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Research paper

Environmental dimensions of corporate social responsibility and brand equity

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Structured abstract

Purpose: The study, based on the instrumental theories of corporate social responsibility, sought to explore the assertion that corporate social responsibility initiatives may result in business organizations attaining some competitive advantage in the long-run by critically examining the relationship between environmental dimensions of corporate social responsibility and brand equity in the telecommunication industry of Ghana.

Methodology: Given the purpose and nature of this study, the descriptive survey research design was deemed the most appropriate and, therefore, adopted. The study was conducted at the University of Cape Coast (Ghana). The questionnaire was the main research instrument used for this study, which had been tested for its reliability. Correlation analysis was used to ascertain the possible association between environmental dimension and brand equity, the direction of the association and its intensity.

Findings: The results of the study showed that customers, generally, slightly agreed that the telecommunication companies were not very interested in environmental issues. It was also found that there was some association between environmental dimensions of CSR and brand equity.

Research limitation: The main limitation of the study is that results need to be expanded and confirmed with other national and international telecommunications companies from different economic sectors that are managing corporate social responsibility and brands.

Originality/value: While previous researchers have attempted to analyze certain aspects of this concept (linkage between environmental corporate social responsibility and brand equity), this research developed a case study that proposes an exploratory information on the themes studied in the Ghanaian cultural context.

Key words: Corporate social responsibility; environmental dimensions; brand equity.

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1. Introduction

The changing trends in marketing have resulted in a very competitive business terrain; businesses are striving to ensure that their brands become the household choice. For any serious business, the greatest task for its marketer is to ensure that their brands attain brand equity, which is defined by Keller and Kotler (2004) as the added value endowed on a product because of its name. This added value usually results in the overall success of the business. Businesses strive to attain brand equity by using several marketing strategies. One such strategy that readily comes to mind in brand equity building is corporate social responsibility (CSR). This is an age old concept that started as philanthropic gestures to society. In modern business practices, CSR is now being viewed by some as a strategic tool, which may benefit businesses. This assertion may not be wrong at all considering the fact that most businesses, especially those in the telecommunication industry, are actively involved in it.

Very few studies have assessed the relationship between environmental dimension of CSR and brand equity (Ailawadi, Luan, Neslin &Taylor, 2011; Giannarakis, Litinas, & Theotokas, 2011; Uddin, Hassan &Tarique, 2008). All these studies were also conducted in developed economies. Currently, there is no study in Africa, including Ghana that has looked into the environmental dimensions of CSR and brand equity in the telecommunication industry, thus creating a gap in existing literature. This study sought to fill that gap in literature. The main objective of the study was to critically examine the relationship between environmental dimensions of CSR and brand equity. The specific research objectives were to: determine the perception of customers regarding environmental CSR activities that have been undertaken by the selected telecommunication companies; identify the relationship between the environmental dimensions of CSR and brand equity; and determine whether environmental CSR activities affected both the individual dimensions of brand equity and overall brand equity. The research questions for the study were: What is the perception of customers regarding environmental CSR activities that have been undertaken by the selected telecommunication companies? ; What is the relationship between the environmental dimensions of CSR and brand equity; and How does environmental CSR activities affect both the individual dimensions of brand equity and overall brand equity? This study would assess the empirical bases for linking environmental CSR activities with brand equity. The study is relevant, considering the environmental concerns in Cape Coast and, for that matter, Ghana. Besides, findings of the study would add to existing literature, since literature in this area is very scanty.

The rest of the paper is organized as follows. The next section reviews the related literature on CSR and brand equity. This is followed by the methodology, and results and discussion sections respectively. The paper ends with the conclusions and recommendations for the study.

2. Literature review

Corporate social responsibility and its environmental dimensions

CSR has been defined by The World Business Council for Sustainable Development (WBCSD) (1999) as “the continuing commitment by businesses to behave ethically and

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contribute to economic development while improving the quality of life of the workforce and their families as well as of the local community and society at large" (in Moir, 2001, P.18). It is, therefore, all about businesses, showing some interest and being moved to contribute, to the society within which they operate.

