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Fostering Knowledge Sharing in Ad Hoc Transient Communities

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Abstract. To enhance users' social embedding within Learning Networks, we propose to establish so called ad hoc transient communities. These communities serve a particular shared goal, exist for a limited period of time, and operate according to specific social exchange policies that foster knowledge sharing. This paper introduces the concept behind this type of communities and describes the conditions and policies needed to encourage knowledge sharing.

Keywords: Learning Networks, policies for social networks

1 Introduction

Learning Networks (LN) are self-organizing communities for life long learning (Koper & Sloep, 2003). The notion is meant to emphasize that the social structures that are needed for learning, emerge on top of a responsive, sophisticated, yet non-imposing (technical) infrastructure that allows life-long learners to develop their own preferred modes of interaction.

Life-long learners are supposed to control their own learning activities. They may build, for example, their own learning plans, produce their own reports on assignments, and collect their own bookmarks and scholarly references. Because of this self-directedness, learners in a LN are unlikely to be organized in cohorts or classes. An unfortunate side-effect of this is that they may easily become isolated as long as it is difficult for them to interact with their peers. Even worse, because they do not feel engaged or committed they have less desire to interact with others. This is problematic, since research shows that individual success on learning activities depends on the extent to which learners perceive themselves as participants of a network (Wegerif et al., 1998). It does not suffice to build an infrastructure that merely facilitates social interaction: learners need incentives actually to use it.

Within the TENCompetence project (www.tencompetence.org), our current research aims at identifying policies that foster knowledge sharing amongst learners. More specifically, in our view ad hoc transient communities, which exist to fulfil a particular request (their ad hoc-ness) and for a limited period of time only (their transience), will enhance the sociability of a LN, and increase learning effectiveness (Sloep et al., 2006; Kester et al., 2006). Our premise is that tuning the community characteristics and the

learner characteristics to the community goal, by means of social exchange policies, will enhance the knowledge sharing process.

The rest of this paper is structured as follows: first, it characterizes the notion of an ad hoc transient community and explains the theoretical background behind its organization and behind the actions of its members. Subsequently, it explains the conditions that enable knowledge sharing in these communities. Thereafter, it mentions some examples of the use of policies in social networks and in ad hoc transient communities. Finally, it draws conclusions and lays out possibilities for future work.

2 Ad hoc transient communities

Ad hoc transient communities can be characterised as follows:

- They exist for a limited period of time
- They aim at knowledge sharing. Some examples are peer-tutoring (Van Rosmalen et al., 2006), collaborating on a paper, acquiring advice on how to proceed one's studies, and obtaining and sharing references (bookmarks)

We surmise that ad hoc transient communities enhance the social embedding of LN users. This claim is based on the belief that it is 'swift trust' that drives these communities. Swift trust emerges in temporary teams which are formed around a clear purpose and common task, and have a finite life span (Meyerson et al., 1996; Coppola et al., 2004). Swift trust fosters a willingness to suspend doubt about whether others, who are 'strangers', can be counted on in order to get to work on the group's task. Swift trust thus helps establish engagement and commitment.

3 Behaviour of ad hoc transient communities

The overall performance of ad hoc transient communities results from the behaviour of their members and the way they interact. Several theories detail how group interactions affect community behaviour. We now investigate what these theories may have in store for ad hoc transient community behaviour.

Learning Networks are organized in such a way that they lack formal control hierarchies. The self-organization theory (Varela, Thompson, & Rosch, 1991) puts forward that the behaviour of a system is a complex aggregation of the interactions of all the parts (i.e. individual users). As no part controls the whole, nor can even control another part outside the influence of the rest of the system, such systems are 'self-organizing' and the behaviour of aggregates of components is said to be 'emergent'. Since ad hoc transient communities are assembled from Learning Network members and since they also lack isolated controlling agencies or control hierarchies they are also self-organising and their behaviour emerges.

According to social exchange theory (Thibaut and Kelly, 1959), which applies Skinner's behaviourism to groups, group members negotiate through their mutual interactions and thus secure personal rewards while minimizing costs. Individuals no

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longer fully control their outcomes and interdependences are created: individual actions potentially influence outcomes and actions of every other individual.

Moreover, individual group members monitor each other's qualities and behaviour. The expectation-states theory (Berger, Wagner & Zelditch, 1992) focuses on the cognitive processes that occur within each individual in the group. Newcomers form an impression of the group, and search for information about the other group members. Group members search their memories for stored information about the group and tasks it must face; they take note of the actions of others and try to understand what caused the other member to act in this way. Group members allocate two kinds of status characteristics: specific status characteristics, i.e. qualities attested to each individual's level of ability to perform the specific task at hand; and diffuse status characteristics, i.e., general qualities that group members think are relevant to ability and evaluation. Members with the most status-earning characteristics will rise to the top.

Finally, the community members set goals and work towards these goals through united actions. As self-organization theory, systems theory (McClure, 1998) regards groups as systems of interacting individuals. However, according to systems theory, it is the task of the group to analyze inputs, provide feedback to members, and generate decisions regarding group actions. The analysis is focused on the information input –such as characteristics of individual members (skill, experience, training, motivation) and group-level factors (group structure and cohesiveness)–, the processes during group work (communication, planning, conflict and leadership) and the products that are generated as output. This organization is initiated by the system itself, and may undergo gradual and rapid change.

