THE INFLUENCE OF SELFIES ON PRODUCT AND IMAGE EVALUATION

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ABSTRACT

Technology has dramatically increased the frequency and manner in which we see ourselves day to day. This research seeks to fill a gap in the literature by examining the role of selfie taking and the modern consumers' exposure to their own pictures when considering product evaluation in images. Preliminary results suggest that a consumer's selfie taking habits may influence their preference for certain image types and impact their evaluation of products in images.

Advancing technology has increased the ability of marketers and consumers to provide and examine product information in a virtual setting. At the same time, the proliferation of smartphones, social media, selfies, and photo sharing has changed the way consumers have become used to seeing themselves. The powerful cameras contained in smartphones have dramatically increased the practicality for consumers to take pictures of products, friends, and themselves. Despite these changes, little academic research has evaluated the potential influence that the change in how consumers view themselves in images may influence product evaluation when using virtual marketing tools. This research seeks to answer the question: how does a consumer's exposure to their own image influence their evaluation of products and self-images in digital decision aids? The selfie phenomenon and its effect on how consumers evaluate images likely play a key role.

Through three experiments, this research examines the influence of image type, and consumer selfie taking on image and product evaluation. These experiments evaluate consumer judgements of products and images, in person, online, and in their own selfies. Findings from these experiments provide interesting results that can help lead to an expanded understanding of the aspects of consumer images that can influence their use in digital decision aids. Broadly, the results demonstrate that consumer exposure to their own image (through selfie taking) will influence how consumers evaluate products and pictures. More specifically, this research identifies a "selfie effect" that influences consumer opinions of products in images. This effect shows two key aspects. First, consumers who frequently take selfies are shown to evaluate products seen in images more positively. Second, consumers who frequently take selfies prefer products when they are viewed in their true (vs. mirror) image. This is a significant finding as it has previously been assumed that consumers preferred their mirror image. Introducing the selfie effect to the equation demonstrates that the selfie taking phenomenon is an important consideration when evaluating how consumers see themselves which should be taken into account by digital marketers. This research also calls into question the long standing assumption that consumers prefer their mirror (vs. true) image.

This research takes a step forward by acknowledging that modern media and technology has changed what consumers are most familiar with and consequently, are changing their preference for how they see themselves. This is shown to be particularly true for consumers who frequently take selfies. The effect of this selfie taking phenomenon has not previously been clearly established in academic literature. While further research on the subject needs to be

conducted, this research takes an important step toward identifying the effects of the changing way in which consumers view themselves and its potential effect on marketers and researchers.

Keywords: Selfies, Digital Marketing, Consumer Behavior, Processing Fluency.

INTRODUCTION

Advancing technology has increased the ability of marketers and consumers to provide and examine product information in a virtual setting. The ease with which consumers can view and capture images is changing the way shoppers see and evaluate products, and themselves. The powerful cameras contained in smartphones that many consumers don't leave home without has dramatically increased the practicality for consumers to take pictures of products, friends, and themselves. The way consumers interpret and evaluate these images has ramifications for digital and interactive marketing tools.

The way consumers capture and view images of themselves has changed. The frequency and ease with which consumers can view themselves is changing the way shoppers see and evaluate products and images. Traditionally, the only way people saw their own image was by looking in the mirror or by seeing a picture of them that was taken by someone else at some time in the past. Self-portraits were historically rare (Iqani & Schroeder, 2016). It has long been shown that individuals prefer pictures of themselves when they correspond to their mirror image (i.e., what they see when they look in the mirror) rather than their *true* image (i.e., how others see them) because they are more frequently exposed to their mirror image than their true image (Mita et al., 1977). The dramatic changes in available technology and associated consumer usage habits call into question this long standing assumption. Due to the widespread use of smartphones, social media, and the prominence of selfies (a photograph that one has taken of oneself), the nature of how people view themselves is changing.

Technology has dramatically increased the frequency and manner in which we see ourselves day to day. In addition to added opportunity for people to see their true image through pictures that are taken and shared by others, most smartphones default to saving and displaying a true image when a selfie is taken. A consumer who frequently takes selfies likely sees their image more often, and is more frequently exposed to their true image. Selfie taking has also been shown in influence the mood and opinion of body appearance in consumers, and reflect one's personality (Fardouly & Rapee, 2019; Kaurin et al., 2018). This phenomenon has consequences for how consumers view themselves and products in images, which in turn could have dramatic impacts on interactive marketing tools and strategy. Despite this change, there is limited academic research on how selfie taking can impact consumer product and image evaluation, and the commercial impact of selfies has been identified as an area for future research (Lim, 2016).