As simple as the idea may sound, scholars have managed to make it very controversial. In fact, since its inception, scholars have argued extensively over whether profit oriented businesses should be involved in CSR. Scholars on both sides of the debate have given excellent reasons why businesses should or should not be involved in CSR. However, after years of battling it out, the argument seemed to have changed its course from 'whether' (to engage in CSR) to 'how' (to engage in CSR) (Smith, 2003). Another noteworthy aspect of CSR is the theories underpinning it. Several studies have developed theories for the concept. The most organised set of theories developed for the concept are those of Garriga and Mele (2004). They broadly categorised the theories into: political theories; integrative theories; ethical theories; and instrumental theories. The work is based on the instrumental theory of CSR, which says that concern for stakeholders has long-term benefits for businesses. The article looked at whether undertaking CSR in the environmental domain, would result in achieving some competitive advantage, in this case, brand equity. As has been suggested by the theory, CSR activities result in long-term advantages for the business. If, in the case of this study, it was realised that CSR activities undertaken by telecom companies in Ghana resulted in brand equity, then the theory under the prevailing conditions could be accepted.

CSR is a broad concept. It can be studied using various measures (Ailawadi, et al., 2011; Carroll, 1999; Jin, 2013; Jucan & Jucan, 2010; Uddin, et al., 2008). Some of the measures may include: social; economic; and environmental dimensions. The focus of this paper is the environmental dimensions. These are measures that are used to assess business' actions that affect the environment either negatively or positively. They relate to businesses ensuring that their activities of accumulating human and physical capital for achieving their objectives do not negatively affect the environment. It is expected that such actions more than compensate for the direct or indirect loss or degradation of the environment (Brundtland Report-UN; Jin, 2013). Environmental concerns have been up for discussion on several platforms. This may probably be because environmental issues directly affect the very existence of humans and all that they care about. Businesses, irrespective of their profit motive, are expected to care about the environment. To be able to do it effectively, Uddin et al. (2008) invite businesses to look at two issues: undertaking environmental impact and examining the 'win-win of environmental responsibility'.

In undertaking environmental impact, businesses are expected to measure how their activities affect the environment. This would generally be done by doing a cost-benefit analysis in exploiting natural resources. Determining how much the society is losing as a result of their activities, as opposed to the benefits the society is reaping from the resource. The next thing to consider in the environmental impact is environmental management, which requires that businesses make changes in their operations when it is found to be deficient. The essence of this is to enhance efficiency in their operations and at the same time result in their being more environmentally responsible in their use of resources.

The second issue is the ‘win-win’ of environmental responsibility. According to Uddin et al. (2008), businesses that are committed to environmental management reap benefits. Apart from the benefit on the environment, their article revealed that a ‘responsible public image may also attract more customers’ (p.207). They further explained that this could help businesses to identify market opportunities. Similar findings were made by Ailawadi et al. (2011), concerning customers’ responses to environmental dimension of CSR. They reported that CSR activities almost always improve customers’ loyalty. Further findings revealed that, though CSR initiatives generally improved customers’ attitudinal loyalty, it did not necessarily exert a positive influence on behavioural loyalty and price premiums which are both dimensions of brand equity.

To measure the environmental dimensions for the study, the researchers adapted the indicators used by Giannarakis, Litinas, and Theotokas (2011). These indicators are: natural resources, health and diseases, and physical resources. The measures for natural resources included: telecommunication activities that negatively affected the environment; programmes aimed at improving the natural environment; programmes aimed at protecting the environment; and programmes that publicly showed that these selected telecommunication companies really cared for the environment. In assessing health and diseases, the study used the following measures: issues concerning harmful electromagnetic-waves; campaign against certain diseases in the society; sponsorship of health programs; and adoption of health care centres in the society. Concerning physical environment, the measures used included: activities that resulted in filth; congestion created by sales outlets; and effect of operators’ presence in towns and cities.

The concept of brand equity

The second concept under review is brand equity. Aaker (1991) is probably the first person to have discussed brand equity. He defined it as ‘a set of assets (or liabilities) linked to a brand’s name and symbol that adds to (or subtracts from) the value of the brand by a product or a service to a firm and / or firm’s customers. Though not explicit, this same impression is given by Kotler and Armstrong (2009), when they defined it as ‘the differential effect that knowing the brand name has on customer responses to the product and its marketing. Like its companion brand, brand equity is a perceptual concept that has to do with the cognitive social responses to a product. Keller (1993) explained it from the angle that ‘the power of the brand lies in the minds of consumers and what they have experienced and learned about the brand over time…it can be thought of as the added value endowed to a product in the thoughts, words, and actions of the consumer.’ Brand equity is measured using four dimensions, which are: brand association, brand awareness, perceived quality and brand loyalty. These are discussed next.

