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Recommended Citation

Crowley, Lauren (2023). The Spotlight Effect on Social Media. *Undergraduate Review*, 17, p. 207-216.
Available at: https://vc.bridgew.edu/undergrad_rev/vol17/iss1/18

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LAUREN CROWLEY

Abstract

Social media is used by the vast majority of emerging adults. This age group is apt to experience anxiety related to their social media usage. One possible stressor for Instagram users is not knowing what exactly other people think about their posts. This uncertainty about if one's online audience is judging them is similar to the spotlight effect – a phenomenon where individuals think more people notice them than they do. Our research set out to investigate if people believe that their posts on Instagram get more attention than the viewers give. To test this out, two groups of participants were used: content creators, who submitted a fake Instagram post, and content viewers, who scrolled through a simulated feed. The content creators had to estimate the number of people that would point out their perceived most noticeable feature. This was compared to the number of content viewers that did notice the predicted most noticeable feature. Questions about the amount of time spent on Instagram were asked to see if there was a correlation between usage and the spotlight effect. It was found that the content creators significantly overestimated the number of people that noticed their feature, thus supporting our hypothesis. A statistically significant correlation between hours spent on Instagram and the prevalence of the spotlight effect was not found.

As with all research, there were limitations in our study; however, the findings will give future researchers several avenues to investigate the spotlight effect on social media further.

The Spotlight Effect on Social Media

Social media use is omnipresent in adolescents' and young adults' lives; therefore, its impact on this population should be investigated. In a 2015 study, it was found that teenagers prefer to connect with their friends via digital communications versus face-to-face (Lenhart et al., 2015). Social media is still a relatively new form of communication compared to traditional in-person interactions, texting, or phone calls. Unlike the physical world, the online environment in which social media exists is created by its users. Individuals can see and post whatever they want; this can serve as a valuable tool. Social media keeps the entire world connected despite any physical distance. Users know that photos and information about nearly everyone they know is just a scroll or search away.

With never-ending streams of content, it can be easy for social media users to feel overwhelmed. Social media addiction is a true issue some people face where they feel an uncontrollable desire to compare themselves to others (White-Gosselin et al., 2022). Not only are social

comparisons happening online, but they also occur in person, meaning for some, there is no escape from comparing oneself to others. Even those who do not post themselves on social media but still "lurk" are still at risk for adjustment issues (Underwood & Ehrenreich, 2017). Without decades of data on the long-term impacts of social media use, many questions have not been answered regarding the social-emotional consequences. The amount of time spent on social media as well as how the online platforms are used can create implications for mental health.

Social anxiety is, unfortunately, all too common for some people. During adolescence, it is normal for social anxiety to increase to some degree. This might be because peer relationships become more important during this stage of life (Chiu et al., 2021). Because this population is so susceptible to feeling socially anxious with face-to-face interactions, it is not surprising that social anxiety translates to online situations as well. Anxiety relating to social media can be caused by a myriad of things. Possible anxiety-inducing situations are feeling like not enough people have interacted with one's content, not having enough followers, wondering if people are judging one's posts, etc. (Underwood & Ehrenreich, 2017). Those with social anxiety tend to be highly aware of social status and compare themselves to others (Parsons et al., 2021). With social media, not only do people follow their friends and family, but also celebrities and influencers. In a research study, the change in negative self-perceptions after viewing influencer Instagram content was investigated using a pre/post-test design (Parsons et al., 2021). It was found that those who already had social anxiety indicated their social rank as being lower after seeing the influencers'

idealized content. Furthermore, these participants' self-esteem decreased, and negative affect increased. These findings assert that socially anxious individuals feel worse about themselves after using social media.

