Selective Exposure: Implications for Information Elaboration in Asynchronous Online Discussions

Emergent Research Forum Papers

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Abstract

Selective exposure is an inhibitor to teaching and learning in an IT-enabled learning environment because in electronic environments, students have greater freedom over what they choose to access and read. This study will use in-class field experiments in order to examine the impact of information presentation and familiarity of the source on the quality of information elaboration through the mediating factor of *selective exposure*. Selective exposure is an individual's tendency to seek confirmatory (as opposed to non-confirmatory) information related to a choice that has been made by the individual. Information elaboration requires attending to the decision-related information, processing that information, and analyzing the information to present a coherent argument related thereto. The integrative quality of information elaboration depends on the extent to which non-confirmatory and confirmatory opinions are attended to, processed, and combined to lead to a decision. This research will contribute to the literature on IT-enabled teaching and learning.

Keywords

Online discussions, selective exposure, information elaboration

Introduction and Theory Development

Web-based discussion forums represent one of the prevailing platforms for sharing and discussing users' opinions. Many societal discussions involve divisive topics (e.g., political views, cultural trends). Similarly, university curricula may foster discussions involving controversial topics (e.g., IT: net neutrality; Health Informatics: nursing students' access to patient information). Effective discussion of controversial topics requires decision-making (on any point in the spectrum of choices) and thereafter providing a rationale for said choice. Creating an effective rationale requires attending to different perspectives, processing diverse and/or opposing views, and synthesizing those views to create a coherent argument which will provide a basis for the proposed choice. Attending to, processing, and synthesizing different ideas is also called elaboration (Dennis 1996; Homan *et al.* 2007). Highly integrative information elaboration thus is defined as elaboration that shows higher levels of integrative complexity (Baker-Brown *et al.* 1992). Integrative complexity is a measure of the individual tendency to consider decision-relevant information from more than one dimension (Suedfeld *et al.* 1992). Therefore, highly integrative information elaborations are expected to lead to the creation of better rationale because they more fully consider different and/or opposing perspectives on the decision at hand (Gruenfeld & Hollingshead 1993). Despite these advantages, fostering elaboration and encouraging individuals to attend to and process both confirmatory and non-confirmatory decision-related information has proven to be a difficult general attainment in face-to-face or online settings (Clay *et al.* 2013) and more specifically as applicable to online settings. Despite the availability and ease of access to diverse perspectives, selective exposure is still a persistent obstacle to effective discussions and decisions (Fischer *et al.* 2008). Because electronic learning management systems are commonly used for sharing and

discussing course-related topics, this research-in-progress manuscript will highlight the role of selective exposure in asynchronous online discussions.