Brand association is anything linked in memory to a brand. It represents all associations related to a brand, which can include the personification of a product’s characteristics, origin and usage (Gordon, Calantone & di Benedetto, 1993). It may also involve attributes, benefits and attitudes that can be stored in consumers’ minds (Keller, 1993; Pitta & Katsanis, 1995). Bian and Liu (2011) explain that these different brand associations (connections) engender different impressions to customers and, of course, positive impressions would lead to value for the customer. There is, however, a more specific

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assertion that the sole importance of brand association is to capture a share of the customer's mind in order to influence purchase and build loyalty (business dictionary.com). Like Aaker (1991), Keller (1993) and Tong (2006) insist that brand association directly leads to brand equity and so the concept of brand equity cannot be studied without considering brand association.

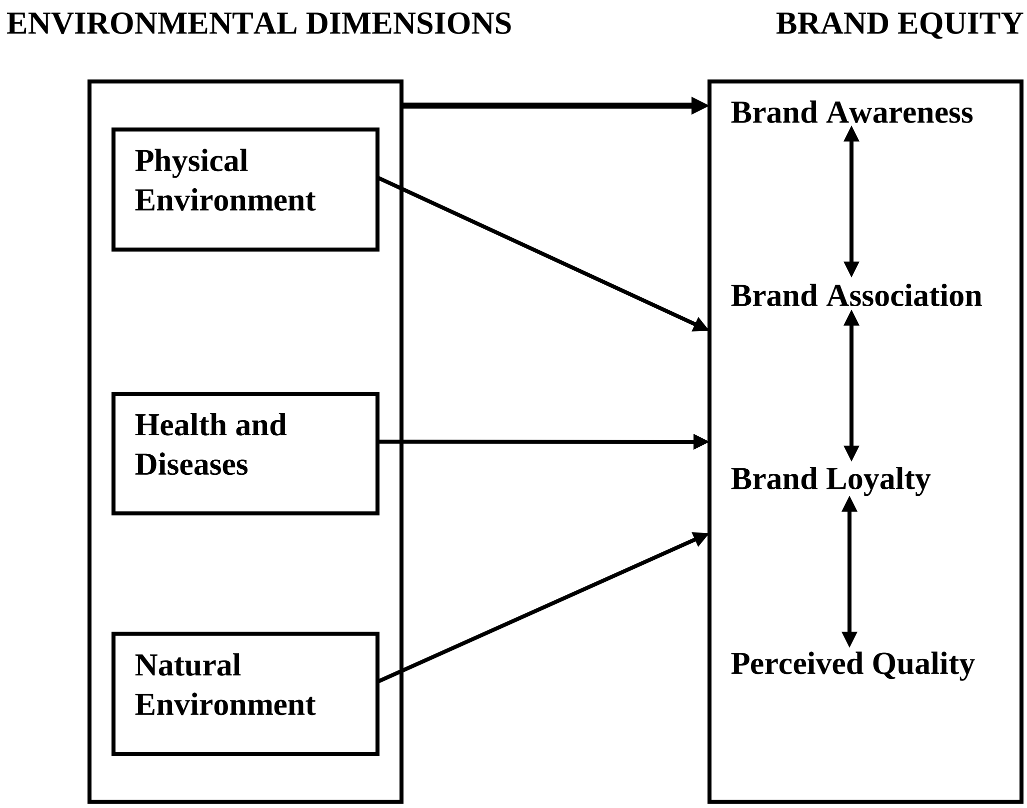
Brand awareness is an aspect of brand knowledge and has to do with the ability of a potential buyer to recognise or recall a brand as a member of a certain product category (Aaker, 1991; Keller, 1998). It is related to the strength of the brand in memory as reflected by consumers' ability to recall or recognise the brand under different conditions. In addition to these two levels of brand association, proposed by Keller, others have expanded it to include the top of mind awareness, knowledge dominance, recall performance of brands, brand opinion and brand attitude (Kim, Lim, & Bhargava, 1998). Both empirically and conceptually, brand awareness has been identified as a powerful predictor, which has the ability to alter consumer choice, behaviour and is a necessary ingredient for brand evaluation (Haley & Case, 1979; Holden & Lutz, 1992; Howard & Sheth, 1969; Nedungadi & Hutchison, 1985). Brand awareness is built through advertisement and so the marketing department should be aware that small investments in advertisement might build strong brand equity through brand awareness.

