

Mobile Phone Preferences Among Young Taiwanese Adults: Do Ethical Attributes Matter?

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Abstract: *The purpose of this paper is twofold: First, to investigate mobile phone preferences among young mobile phone users in Taiwan and thereby identify consumer segments with different behavioral profiles. Second, taking the example of an ethically produced smartphone, the ‘Fairphone’, to explore the value social features have to young Taiwanese consumers. The data for this study was collected using a quantitative approach, and 879 usable questionnaires were obtained. A factor analysis was conducted on 22 items listed as mobile phone features, and five criteria emerged forming the basis for decision making: social attributes, reliability and trust, practicality and durability, specifications and price attractiveness and familiarity. These criteria were then used for the segmentation analysis which resulted in five distinct groups: loyal consumers, value conscious consumers, insecure consumers, passive consumers and pragmatic consumers. The Fairphone was most attractive to value conscious consumers, a group keen on a good price/value relation, and thus more attracted by Fairphone’s detailed price breakdown than its green or social attributes. All groups further stated their interest in purchase if the Fairphone offered the ‘specs I want’ and the same operating system as their current phone. There is however a strong brand loyalty the Fairphone would have to battle against.*

Keywords: *social product, Fairphone, ethical consumerism, Taiwan*

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I. INTRODUCTION

The Fairphone is a good example of a project and product working towards the goals set in the UN Millennium Declaration released in the year 2000. This declaration contains, above others the following items:

1) Peace, Security and Disarmament. Here, the Fairphone project states that they wish to support local economies and not armed militias. They are trying to integrate as many conflict free minerals in their production process as possible and are selecting partners that can trace minerals directly to their source. The project further tries to obtain source materials from countries at high-risk of conflict, such as the Democratic Republic of Congo (DRC), to increase employment and contribute to local economic development and regional stability.

2) To eradicate extreme poverty and hunger. The project tries to improve working conditions for miners in DRC by introducing a minimum wage, address child labor and improve mining techniques if they prove to be harmful to the health of the laborers. Not only are the conditions in the mining industry addressed, so too are conditions in the Chinese factories producing the Fairphone. Here, steps are taken to foster a long term working relationship with focus on mutual gain and not short term profit goals. Social assessment programs are implemented to give workers a voice and opinion on how to improve working conditions to avoid setting improvements based on a ‘western perspective on what is good and bad’.

The final element considered is 3) Sustainability, which is the notion that ‘the current unsustainable patterns of production and consumption must be changed in the interest of our future welfare and that of our descendants.’ The fact that ‘developing countries are seeing rapid growth in the generation of waste including waste electrical and electronic equipment (WEEE) or electronic waste (E-waste)...’ (United Nations Environment Program, 2015) further emphasizes the point that actions towards sustainability need to be taken in the near future. Kiddee, Naidu and Wong (2013) have noted that developing countries in particular are facing an enormous increase in the generation of waste, with electronic waste being one of the major categories and problems for the environment and human health. Mahmud, Holeman, Puk, Lam and Lee (2014) investigated the environmental impacts of discarded mobile devices and notes that by simply recycling the major components, the circuit board, liquid crystal display, and rechargeable battery, human and environmental costs can be considerably minimized. The Fairphone project tries to address these points by developing hardware that has a long lifespan and is easy to repair. They further encourage consumers to replace their phone only when it reached the end of its life, and they have established initiatives to provide safe recycling programs, especially in regions where dangerous e-recycling is practiced.

In summary, in stark contrast to other mobile phone companies the Fairphone project tries to introduce a smartphone into the highly competitive and rapidly developing mobile phone market with a strong focus on social considerations. But does this product have potential, or are consumers charmed by flashy advertisements with celebrities, high performance hardware and big screen sizes?

The purpose of this paper is to take these questions and explore whether young consumers in Taiwan would be willing to purchase a mobile phone sporting socially responsible attributes. There are two reasons for Taiwan being a suitable target country for this research: first, Taiwan has two famous mobile phone manufacturers, HTC and Asus, so consumers are very familiar with the product. Second, Taiwan has seen a large scale implementation of telecommunications network over the past years and has more than 25 million mobile phone subscriptions with more than 23 million on a 3G contract in 2014. For a population of 23 million citizens, this represents a penetration rate of almost 100% (Directorate General of Budget, Accounting and Statistics, 2010; Teng, Lu and Yu, 2009). As far as an appropriate age group for the study is concerned, students were considered suitable as more than 60% aged under 20 and more than 70% aged 20-30 own a smartphone according to a survey conducted in Taipei (Hakuhodo, 2013).

