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Commentary: Deep analysis of epistemic frames and passive participants around argumentation and learning in informal learning spaces [☆]

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ABSTRACT

Our commentary first discusses three points of interest highlighted by the current studies in terms of breadth of measured behaviors and characteristics, the commensurability of designs, and the importance and challenge of analyzing learning by passive participants. We then discuss how datamining strategies might be organized to support future research building on these points of interest.

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1. Introduction

These studies represent a trend moving CSCL from niche environments with small user bases to broader informal environments with much larger user bases. While all of the studies were conducted in Facebook, however, the studies focus on aspects and uses of Facebook that are not exclusive to Facebook or its specific social, community, or architectural mechanics. We view this as highly advantageous because the findings thus generalize well beyond Facebook, and beyond social network sites, to include learning in informal interest sites as well as in forums accompanying courses. This generalizability to other interest-driven and educationally-driven forums and sites allows not only broader audiences and contexts but also more flexibility for future research building on the findings of the current studies in terms of access to data and environment design.

Our commentary first discusses three points of interest highlighted by the current studies in terms of breadth of measured behaviors and characteristics, the commensurability of designs, and the importance and challenge of analyzing learning by passive participants. We then discuss how datamining strategies might be organized to support future research building on these points of interest.

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2. Breadth of measured behaviors and characteristics

One fantastic feature common across all four studies involves the breadth and sophistication of what is measured in terms of participants' behaviors and interactions. All four studies underscore the field's evolution from its early primary focus on argument structure in terms of Toulmin components. The emphasis of the studies on epistemic moves, conceptual quality, participation, affect, rhetorical style, co-construction, and other important characteristics provide a much more interesting and informative foundation on which to explore learning in any context but especially in informal contexts. These emphases are particularly strengthened by the authors' simultaneous focus not only on immediate learning gains but also on extended learning and delayed assessments. Puhl, Tsovaltzi, and Weinberger's (2015) intervention across an entire course is particularly exciting, for example, in demonstrating attitude shift, which often is less apparent in shorter studies.

Two characteristics we would like to see further differentiated in future research involve co-construction and position shifting. Tsovaltzi, Judele, Puhl, and Weinberger's (2015) first study demonstrated that individual preparation before collaboration may hinder knowledge co-construction – this is a very interesting finding and one worthy of inspection. We would be very interested in future work to separate co-construction toward normative understanding as opposed to co-construction toward non-normative outcomes. This would be a very useful distinction to consider when understanding what types of co-construction are being lost by supporting individual preparation. Similarly, when measuring shifts in position or attitude, we would be very interested in also distinguishing direction of shift for topics with more and less normative

directions of change. Obviously co-construction and position shifts can be important outcomes but are not necessarily always desirable for their own sake.

A third more subtle area for further exploration involves framing. As Tsovaltzi et al. (2015) point out, “it may be difficult to bridge formal purposeful learning and informal open-ended learning with SNS without addressing the problem of different learner expectations for formal and informal learning contexts and resulting fears or inhibitions.” Asterhan and Hever (2015) similarly explore ideas related to framing in terms of differences in how participants learn in deliberative versus disputative contexts. While Asterhan and Hever (2015) find differences in knowledge performance scores, they do not detect overt differences in behaviors of participants in the two contexts (e.g., time on task or accesses of sites). Asterhan and Hever (2015) suggest that the differences in knowledge performance scores and lack of differences in overt behavior might be a function of the readers dismissing the credibility and objectivity of the speakers in the disputative contexts as biased or other more subtle psychological shifts. We think framing might involve even deeper mechanisms here. Perhaps readers not only dismiss the objectivity of the speakers but also join in the disputative sentiment of the exercise and become more polarized and blinded to opposing perspectives themselves. Whereas distinguishing between more and less productive co-construction or attitude shifts in terms of final positions will be relatively simple for researchers to distinguish, operationalizing and measuring shifts in epistemic frames will be very challenging for future research.