The consumer's awareness and associations lead to perceived quality, inferred attributes and, eventually, brand loyalty (Keller, 1993). Perceived quality is the customers' overall impression about the brand, which includes function, creditability, service quality, effectiveness evaluation and appearance (Aaker, 1991; Zeithaml, 1988). Because it is founded on customers' perceptions, it may not necessarily represent actual quality. Rather, this 'quality' may be based on customers' experiences, knowledge and influence from family and friends. A product perceived to be of a higher quality contributes to customers' satisfaction and adds value to consumers' purchase evaluation (Low & Lamb, 2000). When there is increased perceived value, there is the willingness to buy. It can be observed that most people are willing to pay a higher price for a specific brand, because they believe that products sold under that particular brand name are well known and of a very high quality (Hilgenkamp & Shanteau, 2012; Lu, 2010). Because quality is a very crucial factor that influences purchase intention and behaviour, and, eventually, brand equity, organizations should adopt strategies that would be geared toward increasing perceived quality, as this would positively affect brand equity.

Brand loyalty is the preference of a customer to buy a single brand or to buy a particular brand name in a product class regularly (Chaudhuri, 1999). Brand loyalty generates customers' attachment to a brand in making purchase decisions (Boo, Busser, & Baloglu, 2009). It reflects the likelihood or otherwise of customers switching to another brand in the event of an unpleasant experience with a trusted brand. Reichheld (1996) shows that firms with loyal customers record higher rates of returns on (their) investments. As explained by Delgado-Bllester and Munera-Aleman (2005), brand trust is the major driving force of brand loyalty because it creates exchanges that result in offering value. Several other studies have been conducted in the area of brand equity and its dimensions; they all continue to mention brand loyalty, as an important dimension of brand equity.

Conceptual framework of environmental dimensions of CSR and brand equity

Figure 1: A conceptual framework of environmental dimensions of CSR and brand equity



Source: Researchers' construct, 2014.

The conceptual framework (Figure 1) of the study was based on existing literature in the area of environmental dimensions of CSR and brand equity. The framework, first, identifies the sub-dimensions of the independent variable, environmental dimensions of CSR. These sub-dimensions are: physical environment, health and diseases, and natural environment. As indicated earlier, the study aimed at determining whether the environmental dimensions of CSR are related to brand equity. Again, from the framework, brand equity also has its sub-dimensions, which are related and giving the aggregate effect of brand equity.

3. Methodology

The descriptive survey research design was used for this study. This is because the researchers aimed at collecting data and establishing if there exists of any relationship between the variables, that is, CSR and brand equity. The study was conducted at the University of Cape Coast, Ghana. This was in line with the objective of collecting the views of tertiary students. These students were used because it was assumed that they would better appreciate the issues under consideration. As at the time of collecting the data, the student population was 17034. From this, the researchers sampled a total of 500 respondents based on sex. Categorising the sample using sex gave the researchers a more representative sample, as the population is male-dominated. The study used 320 males and 150 females. The number sampled was guided by Krejcie and Morgan's (1970) sample size determination formula, though over sampling was actually done. The actual sample size was 377. Details of the individual respondents were retrieved from the Students' Records and Management Information Systems of the university, using simple random sampling technique. The respondents were then contacted individually with the help of research assistants, using a questionnaire. The instrument had earlier been tested for its reliability. The Cronbach alpha for the relevant portion of the instrument measured 0.741. This, according to Pallant (2005), could be interpreted to mean reliable. The respondents were also customers of the four selected telecommunication companies, which were MTN, Vodafone, Airtel and Tigo. The statistical techniques used for the data analysis included frequencies, percentages, means and standard deviation. Correlation analysis was also done to ascertain the possible association between environmental dimension and brand equity, the direction of the association and its intensity.

4. Results and discussion

Perception of students concerning environmental CSR issues

The first objective of the study was to determine the perception of students concerning environmental CSR issues. To do this, responses were collected according to the individual environmental dimensions of CSR. The data collected was analysed into means, standard deviations, frequencies and percentages.