This study is also exceptional in that research on ethical consumerism has mostly been conducted in Western countries. It is therefore interesting to explore whether people in Asian countries are interested in a socially responsible product or if they place more value on other attributes such price or brand. Brand is an important choice criteria in countries where the quality of unbranded products varies widely (Maxwell, 2001), and Auger, Divinney, Louviere, and Burke (2010) argue that consumers may be conditioned to use a brand as a surrogate for quality such they will use it even though they have additional information. A brand might also have a higher emotional value for those people thereby increasing their overall satisfaction with a product.

Thus, the research objectives of this paper are following: First, preferences for certain mobile phone features are investigated, which is then followed by a cluster-based segmentation. After profiling the cluster members, their willingness or unwillingness to purchase a Fairphone is analyzed. These findings can not only give new insight for researchers regarding future products and projects, it can also answer the question of whether young consumers in Taiwan place more emphasis on utilitarian features of a phone or hedonic ones, with the latter group containing Fairphone characteristics.

II. LITERATURE REVIEW

2.1 Ethical consumerism

The interest in and the research on the effect of ethical attributes of products is a rather recent phenomenon and available publications predominantly focus on food items, apparel or ethical shopping behavior in general. Issues studied in previous research include environmental and labor conditions, animal welfare, fair trade, child and low-paid labor, and suppressing or preventing the formation of labor unions (Auger et al., 2010; Boulstridge&Carrigan , 2000; Carrigan, Szmigin, and Wright, 2004; Loureiro&Lotade, 2004; Uusitalo and Oksanen, 2004; Ubilava, Foster, Lusk, and Nilsson, 2010). Auger et al. (2008) conducted experiments with consumers in Hong Kong and Australia to test whether the social attributes 'labor practices' and 'animal rights and the environment' could influence their purchase intention. They conclude that even participants with a social conscience do not ignore practical attributes when selecting products and thus social attributes can moderately influence buying behavior. The results of a choice experiment survey conducted by the same group of authors (Auger et al., 2010) in six different countries show that 1) social attributes are something consumers only in developed countries care about; 2) it is not relevant whether high- or low-involvement products have social attributes; and 3) social attributes can influence the product selection even when other intangible elements, such as a product brand, are included in the design.

Another choice experiment survey conducted by Ubilava et al. (2010) confirms that consumers are willing to pay higher prices for a product that directly affects their well-being, which in this case was an antibiotic-free pork meat. They were, however, much less willing to pay a premium for products with environmental protection or animal welfare attributes. Brenton & Hacken (2006) offer a possible explanation for this anomaly in their experiment with Nike's sports products. Some consumers believe that even if products of unethical firms are boycotted in this industry, it might not result in better working or living conditions in the manufacturing countries and even translate into the opposite. They might even believe that all sportswear producers engage in the same unethical behavior, so switching from one brand to another would not make a difference. What consumers never seem to neglect is the functional aspect of the product. That is, if the product doesn't meet the desired limits of functionality or style, the social desirable product is not an option, regardless of the contribution it makes for a community (Auger et al. 2008; Brenton, 2013; Carrigan and Attalla, 2001; Folkes and Kamins, 1999, Klein, Smith and John, 2004, Ritch and Schröder, 2012). Bodur

Uusitalo and Oksanen (2004) add that Finish consumers seem to be uncertain about which products or firms follow ethical rules and which do not, as this information was difficult to obtain, a conclusion supported by Carrigan et al (2004) and Vitell et al. (1991) who surveyed elderly consumers on this subject. Auger et al. (2010) adds that a possible influential factor in consumers of emerging markets opting for brand products might

be their distrust of the information available. Also, publicity about unethical practices are more often noticed and sanctioned than ethical conduct. Although consumers tend to boycott products of unethical firms as punishment, they tend not to buy products of firms branded as 'ethical' (Carrigan et al., 2004). The authors also point out another fundamental problem for consumers in the UK - there is no consensus among consumers as to what constitutes a responsible company despite the existence of clear controversies, such as human rights and fair wages. Many consumers even put 'ethical' on the same level as 'legal', meaning that as long as a company is operating within the legal limits, it is perceived as 'ethical'. Papaioikonomou (2013) contributes to this point with his qualitative research on ethical consumer's behavior noting that the behavior largely depends on the subjective perception of what is sustainable and beneficial for the environment and society.

A survey by Szmigin et al. (2009) concluded that consumers who often display contradictory behavior regarding their ethical purchases might be attempting to manage problems with accommodating their own and their families' tastes, budgets and ethical concerns. They also state that ethical consumerism is a complex matter and consumers not having the time or intention to research in detail, thus limiting their ethical behavior to simple purchase decisions, such as selecting the readily available fair trade bananas at Sainsburys. That consumers may engage in buying habits that indicate an awareness of ethical and sustainable manufacturing process only when it is convenient and affordable is supported by Ritch and Schröder (2012) who explored this topic among fashion shoppers.

