Network dynamics of television use in school classes

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ABSTRACT

Seventy years ago Paul Lazarsfeld and colleagues found empirical evidence for a significant influence of the social context on media effects by interpersonal communication. Subsequently various theories in mass media science incorporated the social context as an independent or dependent variable. However, there is little empirical research that addresses the dynamics of media use within a social context using network analytic methods. This study considers the social context as both an independent and dependent variable in a dynamic network process in order to disentangle social selection and influence processes. Hence, on one hand it tests whether the intensity of TV use and the use of specific TV genres predict the selection of conversation partners in social groups (social selection process). On the other hand it tests if individuals' social context predicts their TV use (social influence process). Here, social context is defined as the conversation structure as well as the media use of all other persons in the social group.

The research design includes a four wave panel survey on interpersonal communication networks and TV use of 707 students (age 13–16) in 29 Swiss school classes. The stochastic actor-based models tested with the program SIENA support the hypothesized selection processes. Conversation partners about TV programs are selected according to the similarity of their TV use. In contrast to this finding, the widely held assumption that individuals are influenced by their social network is not supported. Some inconclusive evidences suggest a possible social influence process on the level of TV intensity but not on the level of specific TV genres. Network-autocorrelation of conversation ties and TV use has therefore primarily be accredited to social selection processes and not social influence. Furthermore, the results show that avid viewers tend to talk more often about TV programs (ego effect), that avid viewers are more likely to be addressed (alter effect), and a general tendency to talk to persons with the same program preference (similarity effect). This challenges the classic idea of a two-step flow of communication in which intensive media users which are well informed would provide information to occasional users which are less conversant with a topic.

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1. Introduction

The use and discussion of mass media are important aspects of social behavior in today's society. People discuss which books might be worth reading, express their music preferences by wearing specific clothes, group together to watch major sport events at home or in public places, and talk about the latest news on politics or celebrities. These examples illustrate how mass media use and effects are embedded in social contexts. But it is not only the mass media that play an important role in social life. The influence is mutual: the social context plays an important role in individuals' media use. Hence, from a dynamic perspective the social context as well as the individual media use can be both an independent and dependent variable. As an example of the first case, a friendship tie may be created, maintained or dissolved because of the similarity

or difference of the media preferences, e.g., taste in music. An example of the second case occurs when a person decides on their media use (e.g., news vs. entertainment, pop vs. classic) on the basis of the preferences of a relevant reference group (e.g., co-workers, or family) or specific individuals (e.g., close friends). It might be possible to integrate oneself into a group by adopting a group's media preferences (e.g., joining a Facebook group) or distinguishing oneself by demonstrating different behavior.

The importance of the social context of mass media use has a long but fragmented research history. The literature review first searches for roots in classic mass communication theories that address the relevance of the social context when analyzing mass media use and media effects. This idea dates back to the 1940s (Lazarsfeld et al., 1968) and is incorporated in some of the most influential approaches in mass communication research. However, a comprehensive theoretical framework combining these various approaches and the different conceptions of the social context is still missing. One reason for this shortcoming is that the social context is seen as either an independent or dependent variable. The

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aim of this contribution is to overcome this limitation both on a theoretical level as well as empirically by including both aspects over time.

For this purpose the plurality of possibly relevant social contexts has to be limited to the most obvious and supposedly most relevant form. Hence, the second part of the literature review focuses on the social context expressed by interpersonal communication about mass media topics. In combination with sociological and psychological approaches, four hypotheses are derived and tested on a dataset of interpersonal communication and TV use of adolescents. More specifically the study tests to what extent individuals' TV use is influenced by topic related conversations within the school class and, on the other hand, to what extent this conversation network is influenced by individuals' TV use. The longitudinal analysis of conversation networks on two important TV genres and TV intensity allow an empirical distinction between social selection and influence processes.

2. The social context of mass media use

The majority of studies on media use, media effects, selection research, media socialization, and appropriation focus on individual audience members. Individual characteristics such as gender, age, education, personality types and changing moods explain differences in use and effects of mass media (Bryant and Zillmann, 2002). Without questioning the relevance of these insights, the present study proposes to also analyze processes of media use in social groups. This approach is not entirely new to the field. Seventy years ago Paul Lazarsfeld and colleagues found empirical evidence that most voters in election campaigns are not influenced by mass media in a direct and causal way. Rather, they proposed a two-step flow of communication – a process in which mass media are (primarily) used by so-called opinion leaders who pass on the information to their social group through interpersonal communication in their social network (Lazarsfeld et al., 1968). This seminal study was an important paradigm shift in mass communication research because it illustrated that the recipients are not isolated individuals. Subsequent to the initial work by Lazarsfeld et al., a number of theoretical and methodological advances emerged ranging from the ego networks (Katz, 1957; Katz and Lazarsfeld, 1964; Merton, 1949) to the analysis of news diffusion and medical practices in complete networks (Coleman et al., 1966).