Natural Resource

Table 1 presents the frequencies and percentages of respondents per their level of perception of CSR activities with regard to each of the three (3) components that measure environmental dimensions, namely: natural resources, health and diseases, and the physical environment. The results revealed that 83 (17%) of customers ***did not agree*** that the telecom companies were committed to carrying out CSR activities, aimed at protecting the natural resources in the environment. An additional 136 (28%) ***least agreed*** that telecommunication companies in Ghana were committed to carrying out CSR activities, which would protect the natural resources in the environment. One hundred and twelve (112) (23%) of customers ***slightly agreed*** that telecommunication companies were committed to carrying out CSR activities aimed at protecting the natural resources in the environment. Also, 99 (20%), 47 (10%) and 9 (2%) of respondents respectively ***somewhat highly agreed***, ***highly agreed,*** and ***very highly agreed*** that telecommunication companies in Ghana were committed to carrying out CSR activities, which were aimed at protecting the environment.

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Table 1: Frequencies and percentages of customers' perception

		Customers' Perception											
		No agreement		Least		Slightly high		Somewhat high		High		Very high	
Component	N	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
NR	486	83	17	136	28	112	23	99	20	47	10	9	2
HD	477	20	4	71	15	119	25	149	31	99	21	19	4
PE	490	19	4	80	16	147	30	158	32	71	15	15	3

Scale for interpreting customers perception: 0.00-0.44 = No agreement; 0.45-1.44 = least in agreement; 1.45-2.44 = slightly in agreement; 2.45-3.44 = somewhat in agreement; 3.45-4.44 = high in agreement; 4.45-5.00 = very high in agreement.

In all, the highest response groups were those who ***least agreed*** that the telecommunication companies were committed to protecting natural resources in the country; this alone accounted for 28% of the responses.

This result confirms the situation in Ghana. Almost all natural resources such as water bodies, forest, wildlife and other natural resources are in very deplorable states. Ghanaians are generally indifferent towards the preservation of these natural bodies. This may probably be that these natural bodies do not serve any purpose or, even if they do, they may not directly affect the lives of the people. Therefore, they pay very little or no attention to such resources. It is apparent from the result that the telecom companies may have realised that Ghanaians themselves are not interested in caring for their natural environment. So, they give customers what would interest them. From the findings, these telecommunication companies may not necessarily be interested in undertaking CSR activities, but may be strategically aiming their CSR activities at customers, so that they can be popular. Such customer attitude is quite different from what Huffer, Hoffmann and Mai (2015) reported. According to their study, customers were so much concerned about environmental issues that they joined in carrotmobs to show their appreciation to businesses that cared for the environment.

Health and diseases

From Table 1, out of 477 valid responses, 20 (4%) ***did not agree*** that telecommunication companies in Ghana were committed to carrying out CSR activities, aimed at improving health and disease conditions in the environment; 119 (25%) ***least agreed*** that the telecommunication companies were committed to carrying out CSR activities to improve the health and disease status of the environment within which they operate. Out of the 477 responses though, 149 (31%) ***somewhat agreed*** that the telecommunication companies were committed to CSR activities that would improve health and diseases situation. This accounted for the biggest percentage. Also, 99 (21%), which is the second largest under this sub-dimension. were in ***high agreement*** that the telecom companies were committed to improving health and disease situation in Ghana. Finally, 19 (4%) were in ***very high agreement*** that the telecom companies were committed to carrying out CSR activities that helped improve the health and disease situations in the environment.

Most of the CSR activities undertaken by telecommunication companies in Ghana are in the form of sponsorship of TV and radio programmes, which promote health issues. An example was the Vodafone healthline TV programme, which was aired on GTV and on TV3. This programme won the Chattered Institute of Purchasing and Supply (CIPS), UK award for best CSR programme, and also the Chattered Institute of Marketing, Ghana (CIMG) Telecom Company of the year 2011, partly because the Vodafone healthline was adjudged the best CSR programme of the year 2011.

Physical environment

The results, as presented in Table 1, show that 19 customers (4%) ***did not agree*** that they perceived that the telecom companies selected for the study were very committed to improving the conditions of the physical environment within which they operated, whilst 80 (16%) ***least agreed*** that the telecom operators were committed to improving the physical environment. Also, 147 (30%), 158 (32%), 71 (15%) and 15 (3%) indicated that they were in ***slightly high, somewhat high, high, and very high in agreement*** that

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telecom companies in Ghana were committed to improving the conditions of the physical environment respectively. Again, the highest frequency was those who ***somewhat agreed*** that telecom companies were committed to improving the physical environment.

