Roles of Initiators and Interaction Patterns: Exploring an Informal Online Community at the Interpersonal Plane

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Abstract: We present a study exploring learning in an informal online community (OC) for foodservice professionals according to three planes (i.e., community, interpersonal, and individual planes). Among these planes, this paper focuses on the interpersonal plane (i.e., how do participants interact with each other and what do they share through their interactions?) and highlight the importance of initiators’ roles and the subsequent interaction patterns. To investigate interaction and learning processes, we collected 227 discussion threads posted in the year 2006, analyzed them through a multi-layered analysis approach, and graphically presented the results to show the complex components of interactions at a glance. Finally, we discuss the characteristics of interaction and learning processes in this OC and the relationship between initiators roles and interaction patterns.

Introduction
The purpose of this study is to explore learning occurring in an online community (OC) of foodservice professionals, which is informally structured and based on voluntary participation. Learning is looked at according to three planes (Rogoff, 1998): Community (i.e., how is this OC learning as an organization?), Interpersonal (i.e., how does learning occur between members of the OC?), and Individual (i.e., how does individual learning occur through participating in the OC?). Among these planes, this paper focuses on the interpersonal plane — how do participants interact with each other and what do they share through their interactions? - and we highlight in particular the role played by initiators of on-line discussion threads and the subsequent interaction patterns.

Within an OC as an environment for computer-supported collaborative learning (CSCL), members may share their experiences, interests, and knowledge through conversations. They also negotiate meanings, learn from one another, and build new knowledge through the process of discussion. This process of online interaction is mediated by discourse. Thus, Herring (2004) suggests a computer-mediated discourse analysis (CMDA) approach, which is defined as “the analysis of logs of verbal interaction (characteristics, words, utterances, messages, exchanges, threads, archives, etc.)” and more broadly, “any analysis of online behaviour that is grounded in empirical, textual observations” (p. 339) to investigate the processes of learning and interaction in online contexts.

Two approaches (Gunawardena, Lowe, & Anderson, 1997) have often characterized the study of online community and online discussion: (a) participation analysis using quantitative data having “value in determining who participated, how actively, and how long” (p.398) ; and (b) content analysis and interaction analysis as qualitative approaches, which allow assessing the quality of interactions and learning in an online context. Recently, social network analysis (SNA) has been considered as an analytical method to investigate the network structure (e.g., heterogeneity and size) and the patterns of interaction (e.g., Chen & Jiang, 2007; Coccio, Chae, & Natriello, 2007; Koku & Wellman, 2004). Along with these approaches, various methodological approaches have been explored in the study of CSCL and online community (de Wever, Schellens, Valcke, & Van Keer, 2006; Rourke, Anderson, Garrison, & Archer, 2001; Strijbos, Martens, Prins, & Jochems, 2006)

In addition, most studies regarding interaction and learning in online discussions have been conducted in formal and non-formal education settings, in which students’ participation and interactions typically are pre-designed, assigned, and regulated by instructors. In contrast, only a few studies have taken place in informal learning settings (e.g., Owen, Pollard, Kilpatrick, & Rumley, 1998; Schlager, Fusco, & Schank, 2002) and large-scale collectives (Kapur et al., 2007). The OC explored in this study is an informal entity and the members’ participation is voluntary and spontaneous. Therefore it is important to characterize the features of interaction and learning process in the OC as they may reveal different patterns and outcomes, and hence serve to identify some factors enabling interaction and learning processes in CSCL environments.

Study Context: Informal Online Community
The environment for this study is an online community (OC) for foodservice professionals. It was founded in 1996 as the first OC created for the foodservice industry and continues today as the largest, most active community of foodservice professionals. Services which this OC provides include Discussion forums & chat, Employment center, Weekly e-newsletter, Daily industry news & editorials, and market reports. Among these
services, to investigate the interpersonal plane, we mainly focused on members’ activities in the discussion forums where more frequent, constant interactions occur. The initial purpose of the discussion forums is to offer a place to ask questions and share information about experiences, skills, and knowledge in relation to the foodservice industry.

