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*Corresponding author: John Kwame Boateng, Adult Education and Human Resource Studies, University of Ghana, Accra, Ghana
E-mail: jboateng@ug.edu.gh

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Michael Hardman, Division of Urban Geography and Environmental Management, University of Salford, Salford, United Kingdom

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GEOGRAPHY | RESEARCH ARTICLE

Using Africa's past to promote change toward safer alternatives for food packaging in Accra

John Kwame Boateng^{1*}, Esther J. Korkor Attiogbe², Ann Stahl³, Wazi Apoh⁴, Caleb Boadi⁵ and Wendy Osei Frimpong¹

Abstract: This study aimed at promoting attitude change among street vendors and their customers by exposing them to a communication intervention. The respondents were exposed to digitized images of ancient pottery and materials used to meet daily needs of food storage in Africa's past, followed by a narration of how these materials were used in the past that could be used in the present day to package food. Respondents reflected on their experiences in the communication intervention and were engaged in a focus group discussion and in-depth interviews to tap their perceptions and intentions about safer alternative practices of food storage in the present times. To discourage the use of harmful food packaging products, respondents called for attitudinal changes among all actors and suggested that government interventions, prudent economic practices, and education about food packing practices should lead to the adoption of cultural packaging practices that are safe and enhances food quality, taste, and its palatability. Respondents further indicated that, innovative strategies aimed at transforming traditional packaging practices will add the modern touch and make traditional and cultural food packaging safer and acceptable. Thus, the use of earthenware, calabash, leaves, and pottery should be innovatively designed to be more portable and convenient for packaging food. Modern food packaging businesses should therefore explore the combination of knowledge and ideas from the past and the present to make food packaging safe and more environmentally friendly.

Subjects: Human Geography; Cultural Geography; Social Geography

Keywords: cultural methods; plastics; waste; educational activities; heritage education

ABOUT THE AUTHOR



John Kwame Boateng

John Kwame Boateng holds a PhD from the Pennsylvania State University (PSU, Penn State), USA. He joined the University of Ghana as Lecturer in 2013. He was a fellow of the University of Michigan's African Presidential Scholars (UMAPS) Program from August 2014 to February 2015. In 2016, and 2020 Prof. Boateng was promoted to the rank of Senior Lecturer and Associate Professor respectively. Prof. Boateng has over 20 years' experience in research, teaching, and academic publishing. His research areas cover, Development Education, Educational Technology, Curriculum Development, ICT and mobile technologies integration into curriculum and pedagogical development, Distance Learning, and Instructional Development. He was the Head of the University of Ghana Learning Centres until 31 August 2021. He is a material developer and a tutor of online courses.

1. Introduction

Food packaging and processing play important role in promoting Ghanaian food supply and consumption. Packaging helps to keep the food safe after the food has been processed and that way allows food to travel safely and conveniently over long distances from their point of origin and still be wholesome at the time of consumption. The technology used to package food must critically consider food protection with other issues, such as energy and material costs, increasing social and environmental consciousness, and enforcement of strict rules to control pollution and the disposal of municipal solid waste (Pal et al., 2019). According to Coles (2003), the principal roles of food packaging are to protect food products from outside influences and damage, to contain the food, and to provide consumers with ingredient and nutritional information. Traceability, convenience, and tamper indication are secondary functions of increasing importance. Robertson (2012), reveal that, in addition to meeting the four key functions, food packaging functions in the physical, ambient, and human environment meaning that, food package should be able to withstand shocks, compression, gases, light, temperature, micro-organisms and dust, and still be usable by consumers with decreased dexterity, vision, strength and cognitive ability. A poor design, which cannot perform in these environments will result in complaints and rejection by consumers (Robertson, 2012).

Rhim et al. (2013) noted that, traditional food packaging has been designed to transport and store foods. One of the main functions of food packaging is to isolate the food from the outside environment by protecting from or avoiding external contamination. Food packaging can prevent or reduce product damage and food spoilage, retain the beneficial constituents of the product, extend shelf life, and maintain the quality of the products. In addition, packaging enables the communication of important data about the food, and helps consumers make informed purchases. Dainelli et al. (2008) observed that traditional food packaging is thus passive, inert barrier designed to protect food against adverse environmental elements including microorganisms, oxygen, off-odours, and light. It therefore guarantees food safety during handling and preserves food quality for an extended period. The objective is to make the traditional materials that meet food as inert as possible: There should be a minimum interaction between the food and the packaging (Dainelli et al., 2008),

The right selection of packaging materials and technologies maintains product quality and freshness during distribution and storage. Materials that have traditionally been used in food packaging include glass, metals (aluminium, foils and laminates, tinfoil, and tin-free steel), paper and paperboards, and plastics. Moreover, a wider variety of plastics have been introduced in both rigid and flexible forms. Food packaging often combine several materials to exploit each material's functional or aesthetic properties. As research to improve food packaging continues, advances in the field may affect the environmental impact of packaging according to Rhim et al. (2013).

