國立臺灣師範大學管理學院管理研究所

碩士論文

Graduate Institute of Management
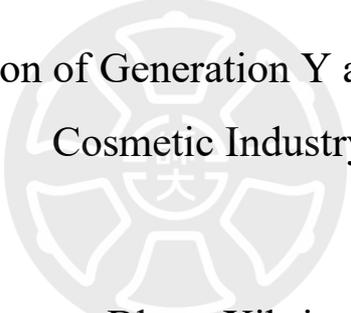
College of Management

National Taiwan Normal University

Master's Thesis

臺灣Y世代與Z世代美妝產業市場區隔之研究

Market Segmentation of Generation Y and Z in Taiwan for the

Cosmetic Industry

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中華民國 109 年 7 月

July 2020

ABSTRACT

This study focuses on generational lifestyle in Taiwan. More precisely, this paper has the purpose to define market segments regarding generation Y and generation Z for the cosmetic industry. The market segmentation of both generations is used as a basis to further build a comparison. A quantitative method was used to get data for this research. A questionnaire was developed to conduct this research and define different purchase groups among these two generations in order for marketers to better tackle and tailor their targeting strategies accordingly. The generations' behaviour and interests towards cosmetics is further analyzed concluding in different market segments which are then used to compare the characteristics that generation Y and Z present. The first part of this thesis explores literature concerning the cosmetic industry, market segmentation approaches and already observed characteristics of each generation. The second part consists in data analysis using the questionnaire for gathering the data and further investigating it through SPSS as a statistical tool.

Keywords: generation Y, generation Z, market segmentation, cosmetics industry,

generation Y and Z in Taiwan

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CHAPTER I   INTRODUCTION

The first use of "cosmetics" as a means of emphasizing a specific body part dates as far back as the ancient Egyptian civilization (Hunt, Fade, & Dodds, 2011). According to Brown (2008), Egyptians evidently started to paint their eyes as early as 3000 B.C. for medical and cosmetic purposes. Because of the dry weather conditions, moisturizers were considered fundamental for every class of people (Lucas, 1930). Hence, they also made and used a range of balms, ointments and pastes, which were distributed to workers and farmers on a regular basis. Hygiene and cleanliness were also essential for Egyptians. Bathing several times per day was normal and each time there would be different lotion, ointment and oil applications to their skin (Hunt et al., 2011). Similarly, Egyptians had implemented the use of cosmetics in every self-care aspect, not only for medical, protective or hygiene purposes, but also for beauty reasons. It is believed that they created make-up application tools, hair care methods, wrinkle removers and nail and lip "staining" where they gave the lips more color or painted nails using *henna*. Brown (2008) expresses that around 2000 B.C., several formulas created from papyrus claimed to have properties such as wrinkle, pimple or age spots removal.

The Egyptians set an example for other cultures and their practices of selfcare and beauty were soon spread in other civilizations through trade (Hunt et al., 2011). Therefore, the use of cosmetics can be witnessed historically from other ancient civilisations such as ancient Greece, Rome, China or Japan. The fact that the use of cosmetics dates so far back is evidence of its importance for society and its huge impact in each individual's life. On the other side, the cosmetic industry not only has a social but also a substantial economic impact.

The cosmetics industry has been experiencing a steady value growth during the past years and it is still expected to grow in the future. Leaping on to markets where cosmetic brands target to sell their products to, it is necessary to mention generation Y, also called millennials, which are considered to be a significant market and consequently have a high buying power. At the moment millennials are the generation that has a buying power that is going to became greater than that of the Baby Boomer generation. Subsequently, is it a very attractive market for marketers. On the other hand, a new generation is rising, Generation Z. They are born in the digital era and are the future customer for businesses. This generation is particularly of interest because their

behavior towards brands is substantially affected by technology and its impact in their upbringing. They have different interests and opinions regarding the way how they interact with a brand. This paper will focus on the individuals that are part of these generations in Taiwan. The purpose is to find different purchase groups within generation Y and Z in concerns of the cosmetic industry based on the fact that no such study has been done before for this region specifically. The lifestyle diversity of today's youth has never been so wide before and generation z will become a sizable and increasingly more noteworthy consumer group by 2020 (Van den Bergh and Behrer, 2016). In order to discover and explore further market segments within these generations, market segmentation approaches are considered. Segmentation is a widely discussed topic and many experts have researched the topic for many years, considering it as a crucial part of a company's strategy leading towards success. Based on the importance of segmentation, this study will make use of its approaches to find out purchase groups and consumer characteristics for each generation. The four most popular ways to group consumers based on similarities between them will be explored: geographic, socio-demographic, psychographic and behavioral segmentation. Geographic segmentation is the simplest where groups are defined based on their location. Furthermore, socio-demographic segmentation places consumers into groups based on age, gender, profession or income. Many studies have been conducted which focus on socio-demographic segmentation such as (Hammond et al., 1996; Lin, 2002; Uncles and Lee, 2006). On the other hand, psychographic segmentation increases in complexity as it measures, and groups individuals based on their preferences, values opinions and lifestyle. Lastly, a behavioral segmentation approach is also complex in nature. This approach serves to find similarities between consumers regarding their behavior towards a product. Studies such as (Fennell et al., 2003; Hassan and Craft, 2005; Sarigöllü and Huang, 2005; Wells et al., 2010) which have emphasized on psychographic traits that include attitude, lifestyle, behavior etc. This paper selects in advance consumers which are already defined by their location, using Taiwan as their place of residence, and by their age, which is what distinguishes both generation Y and Z from each other.

CHAPTER II   LITERATURE REVIEW

Cosmetics Industry

Industry Overview

The fact that the first use of cosmetics dates so far back shows and emphasizes the importance and impact this industry has in today's society in a global scale. Cosmetics are part of every human's life in one form or another, hence, this industry is significantly vital because of the tremendous impact it has on social life globally (Kumar, 2005). The concept of cosmetics is defined as a chemical mixture that is applied to the human body to improve or enhance a specific body part or odor (Lee, 2018). According to the European Commission (2015), cosmetics are "any substance or mixture intended to be placed in contact with the external parts of the human body (epidermis, hair system, nails, lips and external genital organs) or with the teeth and the mucous membranes of the oral cavity with a view exclusively or mainly to cleaning them, perfuming them, changing their appearance, protecting them, keeping them in good condition or correcting body odours". There is a common misconception that cosmetics only include products bought by people to enhance their external appearance. In fact, besides beauty products, cosmetics involve cleaning products, such as soaps, shampoos, shaving creams, deodorants etc. Moreover, products of a medical nature, such as anti-inflammatory creams, are also part of the term cosmetics. In this sense, these commodities are an essential part of life, which fulfil the fundamental prerequisites of cleanliness and basic hygiene (Amarjit Sahota, 2014).

The substantial significance of this industry is based not only on its social impact, but also on an economic point of view. According to Statista (2018), the worldwide cosmetics market grew with an average of 4.16% a year in the last 20 years, reaching a market value of 507.8 billion USD in 2018 and it is projected to reach a value of 758.4 billion USD in 2025, which translates to a growth rate of 49.35% from 2018. Many reports state that, improved living standards, a higher disposable income and changing lifestyle trends are all major growth drivers for this industry. Consumers become more aware of their wellbeing and the use of cosmetic products in their daily lives. The industry is evidently not hugely dominated by the female gender anymore, as men are increasingly including the use of cosmetics in their daily routines as well (Allied Market

Research, 2016). According to Statista (2019), the biggest cosmetic market value share belongs to companies from the US with 43.2%, followed by France with 32%. The Asia Pacific region is expected to growth their cosmetics' market share as well primarily because of the social changes mentioned. Nonetheless, Statista (2019) reports that Asia Pacific generated the largest sales in cosmetics in 2019 (*Figure 1.1*).

Figure 1.1: Sales distribution in the cosmetics market worldwide by regions in 2019. Adapted from: „Markenwert der wertvollsten Kosmetikmarken weltweit nach Ländern 2019" by Statista, 2019. Copyright 2020 by Statista.
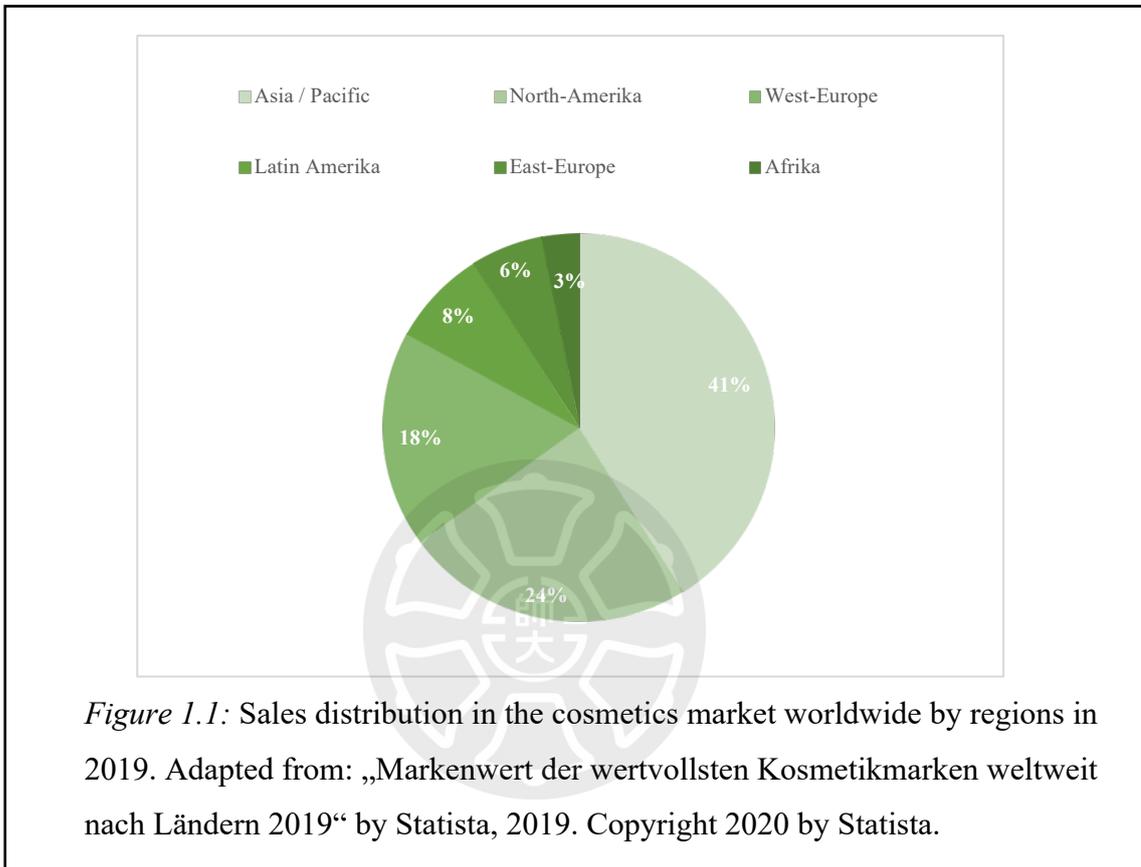
More specifically, in 2016, Taiwan accounted for approximately 4 billion USD of the global cosmetics market (Lee, 2018). The product categories mainly sold are skin care (52%), color cosmetics (17%) and Hair care (9%) (Lee, 2018). There are various distribution channels of the cosmetic products with drug stores being the most important ones which approximately account for 48%. Other channels are Department stores (25%), Salons (11%) and E-Commerce (16%). The latter is becoming increasingly important as a sales channel. The Taiwanese cosmetics market is dominated by international brands. The top three brands in terms of sales are Taiwan Shiseido (Japan), L'Oréal Taiwan (France) and Procter & Gamble (USA) Taiwan, which make up 30% of the market share.

