
STRATEGIES TO ENCOURAGE SUSTAINABLE CONSUMPTION OF MOBILE PHONES IN GHANA

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ABSTRACT

The aim of the research is to contribute to knowledge in the area of sustainable development by examining strategies for sustainable production and consumption of mobile phone from the perspective of students. The research is based on quantitative descriptive cross sectional survey of a sample of 182 marketing students of Sunyani Polytechnic selected through convenience sample method. Primary data was collected using self-designed questionnaire, administered during lecture periods. Data was analysed using frequencies, percentages, chi-square and analysis of variances and presented in Tables. The SPSS version 16.0 was used. Respondents preferred strategy that will make mobile phone durable, strategy that will provide education on e-waste and strategy that allows easy maintenance and repair by user. Manufacturers interested in sustainable consumption should incorporate the findings into their production strategies. Structural models should be used in future study for causal study using larger sample size.

Key words: Durability; e-education; sustainable consumption; demographic variables

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1. INTRODUCTION

Many researchers (Wilhelm, 2012; Wilhelm et al., 2011; Cooper, 2010; Kang & Wimmer, 2007) have raised concern about unsustainable consumption resulting from product production and product replacement especially in the case of mobile phone. Mobile phone is considered as one of the electronic product with short life time in relation to replacement in many economies (Smith, 2010; Slade, 2006).

World Business Council for Sustainable Development (2008) comment that the current global consumption is unsustainable in relation to production of goods and services and the demands of future generation. This calls for policies and marketing strategies that will encourage sustainable consumption. The lifetime of products needs to be extended through production and motivating consumers to use products for longer periods (Wilhelm, 2012; Cooper, 2010; Kang & Wimmer, 2007).

Wilhelm (2011) calls for the design system that delivers a great experience and meets customer needs while minimizing negative environmental and social impacts. Other researchers (Lovins & Cohen, 2011; Lubin & Esty, 2010; McDonough & Braungart, 2002) call for production models that will ensure sustainable consumption.

According to the United Nations Environment Programme (UNEP) sustainable consumption is the use of services and products to satisfy the basic needs of consumers in order to better their life while as the production of the products and the services minimises the use of natural resources and toxic materials. Waste emission and pollution should also be minimised so that future generations are not endangered.

Consumers discard old phones which are functioning (Geyer & Blass, 2010; Gordon, 2009; Hanks, Odom, Roedl & Blevis, 2008) for many reasons identified in the literature (Wilhelm, 2011). This has called for production strategies that would result in the extensions of phone life time from the perspective of consumers. These strategies researchers (Wilhelm et al., 2011; Cripps & Meyer, 1994) recommend for inclusion in their production strategies.

According to Wilhelm et al. (2011) marketer and producers of mobile phone adopt various strategies that influence consumers to embark on unsustainable consumption. These strategies are short technology and fashion cycles, mobile phone trade-in programs for new free or low-priced phones and low quality construction so that phones break frequently and need

replacement. Consumers also throw away the old phones including those functioning well due to perceptions that new version/model performs better on some dimension. Other factor is competitive consumption and novelty-seeking behaviour among consumers.

Over production of goods in the face of scarce resources to meet the consumption pattern of consumers has attracted attention to the appropriate measures to produce goods that will reduce replacement rate of products including mobile phones. Researchers (Wilhelm, 2012; Wilhelm et al. 2011; Cooper & Christer, 2010; Gultinan, 2009; McCullough, 2009; Geven et al., 2008; Ling et al., 2007; Totten et al., 2005; Cooper, 2004;) have also identified strategies from the perspective of consumers that are appropriate and will motivate them to use their phones for longer period.

Strategies identified are durability of mobile phones; offering of financial reward for staying with existing phone; availability of software upgrade for existing phones; availability of new features to current phone at low cost; increase value through information networks and secondary markets; educate individuals about the problem of e-waste (give them access to data on design life of products); sell services rather than product (move to product-service systems); make discarding expensive; Design phone for repair and maintenance by user and price increase in new products to discourage purchase and reduce replacement.