This research seeks to answer the question: how does a consumer's exposure to their own image influence their evaluation of products and self-images? The selfie phenomenon and its effect on how consumers evaluate images likely play a key role. Through three experiments, this research examines the influence of image type and consumer selfie taking on image and product evaluation. The findings expand our understanding of the aspects of consumer images that can influence their use in marketing applications. Broadly, the results demonstrate that consumer exposure to their own image (through selfie taking) will influence how consumers evaluate products and pictures. This research also identifies a *"selfie effect"* that influences consumer opinions of products in images. This effect contains two elements. First, consumers who frequently take selfies are shown to evaluate products seen in images more positively. Second,

consumers who frequently take selfies prefer products when they are viewed in their true (vs. mirror) image, which calls into question the long standing assumption that consumers prefer their mirror (vs. true) image. To better understand the context of these studies and findings, a brief review of consumer image taking and the marketing tools impacted is needed.

Imagery has become prominent in online reviews, virtual mirrors, and other digital shopping aids. Visual information in electronic word of mouth (eWOM) has been shown to positively influence consumer evaluations of the content (Lin et al., 2012). Imagery has also become an important consideration in other interactive shopping tools. Virtual Try-on for example allows consumers to create virtual models of themselves to *"try-on"* apparel when shopping online (Kim & Forsythe, 2008). A manifestation of this, called virtual mirrors, goes a step further. Using personal electronic devices and/or pictures, virtual mirrors enable consumers to view themselves using or trying on a product without physically doing so in person. One example currently being employed by marketers is L'Oreal's *"Makeup Genius"* an online and mobile software application that allows consumers to virtually try on cosmetics using the cameras on their phones or tablets (Stout, 2014). Applications like these illustrate the importance for marketers and researchers to better understand how consumers use and perceive images that may influence product evaluation and purchase decisions.

Researchers have begun to apply the long standing assumptions about consumer image evaluation to modern technologies. Cho & Schwarz (2010) examine image type in the context of virtual mirrors and found that consumers preferred accessories (such as earrings) and were more likely to recommend them when viewed on the true image of a familiar other. Results are less intuitive however when investigating one's own image. Cho & Schwarz (2012) found that while people liked their mirror image more than their true image, products shown in their mirror image did not enjoy a significant evaluation advantage. It is not entirely clear why the true image vs. mirror image format affected product evaluation on familiar others, but not on the self. Cho & Schwarz (2012) speculate that the frequency with which we see ourselves in pictures and videos may be an explanation, but further research is needed to explore this issue.

CONCEPTUAL DEVELOPMENT AND HYPOTHESES

The extended self has long been an important factor in the understanding of consumer behavior. Incorporating possessions into the self is an important method of self-extension (Belk, 1988). Vicarious consumption is another method of self-extension as the success of a loved one reflects on us (Belk, 1998). Displaying possessions of our own and of those close to us has never been easier or more common due to modern technology. Not only is sharing now easier but we are more willing to share things that may have previously been considered awkward (Belk, 2013). We also receive feedback on what we share much more rapidly which affects the construction of the self (Belk, 2013). A fusion of the extended self into the digital world has led to our physical bodies merging further into our environment (Sheth & Solomon, 2014). Selfie taking has played a key role in enabling transition.

While many types of pictures can be easily shared through a number of platforms (facebook, Instagram, Snapchat, etc.), selfies have taken on a prominent role. Self-portraiture has become one of the prominent types of photography, can be used as a means to gain popularity Schwarz (2010) and is one of the most effective ways to create self-definition (Murray, 2015). Self-story telling can facilitate online reputations Pera et al. (2016) and selfies can add depth of content to personal stories told online. Selfies are used by bloggers to convey authenticity and as a record of product trial (Gannon et al., 2016). To maximize the potential of new technological

shopping tools, and better understand how consumers process their own images, it is important to understand what influences consumers' perception of themselves.

The mere exposure effect refers to the notion that individuals like objects more if they feel more familiar, and that familiarity is a function of the number of prior exposures (whether supra- or subliminal in nature) (Zajonc, 1968). For example, familiarity has been shown to be an important driver of music selection even though consumers don't expect it to be (Ward et al., 2014). In the case of self-images the relative frequency with which we see ourselves in the mirror increases the ease with which these images are processed (i.e., fluency) compared to less-often-seen true images, which in turn creates feelings of familiarity and liking (Mita et al., 1977). The assumptions of the mere exposure effect, processing fluency, and their effect on consumer image evaluation all need to be considered when evaluating consumer product evaluation.

It is widely believed that processing fluency, or the ease with which information is processed, creates feelings of familiarity, which translates to enhanced evaluations and increased aesthetic pleasure (Reber et al., 2004; Reber et al., 1998). Fluency can lead to positive evaluations of a visual target (Im et al., 2010). The easier it is to recall the positive features of a product, the more favorably consumers will evaluate it (Menon & Raghubir, 2003). People make judgments about something based on the level of difficulty they have at the time of evaluation and misattribute the fluency of the process to their evaluation of the stimuli (Wilcox & Song, 2011). Simply put, people view an object more favorably when processing is fluent (Janiszewski, 1993), and prior exposure to a stimulus increases the ease of processing (Labroo et al., 2007). Processing fluency has been demonstrated to be influential in a number of contexts.