Like any material, glass has some disadvantages. Despite efforts to use thinner glass, its heavy weight adds to transportation costs. Another concern is its brittleness and susceptibility to breakage from internal pressure, impact, or thermal shock. There have been some health concerns regarding residual monomer and components in plastics, including stabilizers, plasticizers, and condensation components such as bisphenol A. Some of these concerns are based on studies using extremely high intake levels; others have no scientific basis. To ensure public safety,

Ezung and Wokha (2020) show that, in the past, natural materials were used in packaging such as tree leaves, bamboo, lotus leaves, palm leaves, gourds, coconut shells, shells of shellfish, animal skin etc. Later, manufactured material was used including fabrics, ceramics, metals, lacquer ware, wood ware, jade ware, paper. Ezung and Wokha (2020), further show that as early as the late years of the primitive society, packaging had already started. Bamboo tubes, gourd shells, coconut shells, shells of shellfish were used to hold solid objects. Sometimes commodities were directly wrapped in bamboo leaves, lotus leaves and other such materials. Treated skin and leather were used for many centuries as non-breakable containers or bottle to contain water and wine that were

frequently stored and transported in leather containers (camel, pig, and kid goat hides). Flour and solidified sugar were also packed in leather cases and pouches.

Ezung and Wokha (2020) explains further that, earthen ware got introduced in the Neolithic age as the first great invention of manufactured packaging materials, with the advantage of being durable, antiseptic, and anti-worm eaten and excelled in being various in forms. According to Ezung and Wokha, earthenware was used worldwide for storage of liquids and solid foods such as curd, yoghurt, beer, dried food, and honey. Accordingly, corks, wooden lids, leaves, wax, plastic sheets, or combinations of these materials were used to seal the pots to make them gas, moisture, and lightproof containers. It was also observed that, unglazed earthenware is porous and very suitable for products like curd that need cooling. Glazed pots were found to be better for storing liquids such as oil, wine as these packaging materials were found to be moisture proof and airtight if properly sealed. These packaging materials were lightproof and if clean, restrict the entry and growth of micro-organisms insects and rodents.

(Ezung & Wokha, 2020) also noted that depending on location and locality, various types of plant leaves were used in the past as wrappers. Plantain and banana leaves were used and still heavily used as traditional packing materials. Many ancient, cultural cuisines were wrapped in plantain and banana leaves for storage. These thick, glossy leaves hold moisture in and do not easily degrade, thereby making them a perfect food saver. Plantain and banana leaves were used and in fact still in use in supermarket and stores in some tropical countries as plates and food wrappers. Vegetables were weighed bundled in banana wraps. Apart from this, cooked food like solid rice items were used and still in widespread use in African countries including Ghana. Cooked food such as Kenkey in Ghana are wrapped in corn leaves, plantain and banana leaves and are available in the market. Plantain and banana leaves are said to impart special flavour to foods and can even be used to steam food. Also leaves of *T. danielli* were mostly used and still largely in used in several tropical African countries as food wrappers. The popularity of these leaves as food wrapper material is not only in villages, but has gained widespread acceptance in the towns and cities for buy and eat foods packaged in such, even among the elites who consider the packaging (wrapping), as not only exotic, but also for flavour enhancing also the use of this leaves as packaging material varies with tradition and culture.

While a strong body of evidence documents how natural and traditional food packaging materials impacts food safety, taste, quality and its palatability (Pearce et al., 2020), comparatively few studies have examined the creative ways by which such packaging materials could be integrated into modern food packaging and whether consumers would patronise such natural packaging materials or its modification and whether such consumers are likely to experience a change in attitudes and orientation to safer practices of food packaging that shifts away from the use of conventional food packaging materials such as plastics and aluminium foils. This study addresses this research gaps, providing a qualitative study that set out to achieve the following objectives:

- (1) Examine the types of packaging material used by vendors and their effect on the quality of the products.
- (2) Explore perceptions of individuals exposed to digitized images of locally made pottery used in the past for food storage and containment
- (3) Deduce if such individuals will experience a desire to change orientation towards a safer practice
- (4) Identify cultural packaging methods that can be adapted to reduce the use of plastic products.
- (5) Identify educational activities that can be used to promote cultural packaging methods.

2. Literature review

2.1. Theoretical basis

The theoretical basis for this study stems from the theory of reasoned action (Fishbein 1979; Fishbein and Ajzen 1975). This theory states that volitional behaviours are influenced directly by behavioural intentions, which are dictated by individual and normative influence. Hale et al. (2003), show that, the individual's influence on intention is the person's attitude towards performing the volitional behaviour and that the normative influence on intention is the individual's subjective norm.

According to Hale et al. (2003), the theory of reasoned behaviour is right for situations and cases where persuasive appeals are pursued. Nguyen et al. (2018), confirmed that the theory has widely been applied to design and assess the effectiveness of communication interventions. In the waste management sector, the theory of reasoned action has been used to explain recycling behaviour (Nguyen et al, 2018).

In the context of this study, it is believed that the use of plastic film wraps, bowls, containers, polythene bags, and take away packs in the food and beverage industry can be reduced by targeting individuals' intentions, attitudes, and subjective norms. This could be achieved by engaging individuals in a communication intervention during which individuals are exposed to digitized images of ancient pottery that people of the past used to meet daily needs of food storage and containment. Participants will then be encouraged to reflect on their experiences and encouraged to opt for a safer alternative practice of food storage and containment.

Educational campaigns can aim to influence individuals' intention to switch to safer alternatives and participate in efforts to promote alternative actions to reduce unsafe practices. Similarly, individuals' intentions and attitudes could be influenced through educational campaigns that seek to enhance knowledge and awareness of alternative food storage and containment practices. In the same way, enhanced understanding and awareness can influence an individual's belief regarding how other people would feel about his/her decision to give up on pursuing unsafe food practices.

