How Do You Handle It?
Developing a Theory of Facebook Affordances and Envy

Linda Wallace
Virginia Tech
wallacel@vt.edu

Merrill Warkentin
Mississippi State University
m.warkentin@msstate.edu

Izak Benbasat
University of British Columbia
izak.benbasat@sauder.ubc.ca

Abstract

Facebook and other social network sites (SNSs) provide over one billion users with affordances not realized in traditional interpersonal interactions. With a single online post (a comment, a picture, a "like," a tag, a status update, etc.), SNS users across the planet can instantly share personal information with their entire network of friends. Some of these posts stimulate feelings of envy on the part of the reader, though the envious feelings (and the reactions to envy) may be different than those felt by individuals who learn of enviable news through traditional ("real world") interactions. Under certain conditions, envious feelings experienced while visiting a SNS have been shown to be linked to depression and a lower sense of well-being. Our research reviews relevant literature on envy and social media affordances and builds a theory which relates the impact of SNS affordances to envious feelings. We present propositions to guide future research efforts that may seek to investigate the direct causes, moderators, and dispositional and situational factors that lead to feelings of SNS envy and its outcomes[1].

1. Introduction

Envy occurs when "a person lacks another's superior quality, achievement, or possession and either desires it or wishes that the other lacked it" [33, p. 908]. Envy results from upward social comparisons that occur when people compare themselves to someone else and conclude that the other person has an advantage over them [12, 25, 35]. Research suggests that envy is most relevant in domains that are self-relevant to the envier [36]. For example, some common items that are likely to be envied include travel, relationships, monetary or job success,

appearance, etc. [23]. Social network sites (SNSs), such as Facebook, contain an abundance of the characteristics that are necessary for envy to emerge: superiority of a similar comparison target in a domain that is relevant to oneself [23].

Envy is not always a negative emotion. Benign envy can result in a positive (adaptive) response of taking "moving up" actions in an attempt to reach the status of the envied [47]. However, malicious envy is associated with frustration and a desire for the envied parties to suffer. Recent research has shown that malicious envy is a major contributor to the "dark side" of SNSs. For example, social information consumption on SNSs has been associated with unintended feelings of envy, which are then negatively linked to cognitive and affective well-being [23]. Malicious envy and social comparisons have also been linked to depression, although a causal relationship has yet to be clearly established [2]. Researchers have only just begun to investigate and understand the importance of envy to the dark side of SNSs and there is much we can still learn in terms of how to manage and protect SNS users from the negative outcomes that are being identified. This current research will focus exclusively on the negative (i.e., malicious) aspects of envy and the role it plays in the dark side of SNSs. For the purposes of this paper we will use Facebook as the primary example of a SNS so that we may provide a relevant set of examples of SNS affordances within the limited amount of space allowed.

It is not clear in prior literature how the affordances (i.e., the possibilities for action) of SNSs influence (1) the formation of malicious envy and/or (2) responses to malicious envy. For example, although the literature suggests that a person is more likely to feel envy towards distant strangers, the lines between close friends and distant strangers is blurred in an SNS environment. SNS's provide a user with more information about distant strangers than they would normally have access to in real life. Perhaps this easy access to information affects who we envy and the line between distant strangers and close friends becomes blurred.

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[1] Empirical issues are beyond the current scope of this research as we are taking a soft-systems approach to theory building instead. Future research efforts should consider various ways to test the propositions developed as a result of the efforts outlined here.

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Furthermore, the instantaneous, interactive nature of an SNS may alter the way that individuals respond to envy. Facebook provides an avenue (i.e., affordances) for immediate responses to posts that are viewed. Users may be less likely to censor and temper their responses to envy in an SNS environment as they are likely to in a real-world situation. Such an environment may foster immediate, active responses through which either positive or negative comments (or other reactions, such as "likes" etc.) could be made to the person who elicited the envious feelings or to others. It could also involve making comments in an attempt to build oneself up in order to compensate for the feelings of inferiority produced by the envy.