Consumers believe that there is a larger price difference between products if the difference is easier to compute (Thomas & Morwitz, 2009). Lee & Labroo (2004) show that increased advertising exposures can lead to a consumer recognizing a brand more easily. Enhanced processing fluency of a brand can also lead to favorable evaluations and increased brand choice (Lee, 2002). For example, consumers have more favorable attitudes toward a product after being exposed to an advertisement for that product (Lee & Labroo, 2004). More generally,

> *"Aesthetic pleasure is a function of processing fluency: any variable that increases the fluency with which an object can be processed also increases the perceiver's aesthetic pleasure" (for reviews see Reber et al., 2004; Schwarz, 2004; Cho & Schwarz, 2010).*

The fluency increasing variables of interest in this research are product proximity and selfie taking frequency. Consumers should be very familiar with seeing themselves in day to day accessories and apparel (hat, earrings, make-up, etc.). This familiarity makes it easier for consumers to process images of themselves in these items. Fluency is created by the ease of generating thoughts and the ease of processing external stimuli (Novemsky et al., 2007). Consumers evaluate products that are easier to process visually more favorably because they mistake the ease of processing for how much they actually like the product (Wilcox & Song, 2011). Since consumers are familiar with seeing themselves in common products, it will be easy for them to process their image when trying them on in shopping situations. Even though they may not be familiar with the exact product they are trying on, their familiarity with their own image should lead to processing ease. Conversely, consumers are not as familiar with seeing products placed on other displays. For example, viewing a product on the blank face or body of a mannequin is more unfamiliar than seeing a product on their person.

This is especially true in today's environment. The selfie phenomenon and the widespread use of social media and camera phones has dramatically increased the frequency in which we see ourselves, and see ourselves wearing products. Stylistic properties of images can serve as a source of persuasion (Yang et al., 2010), and the information density present in selfies can alter the consumer-brand relationship (Presi et al., 2016). Since individuals like objects more if they feel more familiar and familiarity is gained by prior exposures (Zajonc, 1968), it is likely that consumers who frequently take selfies are even more familiar with their appearance in products and therefore are more likely to positively evaluate products on their person. Conversely, consumers are less likely to see products that are only in close proximity to them, but not on them, and will be more likely to negatively evaluate them. While a consumer can easily process their own image, or themselves using a product, when a product is placed near a consumer, it will interrupt the processing fluency of the image they see due to the less familiar arrangement of the image. Seeing a product on the blank face of a mannequin for example, would be more unfamiliar and thus a more difficult image to process than one containing just a product and their own face. Because of the processing ease of viewing a product on their person, which is increased for frequent selfie takers, and the processing interruption that will be caused by a product being nearby, but not on, it is hypothesized that:

H1: When viewing an image of self and product, consumers will like the product more when it is on their person than when it is displayed next to them, especially true for consumers who frequently take selfies.

Familiarity leads to attraction (Reis et al., 2011). It is believed that people prefer pictures of themselves when they correspond to their mirror image rather than their true image because they are more frequently exposed to it (Mita et al., 1977). It has also bee*n* shown that the reverse is true when considering images of a close friend - because we are more frequently exposed to friends' true images and therefore prefer them to friends' mirror images (Mita et al., 1977). Both of these effects can be explained by processing fluency as demonstrated in the mere exposure effect (Zajonc, 1968). It is a fluency difference that is credited with people's preference for mirror self-images to true self-images (Mita et al., 1977). While past research identifies this advantage for mirror images, it is not fully understood why this preference does not translate to evaluations of products on one's mirror (versus true) image (Cho & Schwarz, 2012).

The current environment is changing how we see ourselves. At one time, we most commonly saw ourselves when we looked in the mirror (our mirror image). On occasion, we saw pictures of ourselves (true image) that were taken at some point in the past by someone else. Given this dynamic, it is intuitive that people would be more familiar with, process more easily, and prefer our mirror image to our true image. Today however, this dynamic no longer holds. Every time we log into Facebook, snap a selfie, or scroll through recent memories in the gallery of our phone, we are exposed to our true image. With the convenience of mobile digital photography, the frequency in which we see ourselves in pictures (true image) has dramatically increased. It is likely that many people see pictures of themselves more often than they see themselves in the mirror. Due to this phenomenon there has likely been a shift in consumer image preference. Our new greater familiarity with our true image should make it easier for us to process and thus prefer it to our mirror image which we now see less frequently in comparison. As a result, our preference for products in images has also likely changed. Since we are now used to seeing ourselves wearing products in our true image, when trying on a product, consumers will likely prefer the product in their more familiar true image. The practice of taking selfies is likely to amplify this effect. On most smartphones, selfies are recorded and saved as

true images. People who take selfies are even more likely to have familiarity and fluent processing with their true image due to the additional exposure to it through selfie taking. Because of this shift in consumer perception and the ability of selfie taking to amplify this effect, it is hypothesized that:

H2: When viewing an image of themselves trying on a product, consumers will like the product more in their true image than their mirror image, especially true for consumers who frequently take selfies.

