

Disclosure and Use of Privacy Settings in FacebookTM Profiles: Evaluating the Impact of Media Context and Gender

Amanda Nosko, Eileen Wood, Lucia Zivcakova, Seija Molema, Domenica De Pasquale, Karin Archer

Department of Psychology, Wilfrid Laurier University, Waterloo, Canada

Email: amandaenosko@gmail.com

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ABSTRACT

The present study examined disclosure and use of privacy settings in online social networking profiles as a function of the media context (*i.e.*, online versus hard copy (paper-and-pencil) FacebookTM profiles). Gender was also examined. Overall, participants disclosed more information when constructing a profile for another person when using a hard copy paper-and-pencil format than an online context. Gender differences were not uniform across media contexts, however, in contrast to traditional disclosure theory, females censored their disclosures more so than males but only for some topics. Only 20% of the sample increased their use of privacy settings. Consistent with patterns of disclosure, descriptive comparison suggests that more settings were employed in the paper-and-pencil than online context and more privacy settings were employed by females.

Keywords: FacebookTM; Social Communication; Social Networking; Disclosure; Privacy Settings; Media Context; Gender

1. Introduction

Throughout history, technological advancements have changed the nature of social communication. Before the age of the telephone, people corresponded either face-to-face, or through written letters. This limited the number of people who could be contacted as well as the time taken for information to be shared. With the advent of the telephone, people were able to communicate across long distances, and could exchange verbal messages virtually instantly. Over the last few decades, with the introduction of the Internet, social communication has experienced another transformation. Email, instant messaging (IM, MSN) and, most recently, online social networking sites such as FacebookTM have become quick, easy and desirable modes for communicating with close friends and strangers alike. Although a great deal of information is known about how people choose to disclose information and how they handle personal privacy in traditional media contexts (*e.g.*, letter writing/print, face-to-face), less is known about how online media formats impact on disclosure and privacy decisions. The goal of the present study was to examine differences in disclosure of personal information and use of privacy settings when individuals created FacebookTM profiles for another person using an online media format or a hard copy (*i.e.*, print) version.

2. Disclosure

The context in which information is shared has an impact on levels of disclosure [1-4]. The general consensus is that online media, when compared to more traditional media, tend to encourage higher levels of disclosure [1,3,5], although, as time goes on these differences tend to dissipate [6]. It may be that initial disclosure is greater as a result of the perceived psychological distance fostered by features of the online context (*e.g.*, accessibility and a synchronicity of communication or a lag time in between messages). As a result, online users may be more relaxed, more likely to “open up” and may even feel less restrained [7]. These features may encourage users to disclose intimate details without worry of exposure [8,9], and, as a result, there is the possibility of over-disclosure of personal information online which can place an individual at risk [10]. Therefore, examination of what information is disclosed and the protective mechanisms, such as use of privacy settings, used to safeguard disclosed information is warranted. In order to better understand how online contexts function relative to other contexts, it is also important to compare disclosure in online contexts to more traditional media contexts. Comparison of information presented in both traditional (*i.e.*, paper-and-pencil) and more recent media formats (*i.e.*, social networking sites) informs and extends exist-

ing theories of both offline and online communication.

2.1. Gender Differences in Disclosure

A large body of research has examined how males and females differ in terms of self-disclosure. Overall, in traditional offline contexts, females disclose more information about themselves than males [11]. While fewer studies exist that examine gender differences in disclosure in an online context, available research reports have yielded mixed findings regarding differences in the amount or detail of information disclosed between males and females [12-14]. Given the impact of gender in traditional contexts, gender was also examined in the present study.

3. Gender Differences in Privacy Attitudes and Behaviors

Robust gender differences have been found regarding attitudes and behaviors related to online privacy [15-19]. When compared to males, females perceived greater privacy risks when online, reported higher levels of privacy concern, were more concerned about instituting laws aimed at protecting privacy online, were more likely to review and control available privacy settings online and were more likely to provide aliases on web-pages [18,19]. In addition, in a social networking setting, females engaged in various privacy protection behaviors more often than males, including greater discretion when posting and un-tagging photos, accepting friends and joining groups [20]. Gender then, appears to be an important factor in understanding what information is disclosed and what behaviors are executed to secure the privacy of disclosed information in online contexts.

