

Impact of Gender Differences in DNA on Consumer Buying Behavior*

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Abstract

Purpose The purpose of this study is to investigate the impact of gender differences in DNA on consumer buying behavior both online and offline and other buying channels to find out effective sales promotion strategies of enterprises.

Research design, data, and methodology – This study investigated the relation between chromosome and DNA, DNA and gene, and gene and human behavior of gender. The study shows generic characteristics have influence upon consumers' buying behavior and inclination, and examined the effects of genetic characteristics depending upon the difference of gender DNA upon consumers' buying behavior.

Results – Precedent studies on genetics and ethology showed close relations between chromosome and DNA, DNA and gene, and gene and buying behavior of the gene. 'Hunting and protection', one of the genetic characteristics in men's DNA, had great influence upon the consumers' different buying behavior.

Conclusion – Gender DNA difference in genetics and ethology disclosed fundamental reasons for the difference in buying behavior and inclination of men and women. It gives implications that marketing strategies of advertising and sales promotion should be made in different ways depending upon men and women.

Keywords: Chromosome, DNA, Gene, Buying Channels, Consumer Buying Behavior.

JEL Classifications: I12, M31, M37.

1. Introduction

In the 21st century, men connected digital devices with politics, economics, society, culture, and other areas. Therefore, digital trends made great change for the status of traditional men and women. Women played an important role at the change be-

cause women had more oriented relation than men had. Men lost relational attributes of DNA by playing online games to devote themselves to the cave of virtual reality of Internet. Men did not make efforts to elevate low relationship to follow women who did better (Kim, 2010).

How long the ambiguous attitude of men having no identity could be lasted? In society, people worried about women-oriented phenomenon: For instance, in elementary schools, school children could not have traditional values and authority by not following school norms and rules because there are few male teachers (Kim, 2010).

Not only men but also women made efforts to change of status to produce digital environment and to integrate channels of buying paths and to disturb distribution businesses. Most of distribution businesses had sales strategies which are neglecting difference of gender for the purpose of selling to both men and women in same way. Products at traditional buying paths were sold out in quite different ways to have different buying paths and behaviors depending upon gender and to disturb not only manufacturers but also distribution businesses very much. Consumers mostly bought at offline shops such as traditional markets, supermarkets, large scaled discount stores and department stores: In the 2000s, various kinds of buying channels made appearance at division of buying channels, that is to say, online and offline. In the 2010s, smart phone based on mobile commerce and social enterprises made appearance to let individuals and small businesses sell products online by G Market, Auction, and 11st Street and to do social commerce shopping by SNS (Social Network Service) of Facebook and Twitter, for instance, Groupon, Ticket Monster and Coupang.

Not only men but also women bought offline in different way because of difference of gender DNA. SNS based on social commerce showed different consumers behaviors and purchase decision-making because of genetic difference between men and women just the same in offline buying behaviors. So, studies on consumer buying behavior reflected DNA difference between men and women. But, studies on consumer buying behavior so far researched the effects upon consumers' buying decision-making. Most of the precedent studies investigated external factors which are having influence upon consumers to examine consumer's behavior from the psychological point of view regardless of different buying behavior and inclination depending upon gender.

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Precedent studies investigated different consumer's response and buying behavior in online and offline depending upon gender with neglecting genetic difference, and they did not examine the causes for the different buying behaviors in men and women. In buying channels, not only men consumers but also women consumers promoted sales and salesmen greeted customers in different ways to show quite different responses of men and women consumers. Precedent studies researched not the basic causes of buying behaviors but the difference of buying behaviors from the psychological point of view, which were difficult to give marketing strategy that could help enterprises.

The purpose of this study is to investigate the effects of DNA difference between men and women at buying channels upon consumers' buying behaviors, and to find out effective sales promotion strategies for enterprises by using gender DNA.

2. Theoretical Background

2.1. Research Background

This study started to find out the causes of buying behavior in both men and women. Men and women had different shopping behaviors at the shops. Women liked to do shopping when watching products displayed here and there. On the other hand, men did shopping according to their buying purposes in advance to complete shopping promptly. The author found out the different buying behaviors between men and women:

First, men who had directed goal buying behaviors found out the products they wanted to leave shops promptly. But, women visited shops here and there with showing various kinds of shopping possibility, and inspected displayed products as carefully as they could.

Second, men felt burden to salesmen when their shopping behaviors were disclosed. Men hated salesmen's approach and active sales activity and/or help. On the other hand, women felt neglect when salesman did not approach nor give help and saying.

