste.

CONCLUSION

This study demonstrates plausible achievement and the possibility of using creativity and innovation in reducing unemployment and poverty with the production of useful infant clothing articles using fabric waste and patchwork technique. Also, utilization of fabric waste will bring an end to the negative effect and environmental hazards that results from disposing fabric waste indiscriminately. This will bring about sustainable development. The study finally established the important involvement and contributions of stakeholders including mothers, clothing entrepreneurs, clothing and textile lecturers in the design, production and final examination of the product.

RECOMMENDATIONS

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

1. Schools in Rivers State should setup practical fabric recycling programmes and activities in schools to enlighten and encourage students on fabric waste utilization.
2. Lecturers in the Department of Home Economics in tertiary institutions should carry out more practical work on utilization of fabric waste for the production of useful articles using different clothing construction techniques.
3. Awareness should be created by stakeholders on creative and innovative utilization of fabric waste for production of useful clothing articles within and outside the school with appropriate information on its potentiality for income generation, job creation, unemployment and poverty reduction.

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