Our previous investigation of this OC at the community plane (Heo & Breuleux, 2008) revealed that this OC is an informal entity comprised of individuals who have wide ranges of years of experience and knowledge, from experts to novices throughout different areas in the foodservice industry. The number of registrants was over 40,000 (as of 2007) and this OC has been maintained actively and developed continuously since 1996. There are important roles in this OC, including one administrator (i.e., who takes charge of administrative tasks), a few informal moderators (i.e., who take care of other members and of the atmosphere), and a sufficient number of active members. The outcome of the collaborative interaction is a shared repertoire including not only tangible resources, such as several information resources and archives from the discussion forums, but also invisible and unwritten aspects (e.g., the memory of a Christmas message and the unwritten rules).

**Methods**

For the interpersonal plane, we initially followed a content analysis approach (Henri, 1992), which is essential “to assess the quality of interactions and the quality of the learning experience in a computer mediated conferencing environment” (Gunawardena et al., 1997, p. 398). The discourse of discussion transcripts was analyzed through Lampert and Ervin-Tripp (1993)’s coding process, which suggests a dynamic way of constructing a coding system between the top-down and the bottom-up approaches depending on the nature of data. We also considered a multi-layered analysis. The results of the sequential analyses with multiple-layers allow explaining the content of discussion as well as the form of interactions, which are closely connected with each other.

**Data Collection and Analysis**

Sample discussion transcripts were selected by time in order to “preserve the richest context” (Herring, 2004, p.351). In other words, all threads, which are groups of postings including an initial message and responses to it, posted in the discussion forum of “Chefs and cooks corner” in the year 2006 (between January 2006 and December 2006) were saved and reviewed. Hence, 227 threads were collected along with the 1,818 replies. Each sample thread was coded using five THEMES identified through analyzing the threads: Cooking (C), Administration (A), Career development (D), General information (G), and Social cue (S). Among them, more practice-related themes (e.g., C, A, and D) were focused in this study. In addition, the levels of MEMBERSHIP, which are technically assigned by the administrator of the OC according to the number of postings, were considered when reviewing initial messages of sample threads: New member (less than 10 postings), Member (10-100 postings), and Senior member (more than 100 postings).

Different purposeful sub-samples were consequently selected within the sample discussion transcripts (227 threads). The threads were divided into three groups according to the size of thread (i.e., number of replies): Small (0-2 replies), Medium (i.e., 3-16 replies), and Large (i.e., 17 replies and more). In this study, we assumed that each size group shows different interaction patterns and hence presents different aspects of interpersonal processes: (a) *small-size group*: why do the threads die?; (b) *medium-size group*: as the majority of the threads, what might account for the sustained task-relevant interactions in these threads?; and (c) *large-size group*: what circumstances foster the growth of these threads? Based on these assumptions, sample threads were selected from the three size groups. The sample threads selected from each size group were analyzed in terms of WHO (i.e., members: who replied to whom), HOW (i.e., process: conversational aspects), and WHAT (i.e., contents: what did they talk about). The contents were specified into three aspects: topics of contents (i.e., Task content, Task coordination, and Non-task), cognitive aspects (i.e., what kinds of information and knowledge they share), and concepts. Based on the results of the analyses, each sub-sample thread was graphically represented to show the complex components of interactions at a glance (see Figure 1).

![Figure 1. Components of interaction map.](image)

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Findings
Space limitation prevents us from providing detailed evidence, but we summarize the major findings and a forthcoming paper will provide additional details. From the results of analyses, we noticed that the initiator’s role influenced the effectiveness of interaction processes. In this paper, hence, we briefly present general features of interaction and learning process and discuss further the roles of initiators and interaction patterns.