Third, men liked to do shopping alone and thought salesman's help as interference with feeling psychological burden. Men sometimes gave up shopping and moved to another shop when a salesman greeted at the entrance of shop. Women often did shopping to be accompanied by another person and two or more persons. They felt insulted when a salesman did not say hello. The author examined the precedent studies of consumer behavior to find out the solution of questions on buying behavior between men and women:

2.2. Precedent studies on both online and offline buying behavior depending upon gender

Precedent studies on difference of consumer behavior between men and women were: Both men and women were said to take different actions depending upon types of advertising. In fact, men preferred advertising with visual information, simplicity,

and preference, and women thought of linguistic, complicated and harmonious relations. Women consumers had affirmative attitudes toward category oriented advertising to have strong buying intention (Jeon, 2000). Not only men but also women pursued different buying behaviors and values in shopping: Men shopping customers thought much of practical values in shopping to have affirmative attitude toward online shops. On the other hand, women shopping customers pursued hedonic values to think of offline shops with hedonic values in affirmative way. Both men and women were influenced by information search source in different way: For instance, men were more influenced by offline business information. But, women took sensitive actions against online and offline experimental information as well as consumer information (Cha et al., 2005).

Studies on emotional factors of online shopping showed the difference of emotional response at Internet shopping malls depending upon gender: Not only men but also women had different emotional response of satisfaction, revisit intention, shopping time and shopping amount (Suh & Kim, 2012). A study on the understanding on Internet shopping mall use depending upon gender said the consumers' different cognition on online mouth to mouth communication (Park & Jung, 2010).

A study on attitude toward Internet advertising said that men had affirmative attitude toward information and amusement of Internet advertising, and women had affirmative attitude toward information and reliability (Kim & An, 2008). According to the frequency results, females viewed web pages and utilized web site features generally more than males regardless of purchase decisions (Park, 2007).

Men tried new things in the use of Internet more than women did, and felt less risk at buying to have confidence at shopping, spend time, and make efforts at information retrieval. Men consumers were more interested in direct marketing to obtain product information from more information source (Lee et al., 2003).

According to the factors influencing the use of intention in social commerce, the risk-free quality and portrayal of in-group or out-group situations in social commerce need to be communicated to female consumers, along with the social norms of using social commerce. In targeting male consumers, the technological features illustrating the usefulness of social commerce should be focused (Kang & Kim, 2013).

Many studies investigated online and offline buying behavior of consumers' characteristics: For instance, MBTI (Myers-Briggs Type Indicator) of psychologic consulting area was used to investigate online buying behavior depending upon consumer's personality (Kim, 2003). Kinds of commodities, preferred shopping mall, commodity prices and payment methods varied depending upon consumer's personality. Consumer's brand involvement varied depending upon openness, faithfulness, extraversion and emotional instability of individuals (Kim & Sohn, 2013). The precedent studies disclosed the difference depending upon consumers' buying behavior and did not disclose the causes of the difference.

Precedent studies on online and offline by gender gave implications:

First, men were influenced by visual, simple and attribute oriented advertising, while women were done by relation oriented and category oriented advertising.

Second, men preferred practical use value, information, and goal-oriented shopping, while women were influenced by hedonic values, experience-oriented and consumers' information.

Third, emotional factors in online shopping varied between men and women.

Fourth, consumers' cognition on online mouth-to-mouth information varied by gender.

Fifth, satisfaction of shopping mall and decision-making support of shopping mall varied depending upon gender under Internet shopping environment.

Sixth, men had affirmative attitude toward information and amusement of Internet advertising, while women had affirmative attitude toward information and reliability.

Seventh, men got information from motives, risk burden, information retrieval time and efforts, direct marketing and information source more than women did.

Most of precedent studies on consumer behavior were focused on buying behavior of men and women, and no study on the origin of the difference was made. This study examined the origin of the difference of consumer behavior at DNA difference between men and women.

3. Genetic Characteristics of Men and Women under Influence of Consumer Behavior

A lot of studies investigated buying behaviors from the psychological point of view, and no study investigated the causes of different buying behaviors between men and women. Causes of the different buying behaviors between men and women should be clarified to get a solution. The author could find out an answer by the precedent studies on ethology and genetics. In the 2000s, the genetic characteristics of men and women had influence upon consumer behavior, and they could help explain the changes of status between men and women. Consumers had different buying behavior from the point of view in ethology and genetics.

