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# Mapping Discussion Roles: From the Classroom to the Online Discussion Board

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## ABSTRACT

In this study, we look at beginning to explore roles and how individuals fill those roles in face-to-face and online social networks. The long term goal of the research is to be able to map both the roles and the individuals as they move between the two types of social networks. The mapping of this migration will provide community administrators with tools and knowledge that can be used to better support the community members. This paper presents the results of a pilot study that explored the feasibility of an approach to carry out this research. A learning environment is studied that utilizes a mixed mode approach, using both the classroom and online bulletin boards. Through the use of observation, content analysis, surveys and interviews, classroom and online roles are discovered and the beginnings of a meaningful mapping of those roles and how individuals fill them is uncovered. Finally our modified approach is presented as the full study is getting underway.

## Keywords

Online Communities, Social Network Analysis, Mapping Social Roles, E-learning.

## INTRODUCTION

The semantic web offers unparalleled opportunities for the representation and formation of virtual social networks on the web (Finn, Ding, Zhou and Joshi 2005). As the popularity of these online social networks continues to grow, there is an increasing need to understand the differences between face-to-face and online social networks. Do people play the same roles online as they play in face-to-face settings? While researchers have worked to address how individuals act online and what is needed to support the digital community (Preece 2000), there has been little done to fully explore the links between face-to-face and online social networks. Motivated by this need to better understand how and whether people change their roles when moving from face-to-face to online social networks and coupled with the significance of learning to our modern life, we chose classroom discussion as the domain to address the following research questions:

1. What roles exist in student discussions?
2. Are these roles the same in classroom and in the online discussion?
3. Does a student take the same role in both the classroom discussion and the online discussion?

A social network is defined as a set of people connected by social relationships, such as friendship, co-working or information exchange (Garton, Haythornthwaite and Wellman 1997). The learning environment both in the classroom and online fosters the forming of social networks as social relationships in both online and face-to-face discussion or information exchange. In the context of this paper, discussion and conversation are used interchangeably.

Roles in face-to-face social networks have been long studied in the sociology and social network analysis literature (Borgatta 1965; Freeman 1979; Wasserman and Faust 1994; Hanneman 2001), but roles in digital networks have been much less studied until recent (Donath, Karahalios and Viegas 1999; Nolker and Zhou 2005; Turner, Smith, Fisher and Welsler 2005). The work that empirically links the discussion roles from face-to-face to the online networks is even rarer. There is a preliminary study on comparing the learning processes between classroom and the online environment (Heckman and Annabi 2005). but it does not examine the role of participants. Another stream of work links the internet to the offline community (Carroll and Rosson 1996; Dutta-Bergman 2005; Kavanaugh, Carroll, Rosson, Zin and Reese 2005). However, these studies do not focus on the specifics of individuals and digital networks but look at the movement of groups and individuals as an aggregate community. As the focus shifts to actual social networks that are or have moved from face-to-face to online, understanding how individuals move between the two is critical. By understanding the linkage between

face-to-face and online networks, tools can be designed to help administrators in facilitating community-supportive social interactions. It is those social interactions that ultimately determine user acceptance and hence the success of the online social networks.

This paper is organized as follows. The methodology used in a pilot study is explored followed by a presentation of the preliminary results, discussion and the ongoing study is presented.

## METHODOLOGY

To understand the roles that students take in discussions, both the classroom and the online learning environment are explored. A pilot study was conducted with a graduate seminar course that featured both in-class discussion and online discussion.

The pilot study was designed to gather as much data as possible relating to student roles and how the students migrated from the classroom to the online setting. To achieve this data gathering multiple methods were employed including participant (the researcher) observation of the classroom discussions, ethnographic exploration of the discussion forums, student self assessment surveys, and interviews with students and the instructor. The observation and ethnographic exploration were used to provide a level of validation to the data acquired from the surveys and interviews. It was important to add the additional grounding as the data collected from the students and the instructor were perceptions of the discussions and the roles of the participants. While the researcher also brought a bias, the three views (observer, student, instructor) provided for triangulation where perceptions differed.

The survey was used to elicit the student perception of the roles that existed, in the classroom and online, as well as their self-assessment of the types of identified roles they filled in each setting. Our survey was composed of open-ended questions. In participants' response to the roles they filled in themselves, each student did not fill all the roles they identified because the role filled was only related to the participants themselves rather than their peers. The self assessment survey provided a wealth of data on how the students perceived roles in the classroom and online as well as how they fit into those roles.

Interviews were conducted with both the students and the instructor. The primary goal of student interviews was to clarify the researcher's understanding of definitions supplied with each role. The student interviews were focused on the roles that had been identified, not the roles the students perceived they filled. The goal of the instructor interview was to have the instructor identify the roles taken by those students who did more than just participate. The instructor was not given precise boundaries for the roles, but rather was free to interpret where the distinctions between roles fell. This approach was taken to facilitate more open and reflective discussion on why individuals were assigned particular roles. All the interviews provided an opportunity to gain clarification and provide a base measure for how student perceptions map to instructor perceptions.