General Features of Interaction and Learning Process
The number of participants in each thread did not show any relationship with the number of messages in terms of themes and levels of memberships. Though the majority of participants were senior members, a few messages were posted by member(s) or new member(s) in the threads. In addition, the senior members who participated in the threads were not limited to a few members, but included as many as 26 members. These results suggest that senior members’ contributions are well distributed across the topics of threads.

Regarding the content topics, most messages dealt with Task content related to the domain themes, for example Cooking (C), Administration (A), and Career development (D). One thread related to Task coordination in relation to community activities, for example improper capitalization in messages. For the content labelled Non-task, some threads included social cues, such as personal thoughts, reactions, and questions which are not related to the task content and the task coordination. This kind of content was often found in the threads presenting more complex and continuous interactions to ensure that discussions progress smoothly.

With regard to the cognitive aspects, the initial messages of the sample threads (n=227) identified three types of discussions: Problem solving, Sharing tacit knowledge, and Sharing thoughts and insights. Each thread presented a dynamic process of interactions depending on issues raised in the thread regardless of the themes, the initiators, and the types of discussions. In addition, an initiator’s request was followed by various kinds of responses: Direct response, References, Personal practice and experience, Alternative concern for the issue. Along with these features, we found some examples of argumentation between two or more members discussing different opinions over issues. It is interesting to note that the messages representing opinions diverging from the majority were posted by new members.

Roles of Initiators and Interaction Patterns
Interpersonal processes in the threads appeared differently depending on how the initiators engaged in the discussion activities. With regard to the initiators’ roles, Hara, Bonk, and Angeli (2000), for example, applied “the starter-wrapper technique” as an instructional strategy for online conferencing. They assigned two roles to each student: (a) the role of starter “who initiated weekly discussion by asking questions” and (b) the role of wrapper “who summarized the discussion” (p. 6). Although there was no assigned role in this OC, the role of initiator appeared significant and seemed to be critical to increase the degree and the quality of interactions in threads. The types of initiator engagement that we identified in the threads were Initiation, Follow-up, Second initiation, and Wrap-up.

Along with an initiator’s increased engagement, initial requests sometimes triggered additional requests and hence several issues were discussed within one thread rather than one issue kept up until the end. For example, first, an initiator started with one request and then raised a second more specific topic derived from some of the responses to the first request. This generated a second round of discussion and more participants were engaged in this thread. Second, a different issue with an initial request was posted in the middle of the thread and then the discussion resumed on the initial issue. Third, as the discussion progressed, the members offered responses about deeper aspects of the initial issue. These findings show that the initiators’ active participation fostered other respondents’ further participation and deeper discussion on the issues. Depending on the initiator’s role, various interaction patterns (Fung, 2004) were identified in the sample thread maps, such as Branching, Cyclic, Chained, and Complex interactions.

The majority of the sub-sample threads presented the branching interaction pattern, which develops when each member offers a response to the initiator without interacting with other respondents. In these threads, different individual members expressed their own thoughts embedded in personal experiences and offering various perspectives on the issue. The simple branching interaction pattern is often presented when an initiator’s role is limited to the initiation without further engagements.

Along with the branching interactions, four threads also showed the cyclical interactions pattern. The cyclical interaction pattern is often presented when the initiator actively interacts with each respondent through follow-up and constructively engages in the activities within his/her own thread through a second initiation and a wrap-up. Another type of cyclical patterns was observed when two other respondents interacted with each other, for example, in cases of argumentation.

One thread presented the chained interaction pattern, in which a participant expresses one’s thoughts, ideas, and opinion by referring to what others have responded in the thread. Within this interaction process,
though the initiator’s role did not seem to be active, the issue initiated at first was developed by expressing agreement or disagreement on the previous message.

The complex interaction patterns demonstrated more dynamic and complex processes by combining two or more interaction patterns, such as cyclic, chained, and branching throughout the whole thread. In sum, the sample threads presented diverse interaction patterns, such as cyclic, chained, branching, and complex interactions depending on the topics of the threads, suggesting that productive and effective interactions occur in this OC. The interaction pattern of a thread seems to be influenced by the degree of the initiator’s engagement, that is how s/he engages actively in the activities occurring within the thread.

