



Innovation and Development of Lipsticks

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Instructor: Professor Charles Weber

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Author(s): Bhawinee Banchongraksa

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Abstract

The history of the innovation and development of the lipstick started since 2500-1000 BC. Then it was incrementally developed through the years after. Obviously, formula was the primary applicator considered as the innovation of lipsticks. Its development basically driven by failures, user-demands, technologies, social trends and social regulations. The innovation of its pigments, ingredients, shape and packaging were invented based on those drivers. Nowadays, development of modern lipsticks seems not focus primarily on the pigments but other applicators such as transferred-resistance and lip protection. This paper illustrates that factors such as user-demands, social-trend, and social regulations significantly drive innovation of lipstick in the years before industry revolution of late 19th century while the technology advancement could be the factor which significantly drive lipstick innovation in the years after industrial revolution. Also, this paper provides a case of mass customization in lipstick business which now, seems to be the most advancement in the cosmetic business by focusing in particular brand, BITE who has been successful in customization services.

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Innovation and Development of Lipsticks

Introduction

It was very interesting to know that the use of lipstick has existed with the human especially women for over 5,000 years [1] even though it seems not an important factor for life. Lipsticks began to be used since prehistoric times and has been continuing to be used until now. Its use was typically restricted in particular class and group of people various in periods of time in early historical periods. The use of lipsticks could also express personality and beliefs of human. In some cultures, it was a part of life. For example, high class traditional Japanese wives were forbidden to walk in the public without full makeup [2]. In today's modern society, lipsticks appear to be a significant or must-have item for women. The study shows that there are countless brands of lipsticks available in the market. Moreover, 80 percent of women in North America use lipstick regularly and over 30% of them have 20 lipsticks in their possessions in any time of their adult life [2]. Its innovation and development not only influence the human cultures but also lead to the huge market of lipsticks over last centuries. This paper will illustrate the innovation and development of lipstick in different cultures within significant period of time before and after industry revolution of late 19th century by showing what significantly lead to the innovation of a lipstick and how it was developed through the years.

Literature Review

Lipstick in 2500 BC – 19th century

In the time before the industry revolution, in many culture, lipsticks were invented and developed in purpose of lip-protection from dryness, psychological point of view, and also following social

rules. The ingredients used in that time are what could be found in nature but without deep knowledge in safety for health. There were some significant cultures can be traced about lipstick innovation at this period of time. Regardless of different cultures, the red lipstick was the most popular shade at this time. All of the lipsticks in this period of time were produced in home with simple production. Moreover, the lipstick containers or packages were very simple as lipstick was usually wrapped in silk paper, placed in paper tubes, used tinted papers, or placed in small pots [3].

Back to 5,000 years ago, there were evidences of lipstick pioneering in two different cultures, ancient Sumerians and ancient China. These two cultures are considered to have lipstick innovation individually meaning that there are no evidences showing whether the one culture influenced by the other between this two. In ancient Sumerians culture, suspected pioneer of lipstick was Queen Pubabi of Ur who invented lipstick using crushed red rocks or semi-precious jewels and lead [1]. At the time in this ancient Sumerians culture, lipstick was pioneered primarily based on psychological point of view believed that red lips indicate a higher level of estrogen, indicating fertility in women. Around the same time in ancient China, a lipstick was invented but the first inventor was unknown. In ancient China, lipsticks were innovated primarily based on the purpose of lip treatment in order to relieve chapped or dry lips and also based on the religious beliefs as it was originally practiced to please the gods in religious occasions [4]. At this time, lipsticks in ancient China were typically called lip balm or mouth balm and innovated by the use of plant juices, animal bloods, or minerals. A red material called vermilion providing chemical composition called mercuric sulfide was added to mineral wax and animal fat. Some ancient Chinese used rouge which is the red facial balm (named “Yan Zhi” in Chinese) to do lip makeup.

Lips balms in ancient China often had wonderful fragrances added as well as tasty added flavors. In Tang dynasty or around 618-907, rather than appeasing the gods and lip treatment, the coloring lips also appeared social status, own spirit and well-being of Chinese people in this time. In Chinese culture of this time, lipsticks were not applied to lips for the whole shape of the lips. There were 17 lip patterns reported in high use for the last 30 years of the Tang dynasty [1].