Dilkes-Hoffman et al. (2019) criticized the theory of reasoned action on the account that an individual's intention does not always lead to a desired behaviour. Ajzen (1991), shows that some actions are not just influenced by intentions but also by the availability of relevant skills, opportunities, and resources. With appropriate capabilities, individuals would be better able to perform the desired behaviour. As a result, the theory of reasoned action was modified to incorporate direct and indirect determinants of behaviour including facilitating conditions. It underscores the critical role of information and knowledge in establishing norms for behavioural change.

2.2. Heritage education

Education is mostly associated with the formal classroom setting and usually linked to the training of people considered to be children. However as noted by Dewey (1944), education is the process of living through a continuous reconstruction of experiences. This explains that acquisition of knowledge is progressive and happens throughout an individual's lifespan. As an individual journey through events of life, knowledge, skill, and attitudes are acquired from the individual's experiences and social interactions. There is therefore a fundamental need to consciously ingrain lessons from the past into aspects of the learning process to gain values for today and future generations.

Heritage education is defined by Boxel et al. (2011, p. 10) as an "approach to teaching and learning that uses material and immaterial resources to increase pupils' understanding of history and culture". In many countries students visit historical places and museums and discover traces of the past in their environments. Some tutors bring heritage objects to the classroom to incite

their learners' interest, illustrate a particular historical narrative or engage learners in historical enquiry. Such activities are referred to as heritage education (Boxtel et al., 2011).

Heritage education contribute to drawing attention to past practices that are usable and are relevant in aiding local solutions to some of today's local challenges. Usable past is described broadly to mean "those pasts that can be exploited by all interested parties, be they developers, local communities, and of course archaeologist' (Chinkure, 2013, p. 116). Heritage education is based on active means, project- based teaching, cooperative practices, self-management and self-discipline, interdisciplinary exchange, inter-cultural partnership between teachers, cultural leaders, parents, and the society at large (Copeland, 2006; Kathleen, 1988).

The heritage education approach aims to support students' understanding of concepts and principles about history and culture and to augment their appreciation for the artistic accomplishment, social and economic contributions from the past (Kathleen, 1988). Heritage education helps learners acquire a wide range of competencies and experiences our ancestors used as solution measures that are still relevant today with few or no modifications (Lakerveld & Gussen, 2009).

2.3. Sustainability and cultural heritage

Kintigh et al. (2014), noted that primary data that could be used to address problems in society and answer larger-scale questions remain sequestered on scholars' desk-top computers or stored in media with an uncertain shelf-life (floppies, thumb-drives, etc.).

In the project 'Improving African Futures Using Lessons from the Past, four groups namely the University of Victoria (UVic), the University of Ghana (UG), Ghana Museums and Monuments Board (GMMB), and the Banda Traditional Council (BTC) collaborated to establish a framework, and develop capacity, for co-creating accessible, sustainable, and relevant digital cultural heritage resources in an African context for Ghana. Working together, the collaborators, created frameworks for sustainable archiving and equitable access to heritage resources to foster digital literacy in Ghana. They developed heritage resources useful for school curricula (in both Ghana and Canada) and for public education.

However, in Ghana, no such official regulations apply to the packaging of food at the local levels. Packaging materials used by food vendors in Ghana include both flexible and rigid types. The principal hard or rigid containers used on a large scale are glass jars and bottles. Glass-sided boxes, cane baskets, and jute or woven plastic sacks are also used in the bulk packaging of products such as gari (roasted cassava dough) and smoked fish. A researcher on the use of plastic materials has raised an alarm about the health risks associated with the use of plastic bowls, containers, polythene bags, and takeaway packs in the food and beverage industry (Chasant, 2020). He argued that such packs are produced from petrochemicals that leach into the food items and drinks threatening the health of people who consume food package these way (Chasant, 2020)

In the past, people used locally made pottery to meet their daily needs. Among other household uses, fired clay pots were used to store food and water, and to cook and serve daily meals. Skilled potters made containers in many shapes and sizes to meet these different needs. The grandmothers who were skilled in potting over the centuries understood principles that are today studied in school and called chemistry and physics. They applied those principles to make durable and versatile containers on which people have depended for centuries.

This study argues that, if a group of modern-day urban people whose health is threatened by the use of plastic packages in the food and beverage industry are exposed to digitized images of locally made pottery used to meet daily needs of food storage and containment; if they are encouraged to reflect on the practices of olden times through discussions with a skilled facilitator, such an intervention is likely to influence attitude change towards the behaviour that offers a healthier lifestyle. If an intervention is aimed at inducing a behaviour change from the use of

unsafe food packaging material to a safe one, the attitude will be the degree to which individuals feel positively or negatively towards avoiding the unsafe practice.

3. Methodology

The study is exploratory in nature, so a qualitative approach was adopted. Qualitative also aided the researchers in deeply understanding the problem (Creswell, 2014). The study is in Legon, a suburb of Accra, where the University of Ghana can be located. There is a central shopping area where food vendors serve the workers, lecturers, and students. There are also a few restaurants and fast-food sellers in Legon. The target population included men, women and youth who patronise packaged food from these food vendors and fast-food operators in Legon.

