

Productive Failure in an Emerging Learning Community: A Group Developmental Perspective

Yotam Hod
University of Haifa
yotamhod@edtech.haifa.ac.il

Dani Ben-Zvi
University of Haifa
dbenzvi@univ.haifa.ac.il

Abstract

This research takes a micro-developmental perspective to show how one classroom learning community began to make a dramatic change of practices as they transitioned from the storming to the norming stage of group development. We examined fine-grained changes in group discourse during this period, which we believe has relevance for the development of a learning community's emphasis on learning how to learn. Our findings indicate that this transition was a productive failure because it was based on group recognition of failure that seemed necessary and productive for the group to change. This transition was marked by changes in group discourse that included a group seeing the relevance and value of discussing and negotiating their collaborative norms. We discuss the meaning of these stages for the development of a learning community and propose extensions to the conceptions of productive failure.

Keywords: Learning community, Micro-development, Norms, Productive failure, Stages of group development

Introduction

Classroom learning communities (LCs) have four essential characteristics: collective knowledge-building, distributed expertise, mechanisms to share, and an emphasis on learning how to learn (Bielaczyc & Collins, 1999). The first characteristic involves everyone working together to build community knowledge and understanding. To do this, there must be distributed expertise, such that learners major in different areas (Brown & Campione, 1994). There must also be a mechanism for learners to share their expertise and get feedback, which is necessary for the distributed groups to meet their collective goals. While the fourth characteristic is interdependent with the first three, as learning how to learn could help a person develop expert practices and contribute to the collective, it also has a unique quality. This involves the metacognitive aspect of learning, such that a person and group must reflect upon how they learn so that they deepen and refine their LC practices (Hod & Ben-Zvi, 2013). When all four of these characteristics are present and robust in a complex interplay between learning together and learning *how to* learn together, there is a high degree of learning community-ness (LC-ness).

In this paper, we consider LC-ness on a continuum, where on one end a group is not an LC, and on the other, a group is engaged in a lifelong process of deepening both what and how they learn. The path towards heightening these characteristics is not trivial (Kling & Courtright, 2003). Even if LCs are carefully designed, newcomers often have traditional viewpoints on learning which are hard to change, as they are engrained historically, culturally, linguistically and politically (Rogoff, 1994). In particular, it can take considerable time and effort for reflective, meta-discursive practices about learning in an LC to emerge (Zhang, Scardamalia, Reeve, & Messina, 2009). This is especially so in newly formed groups, when there are no existing norms and culture for newcomers to enculturate established LC practices (Bielaczyc, 2001).

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Stages of LC Development

One of the ways to approach the challenge of creating a learning-how-to-learn emphasis in an LC is by taking a group developmental perspective, given that LCs can be considered a specialized type of group (Kling & Courtright, 2003). Tuckman's stage model has been a widely applied standard (Miller, 2003). The model asserts that groups develop through five stages, which include forming, storming, norming, performing, and adjourning (Tuckman & Jensen, 1977). While this approach has been applied before to LCs (e.g., Carabajal, LaPointe, & Gunawardena, 2003; Dooner, Mandzuk, & Clifton, 2008; McInnerney & Roberts, 2004), focusing its role on the fourth characteristic can lead to new insights about how LCs emerge.

Among Tuckman's five stages, we pay particular attention to the transition between the storming and norming stages for their relevance in creating a learning-how-to-learn emphasis. During this transition, "there is a further development and solidification of group norms that were formed in the earlier stages. Members are more aware of facilitative behaviors, and unspoken norms become more explicit" (Corey & Corey, 1992, p.193). Explicating group norms in an LC involves, among other issues, examining how the group has been learning together. As such, the transition into the norming stage can involve an increased emphasis for a group to learn how it learns.

Productive Failure in an LC

The storming stage, which precedes norming, highlights the conflict between group members and the moderator, resistance towards demands of the task, friction, and hostility (Miller, 2003). Given that such tension appears to be a necessary component of group development, there is a striking similarity with the idea of productive failure: that failed attempts by learners to reach a canonical standard of understanding may still be rewarding, so long as learners engage in sustained, divergent thinking, while trying to solve ill-structured problems individually or collaboratively (Kapur, 2008; Kapur & Kinzer, 2009). In both the storming stage of group development and productive failure, a period of individual or group struggle is an essential and often messy part of developing greater expertise.

Figure 1 presents a general model of what bringing together the stages of group development and productive failure in an LC can look like. At first, when a group comes together, members typically have an interest in getting to know one another as the foundations of group cohesion are established. Still, "during the early stage of a group the members do not know one another well enough for a true sense of community to be formed" (Corey & Corey, 1992, p. 126). The level of LC-ness increases as the group begins to explore how it can work together, in what can be considered the forming stage. However, this doesn't mean that deep collaboration and reflective practices naturally develop. As part of the subsequent storming stage, conflicts readily emerge between different members who struggle for meaning and control, and there can be high levels of anxiety and defensiveness among individuals. In LCs, this can also take the form of anger towards the moderator, as well as expectations that contradict the idea that students will not be provided with direct instruction and that there will be an emphasis on processes instead of just products of learning (Rogoff, 1994). Because this stage may entail a lack of cooperation between members and dissatisfaction, it can be considered a failure by the group, where the level of LC-ness decreases. If, however, it is a necessary part of the process for the group to reflect upon and intentionally change their individual and group practices, this failure may be productive and necessary for a group to learn how to learn together. This involves transitioning to the norming stage of group development, and beyond.