The low values suggested that telecom companies did not contribute to filth and congestion. This was rather unexpected. This is because it can easily be observed that scratch cards are everywhere on the streets. This observation can even be made on the university campus where there are dust bins at several places. Again, these telecom operators have their sales outlets mounted at virtually every point, apparently without state authorisation or perhaps due to negligence on the part of those responsible. These outlets, no doubt, contribute to congestion at commercial car parks, markets and other public places. On the other hand, the question: 'your network operator's presence beautifies towns and cities had a relatively high weighted mean'. This score, obviously, is true of what can be observed, as the telecom operators usually have offices that are sophisticated and nice, which add to the beautification of cities and towns.

Table 2 gives the mean perception of commitment of telecom companies to carrying out CSR activities, as viewed by respondents. The results revealed that the over-all mean value for environmental dimension was 2.109 (SD = 0.8905). This gives a clear indication of the level of commitment that the selected telecom companies show with regard to improving the environment. The figures indicated that customers perceived that the selected companies' commitment to improving the environment was only ***slightly high***. The mean responses for the three (3) components that measured the environment were as follows: natural resource 1.7659 (SD = 1.2341), health and disease 2.4752 (SD = 1.1705), and physical environment 2.3338 (SD = 1.1217). The means calculated for both Natural Resource and Physical Environment all fell within the mean values classified as ***'slightly high in agreement***', which suggests that telecom companies in Ghana are viewed by customers as only slightly committed to maintaining natural resource reserves, such as water bodies, forests and wildlife, and climate, and to protecting the physical environment, such as reducing filth, reducing congestion, etc. Here, the Ghanaian experience may not be an isolated case. Hahn, Kolk & Winn (2010) claim that there seem to be a confluence of persistent environmental challenges leading to societal dissatisfaction. Of course, such findings may not be as severe as the situation in Ghana. Whatever the situation is, there seems to be a general meltdown of business' interest in environmental issues

The findings from the study, however, fell short of what was reported by Jucan and Jucan (2010). They stated that most companies were highly interested in environmental issues. According to them, managers scored environmental protection 63%, and this dimension is second only to the dimension of keeping key employees. The differences could possibly be due to socio-cultural reasons. The selected companies might have realised that Ghanaians generally do not attach so much importance to protecting their environment. Hence, the telecom operators who are not philanthropists would, therefore, not 'waste' their resources on activities that would not result in their benefit. The mean for Health and Diseases was the highest amongst the three (3) components ($\mu = 2.4752$), which fell within the category classified as '***somewhat high***'. This was apparently because this sub-dimension underscored the fact that everyone appreciates the value of life. Hence, the customers considered activities aimed at improving the environment (with respect to health and diseases) as important. It is for this reason that the telecom operators probably focused on it.

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Table 2: Mean perceived commitment of telecom companies

Component	Mean (μ)	Standard Deviation (σ)
Natural Resource	1.7659	1.2341
Health and Diseases	2.4752	1.1705
Physical Environment	2.3338	1.1217
Over-all environmental	**2.1905**	**0.8905**

Scale for interpreting customers' perceived commitment of telecom companies**:** 0.00-0.44 = no agreement; 0.45-1.44 = least in agreement; 1.45-2.44 = slightly high in agreement; 2.45-3.44 = somewhat high in agreement; 3.45-4.44 = high in agreement; 4.45-5.00 = very high in agreement.

The relationship between environmental dimension of CSR and brand equity

The second objective was to determine the relationship between environmental dimensions of CSR and brand equity. This was done by correlation analysis. The correlation analysis helped to determine whether or not there was an association between CSR and brand equity, the strength of the association, and the direction of the association (either positive or negative). A positive correlation coefficient would indicate that carrying out more CSR activities or improving on many of the already instituted CSR activities could result in one's brand being valued by customers (brand equity).The reverse was true if the r value was negative. Once a positive or negative correlation was established, a test of significance of the coefficient of correlation was performed to determine whether the r value occurred only by chance. Also, the strength of correlation was ascertained by looking at the absolute value of r.

Table 3: Correlation matrix between environmental dimensions of CSR and brand equity

	Dependent Variables									
	Brand Awareness		Brand Association		Brand Loyalty		Perceived Quality		Brand Equity	
	R	Sig.	R	Sig.	R	Sig.	r	Sig.	r	Sig.
Natural Resources	0.196	0.000	.295	.000	.267	.000	.385	.000	.363	.000
Health and Disease	0.307	0.000	.300	.000	.332	.000	.407	.000	.426	.000
Physical Environment	0.171	0.000	.226	.000	.255	.000	.143	.002	.249	.000
Overall Environmental Dimension	0.297	0.000	.363	.000	.375	.000	.418	.000	.459	.000

Note: P < 0.01.