Industry Trends

Consumers are apprehending that their buying behavior has a direct influence on the environment and different communities. There is a growing trend of demanding products that are natural based and environmentally friendly (Amarjit Sahota, 2014). There are several aspects to be looked at when referring to sustainable products. Consumers are valuing their favorite brands and products based on their carbon footprint, sustainable packaging, effects on the ecosystem such as nature and animals, and the use of natural ingredients and their procurement sources. While, the trend of sustainable products appears in a diverse range of intensity in different countries, in Taiwan can also be seen an increase of demand for environmentally friendly cosmetics. Taiwanese consumers that want organic ingredients and less harm to the environment's ecosystems are growing and will continue to grow in the future as society becomes more conscious about the background and consequences of their purchases (Lee, 2018). Media has played a crucial role in procuring information and creating awareness on this issue and its many connotations (Bom, Ribeiro, Marto, 2019).

Another trend affecting the cosmetics industry is online advertisement and social media. Kumar (2005) states that while online marketing has the advantage to create and launch new product campaigns much faster than for example, in magazines, the cosmetics industry faces challenges because the sale of a product highly depends on face-to-face consultation. Additionally, a consumers' purchasing behavior is highly influenced by online communities (Parker, 2011).

Natural cosmetics.

The sustainability of cosmetics affects each phase of the product life cycle, where the designing phase plays a crucial role in presenting the presence of sustainability of a brand and the use of natural ingredients (Bom, Ribeiro, Marto, 2019).
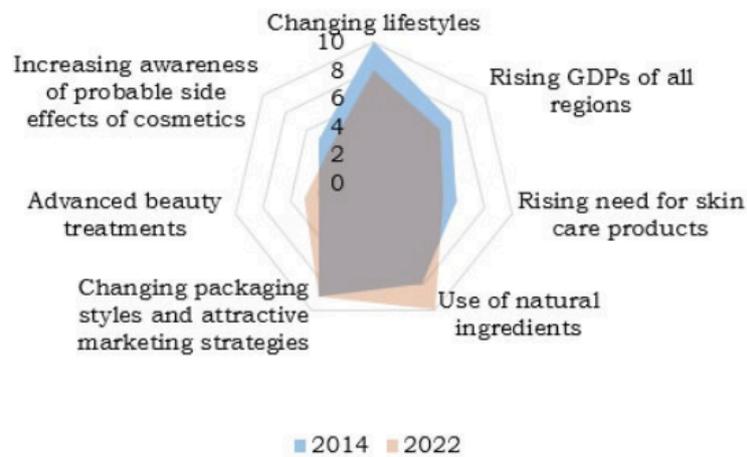
Figure 1.2: Top factors impacting Global cosmetics market. Adapted
from "Cosmetics Market by Category (Skin & Sun Care Products,
Hair Care Products, Deodorants, Makeup & Color Cosmetics,
Fragrances) and by Distribution Channel (General departmental
 store, Supermarkets, Drug stores, Brand outlets) - Global Opportunity
Analysis and Industry Forecast, 2014 – 2022." by *Allied Market
Research 2016*. Copyright 2016 by Allied Market Research.

According to the Allied Market Research (2016) report, the use of natural ingredients in
cosmetics is predicted to be a rising trend. As shown in *Figure 1.2*, this trend is evidently
significant in the foreseeing future with the highest increase compared to the other
factors. Additionally, according to Statista (2018b), the global market value for natural
cosmetics is expected to increase from around $34.5 billion in 2018 to $54.4 billion in
year 2027. This is a clear evidence of the significance of the natural cosmetic market in
the future (*Figure 1.3*).
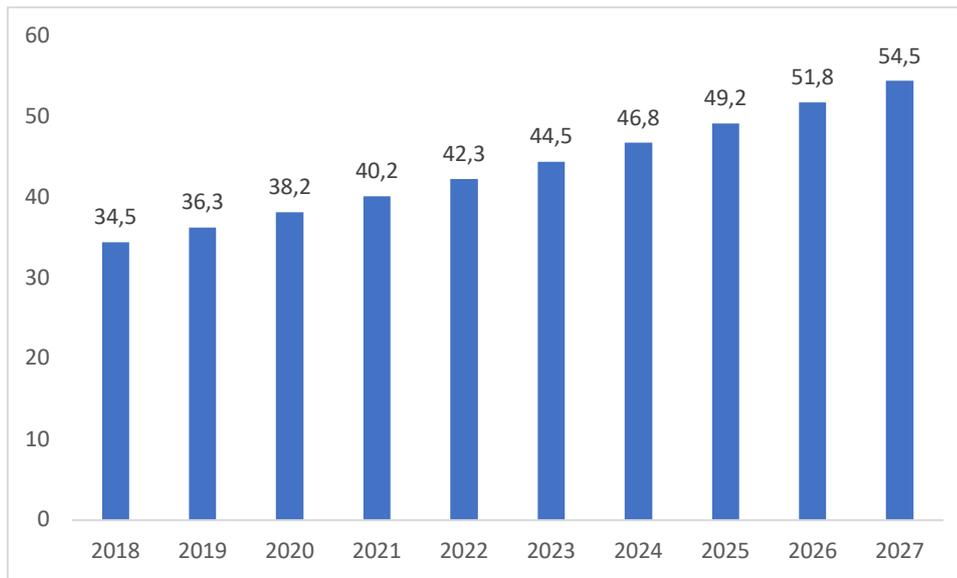
Figure 1.3: Global market value for natural cosmetics from 2018 to 2027. Adapted from "Global market value for natural cosmetics in 2018-2027" by Statista 2018. Copyright 2020 by Statista.

Although the awareness towards the use of natural ingredients in cosmetics is not new, consumers nowadays have access to more information when it comes to the composition of a cosmetic. As often is the case, cosmetics are the most chemically loaded products in the market, whose use affect the human body directly (Csorba & Boglea, 2011). Csorba & Boglea (2011) state that in general the concept of green cosmetics is regarded as products that use simple formulas composed of natural ingredients only, with no extracts from animals and no toxic components. Although this is not an accurate depiction of the products' composition, their perception affects their buying behavior and is definitely associated to their perception of a brand (Bom, Ribeiro, Marto, 2019). According to Dimitrova, Kaneva and Gallucci (2009), people who care about health and appearance in an environmentally friendly mindset are the ones who will also purchase natural cosmetics.

Online advertising and social media.

Kumar (2005) also expresses that it is difficult to convey attributes such as texture, color or smell through a screen and therefore cosmetic brands try to attract consumers to promotional events like makeover counters and sample offering events. Moreover, many experts believe that mobile advertisement is more efficient in driving customers to such events.

Wheat and Dodd (2009) state that aside from acquaintances, friends and family, consumers now trust strangers' reviews on the internet as well, thus creating a wide consumer produced media. There are several stages through which a consumer goes through in their decision-making process before completing a purchase; need recognition, information search, evaluation of alternatives, decision making and post evaluation (Hoyer, Macinnis and Pieters, 2018). The leap from getting information directly from the brands to information received from people in online platforms, has had a great impact on the cosmetics industry. Social media gives users the possibility to look what their peers like. This in itself, can make a consumer realize a need they have, when they see someone else's preferences or choices online. Furthermore, shoppers have the opportunity to go through several online consultations from their peers and experts, who straightforwardly influence the "information search phase" (Wheat and Dodd, 2009). Being able to access online product reviews and evaluations other consumers post online, leads to having a means of comparison for different products and make it easier for an individual to evaluate their alternatives. Consequently, it is evident that social media affects one's decision to purchase a product or not. Additionally, this channel offers the opportunity as well to express their post evaluation opinions on purchases. Jaffe (2010) state that consumers tend to trust the corporate marketing less than their peers online. In fact, given the vast amount of information passed through social media, consumers use filters to what they want to see (Brown & Hayes, 2015). This brings the need for marketers to find new approaches to reach, connect and engage with their targeted audiences.

Market Segmentation

The concept of market segmentation was first introduced by Smith (1956). He defines market segmentation as seeing a heterogenous group of consumers into smaller homogenous groups.

Tynan and Drayton (1987) express that for a marketing manager to select a segmented market for a specific product and plan a fitting marketing strategy, market segmentation serves as a decision-making instrument. This instrument is key to strategic marketing and crucial for its success (McDonald 2010), (Lilien and Rangaswamy, 2003). Furthermore, according to Roberts et al. (2014), segmentation has the biggest impact on decision-making.

Optimally, consumers belonging in a homogenous segment, present similar characteristics to one another that are crucial to researchers (Tynan and Drayton, 1987). On the other hand, by following the same logic, consumers in different groups or segments display dissimilar characteristics compared to one another and are easier to distinguish when planning a marketing strategy for them. Kotler, Kartajaya, Setiawan (2014) follow expressing that targeting always trails segmentation, meaning that brands select certain groups to focus their marketing efforts on. Subsequently, brands make wiser decisions regarding resource allocation, positioning and their offerings. The conditions set to define segments are stated as segmentation criteria. These criteria can be one single characteristic, such as gender, age or origin, but they can also be more complex and represent consumer behaviour or interest and preferences. Kotler, Kartajaya, Setiawan (2014) state that segmentation is the first step of marketing that identifies groups of individuals with similarities between them in the geographic, demographic, psychographic or behavioral aspect. Obinna and Bruce (2018) mention in their work that there are many studies that focus on sociodemographic segmentation, creating groups based on age, salary, gender etc. such as (Hammond et al., 1996; Lin, 2002; Uncles and Lee, 2006). Other studies such as (Fennell et al., 2003; Hassan and Craft, 2005; Sarigöllü and Huang, 2005; Wells et al., 2010) which have emphasized on psychographic traits that include attitude, lifestyle, behavior etc. are also addressed by Obinna and Bruce (2018).