STUDY ONE

Consumer evaluations can be influenced by the difficulty experienced when they are making the evaluation (Wilcox & Sun, 2011). For example, Menon & Raghubir (2003) show that consumer judgments of a product were more favorable when they only had to remember two product attributes as opposed to a more difficult eight attributes. Consumers frequently see their own image through pictures taken by others, selfies, and looking in the mirror, they are familiar with seeing various types of products on them in images, making it easy for them to process and therefore evaluate these products. Accordingly, it is likely that consumers who frequently take selfies are even more familiar with seeing themselves in products. This increased familiarity with their own image with products on will increase the processing fluency of these images and strengthen their preference for products when seeing them on themselves. However trying on a product is not the only way people can view products. Consumers are less familiar with images where there is a product in the image, but not on them, which will result in a less fluent image and less favorable product evaluation. The first study seeks to test hypotheses 1 and establish that consumers, especially frequent selfie takers, will evaluate a product more favorably when it is viewed on them as opposed to near them. It is expected that consumers will have an easier experience evaluating a product that is on them than next to them on a blank mannequin face, leading to higher product evaluations when they are wearing it. This will be especially true for people who frequently take selfies. Additionally, a memory task should make it more difficult to evaluate a product and result in lower product evaluations.

Method

One hundred eighteen undergraduate students (86 male) participated in the study in exchange for course credit. They were randomly assigned to one of the four experimental conditions of a 2 (product-on vs. product near) by 2 (long number vs. short number) between subjects design. Participants were told that the study was interested in how consumers evaluate products in images. First, participants were given an instruction sheet explaining the procedure and were instructed to remember either a 2 digit or 7 digit number throughout the duration of the study. Remembering the number was designed to make the product evaluation more difficult for participants in the 7 digit condition which would then interfere with the participants' ability to fluently process the images they were viewing (Miller, 1956). Participants were then instructed to sit at a station with only a mirror in front of them. Participants in the product-on condition found a hat at the station and were asked to try it on and leave it on through the duration of the study. Participants in the product-near condition found a hat placed on a mannequin head facing the mirror at the station and were instructed not to touch or move the hat and mannequin throughout the study. In this condition, the hat and mannequin were placed so that they would appear just to the side of the participant at approximately shoulder height in the reflection in the

mirror. A blank wall was behind the participants to ensure that they and the hat/mannequin were the only images in the reflection. A plain winter hat in the University's colors was used to minimize potential product related effects and increase familiarity with the features of the product.

After being assigned to the conditions and seated with the product on or near them, participants were asked to respond to a questionnaire while referring to the image in the mirror in front of them. While looking at the reflection, participants responded to several questions concerning their opinion of the hat on a 7 point scale. Questions included: how much do you like the hat (1=not at all 7=very much), how attractive do you think the hat is (1=not at all attractive 7=very attractive), how likely would you be to purchase the hat (1=very unlikely 7=very likely), how likely would you be to recommend the hat to a friend (1=very unlikely 7=very likely), how good do you look in the hat (1 not good at all 7=very good). All five of these items were averaged to create a product appreciation index (α=0.88). Participants were also asked how many selfies they typically take in a week and for demographic information. Finally, participants were asked what the number they were instructed to remember was, thanked, and debriefed. Basic demographic information for all three studies included in this research is provided in Table 1 below. All study participants were undergraduate students at a University in the northeastern United States where the research was conducted.