The classroom observations and discussion board ethnographic study were conducted over 15 weeks by one of the researchers. The objective of the researcher's involvement was to collect data that could be used to validate the perceptions of the students and instructor. The researcher participated as a student in the class, as a matter of convenience. The class discussions were broken down into topics surrounding specific papers with each topic continuing on the discussion board as a thread. Each student's role in both classroom discussion and discussion board was assessed based on observed contribution. These assessments were used to validate the accuracy of the student's self assessment of roles taken and the instructor's perception of roles students played. The findings of this validation will be discussed in the following section.

## RESULTS

Content analysis of students' responses was conducted to discover what roles exist in student discussions. The survey data contained 45 raw entries that equated to 39 different roles. The responses were categorized yielding the following five major categories of roles:

- Leader, who initiates and guides conversation;
- Motivator, helps focus and stir things in a positive way to keep conversations going;
- Fringe, brings out emotions in others with a negative impact on the conversation;
- Participant, attentive either following along or contributing to the conversation;
- Non-participant, is present but is not attentive or participating.

These role categories and taxonomy were reviewed and validated with students of the class. The survey results indicated unanimously that the same role categories and taxonomy apply to both the classroom and the online discussion. The only difference between the two modes lay in the degree of intensity. For example, compared with classroom discussion, the fringe roles had less of an impact online, as it was easier to ignore these members, and motivators were better able to drive the direction of the conversation. With the roles identified, we were able to look at what roles students assumed in the two modes.

The roles students filled were assessed using three measures: 1) students' perception of whether other students in the aggregate filled the same roles across classroom and online; 2) students' self-assessment of the roles they filled in the two modes; and 3) the instructor's perception of roles the students filled. The results revealed that the students were split on whether their peers assumed the same roles in the classroom and online. The split opinions boiled down to a matter of degree or individuals' communication preference. A leader in the classroom was still perceived as a leader even though they did not contribute at the same level online. The results on their own role in the discussion showed an interesting breakdown. The participant role was found to be consistent between the classroom and online discussions. However, the leader and moderator roles did not map as well. Students who took these roles indicated that they filled the role in one mode and not at all or seldom in the other. The same pattern of students' roles was discovered in the analysis of the instructor's response, as shown in Table 1.

Participant	Classroom	Online
1	Motivator	Participant
4	Participant	Leader
5	Leader	Participant
13	Motivator	Leader
14	Leader	Participant
18	Leader	Participant

Table 1. Instructor's Perception of Key Student Roles

All other students were considered to take the role of participant in both the classroom and online by the instructor. When a role other than participant as perceived by the student is mapped to that perceived by the instructor, the participant roles map perfectly while the leader and motivator roles do not. The mapping exists in that both the student and the instructor perceived that a role other than participation was being filled. However, the students tended to under-sell their role by indicating that they are motivators rather than leaders, as the instructor perceived them to be.

## DISCUSSION AND ONGOING WORK

The rich set of roles uncovered contributed to the generalizability of the study as it would be anticipated that these roles would be found in many different social networks. As presented by (Kavanaugh et al. 2005) we also found that roles migrate between face-to-face and online social networks. This migration lays the foundation for understanding paths that students may take when moving from one mode to the other. When the migration of individuals between the two modes was explored students were found to switch roles. A leader in the classroom did not equate to a leader online. This knowledge has practical implications for instructors allowing them to better target those individuals who occupy roles in the face-to-face setting that may have transition trouble moving online and vice-versa. One of the most important findings to come out of the pilot was that students and instructors perceive the student's roles the same way. As shown the degree may differ, with the student perceiving themselves a motivator and the instructor perceiving the student as a leader. The critical point is that both perceive a difference from participation. The implication of this mapping is that in our ongoing study we do not need to conduct observations or ethnographic studies allowing for a more expansive study.

Cautions should be taken in generalizing the results of this study to other social networks. First, most of the participation in e-learning environments is mandatory and part of the student's grade. While this may limit the generalizability of the results, it was observed in the study that students may not fill the roles (e.g., leader and participant) that they are assigned to. Second,

the e-learning domain is arguably not an anonymous social network like the Usenet Newsgroups. While the students in an online class may have never met each other face-to-face, they still use their actual names and profiles and know each other.

As the results from the pilot study indicate there is great potential gain from moving forward with this study. Parlaying the pilot, we are currently in the process of conducting a full blown study that targets multimodal classes where discussion takes place both in the classroom and online. This encompassing study will continue to expand our knowledge on social roles and their interplay in face-to-face and online social networks. This knowledge will be used to design tools and provide feedback to administrators and members that promotes the goals of the social network. The role taxonomy developed in this study also has the potential to serve as the foundation for developing role ontologies to support e-learning on the semantic web. Future works also includes expanding the study out of the learning environment and into other social networks that have or are transitioning from face-to-face to online.

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