

Thesis Project Portfolio

Ring Light: An Answer to a Usual Problem in an Unusual World

(Technical Report)

The Social Construction of Appearance Enhancement Devices

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The Social Construction of Appearance Enhancement Devices

Technology Influenced by Societal Factors

Success and beauty within the scope of humanity has been linked together since the formation of the first human societies. Successful, beautiful leaders influence society both actively and passively, leading the general public to a conclusion where having a higher level of beauty equates to a having a higher level of success. This conclusion subsequently led members of society towards finding some method to artificially enhancing an individual's level of beauty. One of the first developments in the field of "Appearance Enhancement Devices" (AEDs) was makeup. Furthermore, the social desire and/or necessity of such a development is a prime example of a technology being developed through the scope of Social Construction of Technology (SCOT). SCOT is a framework in which one of the core tenets is centered around how human interactions and opinions influence the construction of technology. Some cases of a SCOT application can occur pre-development, where a society/culture notices a problem that needs to be addressed and creates some form of technology as a means to address said problem. In other cases, a technology is developed for one purpose but a group of people instead determines that the technology would be much more useful for another purpose entirely. This case would be where SCOT would be applied to a technology in the post-development phase. SCOT has another core tenet exemplified by the previous two examples: interpretive flexibility. Transitioning back to AEDs, interpretive flexibility is important in this field of technology; one person's exact definition of success and beauty can and does differ from another's definition. Interpretive flexibility simultaneously allows for enough of a general consensus to develop a baseline for a technology (ex: the product group of "makeup") while also account for enough differing opinions and perspectives to develop different branches of the same technology (ex: brands of "makeup").

History and Meaning Behind Cosmetic Design

One of the most widely utilized AEDs around the world is makeup. Furthermore, makeup is one of the few such devices that has major historical precedent in the world. China, Egypt, Europe, Japan, Mongolia, and Persia are all examples of ancient nations that utilized makeup. Wigs, hair extensions, and general hair accessories also had their first appearance during ancient times, located primarily within Egypt for the earliest records. Some differences in these devices start to occur when one looks through the lens of SCOT where interpretation and design are the primary factors of evaluation. Each of the aforementioned locations either utilized or designed makeup and wigs in their own unique way. Kohl is one of the most widely known ancient makeup technologies, as it was an ancient form of eyeliner. China was known for their nail staining process to symbolize royalty, while Japan has culture within makeup itself through Geishas. Early Europe has history of nobles wearing wigs to appear strong to their subjects. Each of these applications are different in design yet serve the same purpose: elevating an individual's status in society.

A more in-depth evaluation of the differences mentioned above can occur when the fundamental tenet of interpretive flexibility is considered. This tenet of SCOT can best be described as a certain idea, trait, or product having different interpretations through different cultures and societies, yet maintaining the main definition of said idea, trait, or product. To illustrate, let us go back to the makeup example. Regardless of the cultural/societal interpretations of makeup, the product itself is still makeup. That definition does not change throughout the evaluation process. However, the specific interpretation and meaning behind an application of makeup significantly changes based on the lens that one views makeup through. Geisha specific makeup had Japanese culture interwoven into the makeup compound itself. To

wear the makeup meant to wear Japanese culture. Contrast this to modern day talk shows in the United States, where makeup is deemed necessary by society to appear presentable and trustworthy when presenting information. Furthermore, this type of makeup may have some societal meaning, but has little to no cultural meaning or purpose, especially compared to Geisha makeup. Another consideration to make is evaluating an interpretation that does not oppose another one, but instead exists on its own: drag queen makeup. A drag queen's interpretation of makeup differs substantially from the previous examples in the sense that there is not a societal or cultural need for this makeup. However, there does exist a societal and cultural desire to utilize makeup in the way that drag queens do, as the makeup itself acts as both an individual and group-based form of expression. Each of these interpretations are completely valid and no single one of them are better than the others; however, each interpretation does bring a different perspective and corresponding ideals with them.