3.1. Changes of Status of Men and Women from point of view of DNA

In the 2000s, digital system made great change of men consumers' traditional buying tendency and behavior. New terminologies such as Metro sexual, uber-sexual, grooming and Nomu reflected the roles of men's consumption trend to expand force throughout the world. Distribution businesses that contacted consumers face to face gave various kinds of products and services in accordance with men's trends of appearance to lure men consumers. Most of distribution businesses were busy to take actions against the changing trends of men to neglect clar-

ification of causes. To establish marketing strategy for men customers from long term point of view, changing trends should be satisfied and the direction based on fundamental causes and understanding should be set. Why did men pay attention to appearance management of make-up, beauty care, fashion and plastic surgery that belonged to women's area?

Men and women made change of status to cognize such a phenomenon: In the 2000s, women could have economic power much more than previous generation had so that they became an important class of people. How could men make change of status?

In the United States, 'era of female dominance' started to close the era of men, and a number of workers and professionals in the work exceeded that of men early 2010. In April 2010, wage of women started to exceed those of men. Such a phenomenon was also applied to education world: In the United States, the ratio of graduates from colleges in men and women was 2 men graduates to 3 women graduates. The case was also applied to China, so that women owned more than 40% of private businesses to convert status of both men and women. The phenomenon occurred not only in Western countries but also in Oriental countries.

In South Korea, a number of women who passed teacher certification examination, bar examination and foreigner service examination exceeded those of men, which represent the changes of men and women. Men who were accustomed to traditional custom and culture for men first were put into great chaos at the change. Men's last advantage in biological DNA that men had more power and bigger than women could not revert such a phenomenon (Kim, 2010).

Why did men select the role model from women?

First, In digital society in the 2000s that was free from hunting and protection orientation, men could communicate to be suitable to women DNA characteristics and to concentrate and to look for emotional consensus.

Second, women exercised their ability and talent in society to stimulate women's motherhood to overcome men's crisis and to select 'me-to-strategy'. So, a lot of men followed the importance of maintaining of appearance in women (Kim, 2010). Is men's buying inclination of 'Follow women' good? How long does such an inclination last? Not only biology but also ethology should be combined with marketing, consumer trend and sociology to solve the problem. What difference had men and women from the point of view in biology?

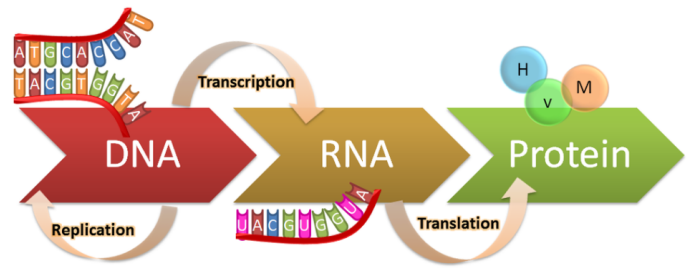
3.2. Gene of Men and Women

One of human cell had 46 chromosome that consisted of 44 common chromosome and one pair of sex chromosome. Every human cell has 46 molecules of double-stranded DNA. This DNA is coiled and supercoiled to form chromosomes. Each chromosome has around 50 to 250 million bases. Human cells contain two sets of chromosomes, one set inherited from the mother and one from the father. The egg from the mother con-

tains half of the 46 (23) and the sperm from the father carries the other half 23 of 46 chromosomes. Together the baby has all 46 chromosomes (Mandal, 2014).

Women had one pair of sex chromosome with 'X chromosome' only, while men had one pair of sex chromosome with one of X chromosome and another one of Y chromosome. The 46 chromosome is assumed to have 22,000 genes. Each one of chromosome is said to have more than 500 genes, and Y chromosome that men only have includes 80 genes (NTH, 2008).

Deoxyribonucleic acid (DNA) is the chemical information database that carries the complete set of instructions for the cell as to the nature of the proteins produced by it, its life span, maturity, function and death. Genes are the working subunits of DNA. Each gene contains a particular set of instructions, usually coding for a particular protein or for a particular function (Mandal, 2014).



Sources: Genius (2015).

<Figure 3 > Central Dogma

Ethologist said that human body consisted of about 60 trillion cells and each one of cell nucleus had as many as 22,000 kinds of gene to control cell activity. A fetus had not only one of X sex chromosome but also another one of Y chromosome from point of view of genetics, and it could secrete plenty of male hormone by 80 genes of 'Y' chromosome. And, male hormone could produce strong body for hunting and protection as well as brain having spacial intelligence. A fetus with one pair of 'X' sex chromosome could secrete plenty of female hormone. And, the female hormone produces woman appearance to develop fetus brain and to control collection and nest. The fetus grows up to be a woman and to take woman-like behavior owing to brain with female circuit. Both men and women have been developed to have different capacity, power and tendency of brain (Dawkins, 2010).