4. Disclosure and Privacy Risks Online

The threat of information invasion or misuse (e.g., identity theft, stalking) is ever-present online, and as such, concern over over-disclosure is growing [21-24]. While concern is growing, there is a strong disconnect between concerns expressed over online privacy and corresponding behaviors enacted to protect information online, with the large majority of users failing to employ available protective mechanisms [12,25]. Therefore, the current study examined disclosure within three risk categories [10] in order to assess the degree of potentially harmful information divulged as a function of both context and gender. These categories included information that may be used to steal one's identity, information that may threaten personal security, and, information that may be used to stigmatize or label according to group membership.

5. Summary of the Present Study

In the present study, the impact of media format on us-

ers' decisions to share information in social networking profiles was examined. Specifically, comparisons were made between online and hard copy (paper-and-pencil) formats. The current study also examined the impact of gender both as a function of the person constructing the online profile and the gender of the person for whom the profile was being constructed. That is, participants were asked to construct an online Facebook™ profile for either a male or a female target. Given previous research identifying gender as a key concern, gender of the participant (male, female) and the target person gender (*i.e.*, whether the profile participants created was for a male or female) were considered. In order to ensure a degree of control and consistency over the amount and type of information that could be disclosed, participants were provided with a full dossier about the male and female targets that differed only in the gender, name (Michael versus Sarah) and the individual depicted in the male and female target photos¹.

5.1. Hypotheses

- 1) It was anticipated that the online condition would generate higher levels of disclosure than the hardcopy, paper-and-pencil format;
- 2) Overall, it was expected that females would disclose more information and employ more privacy settings than would males;
- 3) An interaction was expected such that females would disclose more information than males when using the hardcopy, paper-and-pencil format than in the online context, however, no gender differences in disclosure were expected for the online condition;
- 4) It was expected that there would be less disclosure and more privacy settings employed for female targets than for male targets;
- 5) It was expected that female participants would disclose less and employ more privacy settings in particular for female targets than for male targets.

6. Method

6.1. Participants

In total, 236 (100 males with $M_{agemale} = 18.74$ years and 136 females with $M_{agefemale} = 18.40$ years) first-year undergraduate psychology students attending a mid-sized Canadian University voluntarily participated for course credit (ages ranged from 17 to 27 years; $M_{age} = 18.55$, $SD = 1.16$). Most participants ($n = 227$) indicated that they currently had a Facebook™ account. All participants were treated in accordance with APA ethical guidelines.

Participants were randomly assigned to one of two

¹Independent raters (4 females, 3 males) evaluated the photos based on three criteria: attractiveness, sociability and friendliness. Results indicated that ratings were similar for both sets of photos ($\alpha = 0.89$)

methodology conditions: paper-and-pencil (N = 129) or online (N = 107). In addition, participants were also randomly assigned to either a female or male target for whom they would construct a profile: “Michael” (N = 102) or “Sarah” (N = 134).

6.2. Materials

Materials included portfolios with information about the target person, Facebook™ accounts, privacy settings booklets and scoring schemes.

6.2.1. Facebook™ Target Person Portfolio

All participants used information from a pre-made portfolio that included the personal information of two fictional individuals, Sarah Barnes and Michael Barnes, to create a Facebook™ profile. All information except the first names was identical in the two portfolios. Information included a personal resume, an employment application, a list of the individual’s “25 things about me”, a short “About me” summary and a series of parallel photos (e.g., casual dress photo, formal dress photo, etc.).

6.2.2. Facebook™ Profiles and Accounts: Online Condition

Each participant used the same make and model of computer with Internet access. Prior to the study session, researchers created a series of new email accounts in Hotmail™ which were used to open up new, blank Facebook™ accounts for each participant. All participants used the standard Facebook™ website to construct their profile. A folder was placed on the desktop that contained all the photos that were in the portfolio, so that photos could be uploaded directly into Facebook™ profiles if participants chose to do so.

6.2.3. Facebook™ Profiles: Paper-and-Pencil Condition

Participants in the paper-and-pencil condition were provided with a paper-and-pencil version of a Facebook™ profile. This 27 page booklet consisted of one screenshot of each page available to users online when actually in Facebook™, including the pages that outlined privacy setting options. All of the available drop down tab options and checkbox options were displayed in the screenshots so that participants could simply circle their preferred choice. Participants were also provided with a printed version of the 13 numbered photos identical to the photos included in the online condition. They simply indicated by photo number which, if any, they wished to include in albums or as a profile picture.

6.2.4. Privacy Settings Booklet

Participants were provided with an 8-page privacy settings booklet that outlined all of the privacy and account

settings available to users in Facebook™. All settings were described, alongside a screenshot of the actual settings page as seen online. The explanations of privacy settings provided in the booklet were taken from the Facebook™ website privacy settings page (www.facebook.com).