People with different anxieties – whether it is social or social media anxiety – are typically very concerned about what others think of them. Sometimes it can feel as if the entire world is watching and critiquing one's every move. This is a common phenomenon called the *spotlight effect.* As it turns out, people generally do not notice other people as much as one might think they do. Researchers have investigated this topic in a variety of situations. In a study where minority students were asked about the attention, they receive during lectures pertaining to people of the same background as them, participants substantially overestimated how much people were looking at them (Crosby et al., 2014). In a Gilovich et al. (2000) study, participants wore "embarrassing" clothing and had to estimate the number of people that would recall what was on their shirts. Participants generally overestimated how many observers picked up on the fact they were wearing an embarrassing shirt (Gilovich et al., 2000). In one study, it was found that the social spotlight can be felt even in imagined situations (Golubickis et al., 2016). This finding is alarming because people are assuming social judgments despite the presence of an actual audience. This relates to social media because users might feel like their followers are judging them without knowing if they are.

Feeling this way ties into the inability to see things from another person's point of view, also called egocentrism. People's overestimation of the salience of their appearance and behaviors is egocentrically biased (Gilovich & Savitsky, 1999). It has been long theorized that

children are egocentric; however, they usually grow out of this thought process by the time they reach adolescence (Elkind & Bowen, 1979). Surprisingly, in a 2008 study, it was found that egocentrism exists consistently from ages 11 to 21 (Schwartz et al., 2008). This could mean that people retain the inability to accurately judge situations from another person's perspective, which relates to the spotlight effect.

The desire to be on social media could potentially stem from egocentrism. People do not know how others truly feel about them, so by going on social media, one can try to find some answers or validation. With social media, one puts themselves in a position where people can look at their content for hours. There is no way of telling how long people have looked at one's posts. Even counts are not an accurate gauge because people can see a post and choose to not like or comment on it. The potential negative side effects of social media have been investigated quite a bit; however, there are still some unknowns. In relation to adolescents' social media use, the spotlight effect has never been studied in that particular context. What is known is that it is common for young adults to spend several hours of the day on social media and those with social anxiety tend to feel worse after scrolling (Parsons et al., 2021). With the massive amount of time people spend on social media, it is important to know how this age group estimates their followers' attention to their content.

This form of the spotlight effect was tested by creating two groups of participants: content creators and content viewers. The content creators submitted a simulated Instagram post and described what the most noticeable feature was in their post and estimated what percent of viewers would also notice the feature.

The content viewer group saw the simulated posts and indicated what they believed was the most noticeable feature of each of the posts.

Because of previous literature, it is hypothesized that the spotlight effect does exist in young adults while using social media. Specifically, it is hypothesized that when asked to use open recall, a multiple-choice selection, and to give a detailed description of the most noticeable feature, social media content viewers will select a content creator's predicted most prominent feature of their post significantly less than what the content creators estimate. Furthermore, it is hypothesized that the more hours a content creator spends on Instagram daily, the larger the discrepancy between their predicted most prominent feature and how much the content viewers notice it will be.

Method
Participants

Participants in the content creator group were recruited via personal contact with students in Dr. Laura Ramsey's PSYC 304-004 class. All participants in this study were 18 years old or older and were Instagram users. There were 12 participants in the content creator group. All participants in the content creator group were students at Bridgewater State University. Of the participants, 9 were cisgender women and 3 were cisgender men. The ages of these participants ranged from 20-33 and the mean age was 21.92 years old (SD = 3.61). There was 1 participant who identifies as Hispanic/Latinx, 8 who identify as Caucasian/White, 1 who identifies as African American/Black, and 2 who identify as Middle Eastern. 6 participants were juniors, 3 were seniors, and 2 were "super seniors," meaning students

who have already completed four or more years of college at an undergraduate level. There was 1 participant who did not indicate their class year. Participants in the content creator group were compensated with $15 added to their Connect Card in Flex Dollars.

For the content viewer group, there was a total of 102 participants who were recruited using the Cloud Research platform. There were 51 cisgender women and 48 cisgender men. There was 1 transgender male, 1 person who identifies as nonbinary, and 1 participant that did not indicate their gender identity. The ages of participants ranged from 22-76 years old with the mean age being 38.59 years old (SD = 11.26). 8 participants identify as Hispanic/Latinx, 78 identify as Caucasian/White, 15 identify as African American/Black, and 8 identify as Asian. The sum of these numbers does not reflect the 102 participants because 7 participants identified as having two different races. 4 participants were currently enrolled in college. Of those 4, only 3 indicated their class year: 1 sophomore and 2 seniors. All participants in the content viewer group were compensated roughly $1 from Cloud Research for their participation.