Each individual AED created has their own unique reason for being created, being utilized, and being marketed. The primary high-level reason that encompasses the creation of the majority of AEDs is the fact that these devices act as a response to the ideal created by society that physically attractive people have more individual and professional success in their life. This is not just a baseless statement: several different studies have been done to investigate what effects physical attractiveness has on an individual. One particular study is created by Megumi Hosoda, in which her listing of some such effects each as prior research listed as well:

For example, attractiveness has been shown to influence, among other variables, initial impressions (Eagly, Ashmore, Makhijani, & Longo, 1991; Feingold, 1992; Jackson, Hunter, & Hodge, 1995), date and mate selection decisions (e.g., Adams, 1977), helping behavior (e.g., Benson, Karabenick, & Lerner, 1976), teacher judgments of student

intelligence and future academic potential (e.g., Ritts, Patterson, & Tubbs, 1992), voters' preferences for political candidates (e.g., Adams, 1977), and jurors' judgments in simulated trials (Mazzella & Feingold, 1994) (Hosoda 2003).

Another paper by Mark Snyder shows how an individual's perceptions about physical attractiveness can lead to a self-fulfilling prophecy:

Individuals may have different styles of interaction for those whom they perceive to be physically attractive and for those whom they consider unattractive. These differences in interaction style may in turn elicit and nurture behaviors from the target person that are in accord with the stereotype. That is, the physically attractive may actually come to behave in a friendly, likable, sociable manner—not because they necessarily possess these dispositions, but because the behavior of others elicits and maintains behaviors taken to be manifestations of such traits (Snyder, 1977).

A Shifting of Influence and Design

In order to understand why AEDs are utilized to the scale that they are in present day; a brief analysis of recent societal belief changes need to be explained. For the majority of the time period that is comprised by the first utilization of AEDs up to the early 20th century, such devices were utilized primarily by the elite and wealthy for the purpose of flaunting their status to the general public. The public either utilized lesser forms of appearance enhancement, or otherwise did not utilize them whatsoever. The idea that devices such as makeup or hair pieces could be utilized by average citizens were popularized by ballet, plays, and other in-person theater productions. People saw these productions and wanted to replicated the beauty shown on screen

in their everyday life. This revelation marks the shift of AEDs signifying classist elitism to signifying superior appearance. This shift was exponentially magnified during the rise of the Hollywood film industry. The same desire to emulate the beauty shown on screen pushed consumers to express a significant demand of makeup and hair accessories. To address this demand, companies soon formed to produce a supply of AEDs that could supply such a demand from consumers.

In a brief timeframe from a holistic viewpoint, physical appearance evolved from being desirable to being marketable. Appearance alteration was the product that was made, while the product that was sold was a message to the general public that utilization of these products would help garner success both in personal and professional lifestyles. The general public believed in such a message and heavily bought into the AEDs that companies produced and sold. This even showcases how societal influence can change the creation and acceptance of technology.

Through the lens of SCOT, appearance enhancement devices in the 1910-1950s timeframe are shown to influence the non-elite general public. An interesting twist that occurs after this point is that due to the fact that a singular category of products affected society a) for a lengthy time period and b) in such a profound way, the primary relationship of technology influencing society changes. The product (AEDs) stops influencing social groups and instead the social groups start to influence the products made and sold. Society starts basing societal status and professional acumen primarily off of physical appearance. Wealth gained from employment can now be unofficially altered due to attractiveness being viewed as a higher worth than unattractiveness (Hamermesh, Biddle, 1994). In accordance with these changes, societal demand for AEDs increased as well, with one prevalent example shown below:

As measured by output per employee hour, productivity in the cosmetics and other toiletries industry rose at an average annual rate of 4.0 percent from 1958 to 1980. The rate of growth was substantially higher than the 2.8-percent gain for all manufacturing (Wilder, 1982). This change thusly signifies how AED technology is now created and accepted based off of society's influence.

More explicitly, the above discussion exemplifies another core tenet of SCOT: closure/stability. Within the scope of this paper, closure/stability (referred to as just stability from this point forward) is primarily defined as when technology adapts and evolves over time but the underlying motivator of the specific technological innovation remains constant. In the case of AEDs, the technology itself is ever changing, but the concepts of flaw removal and appearance enhancement are points of stability within this specific field of technology. Stability as a concept of SCOT can be abstracted to other fields as well, with some examples being communication devices, transportation methods, and medical implementations. Furthermore, stability can occur in conjunction with other SCOT tenets. For example, the relationship between technology and society within the scope of AEDs can continue to oscillate between technology driven and society driven for the rest of time: the concept of stability will be ever-present and constant within AEDs throughout the oscillations.