6.2.5. Scoring Tools

This study used a series of scoring tools established for coding disclosure in Facebook™ profiles [10]. This allowed for assessment of disclosure across three categories of information (personal identity information, sensitive personal information, and stigmatizing information), and disclosure within 8 topic areas including: Personal information, Picture and Album information, Work information, Education information, Age information, Contact information, View information, and Relationship information. The scoring tools assessed information directly available in the portfolios given to participants.

Use of privacy settings was assessed through 25 dichotomously scored items. Each item represented a possible change in privacy settings from the basic default settings available on Facebook™ to a more conservative setting.

7. Procedure

Each participant completed a brief survey to assess age, gender, Facebook™ membership (*i.e.*, whether they currently had an account) and relationship status. Participants completed the profiles individually, seated in a separate cubicle. For those in the online condition, Facebook™ log-in information was provided, including an individual user name and password. Once logged into a blank Facebook™ profile, participants constructed a personal profile for the person whose information they had been given (Michael or Sarah). In the paper-and-pencil condition, participants were provided with a booklet of screenshots that directly corresponded to each screen viewable in Facebook™. They were told to construct a personal profile for the person whose information they had been given (Michael or Sarah). In order to encourage participants to complete the profiles in as natural a way as possible, all participants (*i.e.*, both paper-and-pencil and online) were told in a cover story that the target person for whom they were creating the profile was a real person, that they had volunteered their personal information, and that this person may have the opportunity to view the profile (online condition: online in Facebook™, paper-and-pencil: on paper) once it was completed. All participants were instructed to use as much or as little information as they felt appropriate. Each participant was told that they could find detailed instructions describing the privacy settings on Facebook™ within the privacy settings booklet. Sessions took approximately 75

minutes to complete.

8. Results

Two sets of analyses were conducted. The first set examined disclosure and the second set examined privacy.

8.1. Disclosure

Personal Identity Information, Sensitive Personal Information, and Stigmatizing Information. To address the question of how much information participants disclosed in the three disclosure categories (personal identity information, sensitive personal information, and stigmatizing information), one multivariate analysis of variance, a 2 (Context condition: Paper-and-pencil, Online) \times 2 (Participant gender: Male, Female) \times 2 (Target gender: Male, Female) was conducted.

Results revealed a significant main effect of context for sensitive information ($F(1, 219) = 28.21, p < 0.001$). Contrary to expectation, however, participants who filled out paper-and-pencil profiles disclosed more sensitive information ($M = 3.48, SD = 1.44$) than those who filled out profiles online ($M = 2.51, SD = 1.09$). No other main effects were significant. There was one significant interaction of gender of participant by gender of target for stigmatizing information ($F(1, 219) = 5.73, p = 0.02$). Follow-up independent t-tests revealed that the difference was significant for female targets, ($t(129) = 2.34, p = 0.02$), such that male participants disclosed more stigmatizing information ($M = 7.17, SD = 2.73$) than female participants about the female target (*i.e.*, Sarah Barnes; $M = 6.00, SD = 2.71$).

Disclosure within FacebookTM Content Areas. To address the question of how much information participants disclosed in the eight content areas within FacebookTM (*i.e.*, Personal information, Picture and Album information, Work information, Education information, Age information, Contact information, View information, and Relationship information), one multivariate analysis of variance (MANOVA), a 2 (Context condition: Paper-and-pencil, Online) \times 2 (Participant gender: Male, Female) \times 2 (Target gender: Male, Female), including all 8 variables was conducted.

There were significant main effects of context condition for three of the eight topics: relationship information ($F(1, 216) = 6.86, p = 0.009$), work information ($F(1, 216) = 17.71, p < 0.001$) and contact information ($F(1, 216) = 26.95, p < 0.001$) (See **Table 1**). In all three of these topic areas, disclosure was greater in the paper-and-pencil condition in comparison to the online condition. There were no significant main effects for either gender of the participant or gender of the target (largest $F = 2.95$).

These main effects were qualified by four significant

Table 1. Means for relationship, work and contact information as a function of context.