Procedure for Content Creators

The Qualtrics Survey program was used to collect data. A brief description of the study was provided, and informed consent was obtained. Participants were asked to choose or take a photo of themselves so that they would feel comfortable posting on Instagram. The photo had to be of the participant without any other people. Participants were given the option to write a caption they would add if they were posting it on Instagram. They then had to select from a list of options what they thought the most prominent part of their photo was, like their clothing, for example. Then, they described in detail what feature they specifically meant. Using a sliding scale from 0-100, the participants had to estimate what percent of viewers would notice the feature they selected. Next, there were questions about personal social media habits. When asked how much time one spends on Instagram, the options participants had to choose from were using it more than two hours a day, about one hour a day, less than one hour a day, a few times a week, once a week, or less than once a week. These responses were associated with numbers one through six, with one being the response over two hours a day and six being less than a few times a week. Then, questions about self-consciousness had to be answered. Demographic questions were asked. Personal information was collected for compensation purposes. Participants' first and last names, Banner IDs, and email addresses were collected. The purpose of the study was stated after the survey.

Procedure for Content Viewers

An overview of the study was presented, and participants gave their informed consent. Participants were instructed to view the images as if they were scrolling on their own Instagram feed. Next, participants were asked to describe any details or features in the posts in the feed that they could remember. Then, they were shown five randomly selected posts that were previously seen in the feed. For each of the five posts, they were asked to indicate and describe the most prominent feature in each post, like the person's facial expression, for example. The participants were asked to reflect on their social media habits. Specifically, they were also asked about how frequently they use Instagram.

Participants then answered questions pertaining to their self-consciousness as well as demographics. Finally, participants were debriefed on the purpose of the study.

Measure

Content Creators' Estimate of Viewers' Attention

After indicating the most prominent feature of their post, content creators used a sliding scale from 0 to 100 to answer the following question: "If this photo was posted on Instagram, what percentage of viewers do you think would notice the feature you selected above?"

Content Viewers' Perception of Creators' Posts

The content viewers indicated what they noticed in the content creators' posts in three different ways: open recall, multiple choice, and descriptions. The open recall appeared first, to get the most uninfluenced perception of the whole feed of posts. The open recall question was, "Describe any details or features in the posts in the feed that you remember. Try to list as many as you can and be as specific as possible." Participants were then given space to type in whatever came to mind.

Next, the content viewers were shown five posts from the feed, selected at random. For each post, content viewers indicated in a multiple-choice format to allow for easy comparison to the content creators' indication of the most prominent feature in their posts. The question to the content viewers read, "For each of the five specific posts below, indicate the most prominent feature in each post." The response options were *facial expression, clothing, pose, tattoos/piercings, accessories, and hair/makeup.*

Finally, the content viewers described, in an open-ended question, the most notable feature for another randomly selected five posts from the feed. The

instructions read, "Now for each of the following posts, describe what specifically stood out to you the most." A space was allotted next to each of the five posts for the content viewers to write whatever came to mind.

Social Media Habits

Both content creators and content viewers were asked a series of questions regarding their social media habits. To ensure that all of the participants were Instagram users, they were asked which social media platforms they used regularly and which social media platform they used the most. Then they were asked how often they typically use Instagram, with the following response options: two or more hours every day, about an hour every day, less than an hour every day, a few times a week, once a week, less than once a week.

Public Self-Consciousness Scale

For both content creators and content viewers, the Public Self-Consciousness subscale of the Self-Conscious Scale (Scheier & Carver, 1985) was used to gauge vulnerability to the spotlight effect. This survey measure has been used for many years and has been validated. There were seven items on the Public Self-Consciousness subscale. One item of the sub-scale was "I'm concerned about my style of doing things" (Scheier & Carver, 1985). Each item had the response options of "not at all like me," "a little like me," "somewhat like me," or "a lot like me," and participants were asked to select the option they felt most closely described them.