Culture seems to be an additional factor influencing whether consumers decide to purchase an ethical product or not (Srnrka, 2004; Vitell, 2003). People in developed countries seem to place more importance on social attributes than consumers from developing ones even though the perception of consumption ethics is fairly consistent among different cultures. Further, consumers seem to be bewildered by the same company selling ethical and unethical products simultaneously (Belk, Devinney and Eckhardt, 2005). In Finland there seems to be the additional problem of availability of shops selling ethical products, making their purchase inconvenient for consumers (Uusitalo and Oksanen, 2004). Carrigan et al. (2004) conclude that in order for fair products to become successful, the attitude towards immoral behavior has to become more dominant in society and there needs to be a cost associated with the purchase of the unethical product (Auger et al., 2008; Oh & Yoon, 2014; Miniello et al., 2014). Carrigan et al. (2004) conducted a study on the ethical attitude among the elderly consumers in the UK, aged 50 or above to explore possible differences in attitude between generations. The findings show that ethical thinking and acting is not limited to younger age groups but that older consumers have a strong sense of moral responsibility too, which they show through activism against unscrupulous companies by boycotting their products and selecting those with a 'Fair Trade' label – as long as they meet their personal preference for taste as well. Other points to be highlighted in this study are that elderly consumers share an 'anti-brand' attitude, are more patriotic and prefer local products, and have a strong concern for human working conditions, which might be attributed to their long life experiences. Vitell et al. (1991) and Pedrini and Ferri (2014) add to this finding that elderly consumers are generally more ethical than younger ones, with the former author stating that the beliefs of the elderly are quite diverse on what 'ethical' constitutes and the latter authors adding that next to increasing age, educational level and income is also positively related to the propensity to buy ethical products.

The purchase of ethical electronic products has been researched by McDonald et al. (2009) who conducted qualitative interviews for a selection of product sectors. The results showed that sustainability criteria, are not used consistently across product sectors, and for small electronic appliances (TV, computers) brand is the most important decision-making criteria with sustainability rarely used or discussed, even though the consumer considered himself 'green'.

2.2 Product Feature Preference Among Mobile Phone Users

Past research on mobile phones have mostly included intrinsic and extrinsic product characteristics and analyzed which product feature has an impact on consumers and their assessment of the product is quality. Intrinsic characteristics are related to the physical features of the phone, such as design and specifications while extrinsic factors include price, brand name, level of advertising, website quality, country of manufacture, and warranty (Awan M. 2014; Economides & Grousopoulou, 2008, Haverila; 2011; Haverila, 2013; Isklar, G., Buyuközkan, G., 2007; Kimiloglu & Nasir, 2010; Roberts, 1996; Petruzzellis, 2008). The common feature of those publications is however, the absence of any questions on whether consumers pay attention to green or social aspects when selecting a mobile phone.

One example study is from Kimiloglu and Nasir (2010), who explored attributes to which mobile phone users attach importance when purchasing a phone and created clusters of consumers based on the five major criteria which emerged in their analysis. The clusters have the following profiles: 1) focus on functionality and design, safety and duration, practicality and durability, physical features, and availability and quality of service network; 2) emphasis on functionality and design, and practicality and durability at a secondary level; 3) highest importance has price and payment conditions; and of secondary concern practicability and durability, and safety and duration; 4) high interest in most features but neglecting 'social

desirability and impressiveness'. Haverila (2011) surveyed male mobile phone users in Finland regarding mobile phone preferences. The most important feature for respondents was the battery/talk time, followed by quality, ease of use, price and size of display. This ranking is followed by a list of three factors that are correlated to customer satisfaction: 1) business functionality, 2) standard parts and processes and 3) aesthetics and design. Only the first factor - containing business services, display, roaming, memory, and brand - correlated with the repurchase intent of the respondents.

Studies by Petruzzelli (2008) and Lefkoff-Hagius & Mason (1990) investigated the product-oriented (utilitarian) motive and the experience-oriented (hedonic) motive of consumers. Utilitarian benefits can be described as functional, instrumental and practical benefits and can be seen as necessities and needs. While the hedonic group refers to the aesthetic, experiential and enjoyment related benefits and can be seen as 'wants'. The first one therefore represents objective, rational and problem solving behavior while the second one represents more subjective, emotional, symbolic and intangible aspects. He concludes that companies should focus on general image building and less on single product campaigns or price competition. Petruzzelli (2008) highlights the fact that a stronger brand and additional services will distinguish one product from the mass or competing ones in the highly competitive marketplace of mobile phones. Other hedonic motives were explored by Salazar et al. (2013) who found that social influence is important in explaining one's decision to buy sustainable products and Bartels and Onwezen (2014) state that consumers who identify themselves with a specific group, such as organic consumers, are more willing to buy products that have environmental and ethical benefits.