In any case, the SNS affordances which can both increase the likelihood of provoking malicious envious emotions as well as the affordances which may influence the actions taken in response to feelings of envy have yet to be studied and our research will investigate these related phenomena by systematically examining the extant literature on envy and SNS affordances in order to introduce propositions which can guide future research. The next four sections review key literature on envy, SNSs, and affordances to assess what researchers have already discovered in these areas. We then extend this prior work in section 6 by introducing propositions that suggest how what we already know about these phenomena from the existing literature can be extended into propositions that need to be investigated by future research. We conclude in section 7 with a discussion of the need for further research and of our continuing research efforts.

2. Envy

There is consensus among scholars that [malicious] envy is a negative emotional response to a sense of inferiority brought about by an unfavorable upward social comparison [e.g., 32, 33, 38, 40]. When an upward social comparison occurs, it may bring to light a persons' inadequacy [40]. Prior works have shown that envious emotions often result when the envied makes the envier aware (either intentionally or accidentally) of their inferior qualities [33, 41]. As such, this leads us to our first observation[2] regarding envy: *Envy often occurs when there is an unfavorable upward social comparison*

However, an unfavorable upward social comparison does not always produce envy [40]. In fact, there are situations in which a person may believe that another person is superior to him/herself, but the

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[2] Note: the "observations" presented in this section have been consistently been shown to be true in the envy literature; they are not based on empirical data that the authors have gathered.

result is a positive emotional feeling of admiration instead of a negative emotional feeing of envy [39, 47]. Much research has been conducted to identify and investigate the factors which can determine whether a positive or negative response is elicited when faced with an unfavorable upward social comparison.

Consistently, research has found that feelings of envy are more common when an unfavorable upward social comparison is made with someone is who is similar in terms of gender, age, and social class [16, 36, 37]. In other words, we tend to envy those that are similar to us. The degree of similarity influences the intensity of the resultant envy [40]. This leads to our second observation: *Envy often occurs when there is an unfavorable upward social comparison with a similar target of comparison.*

Envy has also been shown to be related to feelings of closeness. This means that individuals are more likely to envy strangers than closer acquaintances [34]. Although this is a similar concept to the one posited above in Statement 2, it is different in that people who are similar to oneself are not necessary one's closest friends. A person may be close friends with individuals who are not really similar to oneself and a person may know lots of people who are similar to him/herself (e.g., through works, organizational memberships, etc.) that s/he is not close friends with. The degree of closeness influences the intensity of the resultant envy. This leads to the third observation: *Envy often occurs when there is an unfavorable upward social comparison with a stranger or distant acquaintance.*

Research also indicates that feelings of envy are typically reserved for domains that are self-relevant to the envier [36]. The domain of relevance can vary from one person to another, driven by what someone values or desires. For example, one person might have strong envious feelings when they find out that someone has bought a new vehicle, where another person might not experience envy in relation to a car purchase, but would experience envy if they hear about someone's new relationship status. Some common items that are likely to be envied include travel, relationships, monetary or job success, and appearance [23]. The degree of domain relevance influences the intensity of the resultant envy. These results lead us to our fourth observation: *Envy often occurs when there is an unfavorable upward social comparison in a domain relevant to oneself.*

Another factor that seemingly has an influence over the extent to which envy might result from an upward social comparison is whether the person making the social comparison feels that the other person's advantage is unattainable. If the potential envier perceives that s/he has a high level of control over the

ability to achieve a similar advantage, then s/he is less likely to experience envy [25, 40, 44, 46, 48]. This leads us to our fifth observation: *Envy often occurs when there is an unfavorable upward social comparison and the envier feels that they do not have control over improving their own situation.*

Envy is also seemingly related to subjective feelings of injustice [35, 39, 41]. Envy occurs when there is an upward social comparison and the envied person's advantage is perceived as undeserved [40, 48]. As Heider [18] suggests, envy often arises when a person observes a similar person who has an advantage and feels a sense of injustice resulting from the belief that similar people ought to have similar outcomes. Thus, the other person's advantage will affect the disadvantaged person's subjective perceptions of justice, resulting in feelings of envy [40, 41]. This leads to our final observation regarding envy. *Envy occurs when there is an unfavorable upward social comparison and the envier has a perception of injustice regarding the advantage possessed by the envied individual.*