Selective exposure, also referred to as confirmation bias, is the individual's tendency to attend to and process only confirmatory information and ignore non-confirmatory information. Confirmatory information pieces are the information pieces that are consistent with the individual's belief and choices; non-confirmation information pieces are those inconsistent therewith. Selective exposure, selective attention, selective retention, and selective recall impact teaching and learning outcomes (McCroskey *et al.* 2004). Selective exposure is believed to be a stronger force in the electronic world than it is in other media (e.g., television, newspaper, radio). Individuals who seek information in the electronic world have much more freedom in choosing the information to which they expose themselves (Clay *et al.* 2013). Furthermore, ever-increasing intelligence capabilities of electronic platforms and tools lead individuals to sources of information that are more likely to be consistent with an individual's belief system; hence a *filter bubble* effect (Pariser 2011). Similarly, for students in a class, selective exposure happens at a higher rate when students engage in online discussions than when they discuss topics face-to-face in the classroom. Because a learning management system's user interface is the point of access to the shared information in online discussions (Sheppard & Rouff 1994), presentation of the information on the interface plays a key role in alleviating selective exposure (e.g., Faridani *et al.* 2010, Liao & Fu 2014). Prior research studies have investigated the role of user interface features and information presentation on selective exposure. Liao and Fu (2014), for instance, used a position indicator which identified both valence (agree vs. disagree) and magnitude (moderate vs. extreme) of an idea shared on online discussion forums (2014). Also, prior research has shown that source-of-information familiarity influences the cognitive processes in groups (Gruenfeld et al. 1996). The Gruenfeld *et al.* research, for instance, compared groups with different levels of familiarity among members and found that while familiar groups were more effective in information sharing, unfamiliar groups were more effective in information integration (1996). Perceived familiarity of the information, also, affects selective exposure in that selective exposure will be lower when an argument is believed to contains novel information than when it is believed to contain familiar information (Sears & Freedman 1965) Because familiarity has been found to affect information sharing and information integration—two critical processes for creating effective group discussions—this research aims to examine the possible effect of familiarity on selective exposure. Information presentation is the style for arranging confirmatory and non-confirmatory information on screen. In the "mixed" condition, confirmatory and non-confirmatory information are interleaved. In the "dichotomous" condition, confirmatory and non-confirmatory information will be presented on visually separable sections. It is proposed that a mixed information presentation style will discourage selective exposure, because it reduces visibility of confirmatory information (Javadi *et al.* 2013; Santanen *et al.* 2004). Seeking confirmatory information, therefore, will require more perceptive effort than when confirmatory and non-confirmatory information are interleaved. Dichotomous style, however, will encourage selective exposure, because the system has taken a step toward separating confirmatory and non-confirmatory information, which makes selective exposure easier to achieve (Research model depicted in Figure 1).
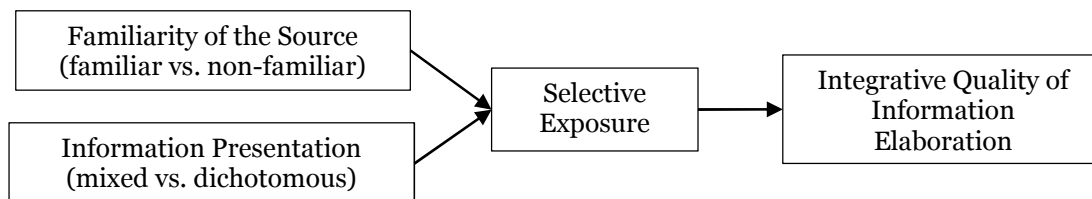
Figure 1: Research Model

Proposition 1: Familiarity of the source will positively influence selective exposure in that non-confirmatory information when presented by a familiar user will be subject to a selective exposure effect with a higher likelihood than when the same information is presented by a non-familiar user.

Proposition 2: The information presentation style will impact selective exposure in that mixed information presentation (interleaved confirmatory and non-confirmatory) will lessen the selective exposure effect when compared to dichotomous information presentation (confirmatory and non-confirmatory information presented on visually separable sections).

Proposition 3: Selective exposure will negatively impact the integrative quality of information elaboration.

Method: Field Experiment Design Based on a Pilot Research Study

Different instructional forms were employed in a series of pilot online discussion experiments with the intent to lead students to compose integrative elaborations. The experiments also employed examination of the influence of familiarity on the inter-student communication. The experimental design that follows takes into account lessons learned therefrom. The Figure 1 research model will be examined through classroom field experimentation (the study will have three different online discussions). Each online discussion will employ a different form of displaying opposing views on the discussion forum. In the first discussion, the ideas on either side of the discussion will be interleaved on the screen (one "for" argument followed by one "against" argument followed by one "for" argument, etc.) In the second and third discussions, two separate sections will represent the two sides of the argument. In the second discussion, all "for" arguments are at the top; all "against" arguments are at the bottom. This arrangement is reversed in the third discussion. To check for effectiveness of dichotomous and mixed information presentation conditions, the pilot experiments will include a manipulation check questionnaire for each experimental conditions. Although prior research has used color labeling (e.g., Faridani *et al.* 2010 in *Opinion Space*), this study's experimental design will refrain from using colors to accommodate needs of students with different color-vision abilities. In addition, the information presentation style could employ invisible objects (hidden user interface components) to create a similar perception of dichotomy between confirmatory and non-confirmatory information for users who are not visually-abled. In a pilot study that was undertaken as part of this project, program membership (e.g., in different nursing graduate programs) was used as a proxy for familiarity. The result of said pilot study (structural block model, constant & variable homophily models for examining the impact of familiarity on inter-student communications) led to using self-reporting measures of familiarity, in addition to any available familiarity proxy that may exists. The familiarity survey will be administered in the first step of the experimental procedure which will be described in the next section.