1. 2. Statement/Justification

Though a lot of mobile phone users replaces their phone (including functioning mobile phone) few empirical work exist in the literature in on the strategies to increase lifetime of mobile phones. Hence more empirical research is required to develop strategies to ensure sustainable consumption from the perspective of consumer (Wilhelm, 2012; Wilhelm et al. 2011; Raghavan, 2010; Gultinan, 2009; deCoverly et al. 2008).

In the very knowledge of the researchers no such empirical study exists in the study area and the current paper fills in the literature gap. The paper provides reference material for future researchers in similar study area. The findings also provide policy guide to manufacturers of mobile phones with strategies to increase phone lifetime in order to ensure sustainable consumption.

1.3. Global Objectives/Specific Objectives

The global objective of the paper is to contribute to the body of knowledge in the area of sustainable consumption by examining the strategies to increase phone lifetime among

consumers of mobile phone. In specific terms, the strategies to increase mobile phone lifetime is examine as well as the effect of demographics on strategy preference.

1.4. Research Questions and Assumptions

The paper is based on the research questions which are:

- What strategies are preferred by respondents in relation to increase in lifetime of mobile phone?
- What is the link between demographic variable and strategy preference?

The paper is based on the assumption that consumer's strategy option is influenced by demographic and socio-economic variables.

1.5. Limitations and scope of the paper

The findings of the study are limited by the use of self-reported responses of respondents in the survey data. Some respondents might have been biased with their responses which might not been known by the researchers. Penetration rate of mobile phones and the uses of phones as well as the preferences of mobile phones are not discussed. Data collection is limited to only the marketing departments of the school.

2. RESEARCH METHODOLOGY

The paper is based on quantitative, descriptive, cross-sectional survey using 182 respondents selected through convenience sample method. The target population is the students in marketing one and two in Sunyani Polytechnic. Primary data was collected using questionnaire which was self-designed by the researchers. Data collected was analysed using frequencies, percentages for descriptive results and One-way Analysis of Variance (ANOVA) for the inferential statistics. Results were presented in tables.

3. RESULTS AND DISCUSSIONS

The results on sample features, strategies for extension of mobile phone lifetime and the effect of demographic variables are presented in this section of the paper.

3.1. Sample Characteristics

Majorities of the respondents in the survey are males 106(58.2%) and the age distribution indicates that majority 97(53.3%) respondent's falls in the age group of 18-22. Most 71(39%) of the respondents are from Ashanti regions where as majority 92(50.5%) are in second year. The rest of the results are shown in Table 1.

Table 1: Distribution of responses on Demographic features

Variables	Frequency	Percentages (%)
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Gender		
Male	106	58.2
Female	73	40.1
Missing responses	3	1.6
Total	182	100.0
Age		
Less than 18	3	1.6
18-22	97	53.3
23-27	74	40.7
28-32	3	1.6
33-37	1	0.5
Above 42	2	1.1
Missing responses	2	1.1
Total	182	100.0
Region		
Brong Ahafo	50	27.5
Ashanti	71	39.0
Western	10	5.5
Eastern	13	7.1
Volta	5	2.7
Greater Accra	6	3.3
Central	8	4.4
Northern	6	3.3
Upper east	3	1.6
Upper west	7	3.8
Missing response	3	1.6
Total	182	100

Year in school		
First year	89	48.9
Second year	92	50.5
Missing response	1	0.5
Total	182	100.0
Religion		
No religion	6	3.3
Christian	155	85.2
Muslim	18	9.9
Other religion	1	0.5
Missing responses	2	1.1
Total	182	100.0
Family income status		
Low	19	10.4
High	37	20.3
Medium	106	58.2
I don't know	19	10.4
Missing response	1	0.5
Total	182	100.0
Personality type		
Individual	84	46.2
Collectivistic	77	42.3
I don't know	20	11.0
Missing responses	1	0.5
Total	182	100.0

(Source: field survey March, 2013)

3.2. Strategies to Extend Product Lifetime

Various strategies (seven) to extend phone lifetime were identified in survey. The most important strategy option for the respondents in the survey is durable phone. This is consistent with the findings of previous research such as Wilhlem et al. (2011) but contrary to the findings of researcher such as Cooper and Christer (2010) and Gultinan (2009) who reported that durability is least rated by respondents. The three most important strategies are durability, education on e-waste and the need for longer product lifetimes and easy maintenance and repair by user. The results are shown in Table 2.