Table 3 presents correlation coefficients showing the relationship among the various environmental dimensions and the dimensions of brand equity. From the table, there was moderate, positive and significant relationship between brand equity and two of the dimensions of the environment: natural resource (r = 0.363) and health and disease (r = 0.426). The relationship between physical environment and brand equity was found to be low, though significantly positive (r = 0.249). The relationship between the overall environmental dimension of CSR and brand equity was also found to be moderate, positive (based on Davis' convention for describing magnitude of correlation coefficient)[3]; and significant (r = 0.459). The results presented in Table 3 buttress the findings of Ailawadi et al (2011), which concluded that undertaking environmentally-related CSR projects have positive association with brand equity. Dashwood (2014), in

[3] 1(Perfect); 0.7-0.99 (Very High); 0.5-0.69 (Substantial); 0.3-0.49 (Moderate); 0.10-0.29 (Low); 0.01-.09 (Negative).

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his study, also found out that mining companies undertake huge investments in environmental CSR initiatives in order to maintain a good image in the society. All statistical tests were performed at an alpha level of 0.01.

The table also reveals the relationships between the various dimensions of the environment and those of brand equity. There was moderate, positive and significant relationship between brand awareness and health and disease (r = .307). In addition, there was low, positive and significant relationship between brand awareness and natural resource (r = .196), and physical environment (r = .171). The relationship between overall environmental dimension of CSR and brand awareness dimension of brand equity was moderate, positive, and significant (r = .297).

Furthermore, a moderate, positive and significant relationship was found between brand association and natural resource (r = .295) and health and disease (r = .300). The relationship between brand association and physical environment was low, positive and significant (r = .226). The relationship between brand association and overall environmental dimension of CSR was moderate, positive, and significant (r = .363)

Brand loyalty had a low, positive and moderate relationship with natural resource (r = .267) and physical environment (.255) dimensions of the environment. The relationship between health and disease, and brand loyalty was moderately positive and significant (r =.332). In all, brand loyalty had a moderate and positively significant relationship with overall environmental dimension of CSR (r =.375).

Perceived brand quality had moderate, positive and significant relationship with both natural resource (r =.385), and health and disease (r =.407). However, the relationship between perceived brand quality and physical environment was low, though significant (r =.143). The correlation between perceived brand quality and overall environmental dimension of CSR was moderate, positive and significant (r =.418).

It should be noted that the health and disease dimension of the environment consistently had moderately positive and significant correlation with all aspects of brand quality. On the other hand, the relationship between physical environment and each of the dimensions of brand equity was consistently low. Natural resource had a mixed relationship with all aspects of brand equity.

Environmental predictors of Brand Equity

The third objective was to determine whether CSR influenced brand equity. Stepwise multiple regression was used to assess the ability of the three sub-dimensions of environment (natural resource, health and diseases, and physical environment) to predict brand equity. Preliminary analyses were conducted to ensure no violation of the assumptions of normality, linearity, multicollinearity and homoscedasticity. The results are presented in Table 4.

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Table 4: Stepwise Multiple regression of environmental dimensions of CSR and Brand Equity

Predictor	Beta	R^2	R^2 Change	F. Sig*
Health and Disease	.299	.181	.181	.000
Natural Resource	.186	.211	.030	.000
Physical environment	.045	.221	0.01	.014

NB: dependent variable is brand equity.

From Table 4, the total variance, explained by the model as a whole, was 22.1%, F (3, 482) = 45.643, p = 0.00. Health and disease explained 18.1% of the total variance in brand equity. Natural resource and physical environment together explained the remaining 4% of the variance in brand equity. All three dimensions of the environment contributed a statistically significant proportion to explain the variance in brand equity. Thus, all three sub dimensions were included in the final model. In addition, health and disease recorded the highest beta value (beta = .299, p = .000) than natural resource (beta = .186, p = .000) and physical environment (beta = .045, p = .014). This means that health and disease made the strongest unique contribution to explaining the variance in brand equity when all other variables in the model is controlled for. The beta value for natural resource was slightly higher, indicating that it made less of a unique contribution. Physical environment made the slightest of impact to the explanation of the variance in brand equity.