Content Area	Context Condition	Mean
Relationship Information	Paper-and-Pencil	0.63
	Online	0.55
Work Information	Paper-and-Pencil	0.24
	Online	0.08
Contact Information	Paper-and-Pencil	0.30
	Online	0.11

interactions. The first two interactions involved context condition and gender of the participant for education information ($F(1, 216) = 7.81, p = 0.01$) and personal information ($F(1, 216) = 3.99, p = 0.05$). Follow-up independent t-tests were conducted, one for paper-and-pencil and one for online. For each, gender was entered as the grouping variable, and education and personal information were entered as the dependent variables. In the paper-and-pencil condition, males disclosed more education information than females ($t(127) = 2.36, p = 0.02, M_{male} = 0.63$ and $M_{female} = 0.49$). Similarly, in the online condition, males disclosed more personal information than females ($t(101) = 2.19, p = 0.03, M_{male} = 0.60$ and $M_{female} = 0.48$).

The second set of interactions involved gender of the participant and gender of the target for relationship information ($F(1, 216) = 7.35, p = 0.01$) and view information ($F(1, 216) = 6.38, p = 0.01$). For both interactions, follow-up independent t-tests were conducted, one for males and one for females. For each, gender of the target was entered as the grouping variable, and relationship information was entered as the dependent variable.

Disclosure of relationship information differed by target gender for females only ($t(134) = 2.07, p = 0.04$), such that they disclosed more for male targets ($M_{maletarget} = 0.67$) than for female targets ($M_{femaletarget} = 0.52$). Disclosure of view information differed by gender of participant for female targets only ($t(130) = 2.70, p = 0.008$), such that males disclosed more ($M_{male} = 0.60$) than did females ($M_{female} = 0.38$).

8.2. Privacy Settings Use

Only 20% of the participants across the sample made changes to the default privacy settings. Given these small numbers, only descriptive information could be calculated. A count of those making changes suggested that more privacy settings were employed in the paper-and-pencil condition in comparison to the online condition (39 versus 10 changes, respectively). Generally, females engaged more privacy setting changes than did males (30

versus 19, respectively). Similarly, for target gender, more privacy settings were employed when the target was female than male (33 versus 16, respectively).

9. Discussion

The disclosure of information shared with others and the perceived privacy of that information are identified as important concerns for personal safety, security, and psychological well-being. Overall, the present study found that the media context used to construct online social networking profiles and gender impacted on decisions to disclose information, but did not appear to impact use of privacy settings in any substantial way.

9.1. Disclosure

Contrary to expectations and previous studies [1,3,5], disclosure was greater when participants constructed profiles using hardcopy, paper formats than online formats. This surprising outcome may be an artifact of the design of the present study. In previous research, disclosure was typically assessed for information shared about one's self [26], whereas in the present study participants were asked to make decisions about what information should be disclosed about another, unknown person. The manipulation of requiring participants to construct a profile for an unknown stranger was employed in the present study to ensure equivalency in available information about the target characters, but also to avoid possible ethical concerns that would be present if participants were required to disclose personal information online. It is possible that by requiring someone to decide what personal information should be revealed for another person, the very ethical issues we were trying to avoid for the participants became a focal concern for the participants. That is, participants may have struggled with concerns about the security of information in the online condition particularly because the information was not their own. The paper media context may not have been perceived to be "risky" as the distribution of information would be limited with only the researchers and the individuals for whom the profile was being designed having access to the information, whereas profiles constructed online would be housed in a public domain and could conceivably be accessed by a multitude of others. The salience in risk for the online context may have been particularly evident, especially when considering the implications for another person. The unexpected direction of outcomes suggest that patterns of disclosure especially when online may be different when the information is being shared about someone else, especially a complete stranger, and this interesting issue clearly requires further investigation in future research.

Alternatively, differences across media contexts may

simply reflect a more general cautiousness regarding online disclosure in the current participants. Given that the majority of participants were experienced Facebook™ users, most would be aware of the availability of the information once entered online and this knowledge may have curtailed disclosure. Participants, therefore, may perceive that information "leakage" is greater in an online setting and subsequently greater vigilance may be invoked when disclosing in this context. This interpretation is consistent with the analysis of topic areas information where much less sensitive information was disclosed online than on paper. In addition, greater caution was exhibited by female than male participants.

It is also possible that the nature of the paper-and-pencil condition may have encouraged greater disclosure. Specifically, participants were given full page screenshots in their booklets that were visible in their entirety at all times. In contrast, in the online condition users had to scroll through pull down tabs to access pages making only one page available for view at any given time. Perhaps having all of the potential "pages" presented simultaneously with obvious blank spots easily observable encouraged participants to fill in more information. To better understand the decision-making process in each of the two media contexts, future research might employ talk aloud or interview methods to ask participants to explain their choices as they work through a profile.

