The Impact of Evaluation Mode and Social Comparison on the Quality of Integrative Ideas in Asynchronous Online Discussions: Theory Development and Field Experiment Design

Elahe Javadi
Illinois State University
ejavadi@ilstu.edu

Abstract

Online course management systems are commonly used for course-related discussions. Effective discussion design should encourage both idea sharing and idea integration. Idea integration is considered the most fruitful phase of the creative process, and is essential for harnessing the collective value of the ideas generated in a group. Integrative ideas, however, are scarce, because idea integration requires extra perceptive and cognitive effort. To integrate ideas, individuals must recognize different dimensions of shared ideas and create logical associations among the differentiated dimensions. In this study, based on Cognitive Evaluation and Social Comparison theories, both a theoretical basis and field experiment design have been proposed for studying the impact of evaluation mode (informational vs. controlling) and social comparison (vs. lack thereof) on the quality of integrative ideas generated in classroom online discussions. The proposed theory and field experiments will inform discussion design and will contribute to literature on brainstorming and creativity.

Keywords

Online discussions, integrative ideas, evaluation mode, social comparison, goal specificity.

Introduction and Theory Development

Online course management systems are commonly used for course-related discussions (Waters & Gasson 2012). Online discussion forums are ideal platforms for generating, sharing, and integrating ideas on course-related topics. This integration of ideas, also referred to as combination or synthesis, is considered the most fruitful phase of the creative process (Osborn 1953). Idea integration occurs when students refer to and use ideas posted by their classmates and provide elaborations, responses, counter-arguments, or alternatives thereto (Javadi et al. 2013; Gruenfeld & Hollingshead 1993; Vreede et al. 2010). Idea integration involves attending to shared ideas, processing those ideas at the individual level, and group discussion of individual-level processing results (Homan et al. 2007). Assuming that no one individual has sufficient information to generate the best idea, idea integration becomes a key to realizing the full value of individually generated ideas (Dennis 1996; Vreede et al. 2010). Fostering idea integration, however, has proven to be challenging in face-to-face or online settings. Specifically in online settings, evidence from research and practice suggests that electronic brainstorming may reflect an illusion of productivity but in reality offers limited benefits in terms of quantity or quality of the ideas generated by individuals (Pinsonneault et al. 1999). In prior literature on brainstorming and online discussions, most experimental studies have addressed an individual’s idea-sharing behavior in electronic settings (e.g., Wasko and Faraj 2005). Little research has been done to examine the extent to which individuals build on ideas shared by others. This proposed study builds upon Cognitive Evaluation and Social Comparison theories.
Theories to develop a model for enhancing idea integration by alleviating evaluation apprehension and social loafing in online discussions.

**Idea Integration**

Idea, in this research study, is defined as a basic element of thought that consists of at least one testable proposition (Simon 1976). Idea integration occurs when an individual refers to the ideas proposed by other individuals (Robert *et al.* 2008) and creates the conceptual connection between those ideas and those of his/her own (Gruenfeld and Hollingshead 1993). Reference may be made to an idea as a whole or to specific dimensions thereto. Idea dimension is defined here as a unique testable proposition (Javadi *et al.* 2013). Thus, an idea is called multi-dimensional if it includes more than one unique testable proposition.

To make a distinction among different levels of idea integration, ranging from mere reference to others’ ideas to completely integrating others’ ideas with those of their own, the current study conceptualizes idea integration construct based on the well-studied concept of integrative complexity in social psychology (Baker-Brown *et al.* 1992; Suedfeld *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). Within groups integration involves generation of new conceptual relationships among different perspectives (Gruenfeld and Hollingshead 1993). Integrative complexity has been identified by two phases of differentiation and integration. Differentiation is the perception of different aspects of a subject, and integration is the recognition of connections among those aspects (Suedfeld *et al.* 1992). Defining idea integration based on integrative complexity allows for flexibility in operationalization of the idea integration construct within groups; to date, empirical studies have focused mainly on the quantity of integration measured by the number of references individuals make to ideas of others (Homan *et al.* 2007; Robert *et al.* 2008). However, since different combinations of the same factual information (testable propositions) may generate different combinative outcomes (Okhuysen and Eisenhardt 2002), measuring quality of idea integration is key to studying the value created by idea integration (Javadi *et al.* 2013).