Results

To determine if the spotlight effect exists on Instagram, data was analyzed using a paired-sample

t-test. Though the data came from different groups of participants (content creators and content viewers), a paired-sample t-test was appropriate because the comparisons were matched by post (i.e., the content creators and the content viewers offered data on the same post). For each post, the content creator's estimate of viewers' attention (on a scale from 1 to 100) was compared to the percentage of content viewers who identified the most notable feature (as perceived by the content creators). This resulted in three different comparisons because the content viewers identified the most notable feature in three different ways: the open recall after viewing the whole feed, the multiple-choice for each of five randomly selected posts, and the open-ended description for each of five randomly selected posts.

On average, participants in the content creator group estimated that 74.42% (SD = 26.62) of content viewers would notice the feature they thought was most prominent in their posts. For the open recall based on viewing the whole feed, content viewers noticed the content creators' predicted most prominent feature an average of 3.25% of the time (SD = 7.33). Thus, the content creators significantly overestimated the percentage of viewers who would notice their predicted most prominent feature, t (11) = 10.16, p < .001. For the multiple-choice question for each post, content viewers selected the content creators' predicted most prominent feature an average of 31.95% of the time, on average (SD = 32.97). This comparison also indicated a significant overestimation by the content creators, t (11) = 5.16, p < .001. For the open-ended description for each post, content viewers only noticed the predicted most prominent feature an average of 33.56% (SD = 34.66) of the time. This comparison also indicated a significant

overestimation by the content creators, t (11) = 5.21, p < .001. Therefore, consistent across all three comparisons, the results provided support for our hypothesis that the spotlight effect may be experienced on Instagram. Figure 1 illustrates the discrepancy between the content creators' average prediction of how often the content viewers noticed the feature believed to be most prominent versus how often the content viewers did.

Next, a variable estimating the spotlight effect for each participant was created by subtracting the percentage of content viewers who identified the prominent feature in the multiple-choice question from the content creators' estimate of viewers' attention to the prominent feature. Then, to determine a correlation between the spotlight effect and the amount of time spent on Instagram, a Pearson's r test was conducted. It was found that most content creators reported spending about an hour on Instagram daily (M = 1.92, SD = 0.29). Then, it was found that on average, content creators were 42.46 points off in their estimation of how many people would notice their selected feature (SD = 28.51). Pearson's r test revealed that there was a medium correlation between Instagram use and the spotlight effect (r = 0.46), but it was not found to be statistically significant (p = 0.13).

Discussion

This study aimed to determine if the spotlight effect exists on social media. Individuals submitted a photo that they felt comfortable posting on Instagram and estimated what percent of people would pick up on the feature that they perceived to be most noticeable. The photos were then shared with a different group of people, and they indicated what they thought the most noticeable features of the posts were. Then, content creators'

responses were compared to the content viewers. The data suggested that there was a significant difference between the content creators' overestimations compared to what the content viewers noticed, thus supporting our hypothesis. When investigating whether a correlation exists between the spotlight effect and time spent on Instagram, the analysis suggested that there was no significant difference between those who use Instagram more than those who use it less frequently. This was probably due to the small sample size.

Previous research has suggested that peer relationships are highly important in emerging adulthood (Chiu et al., 2021). This leads one to believe that staying connected to friends on social media by engaging with their content and uploading photos oneself is also important. Furthermore, it was established that there tends to be anxiety about what the posts look like and if enough people are liking them (Underwood & Ehrenreich, 2017). The current study used this knowledge as a framework for our design. Trying to recruit participants for the content creator group proved to be a challenge. If people are generally self-conscious about their social media posts, then they would likely not want hundreds of other participants judging them. This explains why the sample size for the content creator group was so small.

In prior studies, it was found that people overestimate how many other people were looking at them in public settings (Crosby et al., 2014). Unsurprisingly, this was also the case in the present study where participants significantly overestimated the number of people that noticed a specific feature of their post. Perhaps this was the case in part because the participants in the content creator group knew that their photo was going to be shown to strangers. It is known that the spotlight effect can be experienced by people even in imagined situations, so our findings that it exists on social media were not unexpected (Golubickis et al., 2016).