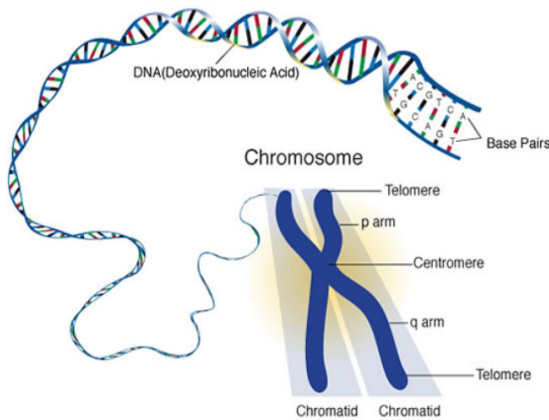
According to the "central dogma", information flows from DNA to RNA to protein. This transformation is achieved in two steps. First DNA is transcribed into an RNA intermediate (messenger RNA, and second, the mRNA is translated into protein (Watson, 2008).

3.3. Men and Women from point of view of ethology

This study investigated the evolution of both men and women from point of view of ethology. Men in charge of hunting should have not only long distance sight but also exact attack to detect a game silently (Dawkins, 2010). Men had less relationship than women had because hunting did not require communication to have no interest in other's emotion. On the other hand, women in charge of collection and rearing should communicate to do various kinds of things one time and to communicate for high efficiency of collection. Women could not understand that men watched fishing rod silently for a long time to evidence saying of 'Silence is golden'.

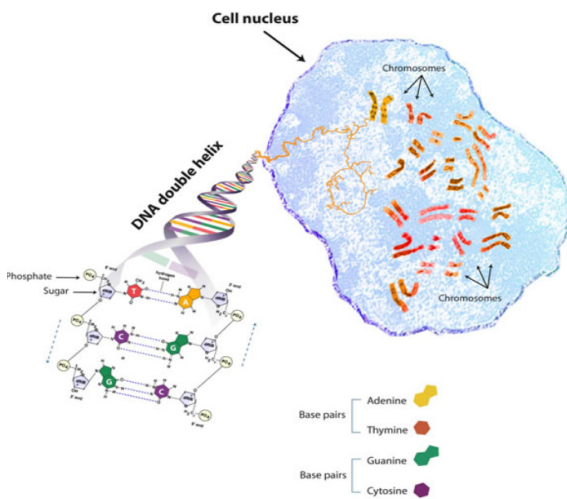
Not only men but also women evolved different functions because of roles: When riding a bus, men usually take a seat along external passage and women do in inner side: Men ancestors repeated role of protector of the cave unconsciously in order to protect family (Kim, 2010).

Different genes of both men and women from social point of view evolved men and women in different shape by blending education and culture: In other words, men thought much of physical strength and stamina to develop paternalism and



Source: National Human Genome Research Institute (2008).

<Figure 1> Chromosome



Source: National Human Genome Research Institute (2008).

<Figure 2> Deoxyribonucleic Acid (DNA)

androcentrism. On the other hand, women developed good communication, emotional consensus, composure and concentration.

Citizens may have one question: Thought, behavior and attitude of men and women may be influenced by growth environment, culture and education. In fact, ethology scholars have debated not only American environmental advantage but also European gene advantage for a long time. The scholars have reached a conclusion: Behaviors of men and animals are decided not by learning and environmental factors but by gene level inherited from ancestors. In other words, primary factors having influence upon citizens' behavior include DNA having relation with gene from parents not to produce behavior not included in the gene. So, learning and experience from home, school and society may produce citizen's behavior in the scope of behavior from the parents (Choi, 2007). Such a fact can be explained by taking action under situation: For instance, someone actively joins meeting, while others do not join meeting: And, someone helps poor neighbor, while others give minimum help.

3.4. DNA and Marketing

Men with hunting and protection DNA have logical thought, strong body, practice and promotion, firmness, dynamics, energy, invention, supply of resources and extroverted behavior. And, women with raising and collection DNA can take care of baby to express emotion well and to have patience and institution and to keep promise and have emotional thought. And, women have warmth, consideration, love, emotional sensitivity and introverted act. (Humphreys, 2004).

DNA of our body that is leader of program maker of our body produces program of capability taking actions against all of risks from birth to death to judge success of the program (Dawkins, 2010). Marketing success can be judged by success of strategic program to find out continuous growth that can take actions against all of risks in the market by using enterprise for survival. DNA makes use of our body for survival to make copy of our gene for generations and to cheat, negotiate and make change selfishly like enterprise marketing activities. Marketing activity competes in the market very much to establish strategic alliance and to make differentiation strategy with competitors (Kim, 2010).

