On the Measurement of Participation Equality

Bruce A. Reinig, Department of Management Information Systems, San Diego State University, San Diego, CA, USA

Roberto J. Mejias, Department of Computer Information Systems, Colorado State University, Pueblo, CO, USA

ABSTRACT

Participation equality is often a key process construct in research models that examine the effects of group support systems (GSS) technology and e-collaboration. GSS are generally thought to reduce the dispersion of participation among team members and thus make participation more equally distributed. However, research conclusions in the literature regarding participation equality are not always consistent with this finding. Researchers have used a variety of approaches to operationalize participation equality including unit-based measures, such as the standard deviation, and dimensionless measures such as the Gini coefficient and the coefficient of variation. Researchers have also varied in their measurement of participation units with some counting phenomena such as comments, words, or remarks. The authors report on an exploratory study that demonstrates conditions in which research conclusions regarding the participation equality construct are dependent on both the participation unit analyzed and whether a unit-based or dimensionless measure is used to compute participation equality. The authors conclude with recommendations for researchers investigating participation equality and practitioners that seek to measure and track participation equality in their collaborative work practices.

Keywords: Computer Mediated Communication (CMC), Dimensionless Measures, Gini Coefficient, Group Support Systems (GSS), Participation Equality

INTRODUCTION

Group support systems (GSS) and related computer mediated communication (CMC) technology are often adopted to improve the process and outcomes by which teams collaborate. Technological features such as anonymity and simultaneity of communication are often regarded as key features that encourage and facilitate more open and frank discussion, reduce the ability of a few individuals to dominate a discussion, help overcome the problems associated with air-time fragmentation and evaluation apprehension, and otherwise promote the free exchange of ideas (e.g., Kahai & Avolio, 2006; Mejias, 2007; Reinig & Shin, 2002; Reinig, Briggs, & DeVreede, 2009).

DOI: 10.4018/ijec.2014100103
These factors may manifest in more equal participation among team members because some of the social forces that would otherwise inhibit participation in face-to-face meetings are reduced.

Participation equality is one of the key process constructs appearing in theoretical models on GSS research. Poole, Holmes, and Desanctis (1991), for example, include equalization of participation in their model of technology impact on conflict management. They argue that GSS promotes more equalization of member participation which may engender greater feelings of ownership for groups that are able to successfully negotiate agreements. Burke and Chidambaram (1995) present a research model that suggests that GSS technology promotes more equal participation by attenuating the ability of dominant team members to control a group discussion. More equal participation is associated with an improved marshaling of ideas, issues and perspectives of team members which, in turn, can lead to improved performance. Nunamaker et al. (1991) frame the effects of electronic meeting systems (EMS) in terms of the influence that they have over group process gains and losses. They argue that EMS features such as group memory, anonymity, and parallel communication reduce process losses that traditionally inhibit communication and, as a result, EMS provide group members a more equal opportunity for participation. These models all view participation equality as a potentially desirable process construct that is enhanced by GSS and can produce superior outcomes relative to groups experiencing less participation equality.

The participation equality construct has received considerable attention in the experimental research published on GSS. In a meta-analysis of 145 experiments, Fjermestad (2004) reports that participation equality accounts for 25 percent of all process variable results and is the second most frequently researched process variable, just behind general influence. Meta-analysis results tend to support the proposition that GSS technologies increase participation equality relative to face-to-face meetings (Fjermestad, 2004). But there are exceptions to these research findings and the results are often inconclusive. Some researchers report no effect for GSS or computer-mediated communication (CMC) on participation equality (e.g., Weisband, Schneider, & Connolly, 1995; George et al., 1990; Poole, Holmes, & Desanctis, 1991) and others report no effect for technological manipulations, such as anonymous vs. identified GSS (e.g., Weisband, Schneider, & Connolly, 1995; Hiltz, Turoff, & Johnson, 1989). Thus, in spite of the prominent role that participation equality plays in a variety of theoretical models, there has been a lack of consensus with respect to the empirical findings in the literature.

The objective of this paper is to explore differences in how the participation equality construct is operationalized, measured, and computed as a variable and whether such differences may produce different research conclusions. We begin by reviewing the approaches found in the literature which differ both in terms of how participation is operationalized and how the variable participation equality is calculated. We then proceed by presenting a set of research questions which we test with a laboratory study that compares anonymous GSS to identified GSS groups. We conclude by
Creativity, Innovation, and E-Collaboration
*International Journal of e-Collaboration* (pp. 1-10).
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