Marketing segmentation leads to new viewpoints and insights when implemented because it forces marketers to re-evaluate their current position, what advantages do they have compared to competitors and ask the question where they want to be in the future (Cleveland, Papadopoulos and Laroche, 2011). According to McDonald and Dunbar (1995), segmentation is beneficial because it gives companies a better insight on differences in consumer behaviour and increases the ability to satisfy consumer needs. Furthermore, they express that this gives the opportunity to as well find a niche market, which has a solid potential of growth, and is sufficiently large to procure a product while making profit from it.

On the other hand, Kara and Kaynak (1997) mention hyper-segmentation, which refers to the case when market segmentation is taken to the extreme and a product is offered to a very small segmented group. They additionally state that hyper-segmentation could be taken further to finer segmentation where each consumer is considered to be their

own segment. Nowadays, the later approach is more than feasible. The rise of technologies like data mining tools and e-commerce make possible to analyse a person's buying behaviour throughout time and better asses what to offer in the future.

Geographic Segmentation

An individual's place of residence is the only criteria considered when doing geographic marketing segmentation (Tynan and Drayton, 1987). In most cases, when this type of segmentation is applied, there is a need to use various languages for it. Many product attributes vary when targeting geographical segments, such as price, description of the product, communication channels etc. (Cleveland, Papadopoulos and Laroche, 2011). The main benefit of segmenting consumers geographically is that their association to a geographical location is very easy to be done. On the other hand, people who live in the same area, do not necessarily exhibit the same characteristics that might be of value to marketers. For instance, people who live in the same area, can have different raveling preferences that depend on their social status, life-cycle phase etc. According to Steenkamp and Ter Hofstede (2002), this segmentation approach can also be difficult if a research is conducted by distributing the same survey in several regions while considering biases in consumer perception and perspective coming from different culture backgrounds. For instance, Haverila (2013) serves an example for this, whose study segments young mobile users across national borders.

Socio-Demographic Segmentation

The most common demographic variables used for segmentation are age, gender, income and education (Wedel and Kamakura, 1999). It is well known that individuals change their product needs and buying behaviour throughout their different stages of life (Cleveland, Papadopoulos and Laroche, 2011). Older individuals tend to be more committed to patterns and less open to new products of lifestyle changes (De Mooij, 2004). High income consumers are more prone to purchasing expensive items that enhance their status and higher educated people tend to shop and expand their purchases more on a global level while leaving behind the local customs (Keillor et al., 2001). Finally, age is considered to be among the strongest differentiators between groups. Males and females are different in their tastes and preferences, thus displaying buying behaviour, shopping patterns, preferred products, reactions to advertisement and

judgement that are dissimilar (Cleveland et al., 2003). Socio-demographics have proven to be useful for many industries. According to Cleveland et al., (2011), demographic segmentation has the advantage that it is easily determinable in grouping consumers. In some cases, this type of segmentation explains an individual's preference towards a product but in most cases, it is insufficient in concluding the reasons behind said preferences. It is estimated by Haley (1985) that demographic segmentation explains about 5% of the difference in consumer behaviour. Tastes, values and preferences are more influential in describing consumers buying decisions (Yankelovich and Meer, 2006).

Psychographic Segmentation

Psychographic segmentation is used when there is a need to group consumers or a group of individuals according to their interests, preferences or beliefs (Cleveland, Papadopoulos and Laroche, 2011). Haley (1968) is recognized for benefit segmentation, the most famous kind of psychographic segmentation. He argues that psychographics, as a word, is used to imply measures that are related to the mind. Another type of psychographic segmentation is also one that involves an individual's lifestyle choices such as activities, opinions and interests (Cahill 2006). This type of segmentation is clearly more complicated than the geographic and demographic ones. Looking for insights in regard to a single studied psychographic dimension is difficult because of the complexity of the human character and determining group membership for a sample of individuals presents a higher level of complexity (Cleveland, Papadopoulos and Laroche, 2011). However, this type of segmentation gives researchers more reflective results when trying to find out the reasons why consumers behave differently. Furthermore, the reliability of a research highly depends on the approach taken to analyze the data.

Behavioural Segmentation

The last segmentation approach that this thesis is going to explore is the behavioral segmentation. This type of segmentation is used when differences or similarities are found in consumer behaviour. For this purpose, different behaviors can be used, such as frequency of purchase, time spent on purchasing, past experiences with products, amount of expenditure on a product and information sought about a product (Cleveland,

Papadopoulos and Laroche, 2011). An advantage to this kind of segmentation is that the exact behaviour that interests the researcher is used to base the segmentation on. Examples for this are provided for instance by Heilman and Bowman (2002) using purchase data through categories of products and Tsai and Chiu (2004) who segment their consumers according to their actual expenses.

Personality Traits of Generation Y & Z

Not many studies have been conducted regarding generation Y, also known as millennials. However, there are statistical sources that give useful information regarding their lifestyle and preferences. According to Van den Bergh and Behrer (2016) the youth's behavior and choices are deeply affected by the era they grow up in. Baby boomers will soon be outnumbered by Generation Y, which is currently one of the largest demographic groups (Van den Bergh and Behrer, 2016).

Characteristics of Generation Y

There are different opinions by many authors regarding which individuals are included in one generation or another. Consequently, there is not a clear separation as to where does generation Y end and Z begins. For this research, Generation Y will be defined from individuals born between 1980 and 1995 and Gen Z is categorized to be those who were born after 1995 until 2010 (Bassiouni & Hackley, 2014; Fister-Gale, 2015; Wang 2017; Van den Bergh & Behrer, 2016). Generation Y individuals are also defined with other names such as Millennials, Gen Y or Yers. Knittel, Beurer & Berndt (2016) cite many authors stating that this demographic is considered to be very important for marketers because of their high buying power. Gen Y is an educated generation that learned to adapt to technology while growing up (Aquino,2012). Wang (2017) labels Gen Y as egocentric, meaning that they are interested only in things that they can profit from. According to Van den Bergh & Behrer (2016) this generation had the opportunity to have many different experiences throughout their upbringing therefore they are difficult to please. Furthermore, they are characterized to have a very short attention span and to seek for a meaningful purpose in their lives (Van den Bergh & Behrer, 2016).

Characteristics of Generation Z

Different names are used to refer to generation Z as well. They go by Centennials, Generation Z, Gen Z or Zers. The individuals that are part of this generation, have been born in the smartphone era (McGorry, 2017) and they do not know a time when they could not google something on their phones to find information (Villanti et al., 2017). Gen Z is the digital generation, always connected and with a full understanding of technology (Williams, 2017; Priporas, Stylos, Fotiadis, 2017). Therefore, they are able to get and share information in a very short time (Visioncritical, 2016). The virtual world is the place where Gen Z lives and consequently where they have the opportunity to interact with their preferred brands (Bernstein, 2015). According to Wang (2017) Gen Z is not a successor of the Millennials but a completely new generation with their individual principles and attitude. Zers are considerably different from Millennials when referring to their social media habits. Fromm (2016) states that Zers are common users of the "dark social", which is a term for private messaging apps whereas McGorry (2017) says that millennials are more inclined to lean toward public platforms. According to McGorry (2017) the preferred social media for Gen Z to socialize were Youtube, SnapChat, and Instagram, but Youtube was a clear winner when it came to getting information on a new service or product. Van den Bergh & Behrer (2016) expresses that Zers are very influential toward their parents' household purchases and have great brand awareness. Gen Z is smarter, more tolerant, responsible and inclusive, than millennials.

Characteristics of Generation Y and Z in Taiwan

According to Millwardbrown (2017), generation Z occupies 5% of the Taiwanese population while generation Y makes up for 22% of it. Tiery (2017) expresses that generation Y in Taiwan is also called the "strawberry generation". This name insinuates that millennials in Taiwan are not as hard working and cannot endure hardship as their parents did before. However, Tiery (2017) states that this is not a fair concept to attach to this generation. On the report of Nielsen (2015) for both generation Y and Z in Taiwan, making money is an important aspiration for their future. However, generation Z cares more about traveling the world than generation Y but they also care less about being healthy and fit in the future. As for getting updated with the daily news, generation Y and Z have a similar preference towards social media and search engines (Nielsen,

2015). However, Zers prefer TV as a source for the latest news more than millennials but friends or family have a lower usage for this matter (Nielsen, 2015). When asked about their favorite leisure activities, generation Z resulted to have a higher preference than generation Y for listening to music, play virtual games, do online shopping and spend time with friends and family (Nielsen, 2015). On the other hand, generation Y preferred to travel, read or eat on their free time significantly more than Zers (Nielsen, 2015). On the sphere of job aspirations, according to Nielsen (2015), Zers are more attracted to jobs that are technology or art related, whereas Yers lean more toward service jobs such as hospitality or tourism. According to Millwardbrown (2017), both generations are heavy online desktop and mobile users, meaning they spend more than an hour per day connected in the virtual world. Generation Y is more positively responsive to all kinds of ads, outdoor, magazine, cinema, TV etc., when compared to generation Z (Millwardbrown, 2017). According to Huang (2014) generation Z in Taiwan follows the trends of the moment and are more likely than other generations to be the first to try a new product. He also states that Taiwan's Zers like to share their opinions and feelings about the newest purchases they made. Zers have a higher tendency to make these purchases by impulse compared to other generations. Furthermore, they result to be materialistic, attracted to products and environments that have a great design and prone to spend their money on entertainment and leisure rather than save for the future.

Huang (2014) also expresses that Zers can buy certain products just because they like the ads that pop up in the online world, but also, they are influenced in their purchase decision by expert opinions, friends or celebrities. However, Millwardbrown (2017) states that gen Z in Taiwan is more likely to be influenced by TV and outdoor interactive advertisements rather than online video ads.

CHAPTER III   RESEARCH METHODS

Research Approach

A quantitative research method is used for this study to gather and analyze data. The method aims to discover behavioral group segments. To further analyze the data, this paper makes use of *Descriptive Statistics*, *Factor Analysis* and *Cluster Analysis*.

According to Ho and Yu (2015), descriptive statistics is the process of utilizing and analyzing summary statistics that quantitatively defined or summarized features from a collection of information or data. In this thesis, descriptive statistics are provided regarding demographics, products, and type of advertisements.

Factor analysis is a way to encapsulate data into only a few parameters in several factors (Brown, 2015). This is also often referred to as "dimension reduction" for this purpose. In this research, factors were reduced, the "dimensions" of the data, to one or more variables that were significant in this analysis.

For this study, cluster analysis was used where cases were joined together and regrouped until the final cluster was analysed to identify which cluster had more weight. The research relied on non-hierarchical clustering. According to Malinen and Fränti (2014), K-Means clustering analysis intends to partition n objects into k clusters in which every object belongs to the cluster with the nearest mean. This procedure produces exactly k different clusters of the greatest possible distinction within the cluster or group. The best number of clusters k leading to the greatest separation or distance is not known as a priori and must be computed from the data. The main aim of K-Means clustering is to minimize total intra-cluster variance, or, the squared error function.