Glasscock & Wogalter (2006) examined the usage of features by consumers, divided by gender and age groups. In contrast to other research, their focal point was on software features, and resulted in the notion that there are groups of consumers who chose phones that are easy to use and do not have a multitude of applications and features they do not intend to use. In particular, as the age of consumers increase, the fewer features were desired. Other factors influencing preferences were occupation, being a parent and gender. Economides and Grousopoulou (2008) studied the preference of both intrinsic characteristics and software features among college students. Respondents were asked to evaluate features and state their willingness to pay for each of them. Of significant importance were battery life, storage and design and respondents were willing to pay for them. However, many of the features were considered not worth paying for, and the authors assume this might be due to the respondents not being familiar with them. Finally, the authors suggested developing four different device types for this target group: 1) simple devices, 2) mobile phone with mp3 playing function, 3) mobile phone with internet capabilities and 4) all inclusive.

Finally, Tseng and Lo (2011) studied factors influencing consumers who decide to upgrade their mobile phones from third (3G) to fourth generation (4G) devices. They concluded that even though respondents view 4G devices as easier to use and more useful, as long as they are satisfied with their present phone, they will hesitate to switch. Influence factors for an upgrade might be lifestyle and how they spend their time and money, all of which are often affected by situational and surrounding factors.

III. METHODOLOGY

The questionnaire for this survey comprised two parts. The first part, which consisted of questions addressing elements the respondents considered when purchasing a smartphone, required participants to evaluate 20 items on a five-point Likert scale, ranging from 1=completely unimportant to 5=very important. The items for this list were collected through a brainstorming session with 14 master's students who conducted the survey for this project. The second part, which addressed the Fairphone Project, first asked respondents whether they were familiar with this topic and then asked them to rate the principles that Fairphone stands for on a five-point Likert scale. A second question asked the respondents to declare whether they would be willing to purchase a Fairphone in ten hypothetical situations, with eight statements in the affirmative and two in the negative. They also had an open option to answer this question. Questionnaires were collected in two stages: The first set of questionnaires was collected in December 2016, and the second set in April 2017. The target group of this survey, conducted in Chinese, were Taiwanese students as they can be considered as heavy users of smartphones (2010 census - Directorate General of Budget, Accounting and Statistics, Teng et al., 2009).

There are two sections representing the findings: First, factors of importance to mobile phone users were determined and subsequently clustered, an approach often used in literature as a standard procedure to explore motivation factors from survey data (Beh and Bruyere, 2007; Park and Yoon, 2009; Rid et al, 2014) and to create homogenous subgroups to target with future policies or marketing campaigns. For this purpose, factor analysis was performed on the mobile phone attributes, with items in the list taken and adapted from Isiklar and Büyüközkan (2007), expanded by the unique Fairphone's features, taken from the official website. In summary, the questionnaire contained 25 items and was translated into Chinese for this project. After conducting the analysis, a six factor solution was deemed best, as it permits optimal explanations. After this analysis, respondents were clustered based on the importance they placed on each of the factors when purchasing a mobile phone. Five distinct groups emerged from the analysis and were further investigated in terms of their

willingness to purchase a Fairphone. For this purpose the questionnaire contained elements with either the answer ‘yes’ or ‘no’ with a choice of conditions for either position. In total, eight elements contained the answer ‘yes’ and two ‘no’, and multiple selections were permitted.

The first paragraph under each heading or subheading should be flush left, and subsequent paragraphs should have a five-space indentation. A colon is inserted before an equation is presented, but there is no punctuation following the equation. All equations are numbered and referred to in the text solely by a number enclosed in a round bracket (i.e., (3) reads as "equation 3"). Ensure that any miscellaneous numbering system you use in your paper cannot be confused with a reference [4] or an equation (3) designation.

IV. FINDINGS

4.1. Descriptive statistics

The sample comprised 879 usable responses received from a total of 340 completed questionnaires in the first stage in December 2016, and of 600 collected questionnaires in the second one in May 2017. The sample consisted of 47% male and 53% female participants, who were aged between 14 to 30 years with most people between 18 to 21 (71.9%) years. Participants owning a smartphone amounted to 98.2%, with the top brands owned being 1) Apple (29.2%), 2) HTC (19.7%), 3) Samsung (14.8%), and 4) Sony Ericsson (11.3%).

Table 1 shows the top 10 important mobile phone features of the 20 smartphone and five Fairphone characteristics listed in the questionnaire which were evaluated on a five point Likert scale in the questionnaire ranging from 5 = very important to 1 = completely unimportant. The top three are the *technical specifications and high performance, durability (shock resistance, long-lasting battery)* followed by a Fairphone characteristic: *Focus on longevity and repairability to extend a phone’s life*.

