Anonymity-Featured Group Support Systems and Creativity

Esther E. Klein
Hofstra University, USA

INTRODUCTION

Until recently, creativity has been a neglected research topic (Steinberg & Lubart, 1999), although it is a central concern for schools and universities. Steinberg and Lubart have defined creativity as "the ability to produce work that is both novel (i.e., original, unexpected) and appropriate (i.e., useful, adaptive concerning task constraints)" (p. 3). Teachers in classrooms challenge students to generate creative ideas so as to foster independent thinking.

This article aims to investigate normative influence as a barrier to creative idea generation that is present in the classroom and to propose information technology (IT)-based solutions to remove these barriers. Specifically, the article considers the influence of group support systems (GSS) on creativity within the classroom, reviews the pertinent literature, and suggests relationships between the use of GSS and creative idea generation.

BACKGROUND

The Problem of Normative Influence

A disadvantage of working in a small group, such as a classroom, is normative influence. Normative influence, defined by Kaplan and Wilke (2001) as the "influence to conform to the expectations of others" (p. 410), is a considerable barrier to creativity within small groups, including classrooms. Normative influence deters the free expression of ideas by individual group members, such as when the latter are reluctant to propose ideas because of the perception that these ideas run counter to those of higher status members (Tan, Wei, Watson, & Walczuch, 1998) or because of the fear that their contributions will be devalued or rejected when evaluated by others (Klein, 2003; Klein & Dologite, 2000). Idea generation, problem solving, and other interactions in small groups frequently result in the exertion of normative influence by some group members on others. Normative influence hinders the equal participation of all group members, constraining the creativity of lower status, junior, shy, or female members. For example, shy group members are frequently inhibited by other group members (Utz, 2000), thereby participating less in group discussion and thus generating fewer creative ideas along with fewer creative solutions.

In classrooms, from elementary to graduate schools, the reluctance of shy students to express themselves and make creative contributions during class discussions, "where the loudest and boldest often hold sway" (Sullivan, 1998, p. 3), leads to uneven participation and consequently to uneven creative idea generation. This point was well made by Hacohen (2000) in describing the philosopher Karl Popper's "(in)famous" seminar at the London School of Economics: "[T]he atmosphere did not encourage free debate. Insecure or timid students found it difficult to contribute …" (p. 527). Not only will shy students tend to participate less, but also they may be subject to conformance pressures (LaForge, 1999). In fact, some teenage students "worry excessively about conformity and being accepted" (Shyness Centre, 8). This article suggests that shy students will participate less and will not contribute creative or controversial ideas because they are subject to the normative influence of dominant group members.

This disparity in participation rates of non-shy and shy students is in addition to a persistent gender gap, whereby girls have lower rates of participation across the entire curriculum (American Association of University Women Educational Foundation, 1998; see also Fredericksen, 2000). According to Benbunan-Fich and Hiltz (2002): "Studies of gender inequity in traditional face-to-face classes tend to indicate that class participation is male dominated … However, with asynchronous computer-mediated communication [CMC], the tendency is toward more equal participation" (p. 3).

Group Support Systems

Group Support Systems (GSS) are "a computer-based coordinating mechanism to facilitate interpersonal computing" (Vinze, 1997, p. 355), "support[ing] and augment[ing] group work" (Greenberg, 1991, p. 133). Nunamaker, Briggs, Mittleman and Vogel (1996/1997) have defined GSS as an interactive computer-based environments which support concerted and coordinated team effort towards completion of joint tasks. Besides supporting information access, GSSs can radically change the dynamics of group interactions by improving communication, by structuring and focusing problem-solving efforts … (p. 164)

Possessing the capability for anonymous interaction, GSS permits group members to participate without being identified. According to Dennis, Tyran, Vogel, and Nunamaker (1997):

Anonymity may reduce evaluation apprehension—the fear of negative evaluation that can cause individuals to withhold ideas and opinions …. It may also reduce the pressure to conform to the opinions of others, whether the pressure is intentional or not. (p. 159)

Scholars and researchers within the information systems (IS) and related disciplines have suggested that creative idea generation may be enhanced in anonymity-featured GSS-supported groups (Hender, Dean, Rodgers, & Nunamaker, 2001; Klein & Dologite, 2000; Nunamaker, Applegate, & Konsynski, 1987; Siau, 1996). This article argues that the anonymity provided by a GSS inhibits normative influence within groups and thereby enhances creativity, and applies this argument to classrooms.

ANONYMITY-FEATURED GROUP SUPPORT SYSTEMS IN THE CLASSROOM

GSS, which allow for anonymous interaction, provide an environment in which social cues (e.g., social presence, status, gender, seniority) are absent, thereby ensuring that the contributions of each group member are judged solely on merit and not on the external characteristics of the contributor (Boiney, 1998; Klein & Dologite, 2000). GSS are interactive computer-based information systems that support and structure group interaction, including idea generation and problem solving (Huber, Valacich, & Jessup, 1993; Poole & DeSanctis, 1990), and encourage divergence from customary modes of thinking (Reinig, Briggs, & Nunamaker, 1997/1998). GSS, then, can be used to enhance creativity by assisting in the idea generation process.

Hayne and Rice (1997) have summarized the literature on GSS and anonymity thus:

Efforts by many researchers ... have generally found an increase in production and satisfaction when anonymous group brainstorming is used. Other advantages of anonymous participation include decreased evaluation apprehension, decreased member domination, decreased conformance pressure and decreased status competition, which can lead to increased exploration of alternatives and surfacing of assumptions. (p. 431)

According to Salisbury, Reeves, Chin, Bell, and Gopal (1997), "[o]ne of the earliest assertions of the importance of GSS technology is that it could be designed in such a way as to reduce conformity to social psychological pressures of the group … by providing anonymity (Dennis, George, Jessup, Nunamaker and Vogel, 1988)" (p. 576). Thus, GSS, with their anonymity feature, promote increases in participation, creativity, and productivity and fosters the expression of diverse opinions. The main thesis of this article is that by inhibiting normative influence, anonymity-featured GSS remove barriers to creative idea generation in the classroom.

The use of GSS in school and university classrooms "offer[s] the prospect of creating the small-class experience for a larger class" (Brandt & Briggs, 1995, p. 535). With the increase in group meetings using CMC (Valacich, Sarker, Pratt, & Groomer, 2002), there has been a great deal of interest in GSS-supported collaborative learning (Khalifa, Kwok, & Davison, 2001; see also Benbunan-Fich, 2002; Feather, 1999; Gros & Dobson, 2001; Palo Verde High Magnet School, 2002). Although GSS were originally designed for use in industry (Reinig et al., 1997/1998; Nunamaker, Dennis, Valacich, & Vogel, 1991; Nunamaker, Dennis, Valacich, Vogel, & George, 1991; Vreede & Bruijn, 1999), their use in schools and universities "can improve the classroom experience" (Reinig et al., 1997/1998; see also Alavi, 1994; Brandt & Lonsdale, 1996; Khalifa et al., 2001; Kwok, Ma, Vogel, & Zhou,