Data Collection

The collection of the data is achieved through the digital distribution of an activities, interests, opinions and buying behaviour questionnaire (Appendix I) with the purpose of tackling generational lifestyle habits and it is composed of several statements concerning their interests, activities, opinions and buying behaviour in regard to cosmetic products. Considering that the questionnaire was distributed in Taiwan, the survey was made available in both English and Chinese languages.

The questionnaire is formulated in two sections to gain data on specific consumer behaviours towards cosmetics as well as demographic information about the subjects that were part of the study. The first section consisted of 40 questions to help assess the consumer's buying behaviour towards cosmetics.

Question 1 and 2 had the purpose of depicting which is the most used cosmetic category and which channels, in terms of advertisement, are the most efficient to find out about a new cosmetic product. The questionnaire divides cosmetics in the following categories: Skin care products (creams, body lotions, face masks, gels, oils etc.), Hair care products (shampoos, conditioner, oils, hair coloring products, hair gels, hairspray etc.), Shaving products, Make-up products (also including make-up removers), Deodorants, Toilet soaps, Intimate hygiene products, Lip balms, Nail- care products, Sunbathing products and Tanning products.

The most important promotion channels presented in the questionnaire were: Social media ads, TV, Magazines, Street advertisement (billboards, posters etc.), Mobile ads and Promotional events.

The rest of the 38 questions were composed based on a Likert scale from 1-5 (Strongly agree=1, Agree =2, Neutral=3, Disagree=4, Strongly disagree=5) stating the participant's level of agreement with a specific statement about lifestyle choices and preferences regarding cosmetics. The questions explore several factors that are considered to be a drive for purchasing a product. To generalize, the participants were asked about brand importance, price incentives, willingness to spend on cosmetics, overall product characteristics starting from design to products attributes and composition, purchases driven from personal recommendations, online reviews, advertisement opinions, social media impact, natural and environmentally friendly cosmetics, online and in-store purchasing preferences. Additionally, questions about their general lifestyle concerning cosmetics were also asked to determine their usage frequency, reliance on cosmetics and overall behavior towards them.

The second section regarding demographics had the purpose to attain information about age, gender, profession and monthly budget spending on cosmetics. The variable "age" is used in this study to distinguish generation Y and Z from each other.

Sample and Participant Selection

The participants are selected based on the age criteria first and on their residence or origin placed in Taiwan second. The questionnaire further serves as a tool to find out more characteristics about the sample's behavior towards cosmetics and further segment the generations into groups.

The questionnaire was randomly distributed to 164 individuals between 16 and 38 years old. Subjects over 38 do not belong to generation Y, therefore they are out of scope for this study. Furthermore, subjects under 16 are not taken into consideration because they do not possess significant buying power or their buying behaviour is not reliable for this study. All 164 questionnaires were retrieved and after eliminating only one questionnaire based on incomplete responses, the effective retrieved forms remain a total of 163, specifically 82 participants for generation Y and 81 for generation Z.

Assessment and Measures

A reliability analysis was performed in SPSS for the sample data using Cronbach's α as a measure. Cronbach's alpha coefficient was used to determine the reliability and internal consistency of the 4-item Empathy scale. Therefore, the results indicate that scale Empathy has good reliability and internal consistency. The Cronbach's α coefficient presented by Guilford (1965) must be higher than 0.70, however a coefficient between 0.70 - 0.35 is still tolerable, but a value less than 0.35 should not be accepted. The sample data of 163 surveys where only the behavioural and psychographic questions were measured, resulted in a coefficient value of 0.872 for Generation Y and 0.811 for Generation Z (Table 3.1), proving that the sample data is very reliable given that Cronbach's α is higher than 0.70.

Table 3.1.

Reliability for Generation Y & Z data sets.

	Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
Generation Y	**0.872**	0.875	38
Generation Z	**0.811**	0.806	38

Data Analysis

Descriptive Statistics

Table 3.2.

Product Categories & Advertisement Channels for Generation Y

Product categories	Yes	No
Skin care products (creams, body lotions, face masks, gels, oils etc.)	95.12%	4.88%
Hair care products (shampoos, conditioner, oils, hair coloring products, hair gels, hairspray etc.)	93.90%	6.1%
Shaving products	37.80%	62.2%
Make-up products (also including make-up removers)	71.95%	28.05%
Deodorants	41.46%	58.54%
Toilet soaps	29.27%	70.73%
Intimate hygiene products	30.49%	69.51%
Lip balms	68.29%	31.71%
Nail- care products	37.80%	62.2%
Sunbathing products	54.88%	45.12%
Tanning products	13.41%	86.59%
Advertisement channels	**Yes**	**No**
Social media ads	75.60%	24.40%
TV	41.50%	58.50%
Magazines	25.60%	74.40%
Street advertisement (billboards, posters etc.)	48.80%	51.20%
Mobile ads	42.70%	57.30%
Promotional events	57.30%	42.70%

Table 3.3.

Product Categories & Advertisement Channels for Generation Z

Product categories	Yes	No
Skin care products (creams, body lotions, face masks, gels, oils etc.)	92.11%	7.89%
Hair care products (shampoos, conditioner, oils, hair coloring products, hair gels, hairspray etc.)	94.74%	5.26%
Shaving products	27.63%	72.37%
Make-up products (also including make-up removers)	73.68%	26.32%
Deodorants	27.63%	72.37%
Toilet soaps	14.47%	85.53%
Intimate hygiene products	22.37%	77.63%
Lip balms	75.00%	25.00%
Nail- care products	39.47%	60.53%
Sunbathing products	72.37%	27.63%

		10.53%	89.47%
Tanning products			
Advertisement channels		**Yes**	**No**
Social media ads		86.40%	13.60%
TV		48.10%	51.90%
Magazines		25.90%	74.10%
Street advertisement (billboards, posters etc.)		43.20%	56.80%
Mobile ads		60.50%	39.50%
Promotional events		71.60%	28.40%

An analysis on the distribution of the data based on demographics of the participants was conducted. The data comprised of 68.3% female, and 31.7% male in generation Y and 72.8% female and 27.2% male in generation Z dataset. Additionally, on average, generation Y spends more on cosmetics on a monthly basis than generation Z. Statistically, average monthly expense of generation Y is 1495.12 NTD whether for generation Z is 1166.67 NTD.

Table 3.4.

Gender and Average Monthly Expenses on Cosmetics (NTD)

Segments	N	Gender		Average monthly expense on cosmetics (NTD)		
		Male	Female	Min	Max	Mean
Generation Y	82	31.7 %	68.3 %	0	8000	1495.12
Generation Z	81	27.2 %	72.8 %	100	6000	1166.67

Table 3.5.

Nationality and Profession

Segments	N	Nationality		Profession	
		Taiwanese	Other	Student	Employed
Generation Y	82	86.6%	14.4%	40.2 %	59.8%
Generation Z	81	93.8%	6.2%	82.7%	17.3%

Factor Analysis

Generation Y dataset.

The conduct of factor analysis for generation Y dataset focuses on lifestyle, opinions, interests and buying behaviour of the sample. The factors were derived from principal component analysis, extracting only the values with an Eigenvalue higher

than 1 and performing an orthogonal rotation due to the fact that a set of independent variables is of interest for this study. After performing the Reliability analysis, the items could not be reduced according to the total correlation since most of the items displayed a lower value than 0.50. Consequently, the item reduction was conducted based on communalities and the rotated correlation matrix provided by the Factor Analysis. According to the percentage of variance, these three factors make for the explanation of 68.829% of the total data sample taken. The other components -having low-quality scores- were not assumed to represent real traits. Such components were considered "scree" as shown by Figure 3.1.

Figure 3.1: Quality Scores for Generation Y. Adapted from: Own analysis.
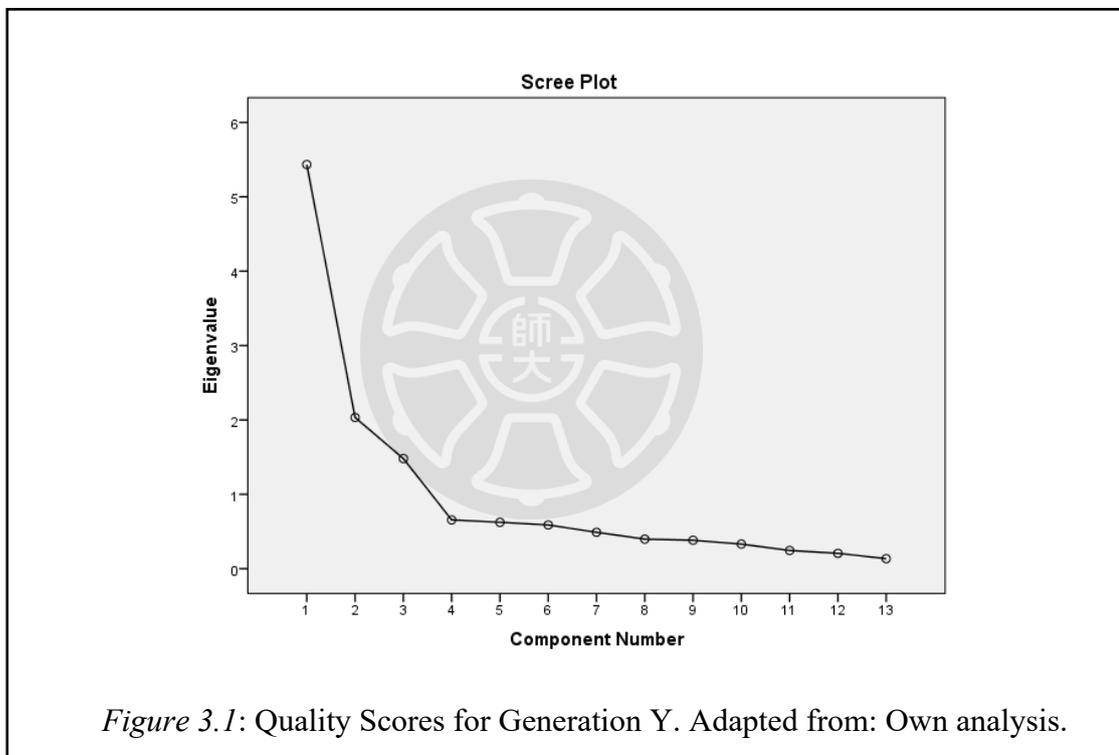
A scree plot visualizes the Eigenvalues (quality scores) that were generated. From the scree plot, the first 3 components had Eigenvalues over 1 and were, therefore, considered as "strong factors." All other components from component 4, had the Eigenvalues drop off substantially. The sharp drop between components 1-3 and components 4-13 strongly suggests that 3 factors underly this analysis.