Table 1
DEMOGRAPHIC INFORMATION FOR PARTICIPANTS IN STUDIES 1 THROUGH 3

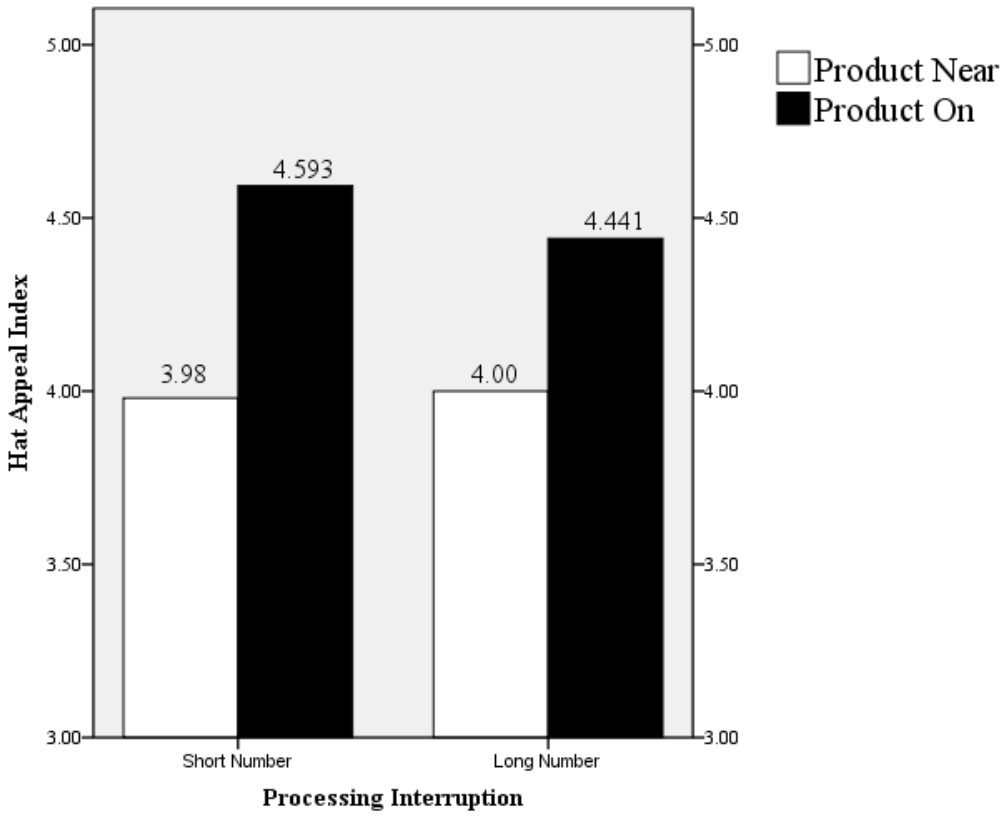
Study Number	Number of Participants	Percent Male	Percent Female	Mean Age
1	118	72.88	27.12	20.22
2	156	49.36	50.64	20.37
3	102	61.76	38.24	20.28

RESULTS AND DISCUSSION

After reviewing participant responses, 3 participants were found to have not fully completed the questionnaire and were removed from the analysis. Initial testing revealed that the long number versus short number manipulation and its' interaction with the hat on/hat near manipulation did not have a significant effect. Accordingly, the results from participants were collapsed across the cognitive load manipulation for analysis. To test hypothesis 1, a regression was conducted using the five-item product appreciation index as the dependent variable. Hat on (0=hat near, 1=hat on), the number of selfies a participant takes in a week (mean centered), and their interaction term served as predictors of how much participants would like the hat in the reflection. The *"hat on"* condition was found to have a significant main effect (B=0.492, t(3, 111 =2.14), $p<0.05$) indicating that consumers prefer seeing themselves wearing the hat as opposed to seeing it on the mannequin, providing partial support for hypothesis 1. Number of selfies was also shown to have a significant main effect (B=0.024, t (3, 111=2.00), $p<0.05$) indicating that the more selfies a participant takes the greater their appreciation of the hat. The interaction term however was not significant (t (3, 111) =-1.01) in the analysis. Despite the lack of support for the hypothesized interaction between selfie taking and the hat on/hat near condition, it is interesting to establish that consumer selfie taking habits may influence their evaluation of products in images. It is possible this result indicates that consumers who take a large volume of selfies may be more used to viewing their own image and therefore more positively evaluate products shown in an image with themselves in it regardless of where the product is placed. This is likely because

they are used to and more comfortable viewing images of themselves. Studies two and three seek to further explore this possible *"selfie effect"*. Results of study 1 are illustrated in figure 1 below.

FIGURE 1
STUDY 1 RESULT



STUDY TWO

Study 2 seeks to further investigate the finding of the main effect of selfie taking in study 1. Consumers regularly view products online, both from retailers and consumer generated content, and it is important to understand factors that may influence how consumers evaluate products in these images. For example, it has been shown that incorporating human images in website design leads to sites with higher levels of image appeal and trust (Cyr et al., 2009). Study 1 demonstrated that consumers who frequently take selfies liked a product more regardless of whether the product was on them or near them. Study 2 seeks to further evaluate this relationship by examining if consumers who frequently take selfies will also more positively evaluate a product, regardless of image type, when viewing the product online. This removes the image of the consumer from the equation and will help verify if consumers who often take selfies have will more positively evaluate a product even when their own image is not present.