3.1. Sampling approach and participants

The purposive sampling technique was used to recruit a total of 21 respondents. The sample was determined by two separate focus group discussions and five interviews. Respondents for the focus group discussion were contacted via phone calls and emails. Since the study is exploratory in nature, the authors decided to focus on lecturers and students who were available for the FGDs. This is because lecturers and students live far from campus and usually patronised fast food prepared by these vendors to satisfy their needs in-between lectures. So, it was expedient to find out if the communication intervention will lead to perceptions of attitudinal change.

The five food vendors interviewed were selected based on their availability. They were in the food vending areas at Legon. The participants were on vacation at the time of data collection. The first FGD consisted of nine lecturers and the second consisted of seven students. The average age of the respondents was 37. Table 1 shows the gender and educational characteristics of all the participants.

3.2. Data collection and procedure

Both the focus group discussion and the in-depth interviews lasted between 40 minutes to one hour and 20 minutes. Respondents' consent was sought to record the interviews and additionally handwritten notes were taken by two research assistants. Participants were also assured of confidentiality, and pseudonyms were used in place of their real names to provide anonymity.

Before each of the focus group discussions took place, the respondents were exposed to a communication intervention for about 15 to 20 minutes. The communication intervention was a PowerPoint presentation by the second author. Several pictures of locally made pottery, leaves, plastic, rubber, which were used for food packaging, and their effects were presented to the audience. The presentation was done via zoom after which the discussions took place. The in-depth interviews employed ten-question guides developed based on findings from the focus group discussion. The focus group guide and interview guide provided a reliable and comparable qualitative database. The interviewees were not exposed to the communication intervention and thus, served as the controlled group.

4. Data analysis

The recorded in-depth interviews, as well as the focus group discussions, were replayed several times and transcribed to make sure that the transcription was accurate. They were cleaned up to remove errors and inconsistencies to provide accurately and correct views of respondents. Participants were also contacted to clarify unclear statements. The transcribed data were analyzed thematically using the NVivo software. The searching tools of NVivo allowed for the interrogation of the data at levels which in turn improved the quality of the analysis process by validating some of the impressions held by the researchers on the data and from the literature secondary studies. Notable issues that were up for discussion among others were the issues of containers for food being able to facilitate the transport of the product, prevent its contamination and or loss, and protect it against damage or degradation, and being safe for that matter for the health of the populations and their livelihoods. Table 2 summarises the corresponding themes and sub-themes.

Table 1. Respondent’s demographic characteristics

Respondents Information	Number (FGD)	Interviews (Food Vendors)
Gender		
Male	9	1
Female	7	4
Educational Level		
PhD	8	
Masters	1	
Undergraduate	7	1
JHS, Secondary Education	-	4

Table 2. Themes and sub-themes of FGD and interviews

THEMES	SUB-THEMES
Packaging materials used by food vendors	Rubber Bags, Aluminium foil/tins/cans Plastic bags and bows, Glass bottles, Leaves Brown paper
Quality packaging by food vendors	Health implications and health hazards Environment damage Modernisation, cultural, smart packaging, lifestyle
Perception of pottery as food storage and containment	Positive impression; cultural identity; limited and scarce resources
Desire for safe food packaging	National education and government intervention Economic implications Developing strategies that disallow unsafe practices
Public education	
Educational activities to promote cultural packaging methods	

5. Results

The information and knowledge established norms for behavioural change. The findings from the FGD and interviews conducted suggest that having identified unsafe and safe packaging materials through the communication intervention, the orientation and inclination to accept a new and safer way is an option. The data analysis unearthed six major themes with their sub-themes. They are presented below.

5.1. Packaging materials used by food vendors

The first theme concerns the packaging materials that vendors used for food products. Participants and the respondents from the FGD indicated that packaging materials used by food vendors are rubber bags, aluminium foils, plastic bags and bowls, glass bottles, leaves, and paper just as they had seen in the PowerPoint presentation. These packaging materials are used because their portability of food and convenience. Respondents felt that those who patronise in buying food indicated that they look for portability, and they believe that although not all these packaging materials are portable, they intend to patronise those which are portable and convenient. Packaging materials such as plastics, aluminium foil, and rubber are mostly used and patronised. Food vendors have also added that these mentioned packaging materials are highly patronised. A respondent had this to say

‘Everybody wants to carry the food to his or her comfort area. Or you want to carry your food to the office, you are running late, and you want to eat your food at home, you want to eat the food in the car, you want a presentable portable container or a package to carry the food. So, what do we see? We still see the leaves are used at waakye (local staple) joints (food stands), and even some people use the leaves to sell beans. So aside from the leaves, plastics, and aluminium foil bowls are used to package food. Food vendors use aluminium foil tins, plastics,

and rubbers to sell food because it is portable. Glass bottles are also used to package some food. We no longer want to eat there. We want to carry our food along. [Participant A]

Food vendors indicated that they use materials such as plastics and others mentioned here to package their food because they believe that these materials are portable and very handy, convenient, and sometimes low cost involved. A vendor shared her opinion as follows:

'We use plastic plates to package, and for those who prefer to take them home, we use rubber. People will choose to be served in rubber bags, instead of plastic packages, because of the cost of plastic packages.' [Food Vendor 1]

It is clear from the views shared by this vendor about the type of packaging materials used by food vendors that portability is key. Thus, even though not all the participants were exposed to the communication intervention, it was conclusive from the FGDs and in-depth interviews that, commonly used materials to package food sold by food vendors are rubber bags, aluminium foil, tins, cans, plastic bags, bowls, glass bottles, leaves, and papers.