The Determination coefficient values were used to assess the extent to which the 3 underlying factors account for the variance on the input variables. For instance, if the statement "I am willing to spend money on expensive cosmetic products" was predicted

from the three components by multiple regression, then the r square equals to 0.581, which is statements's "Social media helps me choose cosmetic products." communality. Variables having low communalities, e.g. lower than 0.50, did not contribute much to measuring the underlying factors, and were removed iteratively

Moreover, each factor has an acceptable reliability, meaning that their Cronbach's Alpha is greater than 0.70. The KMO and Bartlett's test also present acceptable values which prove the sufficiency of this data for the analysis.

The Kaiser-Meyers-Oklin (KMO) test examines and evaluates the homogeneity of variables. Bartlett's test of sphericity tests for correlation among the variables that were used in this study. The Kaiser-Meyers-Oklin value for the instrument was 0.827, and hence the factor analysis was appropriate for the given data set. Bartlett's test of sphericity chi-square statistics was 555.919, which indicated that the statements are correlated and hence were suitable for structuring.

Resulting from the component matrix, the Pearson correlations between the items and the components are shown. These correlations are called factor loadings. Table 3.6 shows which variables measure which factors and is adapted from the rotated component matrix results in the analysis conducted.

After interpreting all components, the following factors were derived: "**Knowledge on cosmetics**", "**Social media impact**" and "**Environmental consciousness**". The variable labels were set after actually adding the factor scores to our data.

Table 3.6.

Results of Exploratory Factor Analysis for Generation Y (N=82)

Statements	Component		
	Knowledge on cosmetics	Social media impact	Environmental consciousness
I like to talk to my friends about cosmetics.	0.858		
I am a heavy user of cosmetic products.	0.827		
It is important to me to know the latest cosmetic products.	0.74		
I am willing to spend money on expensive cosmetic products.	0.702		

I am more careful when choosing cosmetic products than other people.	0.692		
I google a cosmetic product online before buying it in store.	0.543		
Social media affects my decision when purchasing cosmetic products.		0.909	
Social media helps me choose cosmetic products.		0.859	
The social media peer pressure to look good affects my purchasing decision.		0.74	
I purchase cosmetic products because I have seen them in online tutorials.		0.712	
I would rather purchase natural cosmetics than non-natural ones.			0.858
I purchase cosmetic brands that care about the environment and animals.			0.839
I purchase cosmetic products that have a nice design.			0.738
% of Variance	41.798	15.639	11.392
Eigenvalues	5.434	2.033	1.481
Cronbach's Alpha	.871	.868	.774

KMO = 0.827; Bartlett's Test = 555.919; Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization

Generation Z dataset.

Factor analysis for generation Y, is done in the same way as for generation Z and equally focuses on lifestyle, opinions, interests and buying behaviour of the sample. The factors were derived from principal component analysis, extracting only the values with an Eigenvalue higher than 1 and performing an orthogonal rotation due to the fact that a set of independent variables is of interest for this study. After performing the Reliability analysis, the items could not be reduced according to the total correlation since most of the items displayed a lower value than 0.50. Consequently, the item reduction was conducted based on communalities and the rotated correlation matrix provided by the Factor Analysis. KMO and Bartlett's test presents acceptable values which prove the sufficiency of this data for the analysis.

The KMO value for Generation Z dataset was concluded after several re-runs where it rose from 0.668 to 0.753. The re-runs were done after eliminating non-significant statements that had a very low correlation with the components (< 0.5) by observing the commonalities table. From the KMO of 0.753 and Bartlett's test, which had a p-value of 0.00, it was significant for factor analysis to proceed.

Another value that helps on the definition of factors is also the Eigenvalue. A common rule of thumb was used to select components whose Eigenvalue is at least 1 which is the case for the 4 underlying factors. The other components -having low-quality scores- were not assumed to represent real traits. Such components were considered "scree" as shown in Figure 3.2.

Figure 3.2: Quality Scores for Generation Z. Adapted from: Own analysis.
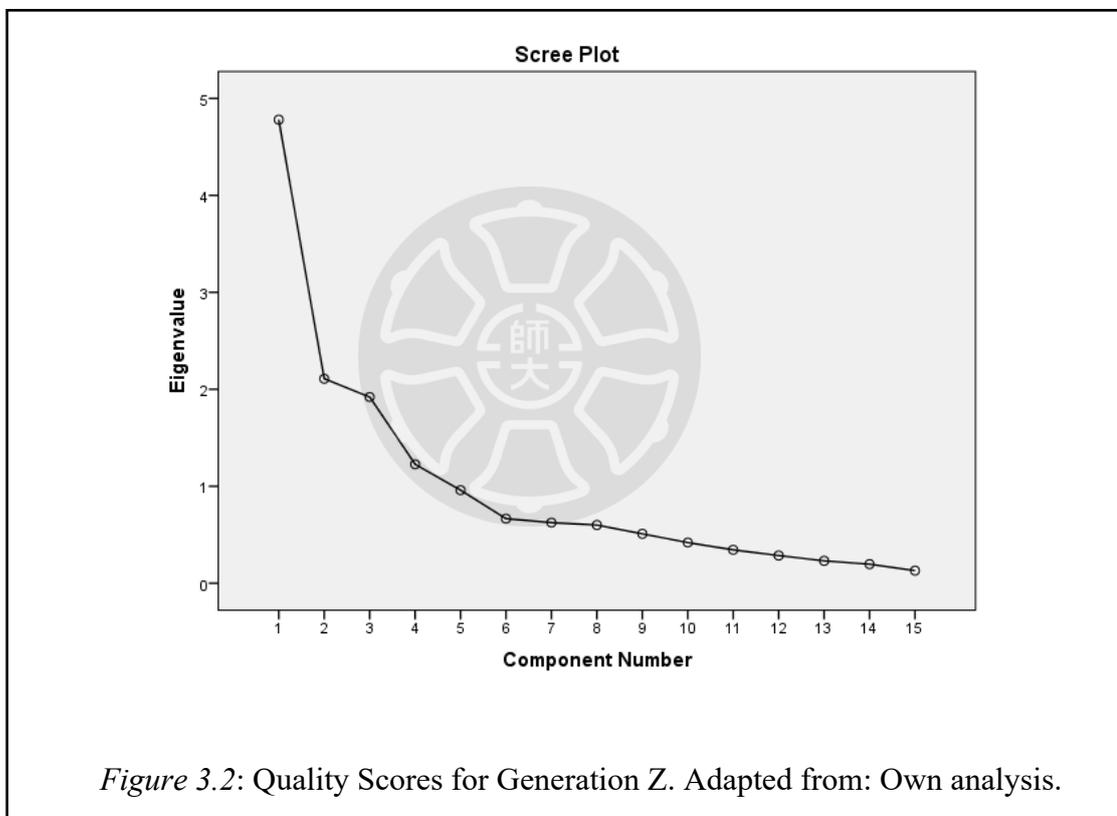
After eliminating variables according to communalities, we arrive at the final results (Table 3.7). Table 3.7 presents the results of the factor analysis for Generation Z. This table is adapted from the rotated component matrix and shows the Pearson correlations between the items and the components, which are called factor loadings.

After interpreting all components, the following factors were derived for Generation Z dataset: "**Knowledge on cosmetics**", "**Attitude towards advertisement**", "**Social media impact**" and "**Environmental consciousness**". According to the percentage of

variance, these four factors make for the explanation of 66.9% of the total data sample taken. "% of variance" is the amount of variance attributable to each factor after extraction. This value was significant to the finding of this research, and therefore, the four factors which show what influences customers to buy cosmetic products were determined. Moreover, each factor has an acceptable reliability, meaning that their Cronbach's Alpha is greater than 0.70 or rounded up to this value.

Table 3.7.

Results of Exploratory Factor Analysis for Generation Z (N=81)

Statements	Component			
	Knowledge on cosmetics	Attitude towards ads	Social media impact	Environmental consciousness
Social media helps me choose cosmetic products.			.774	
Social media affects my decision when purchasing cosmetic products.			.807	
The social media peer pressure to look good affects my purchasing decision.			.769	
I google a cosmetic product online before buying it in store.	.817			
I always look at the online reviews when buying a cosmetic product.	.824			
I purchase cosmetic brands that care about the environment and animals.				.811
I like to try/test cosmetic products before I buy them.				.612
I like to talk to my friends about cosmetics.	.649			
I think for a long time before buying a new cosmetic product.	.743			
I am more careful when choosing cosmetic products than other people.	.735			
I like to see ads about cosmetic products.		.759		

I like cosmetic advertisements with a foreign celebrity.	.775			
I like cosmetic advertisements with an Asian celebrity.	.778			
I am willing to spend money on expensive cosmetic products.	.528			
I would rather purchase natural cosmetics than non-natural ones.				.795
% of Variance	31.87	14.057	12.802	8.177
Eigenvalues	4.781	2.108	1.92	1.227
Cronbach's Alpha	.843	.758	.788	.654

KMO = 0.753; Bartlett's Test = 538.725; Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.

Statements that portrayed knowledge on cosmetics were loaded to component 1, those that indicated advertisements influenced customers were loaded to component 2, and those showing social media influenced customers were loaded into component 3. Finally, component 4 contained questions portraying customers who are environmentally conscious about cosmetics and purchase accordingly. Therefore, these new factors were further used for the segmentation of Generation Z according to their attitudes to shopping for different cosmetic products. All the factors found are acceptable considering their individual reliability test.

Cluster Analysis

A cluster analysis using SPSS software is conducted in order to discover further market segments that display the same behaviour or characteristics. Initially, a hierarchical cluster analysis was performed in order to discover how many potential clusters could be defined for this data sample. The results from this initial analysis suggested that a total of three clusters was of interest for this study, therefore a further K-means cluster analysis with a predetermined number of clusters is conducted to discover the different groups and their characteristics. The outcome of the analyses for each generation are further explored below.

Generation Y dataset.

Table 3.8.

Distances between Final Clusters (Generation Y)

Cluster	1	2	3
1		9.41	3.997
2	9.41		6.191
3	3.997	6.191	

Cluster 1 and 2 are the furthest and different from each other, while clusters 1 and 3 are the least different from each other. The ANOVA table (Table 3.9) shows the significance of a statements' influence on the formation of the cluster. The significance level is **(Sig < 0.05)**. The questions with Sig value less than 0.05 had significant influence in the formation of the clusters.

Table 3.9.