3. Envy and SNSs

This research uses the definition of an SNS as set forth by boyd and Ellison: SNSs are "web based services that allow individuals to (1) construct a public or semi-public profile within a bounded system, (2) articulate a list of other users with whom they share a connection, and (3) view and traverse their list of connections and those made by others within the system" [5, p.211]. SNSs are unique because they allow individuals to easily meet strangers and they make it possible for users to make their social networks visible and to communicate easily with people who are a part of their extended social network [5]. SNS use has increased significantly in recent years [20]. In fact, the Pew Internet Project [8] reports that as of November 2016, more than half of online adults (56%) use the 5 most popular SNSs: Facebook, Twitter, Pinterest, Instagram or LinkedIn. Facebook counts more than 1.32 billion active daily users as of June 2017 [10].

One of the main capabilities provided by a SNS is the ability to find and access digital content [20]. As a result, an enormous amount of information is available to users of SNSs for social comparison, as compared to real-life environments. This wealth of information creates an extraordinarily fertile ground for the cultivation of envy [2]. This situation is enhanced even more by the fact that people are generally more motivated to share the positive aspects of their personal lives online than their negative life events [9, 19, 26, 51], thus providing an abundance of opportunity for

upward social comparisons. These factors, taken together, increases the probability of unflattering social comparisons, which are the root of envy [2, 3, 40]. There is consistent evidence which shows that Facebook use encourages unfavorable social comparisons and envy [e.g., 1, 2, 22, 23, 50]

We suggest that the observations posited above can be re-stated in such a way to represent the impact that the unique environment of Facebook can have on the likelihood of someone experiencing envy. In order to do this, however, we must first look at the affordances provided by SNS's and/or Facebook.

4. Affordances

The concept of affordances originated from work by Gibson [15] and was originally applied to ecological psychology, but has grown in popularity as a way to study the interaction of humans and technology [e.g., 6, 7, 17, 24, 29, 31]. Affordance theory suggests that affordances are "properties of the animal-environment system that determine what can be done" [42, p. 124]. They are possibilities for action, rather than the action itself [6]. Affordances are neither a property of the environment (i.e., the technology), nor of the agent (i.e., the person), but rather a function of the relationship between the two [14]. Technology affordance and constraint theory (TACT) has been introduced as a way to better understand technology use [29]. A technology affordance represents the potential for action on the part of an organization or individual who has a particular goal and uses a technology or information system, whereas a constraint refers to how an individual or organization can be held back from accomplishing a goal when using technology or a system [29]. Taking a relational, symbiotic perspective of technology and humans is helpful because it can help us understand how the actions that one individual with particular capabilities can take with a technology can be different from those of another individual using the same technology [29].

Affordance theory can be used to examine the potential actions that technologies with certain features afford the people who use them [29]. Affordances are the possibilities for goal-orientation action offered by technologies [30] and affordances must be considered as they relate to the goals of the person who enacts them. Our current research is concerned with how an SNS increases or decreases the likelihood of envy as well as how the users of an SNS utilize the features of the SNS to cope with their feelings of envy (e.g., the SNS user's reaction in the face of envy). Discussing envy within the framework of affordance theory

enables us to go beyond simply focusing on the technological features available within an SNS and, instead, have a richer discussion of how SNSs may affect a user's likelihood of experiencing envy as well as how SNSs enable users to act on their envious feelings [49]. This permits us to focus on actions that were not previously possible without the technology [27] and to compare the reactions of SNS enviers versus real-life enviers. The next section reviews prior work on affordances of SNSs.

5. Affordances and SNSs

Several researchers have previously identified affordances provided by SNSs such as Facebook. For example, Treem and Leonardi [45] reviewed literature for any studies that mentioned "social media," "Web 2.0," "enterprise 2.0," or "social software" and then used an inductive coding scheme to identify four categories of affordances (i.e., visibility, persistence, association, and editability) for social media use. There have been several other studies to examine the affordances available via social media.

