

Paradox of Social Media Self Disclosure

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Abstract

It is often difficult to observe people’s public versus private interactions and examine how they would behave if their personal information was presented out of context. This paper aims to investigate the variation between social media users’ online posting behavior and their real-world presentation. The participants supplied their Twitter handles and 10 interesting tweets were selected from each of their accounts. Each game session was conducted in groups with at least 3 participants, where tweets from each participant were presented to the group anonymously in random order. We conducted 3 sessions of the Own Up game to examine the type of tweets that participants owned up to, as well as those they did not own up to. In a follow up one-on-one interview session with each of the participants, we delved into depth to learn more about the motivations behind their decisions during the Own Up game and their social media usage and habits.

1 Introduction

Social media today has evolved into more than just a platform dedicated to communicating with friends and family. Anyone around the world can view a stranger’s profile in a matter of seconds. Social media usage has consistently increased year over year, making it easier to connect with others than ever before. Increased social media usage has given rise to a new form of self-presentation and self-disclosure. Technology has enabled users worldwide to engage with each other and has played a significant role in one’s social life, leading to differences in public self-disclosure behaviors.

As such, it is important to study how self-disclosure on social media differs from self-disclosure offline in real life. For instance, does one’s behavior, attitude, or outlook change when posting online on social media? Are people more comfortable expressing their true selves online or does social media make them more self-conscious?

Being able to understand how social media has impacted people’s self-disclosure habits is one of the goals of this research study. Specifically, we are particularly interested in investigating questions like: (1) which types of social media posts are people not willing to own up to in an offline setting and what are the reasons behind it, and (2) how does being in a different environment like a group game affect people’s willingness to admit to their online social media posts?

To investigate how people present themselves in a different manner online compared to their true selves offline, we designed a behavioral intervention game to study the potential paradox between online and offline presentation. The game portion of the research study allowed us to answer our research questions and helped us to better understand the type of posts people are unwilling to own up to, given that the game is conducted in a group of strangers. After each game session, individual interviews were conducted to further investigate the reasons and concerns for the observed behaviors during the game as a way to better understand participants’ perceptions of self-disclosure in online and offline settings.

We hypothesize that depending on users’ perceptions of their online and offline identities, people will behave differently when their tweets are shown to a group of strangers. Furthermore, we believe that generally, people are not willing to own up to posts that cause them to feel embarrassed, ones that evoke negative or sensitive emotions, posts expressing strong political opinions, and unpopular posts as defined by the number of reactions, likes, or comments received by their audience.

In Section 2, we list out relevant work on topics including online identity, the paradox between online and offline behavior, online behavior on various social media platforms, and how privacy and audience affect users. Section 3 goes

into detail about the methodology, recruitment, study design of the Own Up game and interview, and qualitative analysis. Section 4 illustrates the results of the game and interview sessions, along with the hierarchical coding used in our study. In Section 5, we discuss lessons learned and limitations of the study. Lastly, we conclude with a discussion on the broader impacts of our study in Section 6.

2 Related Work

2.1 Online Identity and Behavior

With over a billion people using social media today, online social media networking continues to rise in prominence. Traditionally, identity is viewed as something fixed and static and that is why people could be grouped based on ethnographic characteristics, gender, class, and ability [4]. However, given the fact that social media platforms grant users greater customization and the ability for self-expression, online identity can be constructed in various ways. Social networking sites are considered a means for self-presentation [6]. Online identity also encompasses a broad range of perspectives since people are free to talk about any subject [4].

Other researchers have found that personality traits play a role in users' social media usage. Studies like the one conducted by Marshall et al. found that high extraversion led to more frequent use of Facebook, and openness is positively associated with posting about intellectual topics [7]. Furthermore, men with a low level of vanity might not be motivated to engage in high self-presentation online behaviors like posting selfies [12]. In Seidman's study, the findings showed that high agreeableness and neuroticism were the best predictors of belongingness-related behaviors and motivations [11].

2.2 Paradox Between Online and Offline Behavior

According to sociologist Erving Goffman, context and audience affect how people present themselves [6]. In the process of social interaction, an individual engages in "performance" to present an idealized version of themselves to their audience by "impression management", which means selectively revealing certain parts of themselves while concealing other parts. When it comes to online social media content, access control and privacy settings are usually utilized to maintain a sense of private space [5]. Despite this, a paradox regarding online behavior and privacy was found; there is an inconsistency between the perception of the post owners and their audiences [10]. A survey study at a university in the southeast showed that students believe that employers view posts about drugs, alcohol, and profanity negatively. However, posts and photo tags by friends, poor grammar and spelling are also considered by employers to be important [10]. Since most of the

online behavior research tended to focus exclusively on Facebook, researchers have conducted a survey-based field study to compare student comfort levels with risk-taking behaviors on their Facebook and Twitter accounts [8]. The findings show that college students are comfortable with authority figures viewing their Facebook accounts [8].