ANOVA Table for Generation Y

	Mean Square	Df	Mean Square	df	F	Sig.
The brand of a cosmetic product is very important to me.	4.159	2	0.472	79	8.812	**0**
I purchase cosmetic products based on price.	0.135	2	0.757	79	0.178	0.837
I am willing to spend money on expensive cosmetic products.	17.601	2	0.706	79	24.93	**0**
I buy whatever cosmetic product that is on sale.	0.587	2	1.404	79	0.418	0.66
I purchase cosmetic products if I like their advertisement.	6.749	2	1.258	79	5.365	**0.007**
I purchase cosmetic products upon recommendation.	3.44	2	0.622	79	5.533	**0.006**
I do not pay attention to the attributes of a product when making a purchase. (e.g. smooth skin, silky hair, volume etc.)	8.118	2	1.022	79	7.943	**0.001**

Social media helps me choose cosmetic products.	18.295	2	0.758	79	24.126	**0**
Social media affects my decision when purchasing cosmetic products.	13.38	2	0.752	79	17.784	**0**
The social media peer pressure to look good affects my purchasing decision.	16.535	2	0.755	79	21.89	**0**
I google a cosmetic product online before buying it in store.	23.927	2	0.659	79	36.284	**0**
I purchase cosmetic products because I have seen them in online tutorials.	22.215	2	0.866	79	25.639	**0**
I like purchasing cosmetic products in store.	2.168	2	0.632	79	3.431	**0.037**
I like purchasing cosmetic products online.	5.37	2	0.777	79	6.914	**0.002**
I pay attention to the ingredients when I buy cosmetic products.	6.601	2	1.084	79	6.087	**0.003**
I purchase cosmetic products that have a nice design.	10.012	2	0.878	79	11.405	**0**
I always look at the online reviews when buying a cosmetic product.	21.823	2	0.783	79	27.882	**0**
I purchase cosmetic brands that care about the environment and animals.	2.374	2	1.073	79	2.213	0.116
I would rather purchase natural cosmetics than non-natural ones.	1.592	2	1.102	79	1.444	0.242
I like to try/test cosmetic products before I buy them.	6.592	2	1.026	79	6.424	**0.003**
I am a heavy user of cosmetic products.	42.046	2	0.581	79	72.333	**0**
I like to talk to my friends about cosmetics.	32.261	2	0.671	79	48.051	**0**
I think for a long time before buying a new cosmetic product.	6.446	2	1.106	79	5.826	**0.004**
I like cosmetic products that do not have side effects.	2.355	2	0.575	79	4.098	**0.02**

It is important to me to know the latest cosmetic products.	23.269	2	0.752	79	30.94	**0**
I feel that cosmetic products are not essentially important to me.	14.084	2	1.134	79	12.42	**0**
I rely on cosmetic products to look good.	12.735	2	1.113	79	11.445	**0**
I like cosmetic products that smell good.	0.034	2	1.112	79	0.031	0.97
I attend events where my hair, skin and make-up should look good.	6.501	2	1.119	79	5.812	**0.004**
I am more careful when choosing cosmetic products than other people.	14.194	2	0.579	79	24.525	**0**
I only buy the essential cosmetic products.	6.663	2	1.016	79	6.555	**0.002**
I don't do research when buying cosmetic products.	16	2	1.138	79	14.059	**0**
I like receiving free samples to know a product.	10.314	2	0.934	79	11.04	**0**
I like to see ads about cosmetic products.	9.663	2	0.752	79	12.858	**0**
I like cosmetic advertisements with a foreign celebrity.	7.709	2	0.666	79	11.579	**0**
I like cosmetic advertisements with an Asian celebrity.	14.106	2	0.678	79	20.794	**0**
I shop around for the best value on cosmetics.	12.1	2	1.163	79	10.408	**0**
I prefer an Asian brand rather than a foreign one.	0.983	2	0.75	79	1.31	0.276

The F tests should be used only for descriptive purposes because the clusters have been chosen to maximize the differences among cases in different clusters. The observed significance levels are not corrected for this and cannot be interpreted as tests of the hypothesis that the cluster means are equal.

The number of cases in each cluster found in generation Y dataset are as shown in Table 3.10.

Table 3.10.

Number of Cases in each Cluster

	Cluster	N
	1	35
	2	11
	3	36
Valid		82

After clustering the data, the findings showed that most statements were grouped in cluster 3. This means that out of 82 valid cases, 36 were similar in one way or another. The ANOVA test also showed which questions played a significant role in clustering the generation Y survey participants. The statements that served to further cluster generation Y included brand importance, willingness to spend on expensive cosmetics, attitude towards advertisements, online reviews and information, social media impact, product attributes and composition, location of purchase, product design and finally the overall presence of cosmetics in their lifestyles. Variables that had no significance in clustering were product price, sales on cosmetics, smell and preference of purchasing natural or environmentally friendly cosmetics. This will be further explored in the next chapter.

Generation Z dataset.

Table 3.11.

Distances between Final Cluster Centers

Cluster	1	2	3
1		8.163	5.533
2	8.163		4.688
3	5.533	4.688	

Table 3.11 shows the Euclidean distances between the final cluster centers. Greater distances between clusters correspond to greater dissimilarities. Clusters 1 and 2 were most different and further apart, while clusters 2 and 3 were the least different. The ANOVA table (Table 3.12) shows the significance of the questions in influencing the

formation of the clusters. **(Sig < 0.05),** questions with Sig value less than 0.05 had a significant influence in the formation of the clusters.

Table 3.12.

ANOVA Table for Generation Z

	Mean Square	Df	Mean Square	df	F	Sig
The brand of a cosmetic product is very important to me.	5.628	2	0.599	78	9.391	**0**
I purchase cosmetic products based on price.	0.901	2	0.462	78	1.953	0.149
I am willing to spend money on expensive cosmetic products.	8.336	2	0.7	78	11.907	**0**
I buy whatever cosmetic product that is on sale.	1.778	2	1.031	78	1.724	0.185
I purchase cosmetic products if I like their advertisement.	0.959	2	1.066	78	0.899	0.411
I purchase cosmetic products upon recommendation.	0.598	2	0.594	78	1.006	0.37
I do not pay attention to the attributes of a product when making a purchase. (e.g. smooth skin, silky hair, volume etc.)	3.351	2	0.798	78	4.202	**0.018**
Social media helps me choose cosmetic products.	11.828	2	1.133	78	10.443	**0**
Social media affects my decision when purchasing cosmetic products.	10.6	2	0.985	78	10.766	**0**
The social media peer pressure to look good affects my purchasing decision.	3.916	2	1.422	78	2.753	**0.07**
I google a cosmetic product online before buying it in store.	15.709	2	0.679	78	23.128	**0**
I purchase cosmetic products because i have	17.694	2	1.008	78	17.557	**0**

seen them in online tutorials.						
I like purchasing cosmetic products in store.	1.628	2	0.702	78	2.319	0.105
I like purchasing cosmetic products online.	2.351	2	1.037	78	2.268	0.11
I pay attention to the ingredients when I buy cosmetic products.	8.961	2	1.183	78	7.573	**0.001**
I purchase cosmetic products that have a nice design.	8.139	2	0.632	78	12.883	**0**
I always look at the online reviews when buying a cosmetic product.	12.278	2	0.89	78	13.79	**0**
I purchase cosmetic brands that care about the environment and animals.	1.483	2	0.955	78	1.553	0.218
I would rather purchase natural cosmetics than non-natural ones.	1.539	2	0.852	78	1.806	0.171
I like to try/test cosmetic products before I buy them.	6.099	2	0.879	78	6.939	**0.002**
I am a heavy user of cosmetic products.	21.899	2	1.078	78	20.316	**0**
I like to talk to my friends about cosmetics.	28.472	2	0.82	78	34.731	**0**
I think for a long time before buying a new cosmetic product.	16.248	2	0.945	78	17.201	**0**
I like cosmetic products that do not have side effects.	0.678	2	0.47	78	1.443	0.243
It is important to me to know the latest cosmetic products.	23.806	2	0.88	78	27.063	**0**
I feel that cosmetic products are not essentially important to me.	16.907	2	1.006	78	16.813	**0**
I rely on cosmetic products to look good.	11.512	2	1.261	78	9.132	**0**

I like cosmetic products that smell good.	0.253	2	0.774	78	0.327	0.722
I attend events where my hair, skin and make-up should look good.	8.978	2	1.097	78	8.181	**0.001**
I am more careful when choosing cosmetic products than other people.	16.309	2	0.698	78	23.365	**0**
I only buy the essential cosmetic products.	2.028	2	1.045	78	1.941	0.15
I don't do research when buying cosmetic products.	20.223	2	1.046	78	19.337	**0**
I like receiving free samples to know a product.	3.394	2	0.966	78	3.515	**0.035**
I like to see ads about cosmetic products.	16.79	2	1.04	78	16.146	**0**
I like cosmetic advertisements with a foreign celebrity.	4.507	2	1.127	78	3.999	**0.022**
I like cosmetic advertisements with an Asian celebrity.	6.492	2	1.115	78	5.823	**0.004**
I shop around for the best value on cosmetics.	3.61	2	1.276	78	2.829	0.065
I prefer an Asian brand rather than a foreign one.	2.372	2	1.012	78	2.344	0.103

The F tests were used for descriptive purposes because the clusters were chosen to maximize the differences among cases in different clusters. The observed significance levels were not corrected for this and thus cannot be interpreted as tests of the hypothesis that the cluster means are equal.

Table 3.13.

Number of Cases in each Cluster

	Cluster	**N**
	1	6
	2	45
	3	30
Valid		81

After clustering the data, the findings (Table 3.13) indicated that most questions were grouped in cluster 2, meaning that out of 81 valid cases, 45 were similar in one way or another. The ANOVA test also showed which questions played a significant role in clustering the generation Z survey participants. The statements that served to further cluster generation Z included brand importance, willingness to spend on expensive cosmetics, attitude towards advertisements, online reviews and information, social media impact, product attributes and composition, product design and finally the overall presence of cosmetics in their lifestyles. Variables that had no significance in clustering were location of purchase, product price, sales on cosmetics, purchase affected by advertisements, product side effects, smell and preference of purchasing natural or environmentally friendly cosmetics. This will be further explored in the next chapter.

CHAPTER IV   FINDINGS AND DISCUSSION

Findings

The data comprised of 68.3% female, and 31.7% male in generation Y and 72.8% female and 27.2% male in generation Z dataset. Generation Z sample presents a slightly higher percentage of females than generation Y. Additionally, on average, generation Y spends more on cosmetics on a monthly basis than generation Z. Statistically, average monthly expense of generation Y is 1495.12 NTD whether for generation Z is 1166.67 NTD. This could be explained on the age life-cycle difference of both generations. It is deducted that generation Z comprises of a younger sample and this can also affect their buying power. Consequently, generation Y consisted of 40.2% students whether 82.7% of the generation Z participants were students. The rest of the participants were employed in different professions such as management, sales, marketing, service industry, education institutions and arts. Additionally, 86.6% of gen Y sample, resident in Taiwan, were of Taiwanese origin. In gen Z sample, 93.8% are of Taiwanese origins. Other nationalities included participants from Ukraine, Albania, Norway, Malaysia, German, Austria, Australia, Vietnam, Hong-Kong, China, Ecuador, Thailand and the UK.