Though many of the prior studies focused on organizational use of social technology, these insights inform our identification of those affordances which are relevant for the personal use of SNSs and which may comprise important dimensions of SNSs in the context of envy formation. Building on prior literature which has investigated envy formation in traditional and online environments, as well as on the prior work on affordances and social media, we identified six SNS affordances which may affect the development of SNSs envy. Table 1 presents the six affordances, along with a brief description of each and a brief explanation of how each is relevant to envy formation. The second column of Table 1 also shows how each of the six affordances are grounded in the prior social media affordance literature. The final column in Table 1 lists some of the specific features of Facebook which make the affordance possible. For the purposes of this research we use Facebook as the primary example of a SNS so that we may provide a relevant set of examples of SNS affordances within the limited amount of space allowed.

6. SNS/Facebook Envy Propositions

In this section, we expand on the six key observations that were drawn from the envy literature regarding what we know about envy and its occurrence. Then, for each observation, we introduce propositions regarding the impact of an SNS/Facebook environment (and its affordances) as it relates to the

same aspect of envy. These propositions were derived by looking at each of the six key observations regarding the factors that produce envy and then identifying the affordances that would enable these factors.

The first key observation was: Envy often occurs when there is an unfavorable upward social comparison. This observation suggests the context of SNS/Facebook will lead to a higher likelihood of envy than in the real world because SNS/Facebook functionalities (affordances) allow one to access a larger amount of information than is possible in the real world, thus increasing the likelihood of an unfavorable upward social comparison. We identified 4 affordances from Table 1 that increase the quantity of information available to a SNS/Facebook user. The resulting propositions are stated below:

Proposition 1: The increased use of the "documenting" affordance will lead to a higher likelihood of envy than in the real world by virtue of allowing for a SNS/Facebook user to make a greater number of social comparisons.

Proposition 2: The increased use of the "archiving" affordance will lead to a higher likelihood of envy than in the real world by virtue of allowing for a SNS/Facebook user to make a greater number of social comparisons.

Proposition 3: The increased use of the "connecting" affordance will lead to a higher likelihood of envy than in the real world by virtue of allowing for a SNS/Facebook user to make a greater number of social comparisons.

Proposition 4: The increased use of the "broadcasting" affordance will lead to a higher likelihood of envy than in the real world by virtue of allowing for a SNS/Facebook user to make a greater number of social comparisons.

The second general observation from the envy literature was: Envy often occurs when there is an unfavorable upward social comparison with a similar target of comparison. This statement suggests that the context of SNS/Facebook will lead to a higher likelihood of envy than in the real world because SNS/Facebook functionalities (affordances) easily enable one to find and interact with those who are similar to oneself. Prior research has established that heavy Facebook users are likely to have more friends than light users and this leads to higher levels of envy [43]. The "connecting" affordance of SNSs/Facebook increases the likelihood that the user will connect to users similar to oneself, leading to our 5th proposition:

Proposition 5: The increased use of the "connecting" affordance will lead to a higher likelihood of envy than in the real world by virtue of

allowing for a SNS/Facebook user to make social comparisons with a greater number of similar people.

The third general observation from the envy literature was: Envy often occurs when there is an unfavorable upward social comparison with a stranger or distant acquaintance. This statement suggests that the context of SNS/Facebook will lead to a higher likelihood of envy than in the real world because the "connecting" affordance of SNS/Facebook easily enables one to perform social comparisons with strangers or distant acquaintances. This leads to our 6th proposition:

Proposition 6: The increased use of the "connecting" affordance will lead to a lower likelihood of envy than in the real world because it can make distant strangers seem like close friends.

The fourth general observation from the envy literature was: Envy often occurs when there is an unfavorable upward social comparison in a domain relevant to oneself. The context of SNS/Facebook would appear to lead to a higher likelihood of envy than in the real world because SNS/Facebook functionalities (affordances) enable one to encounter more situations in domains relevant to oneself. There are 4 affordances in Table 1 which increase the quantity of information available to users, thereby increasing the likelihood that a SNS/Facebook user will encounter information in a domain relevant to his/herself.

Proposition 7: The increased use of the "documenting" affordance will lead to a higher likelihood of envy than in the real world by virtue of allowing for an SNS user to make a greater number of social comparisons in domains that are relevant to him/herself.

Proposition 8: The increased use of the "archiving" affordance will lead to a higher likelihood of envy than in the real world by virtue of allowing for an SNS user to make a greater number of social comparisons in domains that are relevant to him/herself.