2.3 Online Behaviors on Different Platforms

In a sample of teenagers, many said that they have posted content that is not appropriate online or content that they do not want certain audiences to view [1]. In a similar study, Miller et al. researched the online behavior of college students [9]. They performed a focus group study with students from a small private university in the midwest of the United States and followed up with an online survey study with students from the same college regarding their use of Facebook and MySpace. Data collected include the appropriateness of the content that they posted about. The responses showed that students routinely post content that they realize is not appropriate for all audiences [6].

2.4 Online Privacy Attitudes

Many researchers also found the potential privacy harm in multiparty social media platforms and provided novel solutions. Such et al. used a computational way to combine different people's privacy settings. They used a mediator to detect conflict and offer possible solutions [14]. In another study, the researchers wanted to achieve multi-party privacy consensus by finding a set of rules [13]. They believed that a good multi-party privacy tool should be designed to reflect real-world data. In addition, it should not be a fully automated tool; the user still needs to designate inputs [13]. For instance, the user must designate who is allowed to view their posts. In another study, Kurt et al. analyzed Facebook accounts and found that certain parties may be more vulnerable to privacy threats. To solve this problem, they built an application that deleted posts that violated these parties' privacy preferences [15]. Privacy and online audiences remain as concerns for some users on social media.

2.5 Summary and Objective

One common complaint among users was that the majority of those sampled had privacy concerns when it came to who is able to view their posts. These studies were either conducted via a survey or a combination of a survey along with a self-reported personality assessment. Although these studies show a correlation between certain personality traits and social networking behaviors, they do not delve into the reasons behind why certain behaviors are attributed to individuals who possess these personality traits. Additionally, few studies

examine how human behavior changes when social media posts are presented out of context.

Another challenge of using social media is that it is hard to determine whether or not people's online identities are consistent with their real-life identities. On one hand, it is acknowledged that identity expression in social media varies across and within different platforms. On the other hand, people do not purposely misrepresent themselves on social networks with heavy social ties like Facebook and LinkedIn, considering the effect on their reputation, trustworthiness and social status. Depending on the social media platform, it can be difficult for users to present themselves in a consistent manner.

Our project seeks to explore the question of whether or not an individual's online identity is consistent with their real-world identity. The online behavior of college students is one of the focal points of our study. The Own Up study is relevant because it not only asks participants about their social media usage and privacy habits, but also seeks to understand why individuals behave differently when their posts are taken out of the context of social networking sites. Our project differs from previous work in that we aim to analyze the relationship between people's perceptions of their online and offline identities and their change in behavior when their personal posts are presented publicly to a group of strangers.

3 Methodology

3.1 Methodology Overview and Procedure

To answer our research question, we recruited 11 students with active Twitter accounts from Carnegie Mellon University by posting flyers around campus and on Facebook. The data was collected by selecting 10 posts from each participant's public Twitter account. There were 3 sessions of the study. There were 3 participants in the first session, whereas there were 4 participants each in the second and third sessions. During the game, we observed each participant's behavior when their tweets were passed around to the group. Each Twitter post was shown anonymously and the post owner had the option to claim the post as theirs. After the game, a one-to-one follow-up interview was conducted with all of the participants to gain insights into their behavior during the game, their social media habits, and their perception of their online identity.

3.2 Recruitment: Participant Selection Criteria

We first sent out a screening survey asking interested participants for their personal and Twitter account information including the following: name, email, Twitter handle, age, number of Twitter followers, and number of original tweets (excluding retweets). Optional demographic information included: gender, phone number, major, and year in school. To

screen the participants, we decided to only include participants who had a public Twitter account, who were 18 years and older and had at least 50 original tweets. After this step, we sent out a consent form and an online scheduling survey to the interested participants who passed the screening survey. All participants recruited for the study had an affiliation with Carnegie Mellon University. A total of 11 participants (5 males, 6 females) were recruited for the study through flyers posted around the Carnegie Mellon University campus. We paid all 11 participants \$20 for their participation in our study.

3.3 Study Design

3.3.1 "Own Up" Game

Each participant supplied their Twitter handle in the screening survey. After getting the participants' consent for the research study, we selected 10 interesting tweets from each participant's Twitter account. We purposely selected humorous posts, posts that contained fun facts, and posts expressing positive and negative emotional states such as excitement and anger. Then we removed any identifiable information from each tweet, such as Twitter handle and name to anonymize the posts. During the own up game, participants all knew that the tweets belonged to at least one participant's Twitter account. The owner of the tweet had the option to own up to their tweet by publicly claiming the tweet.

