



The promise of audience transparency. Exploring users' perceptions and behaviors towards visualizations of networked audiences on Facebook



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ABSTRACT

The presence of multiple audiences and the collapse of boundaries between them in Facebook make it difficult for users to know and to control who has access to their online contributions. Previous research has shown how visualizations of Facebook friends are useful, but mainly focused on the instrumental goal of controlling access. It is unclear, however, what value users themselves see in visualizations and whether knowledge and/or control are important to them. In this research, these questions were studied by evaluating FreeBu, a semi-automatic and interactive grouping technology that visualizes Facebook friends. The results indicate that audience visualizations are especially perceived useful for grouping and reflection purposes. Moreover, we found how users are attracted to larger groups, those with whom they communicate more, bridges and outliers in their network. The combined findings suggest that awareness is considered at least as important as control. Therefore, a shift from audience control to audience transparency is recommended.

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1. Introduction

Social network sites (SNSs) are widespread and adopted by diverse populations throughout the world. The online media environment increasingly becomes self-evident, and provides for new and open ways in communicating with others. The presence and collapse of audiences in SNSs, however, is also challenging for users (boyd, 2008; Marwick and boyd, 2010; Vitak, 2012). They are often unaware of employers scanning their profiles (Hargittai and Litt, 2013) and underestimate the size of their audience (Bernstein et al., 2013). Service providers, therefore, have invested in options that allow users to better control their personal information flow and audiences (e.g. Google circles, Facebook lists and groups). Audience visualizations have not been integrated in SNSs so far, even though visualizations have been proven useful for users to comprehend their online relationships (Lipford et al., 2008; Egelman et al., 2011; Wang et al., 2011, 2013; Mazzia et al., 2012).

In this research we contribute to the literature by studying the perceptions of users towards audience visualizations and which interface cues draw their attention to specific parts or aspects of audiences. Specifically, FreeBu, a semi-automatic and interactive grouping technology that visualizes Facebook friends is studied from a user perspective. In a first user study, a first version of FreeBu and audience visualization was studied. In a second user study, a second version of FreeBu – with three more audience visualizations – was researched. These visualizations are further described in Section 4.

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Our paper is organized as follows. We begin with outlining the problematic nature of networked audiences in SNSs and provide an overview of the proposed solutions and users' practices. Next, we give an overview of the mixed method research design, and describe the population of study, materials and procedure. In Section 6, the affordances of audience visualizations are discussed as well as how the users perceived and interacted with the different visualizations. Finally, in the discussion, we generalize our findings into recommendations for the further design of audience visualization technology.

2. Theoretical considerations

2.1. Networked audiences

Goffman (1959) described an individual's actions in everyday life as a performance on stage. A performance can be seen as "all activity of a given participant on a given occasion which serves to influence in any way any of the other participants" (p. 26). Goffman (1959) underlined the importance of knowing one's audience when presenting the self. On SNSs users have to imagine their audience, because they are physically absent. Moreover, the audience only becomes visible when others "like" or "comment" on one's performance. Research has indicated that the imagined audience can have a strong influence on behavior, just as the presence of the actual audience (Litt, 2012).

The situation on SNSs, especially, is challenging because of the exacerbation of context collapse and the co-presence of multiple audiences (Vitak, 2012). SNSs, such as Facebook, articulate one's offline network and not just one segment (boyd and Ellison, 2007; Ellison and boyd, 2013). Hence, users have to imagine multiple audiences from diverse contexts. Marwick and boyd (2010) have labeled the type of audiences in SNSs with the term "networked audiences". "(...) The networked audience is unidentified but contains familiar face; is both potentially public and personal" (p. 129).

The collapse of audiences, per se, should not be regarded as a problem. On the contrary, presenting the self towards multiple and diverse audiences can also facilitate the performance of an individual, free from offline constraints in time and space. It is, however, necessary that the imagined audience align with actual audience to adequately define and control the social situation (Litt, 2012).

2.2. Imagined' vs. 'actual' audiences: users' practices and proposed solutions

User studies have indicated how the alignment between the imagined and actual audiences is lacking. Survey data by Lampe et al. (2008) showed how peers and close connections are widely seen as one's audience. Strangers and casual acquaintances were seldom considered. Hargittai and Litt (2013) found that a considerable proportion of users in their sample lack the skills to present themselves optimally when looking for a job, not taking into account future employers as an audience. Bernstein et al. (2013) indicated that "(...) social media users consistently underestimate their audience size for their posts, guessing that their audience is just 27% of its true size." Wang et al. (2011) studied regrets on Facebook after posting content and found that users often do not remember who might see their disclosures.

Service providers have invested in audience management tools. Most noticeable are Google circles and Facebook lists. A user can manually create and edit Facebook friend lists. Facebook also has automatically generated lists, called "Smart Lists". These lists are based on the user's profile matching his friends' profile on work, school, family and city, and can be modified by the user.

Two other empty lists called "close friends" and "acquaintances" are also automatically generated, waiting for the user to fill them. Compared to Facebook's later integration of friend grouping into its platform, Google made the grouping an inherent feature of its platform from its conception. That is, when the user adds a new friend, he or she needs to add this friend into at least one circle. Google+ does not offer its users any automatic grouping features like Facebook smart lists.

Many researchers have criticized the settings of service providers. Jones and O'Neill (2010) asserted that Facebook's effort to group people automatically is inadequate. In their user study, they found the groups were incomplete and did not present the criteria users considered to group their friends. The user study of Johnson et al. (2012) found that Facebook access control models are effective for managing content with strangers (i.e. outsider threat). They also found that many users were concerned about insider threat, defined as "inappropriately sharing content with members of the friend network." However, the tools provided did not protect against insider threats. Mazzia et al. (2012) stated that the existing comprehension tools of Facebook do not align with the mental model of users.

2.3. The promise of audience visualizations

The settings, as described in previous section, are focused on audience control. Researchers, however, have proposed audience visualizations to make users more aware and provide for more informed decisions. Lipford et al. (2008) designed a prototype interface that provided visual feedback on one's audiences and found a 42% improvement in time to complete a task (e.g. answering questions about who gets to see what personal information). To help users in sharing information with different groups on Facebook, Egelman et al. (2011) designed an interface based on Venn diagrams, so users could see which group of friends overlapped. This visualization reduced errors with 55% in comparison to those using the Facebook interface. Mazzia et al. (2012) developed a privacy-policy comprehension tool (PViz) that shows the user the visibility of his/her profile

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