Proposition 9: The increased use of the "connecting" affordance will lead to a higher likelihood of envy than in the real world by virtue of allowing for an SNS user to make a greater number of social comparisons in domains that are relevant to him/herself.

Proposition 10: The increased use of the "broadcasting" affordance will lead to a higher likelihood of envy than in the real world by virtue of allowing for an SNS user to make a greater number of social comparisons in domains that are relevant to him/herself.

The fifth observation from the envy literature was: Envy often occurs when there is an unfavorable upward social comparison and the envier feels that

they do not have control over improving their own situation. This observation addresses the issue of perceived control, which has not been studied as it relates to SNS/Facebook use. As such, we do not believe that any of the affordances identified in prior research and shown in Table 1 will affect the perceptions of control that SNS/Facebook users have over improving their situation. This leads to our 11th proposition:

Proposition 11: The context of SNS/Facebook will lead to no difference in the likelihood of (malicious) envy than in the real world because SNS/Facebook functionalities (affordances) should not affect perceived control.

Finally, the last observation from the envy literature was: Envy occurs when there is an unfavorable upward social comparison and the envier has a perception of injustice regarding the advantage possessed by the envied individual. Though we do not believe that any of the affordances shown in Table 1 will affect perceptions of injustice regarding an envied person, it is possible that other affordances in various SNSs may contribute to perceptions of injustice. However, with no specific evidence, we suggest our 12th and final proposition:

Proposition 12: The context of SNS/Facebook will lead to no difference in the likelihood of envy than in the real world because SNS/Facebook functionalities (affordances) should not affect perceptions of injustice.

7. Continuing Research

The primary contribution of the present paper is the succinct review and summary of the extant literature on envy – specifically on the formation of envy – as well as the synthesis of the existing literature on SNS affordances in order to develop detailed propositions which join the two domains together. We seek to answer the research question: How do the affordances provided by SNS promote, foster, or enable the formation of envy, especially malicious envy? This work forms the foundation for extending the propositions in order to address the issues of how SNS/Facebook affordances allow users to react to or cope with envy in ways that are different from the outlets or environments provided by real-life situations. Both of these environments afford an individual the opportunity to express a reaction to malicious envy immediately or after careful contemplation, though the SNS context enables (1) more impulsive reactions, (2) reactions that can be seen by many more people, and (3) reactions that have more (archived) permanence. We seek to answer the research question: How do the affordances provided by SNS enable the reactions to and coping with malicious envy formed while using

SNSs? We have already conducted a qualitative study of potential reactions to envious emotions elicited through Facebook that we will incorporate in future versions of our manuscript. We will also expand our propositions to include the impact of affordances on the downstream individual outcome of SNS envy. We call for greater exploration of the role of SNS affordances in promoting the expression of malicious envy online and also in fostering the use of various coping strategies on the part of the SNS user who feels malicious envy.

Our project also encompasses the development of a more comprehensive model of SNS envy that incorporates other constructs which have been previously shown to be relevant in studies of envy, such as disposition to envy, social comparison orientation, self-esteem, neuroticism, etc. A draft model of the broader nomological net is shown in Figure 1. Our project will provide prescriptions for future research that can provide direction and a path forward for researchers who are interested in pursuing the study of envy and SNSs.

Table 1 - SNS affordances relevant for envy formation[3]