The first session had 3 participants, so a total of 30 tweets were shown to the group during the game portion of the study. The second and third sessions each had 4 participants, and a total of 40 tweets were shown to participants in each session. First, we assigned a random digit to each tweet by using a random digit generator to ensure that the tweets selected were presented in random order. We then ordered the tweets according to their random digit and distributed the tweets in that order during the game. For instance, in the 2nd (and 3rd) session, we randomly assigned each tweet a number from 1-40 by using a random digit generator. Next, we ordered the tweets according to their random digit and passed the tweets around to each of the participants during the game in that order.

After each participant had gotten the chance to view the tweet, the owner has 10 seconds to own up to the tweet by raising his or her hand. If no one owns up to the tweet, the tweet remains unclaimed, and the owner is not revealed to others. The researchers know the true owner of each tweet and keeps track of which tweets were and were not owned up to during the game. We also kept in mind whom each unclaimed post belonged to, so that we could follow up with them during the one-on-one interview.

3.3.2 Interview

The objective of the interview process is to elicit participant feedback through open-ended, subjective questions.

Questions in the interview were designed to follow a semi-structured interview process. The interview was broken into three main sections. Section 1 was focused on social media usage and perceptions on online identity. Section 2 investigated motivations for the participants' behavior during the group game, while section 3 explored opinions regarding the difference between online and offline self-expression.

The interviews were conducted immediately after the game portion of the study. We invited each of the participants into a separate room to conduct a 20-25 minute one-on-one interview, each carried out by one of the researchers assigned randomly.

Since responses from interviewees were highly unpredictable, we had to encourage participants to express themselves, while simultaneously managing an unbounded discussion. After running a pilot study to test the duration of the interview and test out our interview questions, we removed overlapping questions, refined and reorganized the interview into 3 sections. For the full interview script, see appendix Table 2.

3.4 Qualitative Analysis

To ease the process of interview data interpretation, we recorded the participants' answers and transcribed the content into text for detailed analysis. Notes were also taken during the interview process on information that we considered to be important or interesting based on the interviewee's reactions like attitude, facial expression, body language, etc. Both audio recordings and text-based notes were important to capture the most crucial information participants provided.

In this study, we adopted an exploratory method for qualitative analysis. Without any references to guide our analysis, we used emergent coding, one of the content analysis approaches conducted under no established theory to form grounded theory [3]. In accordance with the methodology proposed by Corbin et al. [2], our coding process consisted of four stages: open coding, development of concepts, grouping concepts into categories, and formation of a theory.

More specifically, during open coding of reasons and concerns for own up behaviors in the game, concepts were built step-by-step by assigning annotations and labels to sentences. They were examined not only from participants' observed behaviors but also from intentional guided questions exploring hypothetical scenarios during the interviews. In the concept development process, also known as axial coding, the codes we created were iteratively refined by further analyzing the context of interviewees' responses and extracting relationships between concepts. To group concepts into categories, similar perspectives were clustered and hierarchical categories emerged from unstructured words.

To control the impact of inherent subjectivity during the process of data interpretation, two researchers were involved in building the codebook. The first coder assigned open codes

from the raw data and extracted layers during concept development, while the second coder identified potential missing codes and amended unclear categories. Each coder worked independently to enhance validity and reliability. A coherent taxonomy was finalized when both coders finished coding and sufficient agreement was reached.

4 Study Results

4.1 Participants Demographics

Since we posted our flyers around the areas surrounding Carnegie Mellon University, all of our participants were in some way affiliated with CMU, and most of them were native English speakers. Everyone in the same game session was strangers. In order to collect consistent demographics for our study, we used a screening survey to collect data on each participant. All participants were 18 years or older, and most were students at Carnegie Mellon University from various majors, years, and disciplines.

In the first session of the game, two participants were undergraduate CMU students, while the third participant opted out of disclosing his affiliation with CMU. Two of the participants in the first session were male, and one was a female. In the second session of the game, all four participants were CMU students; one was a Ph.D. student, while all the others were undergraduate students. There were 2 females and 2 males in the second session of the game. In the third session of the game, all four participants were CMU undergraduate students. There were 3 females and 1 male participant in the third session of the game. In total, there were 5 male participants and 6 female participants, for a total of 11 participants.

4.2 Game Results

4.2.1 Overview of Game Results

As is shown in Figure 1, during our three game sessions, we observed that the majority of posts were owned up, and game 1 and game 3 had similar results. Further detailed analysis of each game will give us more information to explain this difference.