Discussion and Conclusion
The characteristics of interaction and learning processes at the interpersonal plane in this OC were identified as follows: First, an initiator’s role is crucial to effective interaction processes. Most issues discussed in this OC are derived from individual practice rather than collective practice among members. Each member brings an issue that s/he encounters in his/her practice in order to solve the problem or to change and/or to share others’ knowledge, experiences, ideas, and insights. Through the interactive, collective processes among the group, the individual member can change and develop his/her practice. Hence, the initiator should be an active participant in the thread and decision maker to determine what s/he will do in his/her practice in relation to the issue, based on others’ responses. In other words, an initiator’s role as a wrapper (Hara et al., 2000) is critical in this OC. In addition, the initiator’s active engagement through follow-up to others’ responses elicits the cyclical interaction pattern.

Second, subsequently, most threads are not deliberately trying to achieve one shared agreement or conclusion. Rather, it is still meaningful for members to share and collect various aspects of an issue from other members who have different backgrounds, experiences, knowledge, and insights. This process is represented as the branching interaction pattern. This interaction pattern can occur in an atmosphere of mutual respect where members accept the others’ practices, thoughts, and insights rather than evaluate and criticize them. This kind of interaction pattern corresponds to cumulative talk, in which “speakers build positively but uncritically on what the other has said” (Wegerif & Mercer, 1997).

Third, argumentations in the threads often occur when a member expresses different opinions from the shared insights that have been agreed mutually and accepted implicitly as part of the culture in this OC. In most cases, new members bring new issues to the OC and this allows existing members to reify the values shared within the OC. The engagement of new members hence seems to be one factor affecting the evolution of the community.

Fourth, this kind of argumentation usually advances the understanding of each other’s perspective and in some cases participants come to an agreement in a warm, respectful manner along with kind social cues. Such argumentation process between two or more members often characterizes the cyclical interaction pattern. In addition, the sequence of messages can correspond to exploratory talk (Barnes, 1976), in which “partners engage critically but constructively with each other’s ideas … These may be challenged and counter-challenged, but challenges are justified and alternative hypotheses are offered” (Wegerif & Mercer, 1997).

Fifth, the roles of senior members are salient in the interpersonal plane. This OC involves a sufficient number of active senior members, making it possible to sustain productive and effective interactions and to provide multiple perspectives depending on the topics of threads. Senior members also play a leading role in maintaining a positive atmosphere in this OC.

Implications
This study advances our knowledge of analytical approaches, which are multi-layered analysis and interaction maps presenting complex components of interactions and learning in CSCL contexts. By applying these approaches, CSCL researchers are able to investigate interaction patterns in terms of not only quantitative frequencies but also qualitative features and to further understand the natures of each interaction pattern and its meanings in the CSCL contexts.

In addition, the findings of this study offer practical suggestions for instructional strategies which can facilitate interactions and learning in OCs. When designing participation frameworks for online discussions, instructors should emphasize the importance of initiators’ roles in the pertinent discussion threads and clarify their roles such as follow-up, second (or further) initiation, and wrap-up. It would be also helpful for instructors to observe interaction patterns to monitor and diagnose learners’ interaction and learning processes.

Endnotes
(1) The form of learning when a teacher has the authority to determine that people designated as requiring knowledge effectively learn a curriculum taken from a pre-established body of knowledge (Livingstone, 2001, p.3).
The form of learning when learners opt to acquire further knowledge or skill by studying voluntarily with a teacher who assists their self-determined interests by using an organized curriculum, as is the case in many adult education courses and workshops (Livingstone, 2001, p.3).

Any activity involving the pursuit of understanding, knowledge or skill which occurs without the presence of externally imposed curricular criteria (Livingstone, 2001, p.5)

References