3. Operationalizing commensurability of designs

A second point of interest involves commensurability of environment designs. In Tsovaltzi et al. (2015), for example, the first study deploys one style of argumentation script while the second and third study deploy a different style of argumentation script. This difference in design across studies obviously complicates comparisons across studies. Similarly, the group awareness script in Tsovaltzi et al.'s (2015) second study focuses simply on informing participants that their answers will be shared with the whole group, thus increasing stress and stakes without providing actual information about the group's thinking. This is entirely different from the group awareness tool in Puhl et al.'s (2015) study, which provides information to participants about the range of ideas and attitudes held by the group and their place in it. Not surprisingly, the latter group awareness tool supports learning while the former tool impedes learning. On the surface, however, the findings of the two studies might be considered as conflicting (i.e., results on the efficacy of group awareness tools across studies is conflicting or mixed). This is obviously not a new methodological challenge but certainly worthy of further consideration. It is reminiscent of the tension between media comparisons and value added comparisons in research on digital games (e.g., Clark, Tanner-Smith, & Killingsworth, 2013, in press).

It is thus important to develop approaches to increase specificity of comparison across categories of scripts and interventions. The findings from Tsovaltzi et al.'s (2015) second study, for example, about the negative influences of group awareness in shutting people down reinforces Asterhan and Hever's (2015) findings about the negative value of disruptive versus deliberative contexts on participants' epistemic framing. Finer-grained approaches for comparing and specifying across scripts would facilitate further exploration of subtle outcomes like framing in greater depth. It was especially interesting that the apparent negative influence of group awareness/disputative nature held across topics about which the students likely felt strongly (i.e., the hot topic of African immigrant workers in Israel) as opposed to a topic about

which students were less likely hold impassioned positions (i.e., psychological perspectives on learning). It would also be interesting to explore how styles of group awareness tools and durations of interventions affect outcomes. Puhl et al.'s (2015) findings with their group awareness tool supported productive outcomes, for example, is perhaps an outcome of invoking a more deliberative and less confrontational style of dialog. Or perhaps the fact that Puhl et al.'s (2015) study duration of an entire course provided participants sufficient time to adjust to the tool in terms of viewing it as productive rather than threatening. Or perhaps Puhl et al.'s (2015) audience (teacher trainees) may have been more idealistic about the role and purpose of dialog as a deliberative rather than a disputative undertaking? Thus it would be important to develop approaches to increase specificity of comparison across categories of scripts and interventions to facilitate finer-grained comparisons across studies rather than the current large-grain comparisons at the level of medium.

4. Importance and challenge of analyzing learning by passive participants

Greenhow, Menzer, and Gibbins's (2015) study heavily emphasizes authenticity in an in situ, truly informal, voluntary setting. Greenhow et al.'s (2015) findings parallel and extend those of Steinkuhler and Duncan (2008) in demonstrating productive and impressive argumentation occurring “in the wild” on an informal site's forums (although Steinkuehler and Duncan focus on argumentation around the mechanics of a popular game as opposed to socio-scientific issues). Greenhow et al.'s (2015) study also highlights the fact that most people in informal environments do not post. Greenhow et al.'s (2015) finding that only approximately 10% of participants posted matches the general consensus finding that most “participants” in informal settings are passive in the sense that they only read rather than post (which is often referred to as “lurking” but we will use the term “passive participation” to avoid the negative connotations of the term). Also of interest, Greenhow et al. (2015) found relatively balanced participation within the active 10% of their participants, which diverges from the more typical finding that, even among the active participants, only a small fraction of those active participants contribute the vast majority of the most generative posts. Future research should explore more deeply the design and contextual factors that support broader balanced participation across active participants in the generative activity of a forum as well as enhancing productive outcomes for passive participants.

This latter goal for future research underscores the importance of Asterhan and Hever's (2015) focus on the passive participants in informal environments and what affects their learning. Future research will need to think about how to further explore impact on passive participants in more authentic research designs. As Asterhan and Hever (2015) discuss, for example, their findings in terms of the control group's high performance relative to the experimental groups is likely influenced by the setting (experimental subjects in a lab) and duration (a short span of 35 min). Intrinsic motivation and extended engagement are key affordances of SNS and informal sites. As Asterhan and Hever (2015) point out, most people would likely not apply the same effort and time to synthesize the eight linked sites in naturalistic settings compared to the likelihood they might invest time and effort in synthesizing the information if the links and sites were contextualized by a discussion (disruptive or deliberative). Asterhan and Hever (2015) experimental design thus supported seminal work on the implications of rhetorical style and affect on learning by passive participants, but future research should also develop approaches for analyzing passive participation and learning in authentic informal and voluntary sites to complement this seminal research.

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