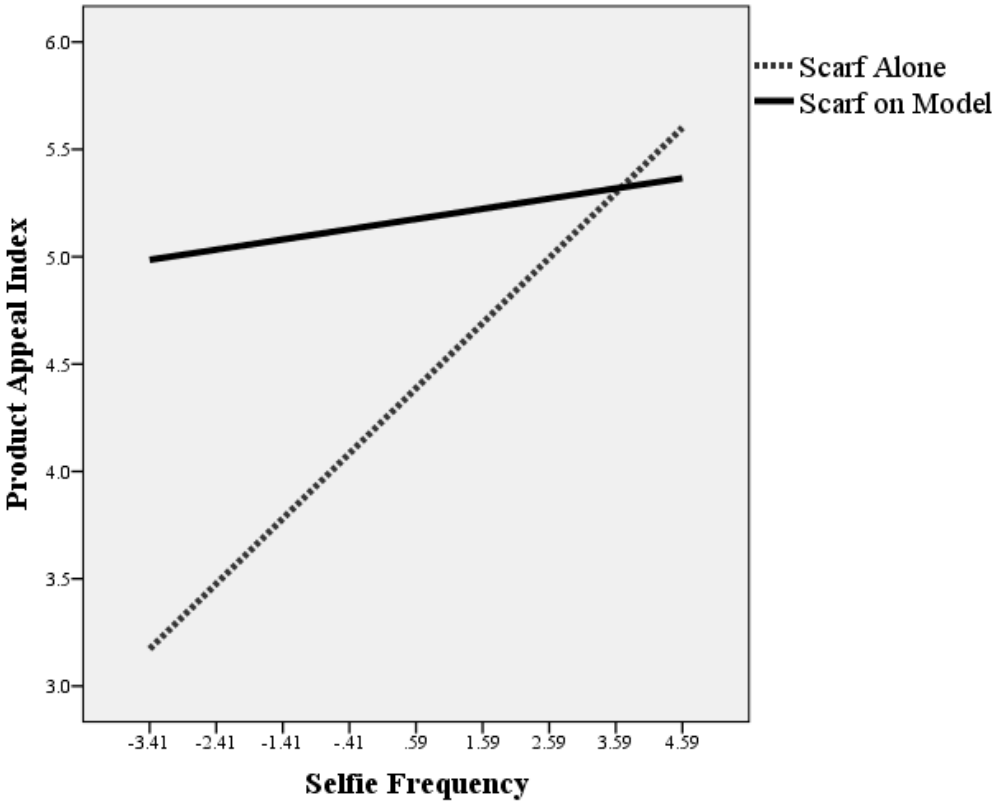
Method

One hundred fifty six undergraduate students (77 male) participated in the study in exchange for course credit. The study was conducted through an online survey to better align the image evaluation with an online shopping scenario and to remove the participants own image from the experiment. Participants were randomly shown a scarf either alone, in a plain image as it might be displayed by an online retailer, or worn by another consumer. A scarf in the University's colors was used to minimize potential product related effects and increase familiarity with the features of the product. The image of the scarf on another consumer was taken of a college age (female) volunteer with a plain background to avoid interference from any other objects in the picture. While referring to the random image they were shown, participants responded to several questions concerning their opinion of the scarf using the product appreciation index used in study 1 on a 9 point scale (α=0.91). Participants were also asked how frequently they take selfies on a 9 point scale (1=very infrequently, 9=very frequently). At the end of the survey participants were asked what color the scarf in the image was to ensure they had viewed and evaluated the image in the study. After reviewing the responses, three participants were found to have responded to have failed the verification and were removed from the analysis.

RESULTS AND DISCUSSION

To build upon the findings of study 1, a regression was conducted with product appreciation index as the dependent variable. Image type (0=product alone, 1=product on a person), selfie frequency (continuously measured and mean centered) and their interaction term were included as predictors of how participants evaluate the product. Image type was shown to have a significant main effect ($B = 0.931$, $t(3, 152 = 3.22)$, $p<0.01$). This result indicates that consumers evaluated the product more favorably when it was shown on another consumer rather than by itself. Selfie frequency was also shown to have a significant main effect ($B = 0.303$, $t(3, 152 = 3.28)$, $p=0.001$). This indicates that people who more frequently take selfies evaluated the product more favorably. These results are qualified by an interaction of image type and selfie frequency ($B = -256$, $t(3, 111 = -2.01)$, $p<0.05$). An inspection of the interaction effect shows that low selfie takers liked the product more when on the model than by itself, while high selfie takers liked scarf same regardless of whether alone or on other person. Refer to Figure 2 for an illustration of this effect. The interaction shows that while participants who frequently take selfies evaluate the product favorably regardless of image type, participants who viewed the product alone had a much less favorable evaluation of the product if they infrequently take selfies. While further research will be needed to explore this effect, study 2 confirms the surprising *"selfie effect"* found in study 1 that demonstrates consumers who frequently take selfies have higher product evaluations regardless of image type. In conjunction with study 1, this study also suggests that consumers prefer products when then are displayed on a person than when displayed in other formats.