5. Conclusion and recommendations

The first objective of the study was to determine the perception of customers regarding environmental CSR activities undertaken by the telecommunication companies. The environmental dimension was explained using three sub-dimensions. These were: natural resources, health and diseases and the physical environmental. Responses pertaining to the natural resources had a mean of 1.7659, which fell within the category slightly in agreement. Based on this, it could be concluded that customers perceived these companies were only slightly committed to maintaining the natural resources of the country. The next sub-dimension used for environmental dimension was health and disease, the mean of which was also 2.4752. This also fell within the group defined as somewhat high in agreement. Here, customers perceived that the telecommunication companies showed a slightly higher commitment to undertaking CSR activities pertaining to health and diseases. The last issue in the environmental dimension was physical environment, which had a mean of 2.3338, meaning that customers, again, perceived that the companies CSR commitments regarding the physical environment were only slightly high. The aggregate effect of customers' perception regarding the environmental dimension had a mean of 2.1905. This indicated that customers, generally, slightly agreed that the four companies were not very interested in environmental issues.

The second objective was to examine whether environmental dimensions of CSR have positive associations with brand equity. The results revealed that there was a positive and significant relationship between brand equity and the environmental dimension of

CSR. The correlation co-efficient for the dimension was: environmental dimensions (r = 0.459). It was also seen that all the three sub-dimensions of the environmental dimension had some association with brand equity (either overall or its sub-dimensions). The findings, however, showed that the associations were either moderate or low (though significant) raising concerns as to whether environmental CSR should be linked to brand equity. The findings could be attributed to the nature of the respondents used in the study. It was possible that these respondents (students) were not hard hit by the environmental issues that plagued the country. Living on the university campus, which was more organized, probably shielded them from the general environmental problems. It may have been possible that if respondents from areas that have very high environmental concerns (like cholera outbreak and flood prone areas) were used, the result may be have been different. Based on the correlation co-efficient, it can be concluded that there is some association between environmental dimensions of CSR and brand equity.

The third objective was to assess the effect of environmental dimensions of CSR on brand equity. The results indicated that all sub-dimensions of environmental dimension of CSR were relevant in the study. The essence of this objective was to determine whether environmental dimension of CSR could be used as a strategic tool for building brand equity. The result showed that it was possible to do just that. Even though the sub-dimensions affected brand equity differently, they were all relevant in creating brand equity. It was observed that health and diseases especially predicted brand equity.

Recommendations

Based on the findings from the study, the following recommendations are proposed: the selected companies should implement more environmental-related CSR activities in the country, if they really want to show that they are committed to CSR. The findings showed that customers, generally, perceived that the CSR (regarding environmental) activities were not very high. This is evidenced by the filth seen all around. These businesses should align themselves with the recently instituted ‘national sanitation day’. They can sponsor such programme and actively part-take in. The companies can undertake projects that are aimed at reducing the amount of filth in the environment. Such projects can include the provision of dustbins at public places and ensuring that these bins are emptied when they become full. They can, again, sponsor programmes that are aimed at educating people on the dangers of being dirty as well as the benefits of being clean. These programmes can be aired on TV and radio. They can provide basic and senior high schools with faucets and soaps, while emphasising the need to wash hands after visiting the toilets. On issues relating to natural environment, they can sponsor educational programmes targeted at peoples’ perceptions on the need to preserve our environment, be it our water bodies, forest reserves and agricultural lands. Apart from implementing these CSR projects, the companies should vigorously advertise their activities. They should bring these activities to the attention of customers, so that customers would appreciate the efforts they are making in the communities where they operate. Adverts and educational programmes should clearly show who the sponsors are. These companies can use electronic media (especially television and radio), so that they can have a wider coverage.

Since environmental CSR issues affected brand equity, the companies should be strategic when implementing these projects. They should target the perceptions of their customers so that the customers can appreciate the essence of undertaking such activities. When this is properly done, customers will be proud to associate themselves with a telecommunication company that is involved in enhancing the general environment of their customers.

It was found out during the study that literature on environmental CSR issues and brand equity (especially in Africa) is very scanty. Other researchers can take advantage of this and conduct further studies in this area. It must also be noted that the researchers only focused on the perception of students from a university. This could limit the generalisability of the findings. Researchers could replicate the study, using a different population or industry, or simply manipulating the variables so that the issues involved in environmental CSR and brand equity could be better appreciated.

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