4.2.2 Detailed Analysis

As Figure 2 shows, the overall own up rate is 90% for the first session of the game. One participant owned up to all of her posts, another participant owned up nine posts, while the last participant owned up to eight posts. However, the last participant claimed in the interview that he owned up to all of his posts. The second participant did not own up to the first post complaining about his roommate, however, after seeing multiple posts he tweeted complaining about his roommate, he began to own up to them. This is interesting because given that the game environment and post content were the same,

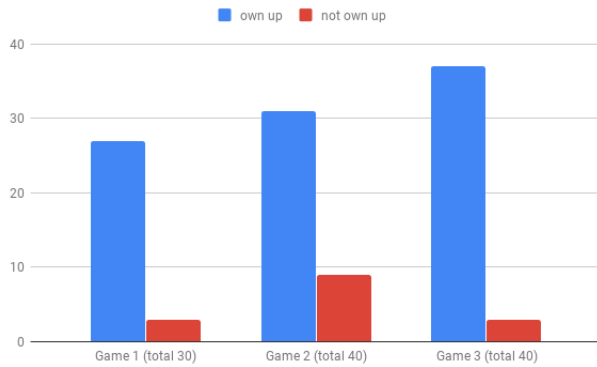


Figure 1: Overview of Game Results

participants seem more willing to own up to posts spend more time playing the game with others, they are more willing to own up some posts with personal feelings.

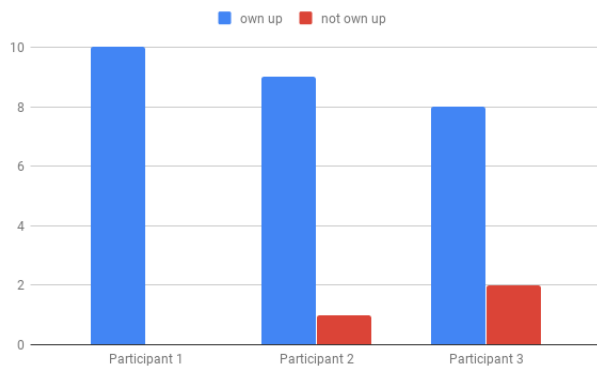


Figure 2: Results of the First Game Session

As is shown in Figure 3, the overall own up rate in the second session of the game was 77.5%. In this session, one participant owned up to less than 50% of his posts. If we remove his result from the overall results, the overall own up rate is $27/30 = 90\%$, which is the same as the first session. The type of posts that this participant did not own up to were diverse in content. Most of them were neutral posts, and some tweets date back to as far as 2014. For the rest of the posts that he did not own up to, one of them was a picture of the participant's dog, the other one was remembering 9/11. We found two common themes of the tweets he did not own up to. Firstly, none of the tweets had a high number of likes or comments. Secondly, most of the tweets were from several years ago. For the participant 4, all the tweets that she did not own up to were complains about others. From analyzing information from the second session, we found that participants are unwilling to own up to posts expressing complains about

others, tweets from long time ago, and tweets with very few likes.

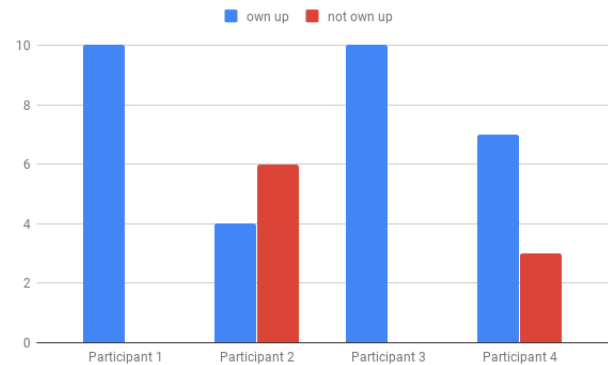


Figure 3: Results of the Second Game Session

As can be seen in Figure 4, the overall own up rate for the third session of the game was 92.5%, which was similar to the rate of previous sessions. Participant 1 owned up to nine posts; participant 2 owned up to eight posts; participant 3 and participant 4 owned up to all their posts. Participant 1 did not own up to a tweet that complained about her freshman year. Participant 2 did not own up to a post about political issues and a post about her personal life. In conclusion, from the third session's game result, we found that participants were unwilling to own up tweets containing personal information, political opinion, and complains.

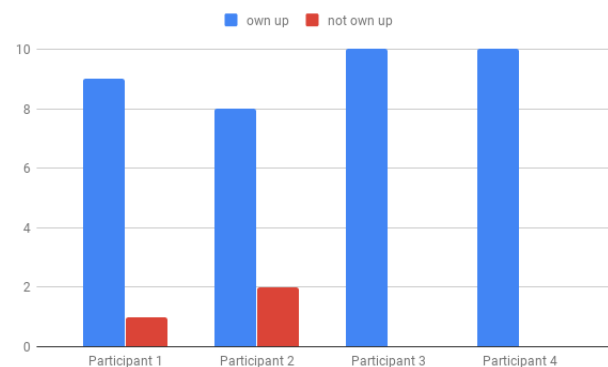


Figure 4: Results of the Third Game Session

4.2.3 Game Result Conclusion

In conclusion, most participants owned up to their tweets, and only one participant owned up to less than 50% of his posts. The overall own up rate was consistent. The main reason for the unwillingness to own up to tweets can be categorized into:

Table 1: Overview of Social Media Usage of 11 Participants

Platform	Count
Twitter	11
Instagram	7
Facebook	6
Snapchat	5
Tumblr	2
LinkedIn	1
Reddit	1

complains, political tweets, tweets with few likes, and tweets posted years ago. Despite that, one participant from the third session had a lot of political posts, and he owned up to all of them. In addition, one participant from the first session did not own up to his tweets complaining about others initially, but owned up to similar tweets later on in the study. Another participant from the second session also owned up to a post that complained about acapella groups. We found that people are more likely to own up to tweets after playing several rounds of the game. Additionally, different participants react differently to tweets containing sensitive topics.

4.3 Social Media Usage

At the beginning of the interview process, a brief investigation on participants' social media usage was conducted. As indicated in Table 1, seven social media platforms were mentioned to be used by 11 participants. Four of the participants reported Twitter as their primary social media platform, whereas 2 of them reported Snapchat, and 1 of them reported Instagram. It is noteworthy that all of the participants stated that they used these platforms for different purposes. However, quite a few of them mentioned rarely using Facebook or having deleted Facebook, because their families were using it and posting on Facebook is an uncomfortable thing to do.

Participants mainly use Twitter to look for information they are interested in, for example, funny content (e.g. jokes or cat videos), art-related content (e.g. drawing and games), TV shows, technology, news articles, and even political discussions. Some of them who use it as their primary platform also share personal feelings, opinions, and milestones in life, or use it as a platform to brand themselves. Additionally, there are slight differences between their original tweets and retweets. Commonly retweeted topics include jokes, news articles, and technology-related tweets. Some also expressed wanting to support the original poster or retweeting because they think that their audience will like the content.

Deletion of tweets was frequently acknowledged by participants. Tweets that were considered to be embarrassing, childish, weird, out of context, not as funny as originally

thought, tweets that were hastily posted, or those that gained no comments or likes were usually deleted. Two out of the 11 participants mentioned habitually deletion behavior or deleting when they considered themselves to be posting too much.

4.4 Hierarchical Data Coding

Our data coding examined 4 major open-ended questions related to reasons and concerns for the "own up" behaviors of the participants in section 2 of interview. These questions explored the type of posts people are willing to and are reluctant to own up to respectively, as well as the reasons behind their behavior. From Table 2, the results of coding is presented under a 3-layer hierarchical structure, with eighteen level 3 categories, eight level 2 categories, and two level 1 categories.

In this study, we are particularly interested in how a change in environment affects people's willingness to own up to their tweets, especially since the tweets are all available publicly on Twitter. The paradox between how people behave online versus offline is explained in the following subsections.

4.4.1 Internal Motivation or Hindrance to Own Up

Internal reasons for people not willing to own up are related to internal traits of the owner and the posts itself. They are broken down into the following categories: attitude or personality of the owner, the content of the posts, the attached values of the posts, the truthfulness of the posts perceived by the owner, and unexpected factors.

Reservation Most of the participants reported that they are open to anyone and do not have any intention to hide any information, which explains the fact that most of them owned up to all of their own posts. However, for those who mentioned this, we did witness some paradox in this statement, especially when they talked about never posting any secrets online, and also wanting to avoid posting things that they would not want their families to see. This is interesting because the fact that they did not post in the first place is an indication of having reservations.

There were also some people who admitted to holding back from being themselves in an offline setting. One of the participants who did not own up to some of her posts mentioned that she acts as a different person in real life compared to online. In real life, she is more quiet and tries to hide her emotional states, whereas online, she is more open.

Quality The quality of the posts is another factor that affects participants' decision to own up. Obscure, lame, neutral posts were mentioned to be the ones that they did not want to be associated to. Posts that are considered to be good in general are ones that participants want to own up to.

Topic Jokes are the most frequently mentioned category of posts that people are willing to own up to. Topics that are political divisive and controversial were the most frequently mentioned categories of posts that people are not willing to own up to.

Offensiveness Posts that are perceived as offensive or hurtful to others were usually the type of posts that participants were not willing to own up to.

Popularity Popularity is measured as the number of comments and likes associated with the posts. Half of the participants acknowledged that posts with higher popularity or posts with a decent number of reactions are more likely to be owned up.

However, the other half of the participants did not see any difference purely based on popularity of their posts. Some of them explained that they usually cared more about the content than the number of comments and likes.

Consistency in Image Three out of 11 participants mentioned that they would not own up to posts that reveal a different version of themselves. One participant mentioned that consistency in personality and expectations is important: “I think people wouldn’t own up to the ones that weren’t as in line with their image. I don’t want to be associated with the tweet.”