According to conducted descriptive statistics, there are slight differences between the generations on the use of product categories percentages. 95.12% of generation Y participants use skin care products, 93.9% use hair care products, 37.8% use shaving products, 71.95% make-up products, 29.27% deodorants, 29.27% toilet soaps, and 30.49% of intimate hygiene, 68.29% lip balms, 54.88% sunbathing and 13.41% tanning products. 37.8% uses nail – care products.

Among generation Z participants, 92.11% use skin care products, 94.74% use hair care products, 27.63% use shaving products, 73.68% make-up products, 27.63% deodorants, 14.47% toilet soaps, 22.37% intimate hygiene products, 75% lip balms, 39.47% nail-care products, 72.37%, sunbathing and 10.53% tanning products.

When identifying media channels, the participants use the most regarding cosmetics, the following statistics were concluded. According to the analysis of the Generation Y dataset, 75.6% of people find out about new cosmetic products through social media, 41.5% through TV, 25.6%, through magazines, 48.8% through street advertisement, 42.7% through mobile ads, and 57.3% through promotional events.

According to the analysis of the Generation Z dataset, 86.4% of people find out about new cosmetic products through social media, 48.1% through TV, 25.9%, through magazines, 43.2% through street advertisement, 60.5% through mobile ads, and 71.6% through promotional events. Based on this data, generation Z is more responsive to social media, TV advertisement, mobile ads and promotional events than generation Y. Furthermore, both generations have a similar response towards magazines and finally generation Y seems to be more responsive to street advertisement.

After conducting a factor analysis on both segment groups, generation Z loaded four factors and generation Y three. From the analysis the following factors were derived for Gen Y: "**Knowledge on cosmetics**", "**Social media impact**" and "**Environmental consciousness**" and "**Knowledge on cosmetics**", "**Attitude towards advertisement**", "**Social media impact**" and "**Environmental consciousness**" for Gen Z. based on these results, it can be deducted that generation Z seems to be more sensitive to advertisement compared to generation Y. Furthermore, deeper observations are made into the variables that define these factors.

The following statements defined "knowledge on cosmetics" for both generations accordingly:

Table 4.1.

Factor 1 – "Knowledge on cosmetics"

Generation Y	Generation Z
I like to talk to my friends about cosmetics.	I like to talk to my friends about cosmetics.
I am a heavy user of cosmetic products.	I think for a long time before buying a new cosmetic product.
It is important to me to know the latest cosmetic products.	I am more careful when choosing cosmetic products than other people.
I am willing to spend money on expensive cosmetic products.	I always look at the online reviews when buying a cosmetic product.
I am more careful when choosing cosmetic products than other people.	I google a cosmetic product online before buying it in store.
I google a cosmetic product online before buying it in store.	

It is observed that the statements composing this factor are all of the same nature. Although the statements are not identical for each generation, they present the consumer behaviour and their characteristics towards cosmetic products and their weight in their personal lifestyles. Both generations are affected by the prior information they have before making a purchase, hence the topic is present in their daily lives. On a psychological point of view, this is of course related to a heavy usage of cosmetics or not and online means, such as reviews or information. Additionally, it can be found that heavy usage of cosmetics is related in Gen Y together with willingness to spend more on products and to always be up to date, but for Gen Z it is important to use online resources of information about their preferred purchases, like reviews and evaluations from peers or experts, and their willingness to spend does not seem to be a correlated defining variable.

Table 4.2.

Factor 2 – "Social media impact"

Generation Y	Generation Z
Social media affects my decision when purchasing cosmetic products.	Social media helps me choose cosmetic products.
Social media helps me choose cosmetic products.	Social media affects my decision when purchasing cosmetic products.
The social media peer pressure to look good affects my purchasing decision.	The social media peer pressure to look good affects my purchasing decision.
I purchase cosmetic products because I have seen them in online tutorials.	

The second factor loaded is "Social media impact" for both generations. It is no surprise to derive this factor given that generation Y is very digital savvy and generation Z being a digital native. This factor is defined by the same statements, except that for Gen Y it seems that online tutorials are correlated to social media whereas for generation Z this is not a defining variable. Both generations are affected by social media platforms and trends that they create which then translate into a social peer pressure for the participants.

Table 4.3.

Factor 3 – "Environmental consciousness"

Generation Y	Generation Z
I would rather purchase natural cosmetics than non-natural ones.	I would rather purchase natural cosmetics than non-natural ones.
I purchase cosmetic brands that care about the environment and animals.	I purchase cosmetic brands that care about the environment and animals.
I purchase cosmetic products that have a nice design.	I like to try/test cosmetic products before I buy them.

Both generations have loaded a factor related to their environmental consciousness. This trend affecting the cosmetics industry, as also mentioned before in this thesis is seen to be significant in the generations behaviour. However, comparingly, generation Z correlated environment friendly & natural cosmetics with their design, whereas generation Z correlated testing a product beforehand, for instance by using samples, to estimate their preference towards an environment friendly cosmetic.

Table 4.4.

Factor 4 – "Attitude towards advertisements"

Generation Z
I like to see ads about cosmetic products.
I like cosmetic advertisements with a foreign celebrity.
I like cosmetic advertisements with an Asian celebrity.
I am willing to spend money on expensive cosmetic products.

Finally, it is observed that generation Z loaded one additional factor compared to generation Y. their preferences towards ads are significant for this generation, whether they involve international or local celebrities. The willingness to spend money is correlated to advertisements for generation Z, whereas for Y it is correlated to their knowledge on cosmetic products.

Cluster analysis was further applied to both datasets. Each generation is further grouped into three clusters. The statements significant to define these clusters were slightly different in each generation according to their respective ANOVA Table results also mentioned in the previous chapter. Taking a deeper look into the "homogenous subsets" which are derived from performing a one - way ANOVA analysis based on the

initial cluster analysis results, it was discovered that the clusters of gen Y can be identified according to level of cosmetics usage; namely "heavy users" for cluster 1 (N=35), "medium users" for cluster 3 (N=36) and "low users" for cluster 2 (N=11). Furthermore, statements where clusters differ the most are willingness to spend money on expensive cosmetics, searching for information on a product online before making a purchase, influenced purchases from online tutorials, talking to friends about cosmetics, importance of knowing the latest cosmetic products, amount of carefulness in choosing cosmetic products compared to others and liking advertisements with an Asian celebrity. Evidently, heavy users are more willing to buy expensive cosmetics, actively search for information online, be up to date with the latest trends, follow tutorials and overall investing more time and effort into their purchases. It is further self-explanatory that medium users spend less efforts and low users don't consider these lifestyle choices at all. Furthermore, heavy and medium users result to be highly affected by social media, pay attention to products attributes, ingredients and their design.

When observing "homogeneous subsets" for generation Z, the results are different from generation Y. The only statement clearly placing a difference from the 3 clusters is "I am more careful when choosing cosmetic products then other people.". This is further considered to identify the clusters accordingly in "high cautiousness" for cluster 2 (N=45), "medium cautiousness" for cluster 3 (N=30) and "low cautiousness" for cluster 1 (N=6). It is further observed that level of cosmetic usage does not define preferences for products in generation Z. There is a clear difference from low cautious users to medium and high ones regarding the influence social media has on their purchases, searching for information on a product online and reliance on peer reviews, paying attention to product ingredients, talking to their friends about cosmetics and relying on cosmetic products to look good.

After analysing differences between clusters in each generation, further observations are made focusing on their homogeneity towards the provided statements, meaning assessing preferences and attitudes where all clusters behave the same for each generation. All clusters assessed in both generations have an equal proportion of females and males in each cluster composition. This fact eliminates the possibility that cluster differences are attributed to gender. All clusters in generation Y agree that they purchase cosmetics based on price, but they disagree on purchasing only cosmetics that are on

sale. They all have a neutral opinion when it comes to choosing international or Asian brands. They all agree that a products smell is considered when making a purchase and that they prefer natural cosmetics over non-natural ones. Lastly, gen Y has an averagely neutral preference towards cosmetics that care about the environment and animals.

On the other hand, all clusters in generation Z also agree that they purchase cosmetics based on price and disagree that their decision is based exclusively on sales. They disagree that they purchase a product because of their advertisement. Instead their decision is highly dependent on recommendations from peers. Additionally, purchasing a product in store is more preferable then online. In regard to environmental consciousness, gen Z agrees that they prefer natural cosmetics and that care about the environment. They react positively to cosmetics that have no side effects and have a pleasant smell. Finally, they state that they only purchase the essential cosmetic products and like to receive product samples.

Discussion

This research was focused on the shopping behaviour of Generation Y and Generation Z. The main objective was to demonstrate the specifics of both Generation Y and Generation Z general behaviour associated with the mode of advertisement and evaluate the specifics of shopping behaviour regarding the perception of cosmetic products.

According to the findings of the conducted analysis, generation Y has a higher average monthly expense on cosmetics in comparison to generation Z. this result could be explained on the fact that generation Y is currently in a younger lifecycle phase. In fact, Gen Z has twice the number of students than Gen Y. Understandably, they have less monthly income to spend. When it comes to product categories used, both generations resulted in close percentages with each other for each category provided in the survey. This emphasises on the presence of cosmetic products and their importance in overall every individual's lifestyle, no matter to which group they belong to. Noticeably, the most used categories were skin care, hair care, makeup, lip balms and sun protecting products which fulfil the need for basic hygiene and self-care considering the high weather temperatures in Taiwan. Both generations have a close distribution of males and females, with generation Y having slightly more female participants, therefore gender is not considered to be a defining variable. Use of deodorants was particularly not high and it is assumed to be related to cultural reasons. When it comes to advertisement channels, generation Z finds out about new products through social

media, TV, mobile ads and promotional events in higher percentages than generation Y. As mentioned as well in this paper's literature review, the study confirms that as digital natives gen Z spends more time in the virtual world and watch more TV. However, even though they lean towards digital media more, generation Z is also more affected by promotional events where they can engage with the brand. On the other hand, advertisement channels like street billboards and posters resulted to be more efficient for generation Y. Furthermore, from a widened perspective, the most influential channel is social media for both generations, with promotional events coming second. The emphasis of advertisement channel efficiency is evidently held by the importance and presence of social media in people's everyday life. Additionally, because most of the interactions with a brand are experienced in the virtual world, promotional events also have a high impact for customers to feel connected to the brand on a more personal level.

Results from the factor analysis differentiate both generations on the factors loaded for each sample group. Generation Z loaded one more factor then generation Y, that being the "Attitude towards advertisements". The factors "Knowledge on cosmetics" had defining variables of a similar nature for both generations. In "Social media impact" it is observed that generation Y correlated online tutorials with social media, while generation Z does not. Finally, the factor "Environmental consciousness" is presents two interesting remarks; generation Y relates natural and environmentally friendly cosmetics with a nice label design, but generation Z relates them with testing a product before purchasing. Thus, it can be argued that both generations have different perceptions on these types of products.