FIGURE 2
STUDY 2 INTERACTION EFFECT



STUDY 3

Studies 1 and 2 establish that consumers evaluate products more positively when they are viewed on a person (whether it be themselves or another). This effect is especially true for consumers who do not frequently take selfies. It was also found that consumers who frequently take selfies generally evaluate products more positively than those who do not. Study 3 seeks to extend these findings by examining consumer evaluations of products in different image types (mirror vs. true) and by different picture takers (self, other). This study will test hypothesis 2 and help to establish preferred image types and perspectives for consumer product evaluations. Given the frequency of which people now see themselves in pictures, it is expected that consumers will more positively evaluate products when viewed in their true (vs. mirror) image. It is also expected that this effect will be strengthened for consumers who frequently take selfies since selfies provide for frequent exposure to their true image.

Method

One hundred two undergraduate students (63 male) participated in the study in exchange for course credit. They were randomly assigned to one of the four experimental conditions of a 2(mirror, true) by 2(selfie, other) between subjects design. Participants were told that the study was interested in determining how consumers evaluate products in images.

After being explained the procedure, participants were asked to try on the hat that was used in study 1. While wearing the hat, a picture of the participant was taken using the camera on a late model smartphone. For participants in the selfie condition, they were asked to take a selfie wearing the hat. The camera phone was preset so that it would capture either a mirror image or true image depending on the assigned condition. Participants in the other condition had their picture taken by the researcher while they were wearing the hat. The camera phone was again preset so that it would capture either a mirror image or a true image depending on the assigned condition. To summarize, a picture of the participant in the hat was captured for one of the four assigned conditions: selfie/mirror, selfie/true, other/mirror, and other/true.

In all conditions the picture was taken in the same location in front of a bare, neutral colored wall with the same lighting to ensure consistent pictures from participant to participant. To ensure the same perspective, pictures taken by the researcher were taken from a position approximately an arm's length from the participant to approximate the same range the images in the selfie condition would be taken. Since prior research has shown that facial expression (smiling vs. neutral) can influence a consumers image preference (Cho & Schwarz, 2012), participants in both conditions were asked to choose whichever facial expression they usually prefer in pictures.

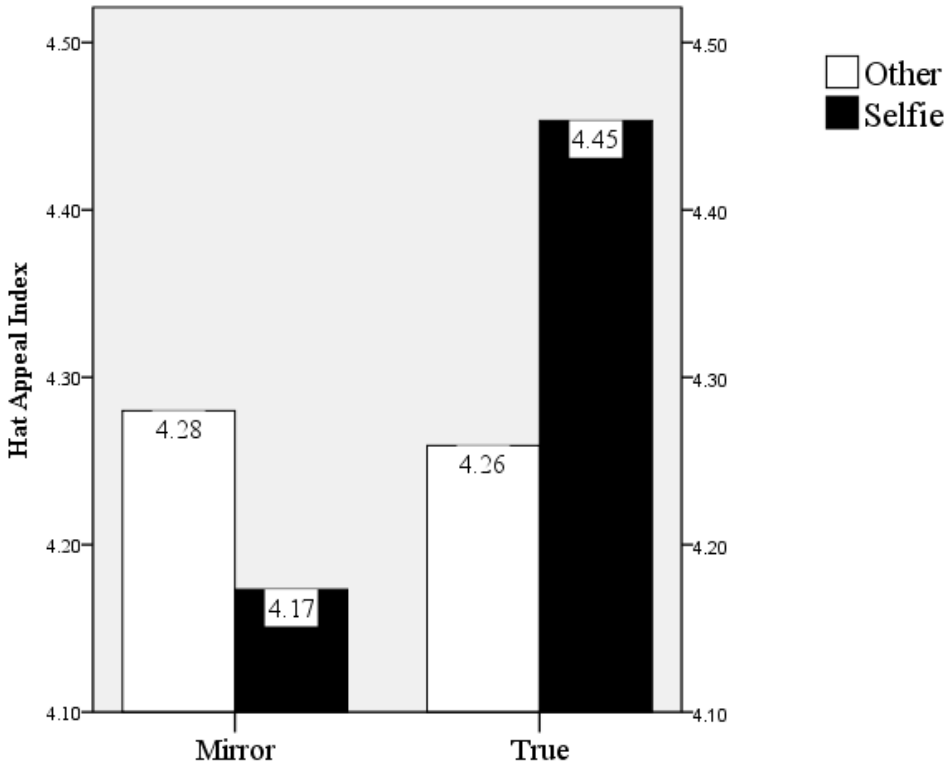
After taking the picture with the hat on in each of the conditions, the phone with the image displayed was placed on an otherwise empty desk next to a questionnaire. Participants were asked to complete the questionnaire while referencing the picture. As in the first two studies, the questionnaire asked participants to evaluate the product they tried on using the same scale used in Study 1 ($\alpha = 0.83$). Participants were also asked how many selfies they typically take per week.

