



Competent or clueless? Users' knowledge and misconceptions about their online privacy management



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ABSTRACT

In this empirical paper we investigate how much users of Online Social Networks know about their self-disclosures. We conducted standardized interviews in which we asked students in what Facebook profile categories they had disclosed information and to which audience they had made each piece of information visible. Additionally we collected ratings on how confident students were about the correctness of their answers. Subsequently students logged into their Facebook accounts to let us check the correctness of their assumptions. Results show that students knew fairly well if they had disclosed information in a category, but not to which audience it was visible. Furthermore, students had difficulties to accurately judge their own knowledge, indicating a metacognitive deficit with regard to their own privacy management in Online Social Networks.

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1. Introduction

Online Social Networks (OSNs) have become very popular during the last decade, especially amongst adolescents and young adults. Thus, up to 87% of the 14–19 year-old Germans use an OSN (Busemann, 2013), Facebook being the most popular and frequently used platform (Madden et al., 2013; Medienpädagogischer Forschungsverbund Südwest MPFS, 2013). OSNs' popularity can in part be attributed to a variety of beneficial outcomes associated with their usage, such as the establishment and maintenance of one's social capital (Ellison, Steinfield, & Lampe, 2007). Research has thereby shown, that in order to really benefit from OSN-communication, users need to actively disclose information instead of being merely passive recipients (Burke, Marlow, & Lento, 2010). However, the frequent disclosure of personal information in OSNs has been widely criticized as these data can potentially be accessed by large audiences. Accordingly, discussions about adequate privacy controls have resulted in an increase of reported access restrictions. For example, in Germany the number of young people who report to restrict access to their profile has almost doubled since 2009 (MPFS, 2009, 2013). EU-Kids online reported that 43% of the participants assumed to have a private profile, whereas 26% said their profile was public (Livingstone, Haddon, Görzig, &

Ólafsson, 2011). Only three percent declared they actually did not know how public or private their profiles are. However, it is unclear if the remaining majority in contrast *really* knows the accessibility of their profiles or if users also have misperceptions about the extent of their actual knowledge.

This brings up the question of how much OSN-users actually know about their online self-disclosures, namely if they know which *contents* they disclosed and to which *audiences* their contents are accessible (which is determined by the applied privacy settings). Furthermore, it is an unresolved question, if OSN-users have an accurate representation of this knowledge (*metacognitive accuracy*), namely if they can accurately judge the extent of their own disclosure-related knowledge. In the following, we will argue that both knowledge and metacognitive accuracy are relevant for privacy management in OSNs, but are likely to be incomplete at the same time.

1.1. Knowledge about one's self-disclosures

In OSNs, knowledge about one's online self-disclosures is likely to be important for one's future self-disclosing behavior. For example, forgetting what contents have been disclosed and to which audience they are accessible may lead to the invalid inference that one has not actually disclosed that much information in the past – an inference that could influence the overall risk perception when being online.

At the same time, establishing this kind of knowledge is a difficult task for several reasons: First, studies from basic memory

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research show that even in the physical world people have difficulties to remember what information they have disclosed to whom (Gopie & MacLeod, 2009), a finding that could be replicated for online contexts (Pieschl & Moll, submitted for publication). Second, the structure of OSN-communication repeals the natural contingency between content and audience, because users first determine the audience of their posts globally for all upcoming disclosures and later rarely adjust the audience settings for every single piece of information they upload (Strater & Lipford, 2008). This lack of contingency contributes to the difficulty to establish integrative knowledge on what content is accessible to which audience. Third, aside from these rather global dynamics, the most commonly used OSN, Facebook, has introduced further impediments for knowledge establishment, as the privacy control mechanisms are often user-unfriendly in being “so complex (and err on the side of open access) that many users are often not aware of who can see their data” (Gummadi, Krishnamurthy, & Mislove, 2010, p.1). It is therefore little surprising that the actual accessibility of self-disclosed contents rarely matches users’ ideal state of privacy (Liu, Gummadi, Krishnamurthy, & Mislove, 2011; Madejski, Johnson, & Bellovin, 2012).

Interestingly, despite these overt obstacles for knowledge establishment on the one hand, and discrepancies between ideal and actual states of privacy on the other hand, most studies assessing Social Media usage utilize self-reports to infer what OSN-users disclose and what privacy settings they apply (e.g., Livingstone et al., 2011; Madden et al., 2013; MPFS, 2013). These self-reports are hence likely to be biased by a lack of actual knowledge.