Table 2. Distribution of ranked responses on strategies to extend product lifetime

Motives	Frequency	Percentage (%)
Make mobile phones more durable	152	83.5%
Education on e-waste and the need for longer product lifetimes	145	79.7%
Easy maintenance and repair by user	127	69.8%
Allow me to add new features to current phone at low cost	127	69.8%
Allow me to bring in phone for software upgrade	124	68.1%
Offer a financial reward for staying with existing phone	109	59.9%
Lower prices on refurbished phones	82	45%
Move to pre-paid strategy	54	29.7%
Raise prices on new mobile phones	48	26.4%

(Source: field survey, March, 2013)

Gender has no significant relation on the preference of strategy option. Age has significant relation with some strategy options. Respondents in age group of 23-27years prefer the “addition of new features to current phone at low cost” (chi-square =41.253; p=0.003) than the other age groups.

Respondents in age group of 28-32years preferred phones that are “easy to be maintained and repaired by the user” (chi-square = 36.022; p=0.015). Respondents in age group 28-32year preferred lower prices on refurbished phones (chi-square=28.960; p=0.089). Respondents in age

group of 23-27year preferred education on e-waste and the need for longer product lifetimes than the other age group (chi-square=31.625; p=0.047).

Year in school has a link with two strategy options. Respondents in second year more preferred strategy that will make mobile phones more durable (chi-square=9.464; p=0.050) and education on e-waste and the need for longer product lifetimes (chi-square=11.359; p=0.023).

Personality type has a link with strategy option. Respondents who considered their personality type to be collectivistic more preferred offer a financial reward for staying with existing phone (chi-26.058; p=0.011). Individualistic respondents more preferred “addition of new features to current phone at low cost” (chi-square =31998; p=0.001). The findings are consistent with earlier research (Wilhelm, 2011) on the effect of demographic variables on strategies to increase phone life time.

3.3. Results on variation in responses

One-way analysis of variance (ANOVA) was used to analyse the variation in response on policy options given by respondents in relation to the independent variables (gender, age and region). There are statistical significant (at 1%, 5%, and 10%) variations in some responses in relation to gender, age, year in school and personality type. The results are show in Tables 3 to 6.

Table 3. ANOVA results on effect of gender on strategy option

STATEMENTS	F -VALUES	P-VALUES
Raise prices on new mobile phones to reduce phone discard	3.746	0.055

Table 4. ANOVA results on effect of age on strategy option

STATEMENTS	F -VALUES	P-VALUES
Strategy that allows me to add a new features to current phone at low cost reduce phone discard	2.367	0.042
Education on e-waste and the need for longer product lifetimes reduce phone discard	1.968	0.086

Table 5. ANOVA results on effect of year in on strategy option

STATEMENTS	F -VALUES	P-VALUES
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Easy maintenance and repair by user	5.015	0.026
Education on e-waste and the need for longer product lifetimes	7.458	0.007

Table 6. ANOVA results on effect of personality on strategy option

STATEMENTS	F -VALUES	P-VALUES
allow me to add new features to current phone at low cost	2.913	0.036
Move to prepaid strategy	2.731	0.045

4. CONCLUSIONS AND POLICY IMPLICATIONS

The objectives of the papers have been established. Respondents have identified various strategies to ensure sustainable consumption of mobile phone from the perspective of consumers. Durability of mobile phone, education on e-waste and easy maintenance and repair by user are the most preferred strategy options.

Demographic variables identifies in the survey is related to strategy options and also influence variations in responses given by respondents on policy options. Mobile phone manufacturers and marketers interested in sustainable consumption should encourage these findings in their production strategies to ensure sustainable environment and development.

Policy makers should come up with combination of incentives and regulations that will encourage the mobile phone producers to integrate sustainability into their business model through research. Future studies should increase sample size and causal studies should be used to analyse causal issues. The study should be replicated in other departments of the school.

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