Findings from the cluster analysis lead us to place the majority of generation Y sample into heavy and medium users, where approximately 87% of the subjects studied fall into these clusters. The same pattern was observed for generation Z where 92% of the participants fall into the clusters defined by high and medium cautiousness when choosing cosmetic products. Even though users belonging to generation Z are not heavy users of cosmetics and the majority purchases only the essential cosmetics, they still perform high due diligence before a purchase using online means. This fact highlights the consciousness generation Z has about products they use, no matter if they are heavy or low users. On the other hand, generation Y presented a clear difference in buying behaviour according to their level of cosmetics usage. It can be assessed that this

generation's attitude can be clearly identified on the amount of effort and time they invest into a purchase. For instance, low users do not use online information means to evaluate their purchase decisions and vice-versa. Because of the vast information available on products nowadays, consumers are more aware in their decisions-making process. Variables such as price incentives do not have a strong influence on purchasing decisions for both generations. Generation Y results to be conscious about natural cosmetics but the fact that a cosmetic is environmentally friendly or not has a neutral impact on them. On the other hand, generation Z results to be more affected by these two variables, through which they state that they prefer both natural and environment friendly products. The awareness generated by media in the past years about environment issues and chemicals applied to the body, is evidently having an influence on the buying behaviour of younger consumers, which are soon to be a substantial targeting market for companies.

The research findings are valuable for cosmetic company managers to use as a resource in better targeting generation Y and Z in their marketing activities. Results regarding the most efficient advertising channels and attitude or buying behaviour of these generations in Taiwan for cosmetics, give deeper insights on the most efficient ways to target the studied groups. It is of interest to know the fact that for instance generation Z has a high response to social media channels but also to promotional events where they get a more personal interaction with the brand. It is no surprise that as digital natives, social media channels result to be important for this group, however on the other hand it is also discovered that personalization in their touchpoints with the band, is also substantial for this group. Similar deductions can be assessed by managers on other aspects of this study as well, such as their sensitivity towards natural cosmetics or the amount of information they want to have prior to a purchase. Additionally, the fact that the clustering of the two generations is conducted based on different attitudes, usage frequency for generation Y and carefulness of choosing a cosmetic product for generation Z, demonstrates the importance of targeting these generations with different strategies. The attitudinal findings of both generations can be used as a tool to better strategize on acquiring new customers belonging to generation Y or Z and to develop accurate strategies on nurturing the existing ones.

Finally, a point of discussion is also the high exposure to subjectivity when conducting these types of segmentation analyses. It is understandable that for instance clustering is prone to high subjectivity and extensive possibilities of interpreting the data (Hoek, Gendall, & Esslemont, 1996). Nevertheless, the reliability of the segments discovered can be restored when the results are proved to be robust.

CHAPTER V   CONCLUSIONS AND RECOMMENDATIONS

Conclusions

This research concludes in assessing several behaviour and attitude differences between generations. The different lifecycle phases they are in, are considered to be a cause that influences their differences in average monthly expenses for cosmetic products. In scope of new product launches, advertisement channels like social media, TV, mobile ads and promo events have a bigger impact on generation Z, while generation Y is more responsive to street advertisement. Both generations loaded three similar factors in nature. However, the variables (statements) defining the factors were different, which leads to the fact that Yers and Zers have a different perception and perspective from each other. For instance, generation Y relates natural and environment friendly cosmetics with their label design, but for generation Z this is related to testing a product to assess them before purchase. Moreover, online tutorials result to be correlated to social media impact for generation Y and not for Z. In comparison, a fourth factor is loaded during the analysis for generation Z which was associated with "attitude towards advertisements".

The generational segments were also each clustered in further groups that present similarities between them. As a result, generation Y is clustered according to their level of cosmetic products usage, explicitly, heavy, medium and low users. The majority of the participants belonged to heavy and medium users. On the other hand, generation Z is clustered according to their cautiousness in choosing a product, namely, high, medium and low cautiousness. The majority of the Z participants fell into high and medium cautiousness. These findings emphasize once more the difference in buying behaviour perceptions towards cosmetic products. While generation Y clusters had a clear difference in behaviour according to their usage, generation Z presented more blended characteristics, where high and medium cautious participants displayed the same behaviour. A clear distinction is observed form high to medium and low users on their willingness to buy expensive products, researching online for product information, the importance of being up to date with the latest cosmetics in the market and overall time and effort invested into purchases. Moreover, heavy and medium users are detected to be highly affected by social media, pay attention to products attributes, ingredients and

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their design. On the other hand, the analysis of generation Z resulted in a clear difference from low cautious users to medium and high ones regarding the influence social media has on their purchases, searching for information on a product online and reliance on peer reviews, paying attention to product ingredients, talking to their friends about cosmetics and relying on cosmetic products to look good. Generations differed from each other on their view on environment friendly cosmetics

Nonetheless, given the fact that these two generations are very close to each other, they also present similarities between them. Skin and hair care, makeup, lip balms and sunbathing products are the most used cosmetics categories by each group. Both generations result to have approximately the same level of responsiveness towards magazine advertisement regarding new cosmetic products. Furthermore, social media advertisement and promo events scored higher in each generation individually, thus showing the importance of these advertisement channels. Similarities were as well observed on preference towards natural cosmetics and affected purchases by recommendations and peer evaluations. Finally, both generations do not consider price as an incentive of purchasing.

Recommendations

Several limitations are observed during research that lead to further recommendations. It is suggested that this study can be further researched by extending the participants sample. Increasing the sample size would give more substantial results and further insights into generational characteristics.

Moreover, generation Z participants of this study are in a very early phase of their lifecycle. It is taken into account that their individual preferences, values and character are not yet fully developed and that their behaviour is less reliable than the one accounted from generation Y. It is considered that some statements presented in the survey might have been unacknowledged before to some participants belonging to generation Z. Consequently, it is suggested for a similar study to be conducted at a later time, when generation Z enters their subsequent lifecycle phase.

Furthermore, comparing generation Y and Z belonging to different countries can also be of interest. It is expected that different cultural upbringings can affect in perceptions and behaviour of the groups and therefore lead to substantial results which determine

the use of different marketing approaches for the same generation in two, or more, geographic locations.

Finally, further research can be conducted by comparing generation Y and Z to generation X. It is assumed that the way these age groups are brought up and what they have experienced through fast evolving times in regard to technology and market strategies, has a very different impact on each groups' attitude and purchasing behavior. Generation X has had to adapt through many lifestyle changes throughout their lifetime, therefore a study comparing them to other generational groups has great potential for further insights and more accurate marketing strategy planning.

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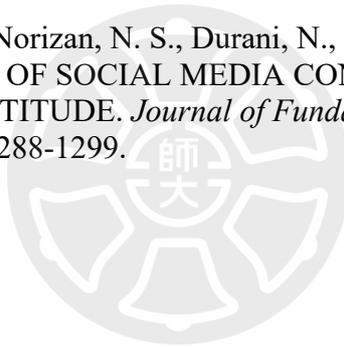
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APENDIX I

Survey "Cosmetics"

(Section 1) Consumption behavior

I. Please check the following product categories that you use:
    - o Skin care products (creams, body lotions, face masks, gels, oils etc.)
    - o Hair care products (shampoos, conditioner, oils, hair coloring products, hair gels, hairspray etc.)
    - o Shaving products
    - o Make-up products (also including make-up removers)
    - o Deodorants
    - o Toilet soaps
    - o Intimate hygiene products
    - o Lip balms
    - o Nail- care products
    - o Sunbathing products
    - o Tanning products
    - o Other

II. I find out about new cosmetic products in:
    - o social media ads
    - o TV
    - o Magazines
    - o street advertisement (billboards, posters etc.)
    - o mobile ads
    - o promotional events

III. Please state your agreement with the following statements accordingly (scale from 1 - strongly agree to 5 - strongly disagree):

Statements	(1) Strongly agree	(2) Agree	(3) Neutral	(4) Disagree	(5) Strongly disagree
The brand of a cosmetic product is very important to me.	O	O	O	O	O
I purchase cosmetic products based on price.	O	O	O	O	O
I am willing to spend money on expensive cosmetic products.	O	O	O	O	O
I buy whatever cosmetic product that is on sale.	O	O	O	O	O
I purchase cosmetic products if I like their advertisement.	O	O	O	O	O

I purchase cosmetic products upon recommendations.	O	O	O	O	O
I do not pay attention to the attributes of a product when making a purchase.	O	O	O	O	O
Social media helps me choose cosmetic products.	O	O	O	O	O
Social media affects my decision when purchasing cosmetic products.	O	O	O	O	O
The social media peer pressure to look good affects my purchasing decision.	O	O	O	O	O
I google a cosmetic product online before buying it in a store.	O	O	O	O	O
I purchase cosmetic products because I have seen them in online tutorials.	O	O	O	O	O
I like purchasing cosmetic products in-store.	O	O	O	O	O
I like purchasing cosmetic products online.	O	O	O	O	O
I pay attention to the ingredients when I buy cosmetic products.	O	O	O	O	O
I purchase cosmetic products that have a nice design.	O	O	O	O	O
I always look at the online reviews when buying a cosmetic product.	O	O	O	O	O
I purchase cosmetic brands that care about the environment and animals.	O	O	O	O	O
I would rather purchase natural cosmetics than non-natural ones.	O	O	O	O	O
I like to try/test cosmetic products before I buy them.	O	O	O	O	O
I am a heavy user of cosmetic products.	O	O	O	O	O
I like to talk to my friends about cosmetics.	O	O	O	O	O
I think for a long time before buying a new cosmetic product.	O	O	O	O	O
I like cosmetic products that do not have side effects.	O	O	O	O	O

It is important to me to know the latest cosmetic products.	O	O	O	O	O
I feel that cosmetic products are not essentially important to me.	O	O	O	O	O
I rely on cosmetic products to look good.	O	O	O	O	O
I like cosmetic products that smell good.	O	O	O	O	O
I attend events where my hair, skin and make up should look good.	O	O	O	O	O
I am more careful when choosing cosmetic products than other people.	O	O	O	O	O
I only buy the essential cosmetic products.	O	O	O	O	O
I don't do research when buying cosmetic products.	O	O	O	O	O
I like receiving free samples to know a product.	O	O	O	O	O
I like to see ads about cosmetic products.	O	O	O	O	O
I like cosmetic advertisements with a foreign celebrity.	O	O	O	O	O
I like cosmetic advertisements with an Asian celebrity.	O	O	O	O	O
I shop around for the best value on cosmetics.	O	O	O	O	O
I prefer an Asian brand rather than a foreign one.	O	O	O	O	O

(Section 2) Demographics

IV.   Gender:
  o   Male
  o   Female
V.   Age:
  o   38- 24 (Gen Y)
  o   23-16 (Gen Z)
VI.   Profession _____
VII.   Nationality
  o   Taiwanese
  o   Other
VIII.   Average monthly budget for cosmetics (NTD) _____