Limitations and Future Research

A limitation of this study is that there was a small sample size for the content creator group. It is more difficult to generalize results to the entire population of young adults because there were only twelve participants in the content creator group. Another limitation is that, for that group, the sample was exclusively comprised of Bridgewater State University students. The participants were not completely varied in their class year; there were not any freshman or sophomore participants in the content creator group. Because this is such a specific group of people, perhaps there is something about the cisgender juniors, seniors, and super seniors that attend Bridgewater State University that makes them more or less likely to experience the spotlight effect on Instagram. Having a larger sample size drawn from a more varied population would reduce this uncertainty.

Another limitation was that our study required content creators to upload photos of themselves. This meant that we needed a group of people that were confident enough to share a photo of themselves that they were willing to subject to scrutiny from people that they did not know. Because of the nature of what we were asking participants to do, it is likely all of those who agreed to participate are different from those who were uncomfortable with the task. There is no way of knowing if the spotlight effect exists on social media at all in those individuals who were not willing to participate, or it could be that the spotlight effect is even stronger for those

people.

Finally, there was a limitation with the content viewer group. Because we used the Cloud Research platform, we had no control over who saw the posts. For example, there was a participant in this group that was 76 years old. Her perceptions of the Instagram posts and what she thought was the most noticeable feature might have been different compared to someone in the age group of those who uploaded the photo. Usually, most of one's followers are close in age to the user; however, this was not necessarily the case for our simulated feed. In other words, perhaps having such a wide range of ages in the content viewer group that did not match those who uploaded the photos was a limitation.

Because there is such little research on the spotlight effect on social media, there are several different avenues one could take for future research. Our findings point to the spotlight effect possibly existing for college-aged Instagram users. Discovering a way to reduce the effect on Instagram would benefit society because it can be an uncomfortable thing to experience. Doing so might require finding the root cause of the spotlight effect on Instagram, which could also lead to more research questions.

Comparing how a person experiences the spotlight effect in the "real world" versus Instagram could provide some interesting insights. There is strong evidence for the spotlight effect existing in public situations, and after the present study, there is some support for believing that it exists online. One could investigate whether the effect is stronger for individuals in real-life situations or on social media. To determine this, one could use the same research design as the current study, as well as having participants complete some type

of embarrassing task in public, such as the Gilovich et al. T-shirt study (Gilovich et al., 2000).

An additional suggestion for future research is to expand the study to include different age ranges. This study only looked at college-aged students; however, they are not the only ones who use social media. Discovering if it also exists for younger and older populations would be interesting to know. Then, one could compare the prevalence of the spotlight effect between the different age groups. This could provide important insights into how the spotlight effect varies through different life stages.

Conclusion

The spotlight effect had never been investigated on social media before the current study. Our findings point to the fact that the imagined social spotlight does influence people's beliefs on the extent to which people notice their posts. This is new information for the psychology research community and has the potential to launch countless more studies on the topic of the spotlight effect on social media.
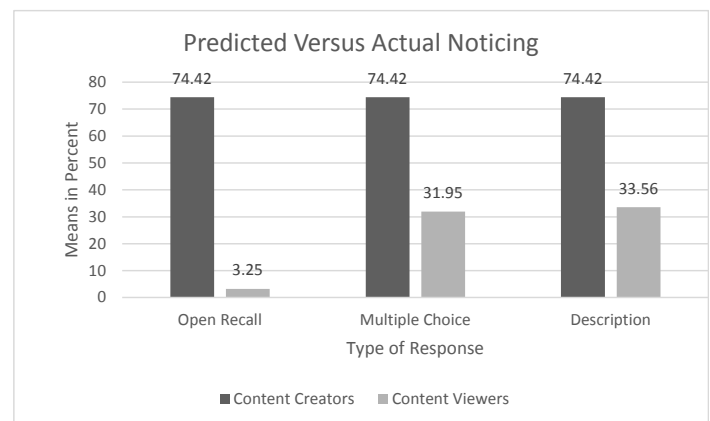
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Figure 1: *Predicted Versus Actual Noticing of Created Content by Content Creators and Viewers*

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