Table 1: Importance of features – top 10 list

Rank	Elements	Mean	Std. Div.
1	Technical specifications – high performance	4.35	.84
2	Durability (shock resistance, long-lasting battery)	4.31	.85
3	Design: Fairphone focuses on longevity and repairability to extend a phone’s life.	4.24	.91
4	Quality of Camera	4.23	.89
5	Operating System	4.19	.85
6	The full life-span of mobile phones, including use, reuse and safe recycling is addressed.	4.14	.91
5	Design/Color	4.13	.90
6	Customer Service	4.08	.88
7	Ease of Data transfer	4.00	.93
8	Ease of use	3.95	.91
9	Price	3.94	.93
10	Factory workers work under safe conditions, receive fair wages and are allowed to create a labor union	3.93	.95

4.2. Factor Analysis

To identify specific motivation factors, a principal component analysis (SPSS 17.0) was conducted on 22 different attributes after three of the 20 item question had been removed due to their similarity to Fairphone characteristics. This was followed by a K-means cluster analysis to identify different groupings of individuals based on their interest in mobile phone features. This approach, which is often used in the literature for exploring motives from survey data, is suggested by Fields (2009) and used by Rid et al (2014), Park and Yoon (2009) and Beh and Bruyere(2007).

First, the overall adequacy for the analysis was tested and validated with a KMO = 0.893, while a Bartlett’s test of sphericity showed high significance (p<0.001). Five factors emerged, accounting for 57.84% of the variance in the sample. The values of Cronbach Alpha coefficients range from 0.573 to 0.889, with half of the values falling into the acceptable range or being higher than 0.7 to 0.8. The remaining half with lower values should, however, not be a reason to reject findings according Cortina (1993) who points out that the calculated alpha value depends on the number of items on the scale. As the number of items in each of the three factor is very small (three items per factor), it may therefore be one of the causes of the low results. The summary of the analysis can be found in Table 2.

Table 2: Results of factor analysis

Factor	Factor Loading	Eigen-Value	Variance Explained	Cronbach’s α
<i>F1: Social attributes</i>		6.79	30.84	0.889
Factory workers work under safe conditions, receive fair wages and are allowed to create a labor union	0.869			

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The full life-span of mobile phones, including use, reuse and safe recycling is addressed.	0.827			
Source Materials support local economies and not armed militias	0.815			
Consumers are informed in detail about the production process, of the origin and price of each component.	0.764			
Design: Fairphone focuses on longevity and reparability to extend a phone's life.	0.754			
<i>F2: Reliability and trust</i>		2.44	11.11	0.738
Country of origin	0.711			
Number of friends/relatives using same brand/model	0.709			
Expert evaluations online	0.632			
User comments online	0.622			
Size	0.460			
		1.37	6.24	0.765
<i>F3: Practicality and durability</i>				
Durability (shock resistance, long-lasting battery)	0.772			
Ease of use	0.704			
Customer Service	0.658			
Ease of Data transfer	0.461			
Design/Color	0.454			
<i>F4: Specs and price attractiveness</i>		1.12	5.07	0.652
technical specifications	0.697			
Price	0.681			
Operating System	0.584			
<i>F5: Familiarity</i>		1.01	4.58	0.573
Habit (used brand before)	0.815			
Reputation of Mobile Phone company	0.533			
Availability of Apps/Games	0.467			

Note: 1) Items were arranged according to factorial analysis with Eigenvalue > 1 and factorial loadings > 0.4

The first factor ‘Social attributes’ has a variance of 30.84% and exclusively contains items related to the Fairphone: source materials support local economies and not armed militias in – for example – Africa; factory workers work under safe conditions, receive fair wages and are allowed to create a labor union; the full life-span of mobile phones, including use, reuse and safe recycling is addressed; design: Fairphone focuses on longevity and reparability to extend a phone’s life; and consumers are informed in detail about the production process, of the origin and price of each component. This clustering is not very surprising as those variables included represent very social aspects of the product. The second factor ‘reliability and trust’ accommodates attributes which are often strong influence factors in a purchase decision for consumers in Asia: country of origin, friends/relatives using same brand/model, expert evaluations online and influence of reference groups such as friends or relatives. Country of origin often represents a label of quality for these consumers and is also a socially desired purchase, as they will receive praise from people in their social circle. As for many products, longevity, user friendliness, and good customer service plays an essential part for a possible purchase as listed in factor three (‘practicality and durability’). For most technological products there are always consumers searching for a good value for the product’s price (Factor four: ‘specs and price attractiveness’). Hence technical specs of a mobile phone, such as display resolution, CPU, connectivity, operating system, and memory are explored and compared to competitor’s products and price levels. The final factor, number five – ‘familiarity’, shows that regardless of attractive alternative products offered in the marketplace, consumers might opt for a brand and product which they are familiar with and have been loyal to in the past.