Affordance	Reference	Description	Relevance to envy formation	Facebook features [4]
Documenting	Visibility/ Digital Profile [45] [13] [21]	Making information about oneself (photos, status, etc.) available for others to view.	Allows for a large quantity of information about SNS users to become available to other users for social comparison.	"News feed", posts, post type (e.g., text, photos, videos, links), post length, "status updates", "about me", "interests", "locations", "checking in" "live streaming"
Editing	Editability [45]	Spending time and effort revising information before sharing it on the network.	Allows users to edit their profiles and other information to appear as attractive and appealing as possible before posting.	"Edit", "hide", "remove", "Untag", audience control features (friends, public, custom).
Archiving	Persistence/ Search and Privacy/ Reviewability [45] [13] [4] [21] [11]	Information shared on the SNS is accessible long after the original communication took place.	Enables access to a large quantity of information available online to search through, thereby increasing the material available for upward social comparison, which may increase the likelihood of envy formation.	"search", profiles indexed by search engines, display of past activity of individuals
Connecting	Relational ties /Connectivity/ Network transparency/ Association [21, 13] [45]	Viewing information about individuals on the network through a direct connection or a common node.	Allows for connections that can make strangers seem like close friends due to the constant stream of information about their life and activities. Allows for connections with others who are similar to oneself.	"friends", "mutual friends", "groups", "tagging", "events", "marketplace", "people you may know". Functionality to search for users from the same school, university, or with similar interests or by traversing through contact lists; friend lists.
Broadcasting	Scalability/ Replicability [4]	SNS content is disbursed to a large number of people	Allows SNS content to be viewed by large numbers of people, possibly even more people than the user intended.	"sharing", "news feed", "ticker"
Interacting	Metavoicing/ Social feedback/ Network-informed associating/ Recombinability [28, 13, 11].	Reacting to information shared by others through comments, emojis, etc.	Allows SNS users to contact and interact with large numbers of other members on the SNS.	"comments", "like", "emoji", "messaging", "notifications"

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[3] It has been suggested that affordances should be worded as action verbs [25], so we followed this guideline in our development of the relevant affordances.
[4] From [23] H. Krasnova, T. Widjaja, P. Buxmann, H. Wenninger and I. Benbasat, "Why following friends can hurt you: an exploratory investigation of the effects of envy on social networking sites among college-age users", Information Systems Research, 26 (2015), pp. 585-605. and [45]
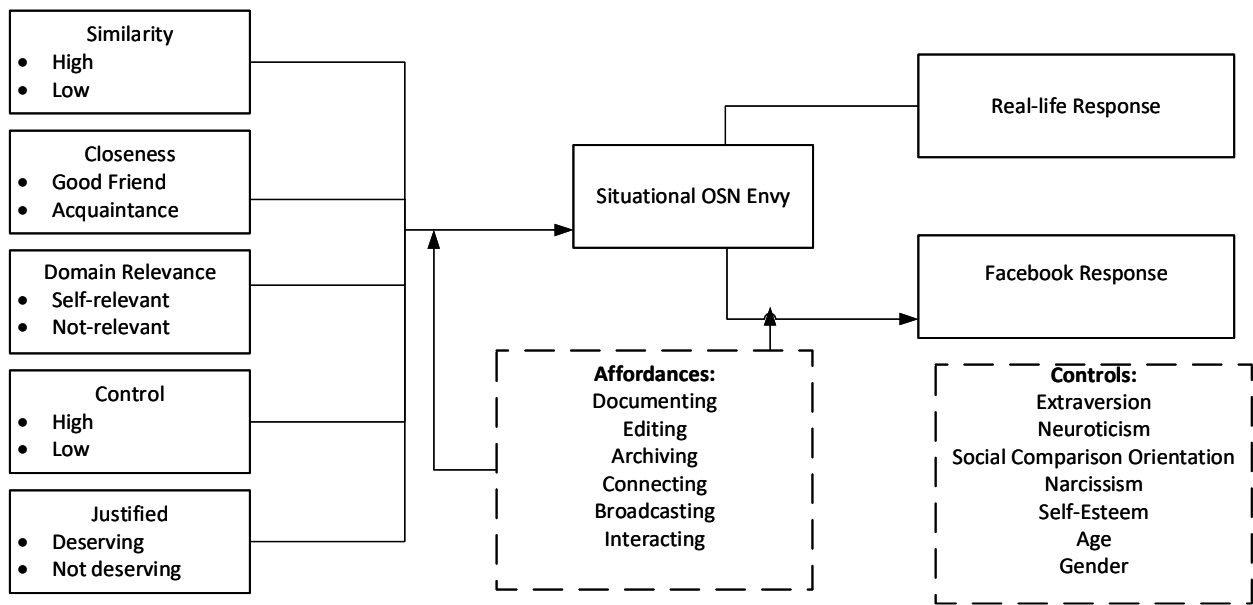
Figure 1: Research Model

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