To our knowledge only two studies provide empirical evidence that knowledge about one’s own self-disclosing behavior might be more than incomplete in online settings. First, Strater and Lipford (2008) mention single cases of interviewees who had incorrect assumptions about some of their privacy settings, and who furthermore reported to not really remember what content they had uploaded. Second, Junco (2013) installed software on participants’ computers to track their online behavior. Results show a discrepancy between users’ self-reported and actual time spent on Facebook, as well as between their self-reported and actual number of Facebook-logins. These findings are first hints that Facebook-users might have insufficient knowledge about their Facebook-related behavior. However, little is known about users’ knowledge about what specific contents they disclosed and to which audiences these contents are accessible. The first aim of this study is therefore to assess Facebook-users’ knowledge about their online self-disclosures (RQ 1). Two specific research questions follow accordingly:

(RQ 1a) To what extent do young Facebook-users know if they have disclosed information in different profile categories on Facebook (*content correctness*)?

(RQ 1b) To what extent do young Facebook-users know which audiences have access to their profile information on Facebook (*audience correctness*)?

1.2. Metacognitive accuracy

We argued that it is important yet should be difficult to establish knowledge about one’s online self-disclosures (see section above). A follow-up question is, in how far users can represent the state of their disclosure-related knowledge on a metacognitive level. In the following, we will briefly discuss metacognitive concepts and empirical work related to the contents of this article. A broader review of theoretical and empirical work about metacognition is beyond the scope of this paper; especially it is not possible here to discuss competing approaches within metacognition research (see Pieschl, 2009; Veenman, van Hout-Wolters, & Afflerbach, 2006).

The term metacognition encompasses, generally speaking, all cognition about cognition (Flavell, 1979). In other words, people seem to have the ability to treat cognitions themselves as *objects* of a higher-order cognitive process. Metacognition is thereby often discussed and investigated in the context of learning processes. For example, imagine a student who has to learn a list of vocabulary (namely word pairs) – what kinds of processes are relevant to her/his success, say in an upcoming exam? Following Nelson and Narens (1990, 1994), there must at least be two interrelated levels of cognitive processing: The *object-level* contains basic cognitions like memory, knowledge, or learning processes (in our example the object-level may contain a set of already well-learned vocabulary). The *meta-level* is then informed by the object-level about its state (*monitoring*) and thereby builds a model of the object (in our example this model might contain information such as which vocabulary the student knows and which one not). The meta-level can then, based on the present model of the object, modify the object-level (*control*) – the student can, for example, decide how much longer s/he will have to revise, or to which vocabulary to pay more attention.

Two aspects need to be emphasized: First, the metacognitive model of the object-level may be influenced by other sources than the object-level itself, for example by familiarity cues (Metcalfe, Schwartz, & Joaquim, 1993) or task characteristics (Koriat, 1977; Schraw & Roedel, 1994); similarly these processes vary with intra- and interindividual differences such as competence in a specific domain (Kruger & Dunning, 1999) or a more general trait of self-confidence (Kleitman & Stankov, 2007; see also Pallier et al., 2002). As a consequence, the metacognitive model can only correspond *more or less* with the true state of the object-level (instead of perfectly reflecting it), their correspondence indicating the extent of *metacognitive accuracy*. Generally, metacognitive accuracy is measured as the association between the performance on a specific cognitive task (say a vocabulary test) and different judgment measures such as prospective feeling-of-knowing judgments or retrospective confidence judgments about one’s task performance (Hattie, 2013; Nelson & Narens, 1990). For example, the student in our example would display high metacognitive accuracy when s/he is systematically more confident about having correctly translated a word when actually being correct, while being less confident when actually being incorrect.

Second, it needs to be emphasized that the accuracy of the metacognitive model is crucial for the subsequent control of the object and thus for the performance on the task itself (e.g. Pieschl, 2009; Dunning, Griffin, Milojkovic, & Ross, 1990; Pintrich, 2002; Schoenfeld, 1992; Thiede, Anderson, & Theriault, 2003). For example, if and how the student revises the set of vocabulary depends on (a) the actual state of her/his relevant knowledge, for example which vocabulary the student has already learned (object-level) and (b) if the metacognitive model accurately represents this knowledge (meta-level, namely if the student knows which vocabulary s/he knows and which one not). Thus, students who have an inaccurate meta-model might believe to know more than they actually do and as a consequence they might stop revising prematurely (and fail their exam). On the positive side, if people accurately represent relevant aspects of the object-level, they seem to be able to adjust their behavior in a way that makes a beneficial outcome more likely.

We argue that in the context of OSNs metacognitive accuracy could have the potential to compensate for incomplete disclosure-related knowledge: OSNs-users who on a meta-level have an accurate model of their own (probably incomplete) disclosure-related knowledge (object-level; for example regarding what contents they have disclosed and to which audience their contents are accessible) might as a consequence be more likely to optimize their settings or else to pay more attention to their

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