4.3. Cluster analysis

In this section, the sample of 879 respondents is clustered using a K-means cluster analysis on the newly computed variables obtained in the factor analysis. A non-hierarchical cluster analysis was chosen due to the large sample size and as performed by Kimiloglu and Nasır (2010) in their study on the mobile phone market. A five cluster solution was considered best as it resulted in the most interpretable segments and well distributed cluster sizes. Table 3 shows the final cluster centers of the analysis. The clusters have the following characteristics:

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The first cluster contains respondents who are mainly interested in variables correlated to the fifth factor, describing people who are faithful to the brand they have been using in the past and pay attention to the reputation of the company. In addition, they are characterized by their strong disinterest in elements for factor two, ‘reliability and trust’, portraying consumers who are not influenced by peer pressure or experts but have trust in their own ability to evaluate a phone model and brand. The country of origin also does not play an important role, which might be based on their belief that most phone models, even though designed in various countries, are ultimately produced in factories in Mainland China and consequently having similar quality standards. These consumers will most likely purchase upgrades of phone models they are currently using and are therefore titled ‘loyal consumers’.

Respondents in the second cluster (*value-conscious consumers*) find features related to factor one, ‘social attributes’, and four, ‘specs and price attractiveness’, important. For these consumers the price/value relation is of high importance; they will consult product reviews and technical specifications and compare prices from different suppliers. This group is also most likely interested in the Fairphone as this product has the most transparent supply chain available, and the costs of each component and service are explained in utmost detail.

The most significant element characterizing the next group (*insecure consumers*) is that they attach the highest importance to ‘reliability and trust’ (factor two). This group is the largest segment in this survey, and feeling ‘safe’ after purchasing a product is of high importance to this group, which can be based on consulting product reviews, evaluations by experts or purchasing products from countries of origin that are renowned for high quality products. In addition, they will make sure to purchase a ‘socially desired’ phone and are most likely to succumb to peer pressure. It is not surprising that consumers in this group also pay attention to elements in factor five, ‘familiarity’, as these elements further lower their uncertainty as a consequence of being a product they had experience with in the past or a phone boasting a high brand equity.

The next cluster is characterized by consumers’ aversion to certain factors rather than their interest. Members of cluster four attach a significantly low importance to elements of factor three and four, ‘practicality and durability’ and ‘specs and price attractiveness’, elements that might be considered of high importance to mobile phone enthusiasts. Therefore, it might be speculated that, for this group, a mobile phone represents an item of necessity rather than passion. They buy it out of convenience but don’t spend too much time on learning more about this product or its many functions. They are therefore labeled ‘passive consumers’.

Members of the final group ‘pragmatic consumers’ attach the highest importance to ‘Practicability and durability’ (factor three). They seek a simple to use device and want to have good customer service to help them with possible problems and questions. Of additional importance is long battery life, so this segment might be a good group to target with less sophisticated and energy consuming smartphones. The other prominent criteria is the strong negative association with factor one, containing the social attributes of Fairphone. This group seems to have a critical attitude towards promises and claims of companies regarding good working conditions, fair pay in their factories, and environmentally friendly production methods. Or they might consider the manufacturing environment in all mobile phone companies to be similar and shouldn’t represent a criteria for the selection of a device. An additional reason may be that regardless of whether they purchase one device or another, they believe that this choice will not have any effect on the attitude of companies towards social attributes as a company’s primary goal is profit maximization.

Table 3: Final Cluster Centers

Factors	Cluster				
	1 ‘loyal consumers’ N = 165	2 ‘value conscious consumers’ N = 156	3 ‘insecure consumers’ N = 230	4 ‘passive consumers’ N = 171	5 ‘pragmatic consumers’ N = 157
Factor 1: Social attributes	-.05156	.61516	.45304	-.14877	-1.05871
Factor 2: Reliability and trust	-1.12460	-.27804	.89829	-.09800	.24894
Factor 3: Practicality and durability	.35044	.26387	.06370	-1.24072	.62756
Factor 4: Specs and price attractiveness	.12653	.70684	.10227	-.68776	-.23605
Factor 5: Familiarity	.82044	-1.07155	.57455	-.25076	-.36609

The results of the ANOVA test displayed in Table 4 show that there is a significant differentiating value attributed to all factors used in the clustering process. Among the factors, there are four which can be considered as strongly differentiating factors: Factor one ‘Fairphone’, two ‘reliability and trust’, three ‘practicality and durability’, and five ‘familiarity’.