Privacy People hesitate to own up to posts that reveal extremely personal details, or contain personal identifiable information or even links to other people. For instance, one participant said: “I have a friend who owns a YouTube channel. I’m worried about people who know of him and try to talk to me about him.” Another participant also expressed concerns about identity revelation: “You could figure out a lot about me for my Twitter. So it’s identifiable.”

Forgetfulness Some participants did not own up to posts simply because they had forgotten that they were the ones who posted it in the first place. During the interview, these participants expressed that they would have owned up to the posts during the game, but they forgot the post was theirs. One participant said: “This post was from middle school, which was more than 5 years ago. I am not embarrassed by the post. I forgot I posted this.”

4.4.2 External Motivation or Hindrance to Own Up

External reasons that hinder people from owning up are mainly attributed to environmental stimuli like how long it has been since they posted the tweet and how other people will view them. External reasons tend to be highly unpredictable and vary from person to person.

Attack One reason for not owning up to posts is being afraid of being attacked due to sharing tweets with strong opinions, such as posts related to politics. The online setting provides a relatively anonymous environment for people to express these opinions, but in an offline setting, people are more concerned about being judged and attacked.

Context Change Some participants did not own up to tweets because the posts were posted a long time ago. Therefore, the content of the posts does not fit their current image on social media: “It just does not fit my current online image, I am now thinking about going back and deleting that one.”

Deference Deference is another reason that hinders some participants from owning up to certain posts. Some participants want to be viewed positively by groups of people they highly respect, such as supervisors and professors: “I am concerned that my boss finds my twitter. I would like to hide my identity” and “I might not own up to the tweets in front of people that I respect like professors, boss and older adults.”

Audience Matter The audience matters to the participants when they are making a decision on whether to own up, but it leads people to behave in different ways. When the audience consists of strangers, some participants were willing to own up since they have less concern about an audience that has no connection to them: “I don’t care about people that won’t see again”, but some participants did not own up since they were concerned about the opinions of strangers: “The posts I have made on Twitter is because I know that my followers want to see that, but with strangers I have no idea if they want to see it or not.” When asked if the audience were to be changed to their family, friends, bosses, and professors, the participants say the audience matters. For instance, one said: “I don’t post secrets because my family could see it.”

Audience Size The audience size is one factor that affects the own up decision of the participants. The sample size for study was 4 (and 3 in one session). The audience size is relative small compared to a sample of 10 or 50, so to some participants, it may not necessarily be big enough to simulate a real offline setting. Therefore some participants expressed that, they might consider owning up to less posts with a bigger audience group.

Reputation Reputation is also a factor that both encourages and hinders the participants from owning up. Some participants owned up to some posts because the posts were professional: “I want to look professional on social media since I know job recruiters look at my profile.” On the other hand, some participants were not willing to own up to some posts because they think the posts may compromise their reputation: “they are some stupid jokes.”

Misunderstanding Some participants did not own up to their posts because it may lead to a misunderstanding. For example some posts were taken out of context and the participants believed the audience might misunderstand the posts without reference to the specific context: “I felt like some of my tweets were taken out of context, so people would be confused by them.”

Judgement Participants also expressed that judgement hindered them from owning up to the posts: “My posts made me look immature, and I didn’t want to be judged by others.” To avoid the potential risk of judgement, some participants decided not to own up to certain posts.

Embarrassment Similar to judgment, participants were also concerned about being embarrassed. For example, certain types of posts that are considered to be improper, out of context, and misleading tend to make participants feel embarrassed or awkward.

4.5 Additional Interview Findings

In this subsection, we would like to dive deeper into the responses from the interviewees asking them about their behavior during the “Own Up” game and social media usage in general. Our goal was to better understand participants’ perceptions of their online identity and offline presentation. Additional observed behavioral or psychological changes induced by social media usage was explored as well.

4.5.1 Presentation of Online Identity

Participants’ responses on self-awareness regarding whether or not they felt that their online identity was consistent with their offline identity is split into two categories. One of them is consistent expression, while the other is paradoxical expression.

Consistent Expression

For those participants who perceived themselves as presenting a consistent image or at least striving to present consistently under both online and offline settings, they reported themselves as someone trying to be cool, funny, casual or thoughtful. The most frequently noted evidence is that they never posted edited photos. One of the biggest reasons behind the attempt to keep online identity as close to their real identity is that nearly all of the people they communicate with on social media are people who know them well enough, so it is pointless to pretend to be someone they are not.