5.2. Perception of the quality of packaging products

The second theme that emerged is the perception of the quality of the packaging materials used. Three sub-themes were teased out and presented as follows.

5.3. Health implications or health hazard

From the presentation, participants believed that people are not aware of the negative health situation with the use of some hazardous food packaging materials. This was confirmed by a food vendor about her knowledge of healthy packaging of products as follows.

'I don't know any unhealthy situation with the use of these packages of food (rubber, plastic packages). I heard when the food is hot and you put the food in rubber and plastics it is not healthy, but I do not know how this is possible. My clients want them anyway, so I serve them with it.' [Food vendor 2]

'The leaves have a positive effect on food. I heard when the food is hot and put food in rubber and plastics it is not healthy. But when it is not hot as indirectly from fire, it is okay. Customers will choose to be served in a rubber bag, instead of plastic packages, because of the cost of plastic packages.' [Food vendor 3]

The food vendors' narratives indicate that they are unaware of the health hazards that plastic packaging materials pose to humans. On the contrary, FGD participants perceived more serious problems with packaging materials which resonated with most of the participants. A participant had this to say:

'In handling some packaging materials like leaves, food vendors use a piece(s) of cloth to clean all the leaves that customers are served with. By doing this, microbes are transferred and can spread germs accidentally. Peoples' tastes and preferences are changing due to modernisation, and manufacturers and food vendors are packaging food with materials that are unhealthy. Chemicals found in some of these packaging materials such as plastics, aluminium, etc in effect cause unhealthy situations and threaten good health.' [Participant B]

The understanding from the above quotations is that the quality of packaging food by vendors has been compromised. Participants indicated that most packaging materials raise unhealthy concerns that can be realised consciously or unconsciously. With some of the materials, you may already know its consequences, however, for others, you may not. The communication intervention enhanced the knowledge of the participants about the fact that some chemicals from rubbers, metals, and plastics could be toxic and might go into the food, but because there are no options customers still tend to accept these food packages.

5.4. Environmental damage

Single-use plastic is a huge problem on Ghana's environment. Bottles used to contain drinks including fruit juices, beverages, and water; unbranded plastic takeaway food boxes, plastic bags used to package food from fast food joints, and sachet water bags pollute Ghana's rural and urban lands and waters, with around 23% ending up in the ocean. Only up to 5% of the one million tonnes of plastic generated in Ghana every year are recycled (Chasant, 2020).

The problem of plastic in the pollution of Ghana's environment was re-lived by respondents when they were given the opportunity to comment on the problems created using plastics to package foods in Ghana. A respondent had this to say.

'If you go around and you see a lot of places, the way all these plastics are littered around, they are going to take millions of years to decompose as I saw in the presentation. It raises, a lot of questions and concerns.' [Participant C].

Another respondent continued that:

'The disposed packaging materials have an environmental effect. When you see how these plastics, cans, and rubbers have littered the environment, it will go all the way to creating filth, take years to decompose, and will eventually affect us and the environment. Something needs to be done about it.' [Participant D].

From the narratives above, there is agreement among participants that food packaged in plastic products are unsafe and damaging to the environment. They also expressed the desire that action is needed to curb the menace.

5.5. Modernisation, culture, smart packaging, and lifestyles

The third sub-theme under perception of quality packaging by food vendors was modernisation, culture, smart packaging, and lifestyles. The quality of materials used for packaging food has often been overlooked. Because of modernisation, lifestyle preferences and tastes, people have often down-played the harmful nature of substances used to package foods. People tend only to be concerned with the way packaged food appeals to the eye, how it tastes and how portable or convenient it is. A client participant revealed thus:

'We continue to modernize. We are in the stage of globalisation. For that matter, things we use to do hitherto, earlier on are giving way to new approaches. A smart way of doing things. In the rural communities, the traditional cultural packaging approaches are still in use, however, in the cities, we are tied to the use of cans, plastics, and what have you because of the lifestyles here. We run for things that give convenience, smart things, something that can aid and give us this kind of easy life without considering healthy living.' [Participant F]

Food vendors also indicated that they use these packaging items because they want to catch up with the dynamic trends of the time, a lifestyle of being branded "modern." A food vendor intimated:

'We serve what is in the customer's interest, the lifestyle now and modernisation have made us so. Several food packaging products are mostly available for our customers to choose from. We only use it when our customer requests it.' [Food vendor 4]

It was revealed from the above conversation that food packaging is following modern trends. Even though this food vendor did not participate in the communication intervention, she is aware of the effect of globalisation on the preference of customers.

5.6. Perceptions of pottery as food storage and containment

The third theme that emerged from the data concerned the perception of participants about locally made pottery for food storage and containment. Under this theme, three sub-themes emerged including positive impression, cultural identity, and limited or scarcity of resources.