After the pioneer of lipstick in ancient Sumerians and China, the use of lipstick has traveled to some other cultures. The earliest culture that adopted the use of lipsticks was the ancient Egypt in around 2,000 BC. Unlike the previous cultures that primarily used lipsticks in the purpose based on psychological point of view, but to identify social class regardless of gender [1]. In ancient Egypt, the red color is the most popular and only women of power and status wore red lip color [5]. There is no evidence of the first man adopted the use of lipsticks in the early of ancient Egypt but it was believed that sometimes later, there were members of royalty or the clergy began to experiment with other ingredients to create lipsticks [5]. Therefore, the ingredients used in ancient Egypt were the dye taken from seaweed with a bit of bromine mannite and iodine, two toxic metals that when mixed together, created a beautiful purple hue. Often times these lipsticks were referred to as the “Kiss of Death” as many who wore them fell ill or, more commonly, died. The famous Cleopatra VII (51 AD – 30 BC) made her lipstick from crushed carmine beetles and ants [6]. Sometimes the lipstick was decorated with shimmering effects of pearlescent that was extracted from fish scales [7].



Corinthian Pyxis with a red make-up powder. Found in a tomb from the 5th c. BC. [6]

In ancient Greek, 900 BC-600 AD, lipstick was made of some disgusting ingredients including crocodile feces and sheep sweat mixed with red wine [1]. The use of lipstick in this time is typically a symbol of prostitutes. It faced its first of many government regulations. Prostitutes who were seen without their lipstick could be imprisoned for imitating ladies in the period of ancient Greek. The other culture that adopted the use of lipstick especially from China was Japan. Japanese culture firstly found the use of red pigment on face in period of 300-710 and imported makeup including red rouge from China in around 6th century [8]. Craftsmen of lip rouge started becoming popular since 1333. Pigment for rouge was made primarily from safflowers. The purpose of using lipstick in ancient Japan primarily based on aesthetic approach and social status for women.

In the period of Islamic Golden Age, around 8th- 12th century, Arab Andalusian cosmetologist Abu al-Qasim al-Zahrawi managed to invent first solid lipstick, that were based perfume sticks rolled in special molds [7]. This made lipstick become portable.

In 13th century, based on the oldest evidence from the 13th-century book "The Grolier Codex", red lipstick was also known in the Americas [6]. Similar to the period of Cleopatra VII who made

lipstick from carmine beetles, the ancient Mayans also use bugs called Cochinita to make red lipsticks [9]. Moreover, Cochinita bugs are still widely in use today and there are many farms producing them.



The Cochinita farm [9]

The Cochinita is killed when the color is extracted, but the red color is not blood, but a chemical that turns a bright, highly pigmented red when exposed outside. Then that color, now called carmine red, is made into a pigment which can be mixed with anything to create the shade you want. Interestingly, even though Mayan culture was typically related to ritual worship, researchers have not found a significant evidence telling that red lips have any ritual or religious meaning in ancient Mayans [6].

In 16th century, Reign of English Queen Elizabeth I, lipstick began to be used fashionably in Europe. It made from beeswax and red stained plants. Only high class women and actors wore lipstick [7].



Elizabeth I was an early advocate of lipstick [1]

During the period of industrial revolution, in 1884, French cosmetic company by the name of Guerlain manufactured what we would soon call commercial lipstick [5]. It made from deer tallow, castor oil and beeswax [4]. This was the first time that lipstick manufactured commercially and was wrapped in nicely silk paper.

Lipstick in 20th century – present

After the time of industrial revolution, lipstick become more innovated in many applications and its packages. Its innovation and development has been driven by factors basically linking to commercial perspectives rather than social status or social rules as it used to be in the past. Moreover, it has also been influenced by advance technology. However, the use of lipstick is still based on the purposes of lip treatment and psychological point of views. Beside those purposes, fashion and social media also influence the use, innovation, and development of lipstick. In this period, the red lipstick is still the most popular shade. However, there are many shades of colors

available in the market these days. Also, lipstick production become more complex and manufactured commercially.

The innovation of the lipstick container was significantly seen in early 20th century. The container of lipstick at that time was made of metal in tube shape. The idea of using metal casing came after the war of World War I when there was a huge amount of scrap metal [10]. Metals were cheap at that time. So, they began experimenting with different shape and metals. The shape had to change from oval to more round when a swivel case was introduced in to the market. In 1915, lipstick container was innovated in levy tube [3]. It was the first commercial metal tube container for lipstick, which had a small lever at the side of the tube that lowered and raised the lipstick. It was invented by Maurice Levy of the Scovil Manufacturing Company.