Table 4: Differentiating power of each factor in the analysis

Factors	F	Sig.
<i>Factor 1: Social attributes</i>	105.801	.000
<i>Factor 2: Reliability and trust</i>	198.280	.000
<i>Factor 3: Practicality and durability</i>	149.810	.000
<i>Factor 4: Specs and price attractiveness</i>	53.472	.000
<i>Factor 5: Familiarity</i>	181.094	.000

3.4 Differentiating clusters according to purchase intention of Fairphone

In this section of the findings, the five segments derived from the cluster analysis are investigated further with respect to consumers’ willingness to purchase a Fairphone. The answers are displayed in Table 5, containing the absolute number and percentage within each cluster in brackets. The characteristics are as follows: A high percentage of members all clusters are willing to buy a Fairphone if it has the technical specifications they wish for. The highest percentage can be found in cluster two, ‘value conscious consumers’, which corresponds to the earlier description of the cluster: Consumers seek a mobile phone with a good price/value relation, and it is not surprising to find the highest percentage (25%) for the statement ‘Yes, if it’s cheaper than my current phone’ and one of the two highest ratings for ‘Yes, if it has about the same price as my present phone’ (19.2%) in this segment as well.

Members in the first segment, ‘loyal consumers’ predominantly selected ‘No, I love my current phone’s brand’ (27.3%) confirming their loyalty to their present phone brand and by choosing ‘Yes, if it has the same operation system as my current phone’ (30.3%) confirming their loyalty to their present operation system. Elements that are emphasized in the third cluster, ‘insecure consumers’ are that they wish to ‘test the phone in a shop’ (23.5%) indicating part of them will feel safer if they can physically interact with a sample phone before purchasing a model for themselves. On the other hand, there are a considerable number of respondents who selected ‘Yes, if it has the same operation system as my current phone’ (31.3%) showing a willingness to switch if at least the software is the same as installed on their present device. The ‘passive consumers’ are those who would buy the Fairphone rather unconditionally, suggested by 15.7% answering ‘Yes!’. This might be attributed to the Fairphone not being a flagship product in the mobile phone world but a rather simplistic, down-to-earth device and therefore a product suitable for this segment. One of the distinguishing properties of the final cluster ‘pragmatic consumers’ is that it had highest response rates for ‘No, other things are more important to me about a phone’ (17.2%) highlighting again the strong negative association with the first factor - social attributes of the Fairphone. They are moreover quite loyal to their present phone brand (28%) but also most likely to be influenced by peers, as this group had the highest response rate for ‘Yes, if my friends also buy it’ (15.3%).

Table 5: Willingness and Conditions for the purchase of a Fairphone in cluster membership

Description	Cluster				
	1 ‘loyal consumers’ N = 165	2 ‘value conscious consumers’ N = 156	3 ‘insecure consumers’ N = 230	4 ‘passive consumers’ N = 171	5 ‘pragmatic consumers’ N = 157
Yes, if it has the specs if want	50 (30.3%)	57 (36.5%)	74 (32.2%)	38 (22.2%)	52 (33.1%)
Yes, if it has the same operating system as my current phone	50 (30.3%)	43 (27.6%)	72 (31.3%)	35 (20.5%)	33 (21.0%)
Yes, if it’s cheaper than my current phone	25 (15.2%)	39 (25.0%)	37 (16.1%)	34 (19.9%)	31 (19.7%)
Yes, if I can test it in a shop.	24 (14.5%)	30 (19.2%)	54 (23.5%)	19 (11.1%)	24 (15.3%)
Yes, if it has about the same price as my present phone	21 (12.7%)	30 (19.2%)	37 (16.1%)	28 (16.4%)	31 (19.7%)
Yes, if the brand becomes more famous	30 (18.2%)	14 (9.0%)	38 (16.5%)	14 (8.2%)	26 (16.6%)
Yes!	14 (11.9%)	41 (15.6%)	17 (9.7%)	28 (15.7%)	14 (9.7%)
Yes, if my friends also buy it	10 (6.1%)	9 (5.8%)	28 (12.2%)	13 (7.6%)	24 (15.3%)
No, other things are more important to me about a phone	24 (14.5%)	22 (14.1%)	34 (14.8%)	23 (13.5%)	27 (17.2%)
No, I love my current phone’s brand.	45 (27.3%)	21 (13.5%)	56 (24.3%)	37 (21.6%)	44 (28.0%)

V. CONCLUSION

The major purpose of this study was to explore whether consumers in an Asian country, Taiwan, would consider purchasing an ethical smartphone or if other product attributes such as price, technical specifications or brand are the more influential criteria for their purchase decision. First, the most popular factors for selecting a mobile phone were explored. Among the top rated ones, one Fairphone characteristic ‘Design: Fairphone focuses on longevity and repairability to extend a phone’s life’ was ranked three, and the element ‘The full life-span of mobile phones, including use, reuse and safe recycling is addressed’ ranked six among the 25 elements listed in the questionnaire. This shows that young adults care significantly about the longevity of a mobile phone, which is further emphasized by the second ranked ‘general’ element ‘Durability (shock resistance, long-lasting battery)’. This finding suggests that young consumers in Taiwan wish to use a mobile phone for an extended period of time and not purchase a new model in short intervals. Here the Fairphone might be an attractive product as it promotes do-it-yourself repair, offers spare parts and supplies repair guides.