Differences in disclosure also emerged as a function of context and gender of participant for two of the eight topic scales: education information and personal information. On paper, males disclosed more education information than females and online, males disclosed more personal information than females. Although in both cases males disclosed more information than females, increased disclosure occurred in different topics in the two media contexts. This inconsistency in disclosure across media contexts was quite puzzling, especially when considering the argument that certain types of information may be seen as more 'unsafe' than others. In the case of education information versus personal information, one might assume that personal information is more "risky" to share online. One possibility is that for some participants, particularly males, online social networking profiles may be viewed as a less explicit way of meeting romantic partners and may even be seen as a less overt dating site. Revealing personal information may have been viewed as an opportunity to share potentially desirable and insightful information about the target person that could potentially be used in future for dating purposes. Indeed, Madden and Lenhart [27] found that relationship seekers often use the Internet as a means for locating potential dating partners and Golub and colleagues [28] found that males were more likely to report that they would consider dating someone online. By ad-

vertising information such as interests, activities and all “about me”, items that were included in the personal information topic scale, it is possible that male participants may have been “putting it out there” for the target and displaying information that another user may be interested in knowing should they be looking for a relationship.

Significant interactions also emerged between gender of the participant and gender of the target for relationship information and view information. Specifically, disclosure of relationship information differed by target gender for females only, such that they disclosed more for male targets than for female targets. Again, this may be recognition that males may be more likely to assert romantic status. Males and females may view relationships differently, such that females may have less permissive attitudes about infidelity and may have an increased need to display this qualifying information, whereas males may view certain interactions as an opportunity to potentially meet new partners [28] and these tendencies may differ by context.

9.2. Privacy Settings

Although it was expected that participants would engage privacy settings, increased use of privacy settings rarely occurred, however, when changes were made, the pattern of changes was consistent with expectations. Specifically, more settings were employed when individuals set up the target person’s Facebook™ account in the paper context than the online context. Again, the nature of the paper-and-pencil booklet may have encouraged greater use of privacy settings. It is possible that users found it overwhelming to find the appropriate setting online, even when a booklet outlining the settings was provided. Checking with the prepared booklet also would require that participants shift between media, which may have made using the text support more cumbersome and less desirable when participants were creating online profiles. Moreover, given that online the settings are oftentimes not obviously laid out or in intuitive places, users may have grown tired of looking for them or decided that it was not worth the effort to locate and employ a particular privacy setting.

Overall, females employed more privacy settings than did males and females employed more settings for a target person of the same gender. Together these findings, albeit only descriptive in nature, support previous research suggesting that females express greater caution and, perhaps, greater sense of social responsibility [29], especially in the case of a stranger’s personal information. Given the relatively large amount of disclosure on paper, it appears as though females are more consistent in their protective behaviors and more inclined to complement their disclosure with use of privacy settings. Given the

lack of theoretical linkages between disclosure and protective behaviors, these findings warrant further examination.

Past research suggests that invoking privacy setting use may be a particularly challenging task [6,30,31] and clearly more than media context is involved in motivating privacy setting use. Further research examining what motivates use of privacy settings is needed.

9.3. Closing Comments

Facebook™, and social networking sites in general, are ubiquitous as social communication tools today. Understanding what impacts users’ decisions to disclose and use privacy settings are important for practical and theoretical development. Knowledge of factors that encourage protective behaviors may help researchers and educators to develop effective programs for instructing users about online media, and the ways in which they can protect their personal information and the information of others when online. Theoretically, expanding our knowledge is important for developing applicable theories of online communication as well as understanding the specific social context of social networking settings. The present study provided evidence that both media format and gender can impact on disclosure decisions.

One key difference in the present study was that participants constructed a profile for another person. While there is great concern surrounding over-disclosure online [21,22,24], the current study highlighted how, contrary to previous research, users chose to censor disclosures about another person more when online as compared to traditional hard copy, paper formats. No known studies have examined decisions regarding disclosure of others in social networking sites, yet sharing information about others is a function common in social communication networks, therefore, the current study offers a first step in extending our understanding of disclosure of others. Research comparing disclosure of information for the self and for others within actual Facebook™ profiles may further contribute to the understanding of disclosure in social networking sites. The present study also demonstrated that privacy setting use was not synchronous with disclosure decisions and that much more work is needed to understand decisions related to privacy in online contexts.

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