5.6.1. Positive impression

Food vendors and FGD participants were united in the feeling of positive impressions for the use of locally made materials such as pottery in the past for food storage and containment. A vendor had this to say:

'The old type of packaging using pottery and other natural packaging ways is healthy. In this modern world, the use of those materials cannot be possible unless there are innovative ways of presenting these natural packaging styles. For instance, soupy foods cannot be served on leaves so interventions will help' [Food vendor 3]

Similarly, a FGD participant contributed that:

'There is this positive impression about the use of old pottery and personally, it reminds me of my cultural identity as a Ghanaian. I prefer to eat "abom" (Abom is a locally produced food staple) from my earthenware. There is this restaurant called Azmera. When you enter there everything calls Africa. Ghana, Africa. So even the vendors dress in our traditional wear. The kente and the beads. They serve the drinks in calabash. Those things are still presentable. We enjoy them. We are proud of them' [Participant B].

Participant B's experience with locally made packaging revealed the joy she attached to her culture and how proud she felt patronising local food packaging. She was able to relate the pictures she saw in the presentation to her own experience and expressed the belief that it is possible to merge modernisation with culture.

5.6.2. Cultural identity

The use of pottery and other materials for food storage helped people to practice their cultural norms and art in general and helped them connect with their ancestors who lived and used the same resources. The use of these materials helps people living in the present to boost their national identity and linked them with the glory of the past. It teaches people of the present time things that strengthen their sense of national belonging, and love for traditional arts and culture. Therefore, it is good that people be introduced to their authentic heritage in innovative and lovely ways to effectively guide them to find truth and knowledge and, at the same time, help them realize their true essence through tradition. Respondents gave these sentiments when they were probed to express their views.

A customer participant revealed that:

'Growing up, even though I was born and raised in the city with my mom, she is more of a cultural person so in our house we have these pots. We mostly use them for storing medicine, herbs, or sometimes water because she said she likes the taste of water in a pot. So, I'm very used to avoiding the use of plastics, canned foods etc. and just sticking to ceramics and pottery. Right now, some restaurants and bars are using these pots. It depicts more of culture to a lot of people when they see these pots in the bars and restaurants. It encourages them to purchase their products.' [Participant G]

Although the use of pottery portrays the culture and identity of Ghanaians, some respondents were of the view that the use of authentic heritage resources such as pottery should be appropriated in combination with modern packaging styles exhibited in the communication intervention. A food vendor also indicated as follows:

'I will suggest that we use the two ways of handling food to avoid unhealthy eating because there may be some negative cultural and traditional feelings to pottery. People even associate witchcraft with the use of some traditional packaging types.' [Food vendor 5]

5.6.3. Scarcity of resources

Some respondents felt that the use of traditional or natural packaging alone would not work because there will not be enough resources to use for food packaging if plastics were abolished, for instance. They felt that resources are not available for locally made packaging materials in Ghana as exist elsewhere, such as in India. The focus group discussion revealed that people shy away from the use of locally made packaging because of the scarcity of resources to manufacture them at economic costs.

A participant customer disclosed that.

'If we want to go back to the traditional template of using the pottery, the gourds, the calabash, etc., these are limited resources. With time, they cannot be able to sustain the population explosion, and therefore there is also a need in looking forward to these modern packaging and how we can make it better and healthy.' [Participant A]

5.7. Desire for alternative safer food packaging

The fourth theme from the analysis was desire or willingness for alternative safer food packaging. Respondents were united in their view that; change is possible but would be difficult. A respondent contributed that:

'Change is a difficult process; it requires a lot of actors to cause a change. To change toward a safer practice with the packaging of food, the government should intervene, individuals may lose their job, but continual provision of education toward safer practices, and putting the needed support from the Assemblies, MMDAs could build up enough strategies and policies that will disallow the use of unsafe practices. But it isn't going to be easy, I tell you.' [Participant client N]

5.8. National concerns and government interventions

Respondents made it clear that, safer practices require that governments and institutions that have the mandate to address food safety and proper eating and healthy lifestyles, play their role without fail role. A customer argued that the government's intervention is key to promoting safer practices in food packaging. She had this to say

'It must be a Ghanaian thing. And the Ghanaian must be at a certain acceptance level for us to make good use of our old packaging materials. So, yes, the willingness is there to use them. But we also need certain backings to enable us to make a calculated shift in using them' [Participant customer K].

5.8.1. Economic implications

Respondents thought that attitude change with the way food is packaged, and packaging materials handled in the country will have some economic implications. When the users of plastic food packaging products stop using these products, sellers of those products will suffer but there will a healthier environment which will duly bring in some gains. A food vendor had this to say

"Moving away from the use of plastics will cause unemployment in the long run and will have implications for the economy."

A customer had this to say:

'We as consumers are willing enough. And can demonstrate that we are willing, and we will support organizations and corporate Ghana to go the sustainable way in terms of packaging materials, I think it can be done. If they go investing in local packaging materials, and the

people are ready to patronize them, or pay a little bit more for the use of local packaging, then manufacturers of safe food packaging products will in business' [Participant P].

A vendor agreed with the above statement that

'Yes, I believe that delivering, packaging, or processing pottery products to package food will also create jobs for people. It will also reduce the use of plastic and waste. If we begin to adapt to this safe style of packaging it will create a lot of employment for people' [Food vendor 2]

5.9. Develop strategies to disallow usage of unsafe practices

Respondents were united in saying that, mechanisms to disallow the use of unsafe practices should be encouraged whereas safer practices should be supported. Governments and stakeholders should work to ensure that there is sufficient investment in safer practices and removal from the system of all forms of unsafe practices in packaging and containing food. A respondent had this to say.