Beside the hypothesis of a two-step flow of communication, other influential communication theories also take the social context of recipients into account. These include the agenda-setting approach (McCombs and Shaw, 1972), the spiral of silence (Noelle-Neumann, 1973), the knowledge gap hypothesis (Tichenor et al., 1970), and the uses-and-gratifications approach (Herzog, 1971; Katz et al., 1974). While the first two primarily treat interpersonal conversation as a dependent variable which is influenced by mass media, the latter two include the social context as an independent variable to explain media use, and media effects, respectively. Though, only a small proportion of studies on these theories do in fact empirically analyze either individual communication or social networks.

The notion of social context in these and related studies encompass different conceptualizations of "other people" who have an influence on one's behavior or who define the relevant setting for behavior. This includes the relationship to family member and close friends, social groups such as a peer group or co-workers, or a more or less anonymous mass such as the "impersonal influence" of the perception of a somehow abstract public opinion (Mutz, 1998; Rice, 1993). The theories which are discussed in more detail in the subsequent sections (Sections 3–5) are chosen because they elaborate on different rationales to explain the behavior of individual persons in a social group with respect to mass media use.

3. Interpersonal communication as relevant social network for mass media use

From the myriad of possibly relevant social networks (friendship, sympathy, spending time together, etc.) the interpersonal communication network about mass media topics is the one with the most explicit link between the individual behavior of mass media use and the social context. The operationalization of the social context as a network of interpersonal communication is well grounded in mass communication research. For example, the uses-and-gratifications approach distinguishes different gratifications which people receive by using mass media. One of these gratifications is the use of media topics to participate in everyday conversation, which helps people to become integrated in social groups (Merton, 1949, p. 205). This social function of follow-up conversation was labeled and measured in various ways: "communicatory utility" (Palmgreen and Rayburn II, 1979, pp. 162–163), "interpersonal utility" (Levy and Windhal, 1984, pp. 68–69; Palmgreen et al., 1980, p. 169; Wenner, 1982, p. 545), "personal identity and social contact" (Kippax and Murray, 1980, p. 343), "social resource" (Bantz, 1982, p. 359), and "social interactive function" (Bonfadelli, 1999, pp. 163–164; Bonfadelli and Saxer, 1986, p. 56). A long-term study in Germany found that between 1964 and 1985 the overall gratifications attributed to media use declined, but the social integrative function always remained the most frequent named gratifications by the respondents (Kiefer, 1987, p. 149). Recent findings underline the importance of follow-up conversations as a motive for media use. Empirical evidence includes various media types and topics such as daily talk shows (Paus-Haase, 1999), internet chats about soaps and talk shows (Baym, 2000, p. 119; Krotz, 2001) or major sport events such as the football world championship (Schramm and Klimmt, 2003).

Even though there seems to be wide support for the general idea that mass media are used for social purposes, the specific structural dynamics of these processes have not yet been analyzed. Furthermore, the validity of these findings can be questioned because they are all based on questionnaires using rating scale items to measure the importance of different gratifications. This is problematic because recipients might not be fully aware of their motives and gratifications of media use (Scherer and Schlütz, 2002). Facing the difficulties in collecting information on motives of individual behavior to understand the dynamics in social groups, the study reported here uses an alternative approach. Individuals are not asked to verbalize their *motives* why they watch TV and why they talk to others about it. Rather, they are asked to report their *behavior* of TV use and interpersonal communication. This information is then used to reconstruct individual decisions rules (which can be assumed to be rooted in motives). Dynamic social network analysis is proposed both as a theoretical and methodological approach to address the long lasting question of whether and how social networks are influenced by mass media use, as well as the effect of mass media use on the formation of social networks.

Conversations about TV programs can be regarded as one of the most explicit manifestations of social interaction related to TV use. This is in contrast to music preferences which can also be communicated by non-verbal signals such as specific fashion or hairstyles. This project therefore focuses on the dynamics of TV use and TV-related conversations within the social context of interpersonal networks. Based on the idea of a two-step flow of communication and the social function of conversations about mass media topics (uses-and-gratifications) it can be hypothesized that TV use and conversations about TV use are positively correlated.