Levy tube lipstick [11]

In 1920s, the use of lipstick became very popular due to the Rise of the photography and movie stars. In 1923, James Bruce Mason Jr. of Nashville, Tennessee patented the first swivel-up tube [3]. It has been dominant designing base until nowadays. The designs in both levy and swivel tubes are innovated based on the purpose of affordability, easy application, and portability. Furthermore,

the innovation of lipstick formula was also seen during this time as around 1930, lip gloss lipstick was invented by Max Factor [7]. Lip gloss first used widely for movie stars.

Due to the shape of lipstick case in 1940s was similar to bullet shape and it was in the the period of World War II, there was a belief that the same molds were used during the war to make bullet casings [12]. However, there was no evidence to support this belief. Moreover, Bullets today with their thin outer jacket of copper, are made as in WW2, where the metals are forced into a die (rather than mold) under high pressure (but not heat) in a process called “swaging”. Lipsticks, on the other hand, are molded by pouring or injection. It is difficult to imagine that industrial swaging machinery would be of any use to a cosmetics maker. Therefore, it could just be said that lipstick cases were made in a similar fashion to bullet cartridge casings or the idea of designing them might be inspired by the bullet shape. Moreover, there were some studies showed that the metal lipstick containers were replaced by plastic and paper this time but the significant ingredients making lipsticks were scarce such as petroleum and castor oil could be found easily during the WWII [7].

After a lipstick named “Rouge Baiser” which was supposed to be “Kiss-proof”, invented by Paul Baudercroux who was a French chemist during the 1920s, was eventually banned because it could not be removed from users’ lips without serious damage, in 1950, the first successful long-lasting and non-smearing lipstick was invented by American Chemist Hazel Bishop [5]. She took about two years and almost three hundred experiments to develop this lipstick which proved that it would not rub off or leave a stain. Its slogan “stays on you, not on him” was created after it entered to the market by Hecht company [13].

In 1950s, the film industry became a significant factor which impact on the makeup trends and cosmetic industry including lipstick innovation and development. During this time, the most popular star who always wore red lipstick was Marilyn Monroe. At this time and the years later, the development of lipstick formula has been seen in many functions. After the first long lasting lipstick was introduced into the market, the attempt of development for better long lasting solutions has kept going until today. Moreover, lipstick innovation could also be seen in many solutions associated with its innovating formula such as sun-protection, transferred-resistance, anti-oxidant, various shades of colors, different finishes, customization, and etc.

A Case: Mass Customization in Lipstick Business in Present Days

This paper would like to introduce the current state of lipstick customization by focusing on specific brand, BITE, because cosmetic businesses appear to involve their business with the mass customization strategy. This seems to be the future trend of the beauty industry.

Unlike other cosmetic brand who have many type of cosmetic products in their business line, BITE has only cosmetic and treatment products used for lips except the one called multistick that could also be used for cheek and eyes. BITE was found by Susanne Langmuir who was inspired by kitchen chemistry to create BITE beauty [14]. In terms of customization, unlike other products that could be customized on website, BITE provides lip labs available now only in three places: Toronto, San Francisco, and New York. They have two service options for customers. The first one is called custom lipstick. The other is called bespoke lipstick. The custom lipstick basically allows customers to choose the variety of nearly 200 pigments without mixing one to another. Then customer can choose finish and scent they want. On the other hand, the bespoke lipstick allows customers to create their own shade with a specialist. They can mix and custom pigments