'The action is now; policies should be directed towards health benefits. Some of these NGOs that are health-conscious, those in the sector of health and are also making a lot of effort to bring about change in our lifestyle should take this up.' [Participant O].

A vendor added her voice as follows:

'So, I agree with the policy issue, and we need to do something about the attitude before we can implement the policy. So, both on the side of the vendors as well as the consumers, we have different characteristics. So, we need to be sensitized in different modes. And I believe that if we use different means to get to different groups of people, we will make a headway' [Food vendor 3].

5.10. Public education and sensitization

Public education and sensitisation aim at promoting attitude change toward safer practices. It is indicated in this study that providing public education and sensitizing the public on how to go about things. The use of the unsafe practices will change their attitude toward the safe practice. A vendor had this contribution to make:

'I believe that deliberate public education and sensitization can force us to change even when we don't want to change towards these safer practices [Participant M].

We should start educating people from our churches, marketplaces everywhere people meet, about these harmful practices and I hope that when we educate them on the usage of these packaging materials, all of us, want healthy lives, and I do think that gradually, they will be a change which hitherto would have been very difficult [Participant I]

I believe that attitudinal change would be good but that would stem from the vendor's education if they were informed that these are the issues, and they are unsafe practices' [Food vendor 5].

5.11. Safe packaging methods can be adapted

The fifth theme that emerged was safe packaging methods that can be adapted. Participants indicated that safe packaging methods can be adapted to reduce the use of harmful packaging products. To reduce the use of harmful packaging products, respondents in unison called out for an attitudinal change by all actors. Respondents believed that all should be concerned about quality packaging to promote sustainability. Respondents suggested that governments intervention of and education towards safer practices should lead to an adoption of cultural packaging methods that are safe. Respondents called for innovative strategies, which should transform cultural packaging methods which are much safer to be accepted on mass scale. Respondents believed that the use of earthenware, calabash, leaves, and papers should be innovatively designed to look

the same or similar in form and or appearance to the current plastic packaging styles. Innovators should look at combining these natural and artificial products that are harmless using technology to meet the needs of the public. Their views resonated as follows:

Participant G said that:

'The combination of traditional packaging methods will ensure that the health concerns we are raising could be taken care of by the traditional part and the packaging portability could be taken care of by the conventional part. The Environmental implication aspect indicates that the outer component can be recycled' [Participant G].

Similarly, a vendor made the following contribution:

'So, we should be thinking about quality. These leaves and other natural products are grown in smaller quantities, we should be thinking about how they can be cultivated and multiplied. Let us think about greenhouse technology all to ensure multiplication. So that we can easily access them and use them. It should be at the back of our minds. If we are talking about leaves, corn husks, etc. A policy should be in place so that it can be sustained' [Food vendor A].

Another food vendor continued that:

'Yes, the leaves and other natural products should be adapted. Because it is natural, there will be no health challenges. However, there is a need to polish it to the tune of this modern world. When we polish the natural materials, it will be highly patronised. We should use local materials to design bowls that are nice' [Food Vendor C].

5.12. Educational activities can promote, cultural, packaging methods

The sixth theme was about educational concerns that will lead to change in behaviour.

Respondents believed in unison that; educational activities can promote cultural packaging methods. Identifying the possible means to educate and promote cultural packaging methods, respondents talked about the following:

'To use group learning, community forums, local drama groups, local leadership groups, educational curriculum for children, youth, students and the general public, media; radio and television, and the information service department (ISD) will serve as a channel that can communicate the benefits of the use of these materials.' [Participant D]

A customer contributed as follows:

'I believe that undertaking academic research works to understand history, seminars, lectures, and talks to educate both vendors and consumers will be appropriate. Then social media, television, and radio should also be the medium for education. Local languages could be used for these lectures and education at the various places' [Participant H].

Another customer had this to say:

'Public education and sensitization. We could even use animation. It could be taught in school. We should use all the channels of communication. Print, traditional, and social media. We just need to bombard the consumers and the vendors about these things. Shared responsibility' [Participant J].

Another customer had these to say:

'I think about disseminating information on this very idea that is packaged through group learning. Also using community forums. We can also talk about using local drama groups. All

these educational programs must be looked at from the local level. If we carry it out very well from the local level, we can bring it out to the national level or Regional and transition to the national level. Using Asafo groups, youth groups churches, and mosques to disseminate the ideas. Local leadership groups, since we respect our local leaders. They talk about it, wherever they go, wherever they meet the community members in forums. The district assemblies, we engage them. We can employ groups that contribute and opinion leaders within our communities. We can bring on board to promote this idea. After doing the above very well, we can bring the media on board. Radio and television.' [Participant L]

6. Discussion

From above, it can be deduced that, food packaging was meant to preserve, extend shelf life, retain nutrients, and present food for consumption to the end user, amongst other uses as also were observed by researchers like Robertson (2012), Rhim et al. (2013) and Dainelli et al., (2008). Thus, there are a lot of technologies or techniques used in packaging and wrapping foods. This varies with geographical locations, level of industrialization, urbanization, economic status, desired effect of manufacturer, and preference of the end user. Traditional packaging technology did not only provide the function of protecting and portability but also provided safety and taste in the product. The packaging materials like leaves and bamboo did not only make an appearance in traditional packaging look more natural, but also affected the flavour, smell, and palatability in products. In addition, it is observed that, traditional packaging has stronger construction compared with the modern packaging. The usage of natural materials at traditional packaging, in addition to being environmentally friendly is also superior in being cost effective and are easily obtained.