Paradoxical Expression

Some of the participants who reported that they act differently online and offline tend to present themselves online as someone who is more funny, opinionated, outspoken, or political. However, in offline settings, they are either quieter and more shy, or more casual. There is substantial evidence pointing to the desire to enhance one’s identity, including picking the best photos of themselves, never posting negative experiences, hiding secrets, or leaving out information about certain aspects of their actual life. Many said that they pay more attention to how their audience online perceives them. This goes to show that audience perception may be a source of influence for social media users.

4.5.2 Acknowledgement of Paradox in Self Presentation

By exploring the participants’ perceptions of their own behaviors and by witnessing others, we tried to investigate potential changes in psychological states when people exhibit unique behavioral patterns induced by social media usage.

Own Perception of Paradoxical Expression

When we raised the question of how participants view the paradox between online versus offline self-disclosure, most of them were fine with being perceived differently because it is normal to do so and a lot of people exhibit this behavior. Most of the participants were comfortable with the fact that they behave in a different manner because there are different purposes and audiences in online and offline settings.

However, two of them replied that being seen as being different online versus offline will bother them or cause them frustration, but there is nothing they can do about it. One of the participants explained that she understood how easy it would be for others to judge her if her online behavior was significantly different from her offline behavior. She mentioned essential offline communication cues such as facial expression, tone of voice, and body language, and expressed that in an online environment without such cues, a paradox is bound to emerge.

Paradox Seen in Others

On the one hand, most of the participants believed that it is either normal or inevitable to see such paradox in others. One of the participants stated that it is pretty common to see people talk about certain topics only in real life. Another participant said that “people will understand different personas.” The participant who thought this believed that it is inevitable that such a paradox exists since social media is designed to tailor people’s image.

On the other hand, a small proportion of participants said that witnessing behavioral paradox in someone else is confusing. Participants also stated that they might be a little bit judgemental in a way that doubts the other person’s sincerity

if the difference in behavior is significant.

When we were discussing presenting an idealized self, one of the participants believed that Facebook has a tendency to act as a catalyst for idealized self presentation, but people usually try to present a complete image of themselves. Participants mentioned similar issues on Instagram with photo editing functionalities. In contrast, they thought Twitter was more of a platform for showcasing their true selves.

4.5.3 Favorable Method of Presentation

To further explore how existence of social media impacts preference of self disclosure, we put forward one of the most thought-provoking questions: “do you prefer to present yourself online or offline?” We grouped the motivations for both answers respectively, hoping to compare the difference and finding common grounds in perceptions from both sides.

Real Life Is More Favorable

For those who preferred to present themselves in real life, they believed that the offline life version is more genuine. To them, the Internet is connected with real life, but it is limited in what it can achieve. For example, people may present only their desired image when they are online, but on Twitter, users are confined to a certain character limit per tweet. Instead of treating the online environment the same as the real world, they believed that the online setting is more of a supplement to the offline setting. Most of their online friends are also offline friends, therefore, they consider social media as a tool for maintaining real-world relationships.

Online Environment Is More Favorable

For those who preferred to present themselves online, they believed that presenting themselves in the offline setting is more challenging and complicated than in the online setting. Participants mentioned that there is a layer of protection from judgment through anonymity online. With protection, they feel more comfortable sharing opinions. In addition, accessibility is enhanced; therefore, people can be more selective about the community and the topics they engage in, and are able to connect with new people easier than it is in real life.

5 Discussion

5.1 Lessons Learned

During the game, participants were seated side by side in a straight line, making it easy for them to pass each tweet to one another. However, we believe that having participants sit face to face in a circular shape would create more of an interactive and engaging environment during gameplay. This allows for

more exposure than sitting in a straight line, while still allowing participants to pass posts to each other. Another lesson that we learned was that a bigger sample of people in each game session could lead to changes in participants’ behaviors during the game. Perhaps, a larger sample consisting of 10 or more people per session would result in a different outcome when it comes to the number of posts that are owned up to.

5.2 Limitations

The limitations in this study include the following: a small sample size and a homogenous group of participants. Firstly, due to the limitation of resources (limited time, funding, and participants), the original plan was to conduct the study with a small group of people (less than 30). As a result of a limited number of qualified participants, we were only able to recruit 11 people total. A small participant group results in greater variation and limited data for analysis, which may affect the accuracy of our results. Secondly, the participants recruited were all from the Pittsburgh area, and were all affiliated in some way with Carnegie Mellon University. Therefore, the sample of participants in our study were not very diverse.

6 Conclusion

In this study, we recruited 11 participants with active Twitter accounts and conducted three Own Up game sessions to investigate the difference between self-disclosure on social media and in real life. After each session of the game, we conducted a semi-structured interview with each participant to further explore their reasons and concerns behind the observed behaviors during the game, and perceptions on the paradox between online and offline self-disclosure. We used the emergent coding technique for qualitative analysis to analyze information collected from the interviews. We extracted 18 codes organized under a 3-layer taxonomy to categorize sources of motivation and hindrance when it came to participants’ behaviors during the game. From an external perspective, reasons included reservation, quality, topic, offensiveness, etc. From an internal perspective, reasons included feeling attacked, contextual changes, etc.