**Evaluation Mode and Social Comparison**

Existing research on creativity and group brainstorming provides insight into how various facilitation and management techniques affect the processes which underlie creative idea generation and integration. Homan and colleagues (2007), for instance, studied groups in which members possessed diverse information and discovered that fostering pro-diversity beliefs enhanced information elaboration in those groups. In another study, researchers implemented a relay mechanism for improving idea integration. Individuals in a relay method group are organized into subgroups and then engaged in the brainstorming process in a sequential manner; that is, subgroups are instructed to start the ideation process where the previous subgroups ended (Vreede *et al.* 2010). To enhance idea integration in online discussions, this study focuses on two major group creativity hindrances: evaluation apprehension and social loafing.

One major obstacle for productivity in electronic brainstorming is social loafing (Pinsonneault *et al.* 1999). Social loafing is the tendency for individuals to expend less effort when working collectively than when working individually (Karau & Williams 1993). This obstacle can be tackled by using technology that identifies forms of social comparison (Vreede & Dickson 2000). Attention to social comparison information also has proved to be a determining factor to gauge electronic brainstorming (Bearden & Rose 1990). Shepherd and colleagues (1996) examined the impact of social comparison and the saliency of comparison tools on brainstorming performance in electronic settings. In lab experiments, they observed a 63% increase in the number of unique ideas generated in the treatment groups in which a highly salient social comparison tool was utilized. The 63% gain was compared to only a 22% gain for the low salience social comparison treatment group. Dugosh & Paulus (2004) also observed higher productivity—measured by the number of ideas generated—in social comparison treatment groups in which the likelihood of engaging in social comparison was manipulated through instructional sets. In another related study, researchers again found that social comparison positively influenced productivity and creativity (Michinov & Primois 2005). The social comparison tool used in that study was a shared table showing each member’s contributions. In their specific experimental design (Michinov & Primois 2005), the authors allowed communication among brainstormers through a newsgroup feature. The authors
noted that even when brainstormers could publicize their contributions on the newsgroup, the same impact was not realized as having a highly salient shared contribution-tracking table, i.e., social comparison tool. Because idea integration is a specific form of creativity, this study proposes the following:

**Proposition 1:** Social comparison influences quality of integrative ideas in that presence of upward social comparison leads to an increase in the quality of integrative ideas.

**Proposition 2:** Saliency of social comparison mechanism moderates the relationship between social comparison and the quality of integrative ideas in that when the social comparison mechanism is more salient, the influence of social comparison on the quality of integrative ideas will be greater compared to when the social comparison mechanism is less salient.

Evaluation apprehension is another impediment of productivity in group work (Rosenberg 1965). Evaluation apprehension refers to concerns about being evaluated by others. Evaluation apprehension has been found to negatively impact productivity in group brainstorming (Pinsonneault et al. 1999). To alleviate evaluation apprehension in online discussions, informational evaluation mechanisms can be implemented. Also, based on Cognitive Evaluation Theory, individuals are more likely to generate creative ideas when they are intrinsically motivated (Deci & Ryan 1980); intrinsic motivation proves to be higher in experimental groups when individuals expect informational evaluation (Shalley & Perry-Smith 2001). In their research on creativity in the workplace, Shalley & Perry-Smith (2001) compared the effect of informational versus controlling evaluation on individuals’ creativity. They observed a higher level of task creativity and intrinsic motivation in individuals who expected informational rather than a controlling evaluation. Because idea integration, according to previous research, requires recognizing different dimensions of shared ideas and creating conceptual connections among those dimensions, this study proposes that the quality of integrative ideas will improve when individuals in the group are intrinsically motivated and have less concerns about their evaluation, therefore:

**Proposition 3:** Evaluation mode influences the quality of integrative ideas in that expected informational evaluation leads to higher quality of integrative ideas compared to expected controlling evaluation.

In scholarly work on teaching and learning, informational evaluation is called formative assessment. Research studies on formative assessment suggest that goal specificity is a crucial component of formative evaluation methods (Ambrose et al. 2010). Goal specificity will enable deliberate practice, which leads to expert-level performance (Ericsson & Charness 1994). Goal specificity can be achieved by clearly identifying learning goals by which students are expected to excel (here, idea integration); therefore goal specificity provides a focus for student efforts. Goal specificity can be a feature of assignment instructions or can be achieved through providing concrete examples of successful performances. This study proposes that when students expect informational feedback, the quality of integrative ideas will be much higher.
when idea integration has been clearly stated as the ultimate learning goal for online discussions, therefore:

**Proposition 4:** Goal specificity moderates the relationship between evaluation mode and the quality of integrative ideas in that well-specified goals lead to a higher increase in the quality of integrative ideas; and the moderating effect of goal specificity is expected to be greater when informational evaluation is expected compared to when controlling evaluation is expected.