The study's results do augment Al-Bassam's (2015) in which he recommended introducing traditional culture to children through education. The results of Qasri's (2017) study have also shown that the rate of students' responses to the question of traditions and culture was 6%; showing evidence that there is a decline in knowledge of cultural heritage and hence, the need to introduce the public and children to heritage resources including those used in the past to package and store food.

The study results also confirm the work of Sutton (2001), which showed that the theory of reasoned action is based on the belief that a person will have a high intention to perform a particular action if he or she evaluates it positively and believes that significant others think they should do it. Similarly, the study findings lent support to the work of Hale et al. (2003), that the theory of reasoned behaviour is right for situations and cases where persuasive appeals are pursued. Furthermore, the study findings agree with the study of Nguyen et al. (2018), which confirmed that the theory has widely been applied to design and assess the effectiveness of communication interventions.

7. Conclusions and recommendations

Taking it all together, the study's findings show that respondents are positive about the adoption of cultural or traditional food packing methods and consider them to be safe, harmless, and less costly. Respondents also expressed sentiments that cultural and traditional food storage products help modern people and women to connect with their ancestors and use of the materials to help people boost their national identity and identify with the glory of the past. Popular educational activities and programmes and their integration into the national school curriculum introducing children and the public would increase their knowledge of their heritage.

Some of the noteworthy issues emanating from the study includes:

- (1) Introducing traditional heritage ideas and innovations to students and the public through educational curriculum.
- (2) Promoting and conducting academic research important for the understanding of the history and culture of the ancestors, and to raise public awareness for the appreciation of the unique heritage.

- (3) Actively involving the media and the national education and campaign apparatus to the importance of raising awareness of children, students, and the public of traditional heritage resources through TV and radio programmes that focus on traditional food packaging, to enhance the public's knowledge of their culture.

Plastics as discussed above have become a cheap and efficient means for packaging and storing food. Items packaged with plastics are more desirable, affordable, has light weight and thus preferred by many. The rapid increase of plastic products regardless of its' desirable properties however has led to a sanitation and health menace that needs to be addressed urgently (Chasant, 2020).

Education must be used to forge a positive change in attitudes to plastic waste management and encourage the use of cultural packaging methods as an alternative to plastic products. Educational activities such as workshops, symposiums, seminars, and durbars on environmental protection particularly on reduction of plastic usage should be organized regularly by stakeholders in charge or with an interest in sanitation issues.

Public awareness should be intensified through television and radio commercials on the negative effects of plastic waste and how alternative products can be used. Also, information materials such as billboards, posters, fliers, and leaflets should distributed among the public.

The use of conventional cultural packaging methods should be encouraged as an alternative to plastics. For instance, calabash can be used to serve drinks and water instead of disposable plastic containers. There should be an increased use of fibres to make fish nets and canes to make baskets for storing and packaging food. Food vendors should often use clean food leaves such as banana leaves and clay bowls popularly known as "asanka" in serving food. Also, wood for calabash can be shaped to make ladles, spoons, and other cooking utensils to minimize the use of plastics. Homes are encouraged to store their water in clean clay pots instead of plastic containers.

Studies by Bashir (2013) reveals that, there are no legal and policy framework regulating the production and use of plastic bags in Ghana. Rwanda, Tanzania, and Uganda have passed laws banning or restricting the use of ordinary plastic grocery bag (Behuria, 2019). It is recommended that Ghana follows suit to manage the plastic menace. Legal policies should be instituted and enforced to ban or limit the production, importation, sale, and use of plastic bags in a move to fight environmental pollution caused by discarded plastic bags.

It is recommended that government impose an environmental levy on plastic shopping bags. Municipal and district assemblies should also encourage the reuse, recovery, and recycling of plastic bags through source separation. Reuse of plastic carrier bags should be vigorously encouraged and practiced by all Ghanaians to minimize plastic production and waste generation.

Economic development and people's changing patterns of consumption and production have led to a drastic increase in plastic waste all over the country. Plastic waste disposal harms the environment and poses threat to humans, plant, and animal lives. Hence, there is an urgent need to reduce the plastic waste menace. Education is of utmost importance as education can change people's knowledge, attitude, and behaviours toward plastic waste management. The study concludes that communities, government ministries, families, non-governmental organizations, and other stakeholders should help debunk the myths and perceptions surrounding conventional cultural packaging methods and promote the use of these methods. Cultural packaging methods are noticed to be made from bio-degradable substances such as leaves, fibre, calabash, and clay. Thus, are better alternative to plastic packaging products.

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Author details

John Kwame Boateng¹
E-mail: jkboateng@ug.edu.gh
ORCID ID: <http://orcid.org/0000-0003-3934-986X>
Esther J. Korkor Attiogbe²
Ann Stahl³
Wazi Apoh⁴
Caleb Boadi⁵
Wendy Osei Frimpong¹
¹ Adult Education and Human Resource Studies, University of Ghana, Accra, Ghana.
² Department of Business Studies, University of Professional Studies, Accra, Ghana.
³ Department of Anthropology, University of Victoria, Victoria, BC, Canada.
⁴ Archaeology and Heritage Studies, University of Ghana, Accra, Ghana.
⁵ University of Ghana Business School, University of Ghana, Accra, Ghana.

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