RESULTS AND DISCUSSION

After reviewing the images, it was found that the pictures of two participants were blurry. These participants were removed from the analysis. To test hypothesis 2, a regression using the product appreciation index as the dependent variable was conducted. Image type (mirror=0, true=1), picture taker (other=0, self=1), number of selfies taken in a week (continuously measured and mean centered), all two-way interactions, and the three-way interaction were used to predict participants' evaluation of the hat (Salfino, 2014).

The main effects of image type, image taker, and number of selfies were not significant. The two-way interaction between image taker and number of selfies as well as the three-way interaction were also insignificant. The interaction of image type and number of selfies however was a significant predictor ($B=0.888$, $t(7, 94=2.24)$, $p<0.05$). This finding provides partial support for hypothesis 2 by illustrating that consumers who frequently take selfies evaluate products they try on more favorably when they are seen in their true (vs. mirror) image. This is a significant finding as it has previously been assumed that consumers preferred their mirror image. Introducing the selfie effect to the analysis also demonstrates that the selfie taking phenomenon is an important consideration when evaluating how consumers see themselves. Results of study 3 are displayed in figure 3 below.

FIGURE 3
STUDY 3 RESULTS



DISCUSSION

This research begins to examine the role of selfie taking and the modern consumers' exposure to their own pictures when considering product evaluation in images. These findings have implications for marketers and provide opportunities for future research. First, this study establishes the "selfie effect". This effect suggests that consumers who frequently take selfies are generally more likely to positively evaluate products seen in multiple types of images. The selfie effect also influences consumer preference for image type. Consumers who frequently take selfies more strongly favor their true image in product evaluation. It has long been assumed that due to increased familiarity, and therefor increased processing fluency, that consumers prefer their mirror image. This research takes a step forward by acknowledging that modern media and technology has changed what consumers are most familiar with and consequently are changing their preference for how they see themselves. This is shown to be particularly true for consumers who frequently take selfies. While further research on the subject needs to be conducted, this research takes an important step toward identifying the effects of the changing way in which consumers view themselves and its potential effect on marketers and researchers.

These findings also have meaningful consequences for consumer use of marketing and shopping tools. In particular, the findings should prove useful to researchers and marketers concerned with online consumer reviews and virtual try-on technologies. Consumers are increasingly enabled and encouraged to include pictures in the online reviews they write. The results of study 2 show that people more positively evaluate a product when it is shown on another consumer than when it is displayed by itself. This could suggest that that online shoppers would benefit from online reviews that include pictures of the reviewer demonstrating the product versus reviews that are text alone, or listings that only contain retailer provided product images. Further research is needed to explore this finding specifically in the context of online reviews, but these results suggest that consumer images in reviews may be a fruitful avenue for future exploration. This research also has implications for virtual try-on technologies. Virtual mirrors for example are reliant on consumer images for their function and effectiveness. Understanding that consumers may now have a preference for their true image in product evaluation and that this effect is stronger for consumers who frequently take selfies, is an important consideration in the use and design of these tools. While intuitively, a virtual *"mirror"* should display a consumer's mirror image, according to the findings of this study the tool may be better served if it ensures that products are virtually tried on in a true image.

Despite the useful findings of this research, there are limitations. This research was conducted using a limited product selection (a hat and a scarf) in the experiments. While this procedure was chosen to minimize potential impacts of product variety on consumer evaluation, it also limits the generalizability of the findings. Limiting the study pool to undergraduate students also limits the generalizability of the findings. Undergraduates may be among the heaviest users of smart phones and social media which could lead to disproportionate exposure to their own image when compared to other segments of consumers. It is possible that other demographic groups may respond differently to the stimuli used in this research. Perhaps most importantly, there limitations to using selfies as a stimulus in the experiments. Reasonable precautions were taken to ensure that both selfies and pictures taken by the researcher were shot with a consistent angles and proportions in a controlled environment, but it is nearly impossible to ensure that all images are truly consistent among participants. It is possible that technological solutions and photo editing may be able to further mitigate this issue in future research.

CONCLUSION

The findings and limitations of this research present opportunities rich for future research. The manner and frequency in which consumers are seeing themselves are changing. Academic research has not yet considered the effect selfie taking has not only on product evaluation, but other aspects of the consumption experience as well. Despite the large body of research concerning online consumer reviews, the evaluation of consumer supplied images in reviews presents an under researched area in the literature. The findings here suggest consumers respond favorably to products displayed on other consumers. This concept could be extended to specifically evaluate this effect in the context of online reviews. Understanding how and when consumers may benefit from the inclusion of images in online reviews would add to the extant literature and provide a useful consideration for managers. Perhaps most glaringly, further research needs to be conducted to determine what factors are behind the selfie effect found in this research. While the findings presented here strongly suggest that there are differences between consumers who frequently take selfies and those who do not, it is unclear what the antecedents to selfie taking actually are. Understanding the behavior behind selfie taking is a

vital next step to furthering our understanding of the consequences selfies and the selfie effect may have on consumer evaluations.

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