4. DNA Analysis and Consumer Buying Behavior

What marketing implications does DNA of both men and women give? Men differ from women from point of view of genetics and ethology to take marketing strategy for men and women in a different way. The study has interpreted aforementioned contents from point of view of marketing:

Men customers with hunting and protection DNA tend not to listen to other person's saying. In other words, men customers often did not listen to salesman's explanation of the product. Men customers were more interested in things than in

men. So, men customers liked to touch and watch products. Men customers searched for a gift to give their mind in the most idealistic way when selecting. This was because men customers were short of verbal expression of their feeling. Men customers had brain that made use of one by one in genetic way so that explanation of another product would not be of help when finding out a product. Men customers were not accustomed to long time explanation in detail. So, they liked short and clear explanation of the product. Men customers hated indirect saying to prefer direct saying. Men customers hated comment of wrong doing to avoid advice. Men customers liked to show problem solving capacitance so that problem solving situation should be made. Men customers were inclined to believe in seeing. Men customers preferred information that they could read by themselves. They should be informed of where they could find out detailed information. Men customers should be given explanation of emphasis in current situation rather than changed situation. Men customers who were sensitive to movement related sound should hear sound of moving object. What consumer behavior do women customers take? Women in charge of collection and rearing could solve various kinds of things at the same time with time elapse to inherit the characteristics by DNA generation by generation. These days, women call over telephone 2 to 3 hours to help kids do homework and to keep clean home and do cooking and to do work of mother and housewife. Rearing related DNA plays an important role to inform baby's words and sentences for communication and to let mothers say same words repeatedly ten thousand times. A baby shall hear long sentence rather than words repeatedly. So, women's talkative saying has close relation with baby rearing. Mother who is not talkative may have difficulty at learning words and sentences from mother. Rearing DNA has 'emotional consensus between mother and baby'. Baby rearing allows mother to share emotion and to have consensus with baby. Talkative and emotional consensus are very much important to control women customers. Women like to be talkative genetically and to talk too much at ordinary time and to have difficulty at saying prudently after considering the other party's situation. So, women often tend to say on impulse and hurt the other party's mind. Sales women shall investigate that their careless saying may hurt the other party's mind.

A song says 'You are a person to be loved' that women have emotional consensus DNA to be loved and to be given interest and attention continuously.' Elementary school and middle school girl students' dialog have shown women's emotional consensus of genetic inclination. So, you had better greet women customers with interest and attention. You shall say products to women customers not by direct narration but by indirect narration. You had better smile and give warm consideration to women customers who are delicate to be sensitive. Men think much of work, while women do human relation in addition to work. You had better establish emotional consensus by human relations in addition to good processing by distinguishing public matters from private matters.

5. Summary

Precedent studies on buying behavior at different gender DNA could not find out the causes for different buying behavior between men and women. And, studies on genetics and ethology found out close relation between chromosome and DNA, between DNA and gene, and between gene and buying behavior.

Not only men DNA of 'hunting and protection' but also women DNA of 'rearing and collection' had critical influence upon the difference of consumer buying behavior between men and women.

5.1. Implications

The study had implications:

First, men customers were interested in things, while women customers thought much of human relation to think of relations, simple skin-ship and expression of friendliness.

Second, men customer brain was structured to do one thing at one time, while women customer brain had multi player functions to listen, speak and read. So, men customer needed short and clear explanation of the product, and women customer did enough product information in detail.

Third, men customer felt burden of being given attention, while women customer liked emotional consensus: Women customer with common topic should be also given attention.

Fourth, direct narration should be used to communicate with men customer, and indirect narration should be done to communicate with women customer.

Fifth, men customer should hear advantages of the product itself, while women customer should hear comparison with other company product.

Sixth, men customers liked to find out information by themselves and did not want help without request. But, women customers should be given active entertainment and response.

Seventh, men customer who liked information to read by themselves did not say questions not to listen to salesmen's explanation. But, women customer often gave questions to expect of kind answer in detail.

5.2. Expected Effect

Studies on consumer buying behavior depending upon genetic characteristics had expected effects:

- 1) Understanding on men and women consumers may vary depending upon different genetic characteristics between men and women;
- 2) Make change of images of enterprises and/or organization in favorable way;
- 3) Elevate customer loyalty;
- 4) Elevate employee's motivation by employee control consid-

ering gender DNA characteristics.

Distribution business is likely to establish marketing strategies depending upon men and women customers according to aforementioned contents.

5.3. Limitations

The study was done by using the literature of precedent studies and secondary material. The exploration research could find out some of significant implications, and on the spot research was needed to give effective information for marketing decision making to investigate distribution and characteristics of DNA related variables.

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