Because this study aims to fill this gap in research by examining the impact of evaluation mode and social comparison on idea integration, unraveling possible interactions between social comparison and evaluation mode is important. This study posits that although social comparison is not equivalent to controlling feedback, it represents a form of controlling evaluation in that an individual’s ideas are compared with those of others; therefore:

**Proposition 5:** There is interaction between social comparison and evaluation mode in that quality of integrative ideas is expected to be highest when informational evaluation is expected and social comparison is not present.

### Empirical Examinations of the Research Model

This study proposes a design sketch for classroom field experiments. The field experiments will have a 2×2×3 design: (controlling vs. informational evaluation mode) × (goal specificity: low/high) × (no social comparison, low saliency social comparison, high saliency social comparison). The manipulations can be applied through use of discussion instructions. The proposed field experiment will have a mixed groups factorial design in that four class sections will participate in the four different combinations of evaluation mode and goal specificity conditions. Each class section then will have four online discussions, one for practice and the other three for the three conditions of social comparison. The mixed groups factorial design then dictates use of particular discussion instructions, goal statements, social comparison tool, and evaluation scheme for the participating class sections.

To manipulate evaluation mode and goal specificity, this study’s proposed field experiment design borrows the instructions created by Shalley & Perry-Smith (2001) in their research study on creativity. For instance, the instructions for the low goal specificity and controlling evaluation will be as follows: “...I expect you to be creative. This is vitally important to the course’s goal, and I expect you to generate creative ideas on this topic. You will be judged on how creative you are by experts in IT Project Management. They are knowledgeable and tough. These experts will critically evaluate your ideas by analyzing every thought you have shared and judging if it is creative or not. I will send you your score so that you know if you performed as you should have. You’ll be sent your score and told how your scores are compared to what I expected. Remember, you should be creative.” The instructions for high goal specificity and informational evaluations are as follows: “...I expect you to be creative. Specifically I expect you to generate integrative ideas by combining your ideas or some parts of them with those of your classmates... Experts in IT Project Management will carefully review your ideas on this topic. I will use the review as part of course planning and development. I will provide you with a copy so that you can learn from the report. The feedback from the evaluators will help you learn something that will be useful beyond this course and beyond the school setting.” To manipulate social comparison this study follows the techniques used in prior literature (Shepherd et al. 2001) on group brainstorming. The treatment group for social comparison will receive a chart showing the quality of ideas created by students in a fictional section of the course. The chart is intended to invoke upward social comparison, thereby illustrating quality of ideas over time with a score consistently above 3 (on a scale of 1-5). The chart saliency will be augmented by use of electronic reminders on the online discussion forum.

To measure quality of idea integration, this study uses a modified integrative complexity measure based on the measure developed by Baker-Brown and colleagues (1992). The integrative complexity measure is a 1-7 scale which would rate comments that show “no conceptual differentiation or integration” as 1; and would rate a comment in which “the nature of the relationship or connectedness between alternatives are clearly delineated and are described in reasonable detail” as 7. 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
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Summary and Conclusion

This study has proposed a research model for fostering idea integration and enhancing quality of integrative ideas in online classroom discussions. The focus on idea integration is based on the premise that idea integration is indispensable for harnessing the value of individually owned ideas (Osborn 1953). One contribution of this research is to directly measure quality (compared to the dominant focus on quantity) of idea integration (compared to the dominant focus on idea sharing) (Michinov & Promeois 2005; Reinig et al. 2007; Zhang and Watts 2008). This study, therefore, aspires to contribute to the discussion of productivity and effectiveness of electronic brainstorming (Pinsonneault et al. 1999) by advancing idea integration as a key productivity measure in electronic brainstorming.

This study’s proposed theoretical framework and empirical design are based on cognitive evaluation theory and social comparison theory. The research model seeks to unravel possible relationships between evaluation mode, social comparison, and the quality of integrative ideas in online discussions. The speed of idea- and knowledge-generation is rapidly surpassing that of idea- and knowledge- integration and use. Thus the current theory and future empirical investigations based thereon will be consequential for systematic study of idea integration and creative idea generation in classroom online discussions and the broader field of brainstorming and creativity.

REFERENCES


