Selected Papers of Internet Research 15:
The 15th Annual Meeting of the
Association of Internet Researchers
Daegu, Korea, 22-24 October 2014

BELOW BOILING POINT: NEGOTIATING CONFLICT THRESHOLDS IN DISTRIBUTED WORK

Anna Filippova
National University of Singapore - Singapore

Hichang Cho
National University of Singapore - Singapore

Abstract

Virtual teams are no longer well-defined organizations with fixed start and end points, but increasingly, entities with fluid boundaries. Consequently, we need to evolve our understanding of their internal processes. Conflict is one such process that has traditionally been split into discrete categories for examination of individual effects on group outcomes. Instead, the present study examines conflict as a whole by focusing on thresholds of conflict emergence in the unique techno-social context of Free and Open Source Software (FOSS) development. Following interviews with diverse representatives of FOSS teams, a grounded theory approach reveals that conflict develops as a combination of, rather than result of any one technological or social factor. In addition, conflict may change states and evolve over time. Finally, different teams with varying structures may take different approaches to conflict with equally successful outcomes. Findings suggest a re-evaluation of what we know about virtual group processes.

Keywords

conflict; distributed work; virtual teams; open source; free software; grounded theory

Introduction

As the nature of distributed work evolves, we need to continually reevaluate what we know about collaboration and conflict. Conflict is an important process in teams that has traditionally been split into three distinct types: task, process, and relationship conflicts (Hinds & Bailey, 2003). Recent analysis suggests conflict types may co-exist or evolve over time, yet little empirical work has been done to examine this (de Wit, Greer, & Jehn, 2012). Conflict has also been primarily studied in groups that have well-defined membership and decision structures with fixed start and end points (Hinds & Bailey, 2003). However, virtual teams are increasingly emerging as entities with a shared

Suggested Citation (APA): Filippova, A. & Cho, H. (2014, October 22-24). *Below boiling point: negotiating conflict thresholds in distributed work*. Paper presented at Internet Research 15: The 15th Annual Meeting of the Association of Internet Researchers. Daegu, Korea: AoIR. Retrieved from http://spir.aoir.org.

purpose whose membership and structure may change frequently (Wageman, Gardner, & Mortensen, 2012). Given these changes, recent calls have been made to theorize distributed team processes as more liminal (Hackman, 2012). As such, this study seeks to contribute to a growing body of literature on distributed work by providing a rich description of conflict as a complex and emerging process in virtual teams with fluid boundaries. Specifically, the present study moves away from traditional notions of conflict as discrete types. Instead, the process of conflict is examined as a whole by considering the intersections of different conflict antecedents and effects in the unique techno-social context of Free and Open Source Software (FOSS) development.

Study Context

FOSS development teams illustrate the changing nature of distributed work. They are social organizations that share a sense of common purpose in building open software, and have diverse, fluid and differentiated membership structures with porous boundaries (Hackman, 2012). Additionally, FOSS teams are hybrid, techno-social systems for whom software is not only an end-product but also the material means through which participants interact (Ducheneaut, 2005). Furthermore, FOSS projects are a recursive public that is reflexive about its own practices, and actively discusses, contests and modifies both the social and technological structures in the group (Kelty, 2005). Because FOSS teams themselves exist on a boundary between the social and the technological, they provide a rich context to examine conflict intersections.

Method

As little empirical research currently exists on conflict in the present setting, and there is a need for an inductive approach to build new understandings of a changing phenomenon, a grounded theory perspective was taken in this study (Glaser & Strauss, 2009). Interviews were carried out with 18 representatives of various FOSS teams to examine conflict episodes in the projects, their antecedents and consequences. A snowball sample was used to select participants through representatives of the technology community in Singapore, a central hub for software development in Asia. Participants subsequently recommended other developers from regions such as Australia, India, Malaysia, the Netherlands, and the United States.

Participants

Participants represented the following projects: Debian, Git, Mozilla Firefox and Thunderbird, Node.JS, Plone, PrawnPDF, Python, Ruby on Rails, ScrollBack, Ubuntu, and Zope. Participants had varying amounts of experience contributing to software, ranging from first-time committers, to project maintainers and founders. Projects discussed also had different types of leadership structures from entirely flat, to committees, and benevolent dictatorships.

Analysis

Interview transcripts, field notes, personal communications, relevant seminars and blog posts produced by members of the communities and selected public archives of

projects were included in analysis. In the first stage, data was analyzed to identify conflict episodes based on participants' own definitions of conflict. Data sources were grouped together, where necessary, if the same conflict episode occurred in several sources. In the second stage, open coding was performed for each episode to identify intersections at which conflict emerged.

Findings

Analysis has shown that, firstly, conflict exists in various states, from a culture of peer review and disagreement to central debates around community practices. However, conflict does not exist in discrete or static types; rather, it shifts focus and evolves from one type to another. This evolution is most often triggered by differing perceptions of the same issue by different team members, for instance some team members viewing a conflict as procedural and others personal/affective. The discussion may thus oscillate between distinctly different conflict types.

Secondly, conflict evolves as a combination of several technological and social factors, rather than being trigged by exclusively task, relationship or process-related matters. No one factor, such as the nature of the task, diversity, or reliance on computer-mediated communication, appears to initiate conflict episodes. In the majority of episodes, a series of factors accumulate over time before pushing the group beyond the conflict threshold. These factors include the tone of the communication, in particular if this deviates from established communication norms, the status of the participants, as well as the type of technological problem being solved. Thus, purely technical decisions can cause upheavals in the community if present in combination with other social factors. For example, the introduction of new software features that break compatibility with older versions, in combination with a weak decision structure at the time of the change, may result in significant polarization between members in the group who have to choose only one version to work with.

Finally, depending on the specific combinations of techno-social factors in the projects, different teams choose different approaches to communication and conflict that are equally successful. Groups with flat decision structures that can tolerate ambiguity in the product reap benefits from conflict emergence, thus group norms are favorable towards disagreement. However, projects that require quick turn around or product stability develop norms against conflict and more pronounced decision structures.

Conclusion

Virtual groups are constantly negotiating boundaries between the technological and the social, hierarchy and openness, flexibility and procedure. Similarly, conflict fluctuates between various states. Catalysts, both technological and social, may at times reinforce each other and push the group beyond a comfortable threshold towards boiling point. Different groups establish and negotiate these thresholds in their own ways, often with equally successful outcomes. These initial findings illustrate that conflict and distributed work are more complex and fluid than initially conceptualized. They suggest a need to shift away from an understanding of conflict as independent types and towards

examining their intersections to understand conditions under which virtual groups define their own experiences.

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