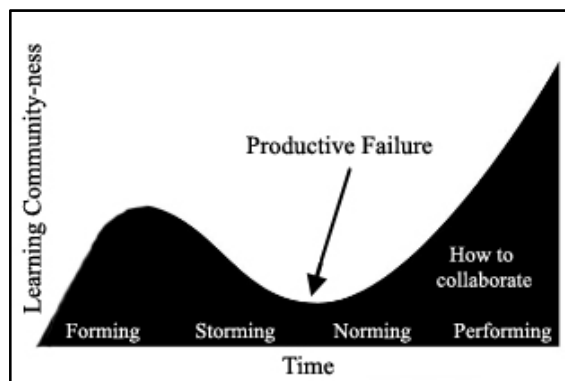


Figure 1. The role of productive failure in relation to stages of group development in an emerging learning community

While productive failure and the storming stage have been conceptualized in different disciplines and settings, applying productive failure to a “wider ecology” of computer-supported collaborative learning contexts, such as an emerging technology-enhanced LC, has been called for (Kapur & Kinzer, 2009, p. 39). Given this interest and the apparently similar mechanisms of learning, we seek to refine and evaluate this model explaining the role of productive failure in LCs.

Methods

To investigate the role of productive failure in an emerging LC, with a focus on the storming and norming stages of group development, we sought to micro-genetically analyze group discourse in a naturalistic learning community (Granott & Parziale, 2002). We chose to investigate “Challenges and Approaches to Technology-Enhanced Teaching and Learning” (CATELT), which was a mandatory, introductory, semester-long course for all students at the University of Haifa’s Educational Technologies Graduate Program. CATELT was structured as a learning community based on its Wiki design, where students could contribute to community knowledge in a distributed expertise model, share, and reflect upon their learning practices through extended reflection sessions (Hod & Ben-Zvi, 2013).

Rich micro-level data from both face-to-face (ftf) and online aspect of the course were collected in the form of audio, video, and written content. These were preliminarily analyzed by the researchers and expert scholars, and were consistent with results reported in other research papers (Hod & Ben-Zvi, 2013). Conclusions were reached only after multiple sources of data triangulated a specific result in an intense and rigorous data review process (Schoenfeld, 2007).

Findings

After analyzing the micro-development of group discourse, we identified several processes involved in the group transition from the storming to the norming stage. The text goes far beyond the word limit of this paper, and thus can only be summarized here.

Within the context of the storming stage, which was already present and slowly building for several weeks during the semester, the group recognized that they were not collaborating. This represented a group productive subject failure. This apparently encouraged the group to change, which was shown when they increasingly accepted responsibility over their failure. This is the first time that a transition of authority can be seen, from moderators to students, and the first time that a suggestion of having a group norms discussion was publicly stated.

Now that the idea of increased responsibility entered the conversation, a built-in but blank norms page in the course Wiki page had a particular use. The moderator's meta-discursive observation that the group needed to move from storming to norming seemed to be accurate and agreeable to the group, as it signified a transition from understanding that the group had responsibility to focusing upon what that responsibility should be. As the conversation developed, the discourse increasingly included more participants. This was the first time that the group used the word norms, which started to enrich the meaning of the Wiki norms page to correspond with their just-in-time needs as a group and the content of what they were learning. After a deep discussion and many experiences, the group reached an understanding that entering a process of negotiating their norms was important.

During the following online interaction, the group started to develop the Wiki norms page, without any moderator instructions to do so. They opened five new sub-pages that dealt with seven different categories of norms that were important to them and they wanted to discuss: a) collaborative editing; b) making editing contributions; c) meaningful changes; d) different forums; e) collaborative atmosphere; f) collaborative presentations; and g) personal reflections. Showing that they valued the process and dialogical aspects of learning, they edited the Wiki discussion page instead of the content page. This implied that the norms weren't fixed content, but rather something they needed to construct socially and continuously.

Discussion and Conclusion

Our study investigated the emergence of LC-ness based on the presence and robustness of four LC characteristics that Bielaczyc and Collins' (1999) identified. We paid particular attention to the fourth LC characteristic, learning how to learn, and its relation to Tuckman's group development framework. Analysis of the microdevelopment of group discourse in an emerging LC showed that recognition of failure was a key transition for a group to move from the storming to the norming stage. Upon recognizing their own failure collaborating as a group, LC members could accept responsibility and begin explicating and negotiating their own norms. By discussing aspects of their collaborative learning as part of the norms process, such as how to edit in a shared space and make meaningful changes to the collective work, the group enhanced their emphasis on learning how to learn, resulting in heightened LC-ness.

Our findings indicate that between the storming and norming stage of group development, there were two intermediary requirements: First, there was a group failure and recognition of it; second, the group accepted responsibility to change the situation. Both of these appear to be necessary for the emergence of the norming stage. These findings extend the conceptions of productive failure by suggesting that there are similar mechanisms found in group developmental theories that can demonstrate this phenomenon in learning communities.

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