Additionally, behavioral patterns and perceptions of how online identities compared with offline identities are discussed. Preference on self-disclosure methods given the rise of social media usage are also highlighted. Although our study had limitations, it still offers meaningful results and analysis, and our study can be used as a reference point for larger scale studies conducted in the future.

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APPENDIX

A Complete Interview Script

Hi, how are you? Thank you so much for being here today. In today's interview, there will be three main sections. In the first part, we are going to ask about your social media usage and opinions on online identity. In the second part, we will ask some follow-up questions based on your behavior in previous "Own Up" game and your motivations for the behaviors. In the third part, you will be asked about some opinions about the difference in your online and offline self-expression, if there is any.

Section 1

1) Let's first start with this, could you list all of the social media platforms that you are using? (If they have multiple social media accounts) Which one do you use most often? Do you think you will post differently among those platforms? How many followers do you have on Twitter?

2) What kind of original public posts do you usually make? (Hint: Emotions; Personal life experiences / stories like travelling, a meal, hanging out with friends etc.; Milestones in life; Interesting new stuff like music, movies, books etc.;)

3) What kind of retweets do you usually make? What motivates you to add comments when you retweet?

4) Have you ever deleted any posts you made? What are the types of post you've deleted?

5) How do you define your online identity? Have you ever tried to beautify or perfect yourself when you are expressing yourself online? Why?

We are now finishing the first section of our interview. Before moving on to the next section, do you have any additional thoughts you would like to share? Do you have any questions for us? If not, let's continue to the next section.

Section 2

1) (If they did own up) What were the types of contents you owned up? Do you have some concerns before you own up? (if the participant has concern) Why did you still own up?

2) (If they didn't own up some of their own posts) What were the types of contents you did not own up? What hinders you from owning up?

3) (If they didn't own up some of their own posts) Do you think being in a group game environment affect your decision to own up? (if they say yes) How do you think it's going to affect you? Would you act differently / own up to post "XXX" if the game is only between you and me? How about playing this game with your close friends or family? Why is that?

4) During gameplay, what types of posts do you think people generally not willing to own up? Do you think there are any additional types of posts people might not willing to own up? Why do you think so?

Now we are at the end of the section two. Do you have any additional opinions, thoughts, or questions related to the

conversation we just have? If not, we are going to begin the last section of our interview.

Section 3

1) How do you think your online personality is, and how do you think your offline personality is? Do you think there is difference between the two? (If they say yes) What are the differences?

2) What are the typical audiences of your posts on Twitter? How often do you interact with them? Do you want your posts to be viewed by these people? Will you be more willing to own up in public if your posts have gained more comments or likes?

3) Do you care more about the reaction of audience in the online world or in a face-to-face environment? Do you prefer to present yourself online or offline? Why?

4) Do you think being perceived as presenting yourself differently in the online and offline setting will be something bothering you? How do you think of that if you see the paradox in someone else?

We are now officially finishing the whole interview process. Again, do you have any additional comments or questions for us? Thank you so much for spending time with us and contributing your thoughts. Have a good day!

B Codebook

Table 2: 3-layer hierarchical codebook of reasons and concerns for “own up” behaviors

Level 1	Level 2	Level 3	Explanation	Frequency
Internal	Attitude	Reservation	Owner doesn't have reservations about owning up in front of the group.	5
	Content	Quality	The quality of posts are deemed as good.	2
		Topic	The topic of the post is political divisive, controversial, or a joke.	6
		Offensiveness	The post is offensive to others or might hurt others.	2
	Attached Value	Popularity	The posts have gained more comments and likes.	1
	Truthfulness	Consistency in Image	Their post is inconsistent with their real life behavior.	1
		Privacy	The post contains personally identifiable information.	2
		Identity Revelation	The posts give away too much information about oneself, or are too reflective of the poster's actual personality.	1
	Unexpected Factors	Forgetfulness	Owner does not remember posting the tweet.	4
External	Physical Impact	Attack	Afraid of being attacked due to sharing opinions.	1
	Time	Context Change	The posts were made a long time ago, and things have changed.	3
	Audience	Deference	Their audience is the person(s) they respect (e.g. professor at school or boss in the workplace).	1
		Audience	Facing strangers during the game that the owner does not have to see again.	2
		Audience Size	The size of the audience during the group game.	1
	Implication	Reputation	Owner will be held in high regard or viewed as professional.	3
		Misunderstanding	Audience might misinterpret the posts without knowing the necessary background information	2
	Psychological State	Judgement	Owner is afraid of being judged.	5
		Embarrassment	Owner feels embarrassed.	5