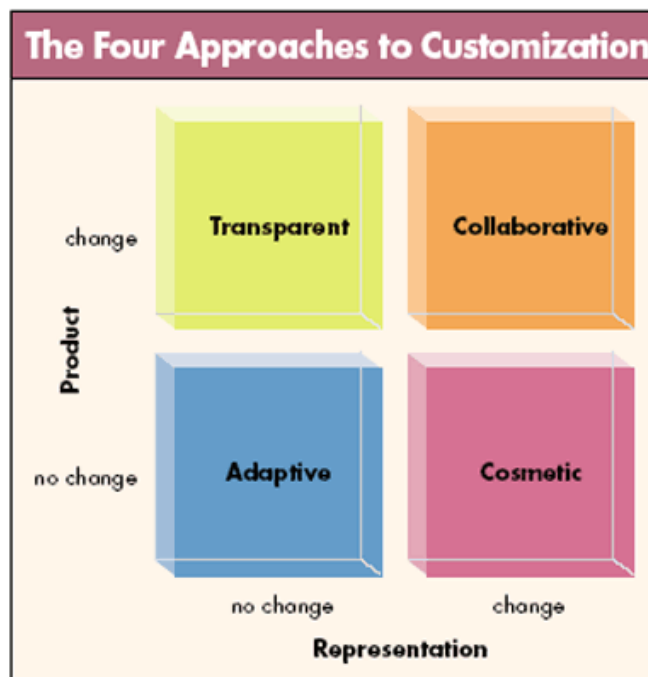
until they got their satisfied shades. Then they can also choose finish and scent they want as well. The bespoke lipstick service is much more expensive than the custom lipstick service. However, it is suited for customers who has specific idea or need very specific shade of colors and also customers who really understand their undertones because the color that you see before you apply to your lip would be different from when it's on your lip. The last step of creating lipstick for both services is to heat up your chosen formula then spin it in a compact centrifuge. Finally, it will be poured into a neat circular lipstick mold and chills it at precisely -2 degrees Fahrenheit until it hardens into a perfect waxy bullet form [15]. Moreover, the BITE lipstick is edible meaning that they use all natural ingredients.

Two services available in BITE lip lab [14]

Custom Lipstick	Bespoke Lipstick
<ul style="list-style-type: none"> - \$55 per person for 1 lipstick or 2 lipsticks for \$80 - Step1: choose a shade from nearly 200 from exclusive BITE beauty lip pigments - Step 2: pick a finish; Glossy sheer, Matte crème, Amuse bouche - Step 3: pick an all-natural scent; sherry, mint, vanilla, citrus, mango, violet, coconut, wild berry, fresh citrus 	<ul style="list-style-type: none"> - \$150 per person includes 2 unique shades crafted for you and lip lab exclusive lip kit - Step 1: your lip lab artist will help you create a truly unique lipstick to your exact specifications - Step 2: pick finish; Luminous, Matte, Sheer cuvee - Step 3: pick an all-natural scent; sherry, mint, vanilla, citrus, mango, violet, coconut, wild berry, fresh citrus

Based on the four approaches to customization which are collaborative, adaptive, cosmetic, and transparent, custom and bespoke services seem to fall into adaptive and collaborative respectively when those four approaches are considered as these following characteristics:

- “Collaborative customizers conduct a dialogue with individual customers to help them articulate their needs, to identify the precise offering that fulfills those needs, and to make customized products for them.” [16]
- “Adaptive customizers offer one standard, but customizable, product that is designed so that users can alter it themselves.” [16]
- “Cosmetic customizers present a standard product differently to different customers.” [16]
- “Transparent customizers provide individual customers with unique goods or services without letting them know explicitly that those products and services have been customized for them.” [16]



The four approaches to customization [16]

BITE beauty lip lab has been successful in their services. Even though it seems to be risky in terms of the bespoke service as its price is quite high, the product itself is very personal which could absolutely answer customer's specific demands. Also, they don't let their customers wander in too many choices alone, but providing specialists to help them choose the right ones which could increase customer's satisfaction. Moreover, even though it seems not convenient as the services are not available online and require customers to visit the physical place, customers can get complete products which are ready-to-use right after they are done with the process which doesn't take long. The process after customers picking their satisfied formula takes no longer than 10 minutes. Actually, it's really normal for customers who looking for a new shade to go to physical place or store to have a chance to try lipstick on rather than to shop online and these services seem to provide customers a good experience and the closest what they need.

Conclusion

This paper illustrates how lipstick was innovated and developed in the period before and after industry revolution. It can be seen that the time before industry revolution, lipstick was innovated and developed in home. The formula or ingredients were found in nature variously depending on the areas they were invented. The formula of lipsticks at that time are typically simple. Also, it didn't have complex process of production compared to today production. Even though there were evidences and studies showed why lipstick was invented, as it was influenced by factors such as psychological points of view, social rules, and treatment purpose, it seemed no evidences or studies showing what inspired inventors to choose some particular ingredients and what inspired the bullet shape of lipstick. This might be assumed for now that the particular ingredients chosen were just found easily and/or accidentally in local in those particular areas where lipsticks were invented

and the bullet shape design might be invented just based on the purpose of being portable and easy to apply on lips. In the period of time after industry revolution, the formula and production of the lipstick has become more complex due to the technology advancement. Every new formula was innovated based on many experiments. Also, the factors that drive the innovation and development of lipstick at this time can be seen as both technology push and market pull.

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