Decision-Making Task and Procedures

Prior research studies have used a variety of general tasks. In this study, participants will be asked to answer questions related to the course topic. An example would be: "*Does every project need a project manager*?" Implementation of the experimental procedure includes five steps. In the first step, students are asked to make a choice on a 1-5 scale for their preference on a specific topic (1: strongly disagree; 5: strongly agree). The 1-5 preference scale was chosen over a yes/no based on previous recommendations on design of selective exposure studies (Clay *et al.* 2013). Familiarity surveys will be administered in this step. The familiarity questionnaire will ask students to report the extent to which they know their classmates at that point in the semester, using a scale from 1-3 (1: "not familiar"-*I don't know this person and I have not talked/worked with them during the semester or before attending this class;* 3: very familiar- *I know this person and I have talked/worked with them during the semester or before attending this class*). The 1-3 scale is used based on pilot research that shows differentiation among five levels of familiarity (in a 1-5 scale) is not achievable during the course of a semester. In the second step, the students will have a week to compose an initial argument to support their preferences, with the expected length of said argument to be 100 words with an allowable range of 80-120 words. As with the other parameters, this length has been chosen based on pilot testing in current course online discussions. In the third step, students are asked to read their classmates' opinions and are given a chance to revise their preference (on the 1-5 scale). They are also asked to elaborate on what they read and compose an extended analysis that will support their (possibly modified) choices. The expected length of the extended document will be 250 words with an allowable range of 210-290 words. In the fourth step, students are asked to explicitly state their (possibly revised) opinions (on the 1-5 scale). For the fifth step, a post-experimental questionnaire will be presented which will ask for gender, prior familiarity with the

discussion question, and feelings and mood (Shiv & Fedorikhin 1999). Throughout the experiment, discussion group sizes will remain constant and each online discussion will occur over three weeks.

Measuring Selective Exposure and Information Elaboration

Among retrospective measures, behavioral intentions, observed behavior, or aggregate behavioral measures (Clay *et al.* 2013), observed behavior measures are best suited for in-class field experiments. This experiment will measure how many times each student clicks on any specific discussion post (confirmatory or non-confirmatory). The discussion posts are given a title that shows which side of the argument they support. To measure integrative quality of information elaboration, this study uses a modified integrative complexity measure based on the measure developed by Baker-Brown and colleagues (1992). In this study's measurement scale, integrative complexity measurement scores 1-2 are removed and scores 3-7 are mapped to 1-5 to represent different levels of integration. Omission of the first two measurement scores 1-2 is based on the premise that when integrative quality of information elaboration is measured, the focus is on the level of integration rather than whether or not differentiation has occurred.

Summary and Conclusion

Selective exposure, selective attention, selective retention, and selective recall impact teaching and learning outcomes (Dennis 1996; McCroskey *et al.* 2004). Selective exposure is deemed to be a strong force in the plethora of information era where individuals have enhanced autonomy on the information to which they expose themselves. This study pinpoints selective exposure and its implications for effectiveness of a course's online discussion, specifically emphasizes the impact of information presentation and familiarity of the sources on the integrative quality of information elaboration through the mediating effect of selective exposure. Selective exposure impacts the integrative quality of information elaboration in online discussions because the integrating of ideas requires exposure to a diverse set of ideas. Exposure to both confirmatory and non-confirmatory information increases the likelihood of creating a highly integrative rationale for supporting one's choices. This study will contribute to the literature on IT-enabled teaching and learning and will have implications for effective information presentation and instructor-led interventions to counterbalance selective exposure and segmentation among students. The study's proposed theoretical framework is based on findings of prior research studies on selective exposure and information elaboration. In the same manner, the design of the field experiment is based on the pilot research studies currently in use. Uncovering possible relationships among familiarity, information presentation, selective exposure, and information elaboration will provide insight on optimal information presentations and grouping of students in order to alleviate selective exposure and enhance quality of information elaboration in online discussions, hence more effective discussions and learning experiences for students. It will also provide insight on crafting fine-grained instructions for and evaluations of students' participation in online discussions. Research findings will also contribute to the broader body of work in the fields of selective exposure, creative idea integration, and online brainstorming.

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