Cosmetic Design in the Modern Age

As the timeline starts to approach modern day, external technological innovations in the electronics field starts to find both usage and influence in the field of AEDs. The optimization of lighting in order to highlight (or hide) an individual's physical beauty (or lack thereof) has been

utilized heavily in Hollywood since its inception. However, when the technology boom of the microchip age started to occur, an exponential growth of powerful lights in small packages occurred. Such a development led to lights being specifically designed to provide optimal lighting in front of a camera. Furthermore, this technological boom also presented opportunities to develop more powerful and higher definition camera designs. These enhanced cameras were sought after and utilized by Hollywood and other media creators. An unfortunate drawback to higher definition cameras is that such devices were more easily able to pick out the flaws and inconsistency of an individual's physical appearance. The resulting consequence of this new drawback was the societal need and desire to better hide physical flaws and/or better enhance physical features. In other words, society decided that AED technology needed to keep pace with technologies that could "hamper" or "combat" appearance enhancement. Makeup companies answered this call by utilizing advanced technologies to evaluate the underlying principles of makeup in order to tailor them more specifically to individuals, while also developing more robust types of makeup. One such example of technological growth is shown below:

Computer technology has aided productivity growth in several ways. Computers are increasingly being used for jobs such as flow and measurement of raw materials, formula calculations, mixing operations, and are already widely used in the batch operations for verification of the individual batches. Also, computers have assisted in reducing the turnaround time for products and in decreasing the amount of paperwork. They are being used more often in warehouses to perform such tasks as product location, inventory control, and shipping documentation. In the important area of sales, marketing analysis is more easily accomplished with computer-based information systems (Wilder, 1982).

The invention and the adoption of the smartphone signaled a turning point for the field of AEDs. While there was the societal expectation that AEDs should be utilized in the workplace and at social events, there was little to no risk with having real-time video being taken of an individual at a moment's notice. Thus, there was a more defined "on time" and "off time" for AEDs. Once smartphones entered the public domain and became readily available and widely utilized, the difference between "on time" and "off time" became much blurrier. Suddenly there was the possibility of being filmed, and subsequently shown to the world, in an unflattering image at virtually any point in time. This issue was only further exacerbated as social media and mobile technologies developed. The usual approach to AED development to meet societal changes were not as effective in this case. The expectation for a makeup to be applied and utilized for a full twenty-four hours was an expectation deemed unreasonable by most of society. A new approach to AED development and utilization was needed. One new answer to this need was real-time image filtering. This technology was developed to help alter both photographs and videos to be more visually appealing to the general public. Some recent examples of image and video filtering technology available to almost everybody would social media applications like Snapchat and Instagram. While debate on the effects of the utilization of this technology does occur, the widespread adoption of filtering shows that the technology will be utilized for the foreseeable future.

The current trajectory with technology signifies a new development within the field of AEDs. Instead of the limited classification of devices that are physically applied to a person, AEDs can now also be defined as devices that enhance physical appearance in a remote fashion. One extremely recent avenue that could see development within the field of remote AEDs would be devices/technology that improves physical looks over online conference calls. A sudden turn

on a widespread scale has caused the majority of society worldwide to rapidly adapt to a virtual work environment. As such, a new set of needs and desires within the scope of AEDs has been formed. The ball is now in the court of AED companies to respond to said needs and desires.

Conclusion

Development and research of technology and societal needs and desires are both implicitly and explicitly linked. The interpretation and adoption of technology is formed primarily by social factors surrounding the development and first utilization of the technology. Appearance Enhancement Devices (AED) have been on both ends of the influence spectrum with regards to society. Furthermore, interpretive flexibility has started to permeate the field of AEDs in recent times. Viewing the field of AED research and development through the lens and principles of Social Construction of Technology (SCOT) will provide valuable insight into the future trajectory of this field of technology.

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