The factor analysis performed on the 22 variables assessing the importance of mobile phone features concluded in a five factor solution, indicating that mobile phones are high involvement products and many different considerations can be taken into account before its purchase. All the Fairphone characteristics were summarized in one factor constituting the social aspects of a mobile phone. Strong attention is further directed at a phone’s brand and the feeling of ‘trust’ towards a product. This can be due to the country of origin, expert comments, and how many friends use the same brand or model. An additional point of consideration is the familiarity with a brand due to past usage and the reputation of the phone company, signaling that some consumers’ own experience and opinion is put above the opinion of experts and peers. Practicability and durability are of importance, suggesting that the myriad of functions and apps advertised are not a key factor for a purchase as the device might be seen as too complex and bothersome to use. Also the robustness of the phone and a long battery life are essential, so that long usage of the device can be guaranteed. Finally, technical specifications and price attractiveness are of essence, an aspect found important in previous research as well (Kimiloglu and Nasir, 2010).

Another set of findings was the clustering of mobile phone users in this survey and some distinct characteristics emerged in the process. The loyal consumers were a group of respondents who put priority on the phone’s brand and the phone company’s reputation supporting Auger et al.’s (2010) point that some consumers might use a brand as a substitute for quality and that a brand might also have a higher emotional value for those people, thereby increasing the overall satisfaction with a product. The value-conscious consumers search for a good price-value relationship when purchasing a mobile phone, and they will consult various sources before making their decision. Members of this group are most likely interested in the Fairphone due to the fact that this project provides the most detailed information on their product, which is being looked for by this group. Evaluations and opinions of experts and peers are at the center of insecure consumers, and companies might consider offering links to expert evaluations on technological websites or media blogs or opportunities to users of their products to evaluate and comment on them, such as the way that the Fairphone project already does on their official website and on Facebook. More challenging is the group pragmatic consumers who favor practicability and durability but have a strong disinterest in social aspects of a product. The reasons for that might be various: as Ubilava et al. (2010) stated, consumers may consider this type of product and signal their willingness to pay higher premiums only if their well-being is directly affected. Unlike food products, buyers of mobile phones will hardly feel distressed as a result of purchasing an ‘unethical’ mobile phone, which is quite in contrast to a mass produced food product that might affect their health in the long run. Another reason can be that the attitude towards immoral behavior has not become dominant in Taiwan’s society and culture, which is a prerequisite for the success of fair products (Carrigan et al., 2004; Srnka, 2004; Vitell, 2003).

In summary, the Fairphone might become a success among young Taiwanese, it has to however, meet certain expectations such as offering the desired specifications, operating systems and price. The focus of respondents was, however, less on the social attributes of the Fairphone, such as fair working conditions and social welfare, but the good value/price relation and detailed price-breakdown. They will also have to battle against famous brands such as Apple and HTC, as consumers in this market are quite interested and loyal to these brands. Contrary to previous findings that ethical products can only be afforded by consumers in first world economies, it can be pointed out that when it comes to mobile phones young adults in Taiwan are quite willing to spend an equal amount as young consumers in the developed world for top brands such as Apple, Samsung and HTC, which were owned by 63.7% of this study’s participants.

Finally, the limitations of this study should be addressed: The focus of this research was limited to one culture in Asia only, Taiwan, and the subjects within this culture were limited to university students. Future research can address different segments, such as elderly people, where different results can be expected due to the consumer’s longer lifespan and accumulation of experiences (Carrigan et al., 2004; Vitell et al., 1991). As with previous research, this project also addresses only the purchase intentions and not the actual purchase, and quite often the stated intention does not translate into buying the ethical product (Auger et al., 2008; Miniario et al., 2014). As the Fairphone is not available outside Europe at present an actual purchase study cannot be

conducted in Taiwan. However, other product categories can be explored and whether ethical consumerism is truly limited to the developed world. Respondents in this study showed that they paid a considerable amount of money for an item they are passionate about, which can be the same for other goods where a 'fair' alternative is available and they are emotionally affected. Future studies can also consider a more holistic approach towards ethical consumer behavior in Taiwan, utilizing a qualitative approach similar to Papaïkonomou's (2007) or Ritch and Schröder's (2012) research, which can better explain possible cultural differences than the quantitative method used in this survey.

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