4 Policies that enable knowledge sharing in ad hoc transient communities

Successful learning communities, including ad hoc transient communities, are characterized by boundaries which protect the collective goods (the boundary condition), are populated with a heterogeneous group of members to assure their liveliness (the heterogeneity condition), and are equipped with guidelines to encourage ongoing interactions amongst its members (the accountability condition) (Kester et al., 2006).

To meet the boundary condition communities should have a clear goal, such as a particular way of sharing knowledge. Moreover, they need to have a set of rules that govern the use of common resources and that point out who is responsible for producing and maintaining the collective goods. Community members should be responsible for setting and modifying these rules themselves. By monitoring each other's actions in a community, community members see whether their fellow members comply with the rules; if so, this will make them more willing to comply themselves. A transparent community with clear boundaries and rules allows group members to sanction the behaviour of other group members.

According to Amichai-Hamburger and Furnham (2007) Bandura's social learning theory helps understand why community members adhere to a particular set of rules (social norms). Bandura claims that behavioural patterns of existing community members who are respected or loved, are likely to be mimicked by newcomers. So it is important that existing members conduct themselves in ways that are beneficial to the community as a whole and thus become respected role-models.

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To meet the heterogeneity condition communities should be populated with participants who differ with respect to at least, three characteristics: expertise with communities (“newbies” versus veterans), trendsetters (connectors, mavens, salesmen) (Nichani, 2001) and inclination to participate (posters, lurkers). To what extent the composition of an ad hoc transient community needs to be heterogeneous depends on the goal of the community. It may well be that certain types of knowledge sharing or certain occasions or objectives maximally benefit from heterogeneity, while others definitely do not.

The accountability condition groups aspects related to the members’ identification and performance within the community. First, communities should ensure the *recognizability* of learners by forbidding the use of (multiple) aliases. Also, a *historical record* of user activities should be maintained by logging all user-activities. The ones most significant for knowledge sharing –activities that reflect content competency and sharing competency– become part of the user’s dossier (e-portfolio). To enhance individual accountability (Slavin, 1995), both content and sharing competency of a user should be visible to the members of a particular ad hoc transient community. For the same reason, rating should not be anonymous. Additionally, communities should *acknowledge* the actions and behaviour of their members by showing, for example, their posts, replies, number of votes received, ranking, and so on.

Finally, within the accountability condition, communities should guarantee the *continuity commitment* of contact by demanding that all community members are accessible; if they use aliases, they should use one only and use it persistently. But continuity of contact only makes sense if there is extra value as compared to just having access to others. Therefore, Learning Network users should be allowed and stimulated to maintain a rich online identity. This should preferably be done through a digital dossier or e-portfolio that contains information on a user’s background. It should also be updated regularly and automatically, almost as a track record of someone’s presence in the Learning Network.

5 Current practices

There are several applications which allow implementation and/or enforcement of policies for social networks. For example, applications such as Orkut (www.orkut.com), LinkedIn® (www.linkedin.com) and Friendster® (www.friendster.com) use policies concerning the accountability condition by allowing people to create their profile and make it available to others. They also enforce the continuity of commitment allowing members to create links to others and to comment on each other’s profile. Moreover, these social networks fulfil the boundary condition by having mechanisms for monitoring and sanctioning members’ undesirable behaviour.

Current practices of ad hoc transient communities –specially those that members can use when they want some support (find a person who will answer a question) or when they want to know something–, include communities such as Yahoo!® Answers (answers.yahoo.com), Yedda (yedda.com), Live QnA (www.qna.live.com), Wondir (www.wondir.com), Answer bag (www.answerbag.com), Scholieren (questions about homework; www.scholieren.com), and Cisco NetPro (questions about technical issues; www.cisco.com/go/netpro). These communities can be seen as Learning Networks since their structure does not have hierarchies, their members have a common goal (share

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knowledge). Furthermore, in them ad hoc transient communities of answer seekers and providers arise as their members negotiate answers and monitor each others qualities and behaviour.

Regarding the conditions that enable knowledge sharing, these communities fulfil the accountability condition by identifying the users, keeping a historical record of their actions and making visible their activity (e.g., showing how many questions they have answered¹). Moreover, these communities meet the boundary condition providing participants with community guidelines and mechanisms to rate² and to sanction contributions of the members. The heterogeneity condition, however, is not controlled since everyone can become a member of these communities. However, taking into account the number of registered users –Wondir reported 200,000 users (Caumont, 2005), and Yahoo![®] Answers 12.3 million (Hamner, 2006)–, we may safely assume they are populated with participants from different backgrounds.

6 Conclusions and future work

In this paper we argued that ad hoc transient communities will enhance the sociability of Learning Networks and will increase learning effectiveness.

The ad hoc transient communities' behaviour is characterized by (a) the self-organizing component of the community and the absence of hierarchies, (b) the negotiation processes that the members engage in, (c) the expectation members have of the actions and behaviour of their fellow members, and (d) the work of members towards a set of goals through united actions.

In order to enhance knowledge sharing, communities should have policies regarding the goal and behaviour of the community (boundary condition), the characteristics of the participants (heterogeneity condition), and their identification and actions (accountability condition).

Currently, by means of simulations (Koné et al., submitted), we are investigating how we can stimulate collaboration by influencing member behaviour in ad hoc transient communities. The result of these simulations, and the policies described in this paper, will be taken into account to develop what may be called a social search engine, that will find interesting and available peers to populate ad hoc transient communities and thereby make Learning Networks more effective, efficient and attractive instruments for knowledge sharing.

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¹ See, for example, <http://www.wondir.com/wondir/jsp/Top100.jsp>

² See, for example, answers.yahoo.com/info/scoring_system

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