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PERSONAL PROFILING TO STIMULATE PARTICIPATION IN LEARNING NETWORKS

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Abstract

Today continuous acquisition of new competences and updating existing capacities is crucial to personal empowerment and job performance. Due to the dynamics of the rapid technological change our society experiences, traditional, classroom-based methods of learning fail to meet the learning demands of today's lifelong learners. People as self-directed learners will learn via informal knowledge sharing in ad hoc learning communities and Learning Networks. The Personal Competence Manager under construction in the TENCompetence project aims to support the knowledge development of learners in social interaction with their peers in learning communities.

Social encounters in Learning Networks need various cues to allow them to help meet a person's learning needs. From the multiple suggestions to bootstrap learning interaction that are available, we will in this paper look at the role personal profiling and context portfolio information can play. Our particular focus will be building a common ground for communication and trust ultimately to enhance the learning process.

Keywords

Learning Networks, ad hoc transient community, enhancing participation in communities, personal profile, swift trust

Introduction

Acquiring new knowledge and competences has become key to personal well-being and performance in our society. Lifelong learning requires a different view on education. Traditional education no longer suffices in modern-day society in which, because of the changes in culture and economy, people are expected to continually develop and maintain their competences. Learning takes place any time any place in varying contexts of a person's daily life, including learning for personal empowerment and learning on the job. This requires a different approach than the classroom-based educational propositions of traditional educational institutes.

To fit a person's needs across his jobs and stages of life, the individual learner has to become the organizer of his own competence development (J. S. Brown & Duguid, 1991; European Commission, 2001) In our view, this individual's informal and formal learning will take place in the context of various Learning Networks and ad hoc transient communities therein (Kester et al., 2007). In such environments, the person with a learning demand connects to his peers, relevant experts and learning resources to achieve his learning ambitions. Instead of adopting primarily a re-active consumer role, the learner becomes a proactive co-creator of his competence development trajectories, actively searching for learning resources and asking for input and feedback from others, both known experts and peers. The TENCompetence project develops a supportive infrastructure to enable optimal learning for individuals, groups and organisations via competence development encounters, programmes and communities on the substrate of the European wide TENCompetence learning infrastructure (Koper & Specht, 2007; Vogten, Koper, Martens, & Van Bruggen, in press).

As the learner takes control over his personal competence development, it is in his interest to find suitable learning opportunities, relevant information and optimal support, particularly in interactions with others. The key question then becomes which factors in the community inhibit or enhance social

interaction for effective learning. It is against this background that we investigate aspects of successful social interactions in online learning communities. In this paper therefore, we focus our attention on the question what factors stimulate active participation in the social structures of a Learning Network.

Affordances for learning in Learning Networks

In the first instance, a Learning Network may be seen as a collection of people who share the intention to learn something about a particular domain of knowledge. Defined this way, a Learning Network does not yet qualify as a community since that would presume its members somehow to interact and share a history. In a Learning Network initially this will be only accidentally be the case for a few people. However by building up and strengthening social ties within the Learning Network, gradually a genuine learning community will arise. Through active participation in the community the learning goals people have set for themselves will be attained more effectively, more efficiently, more attractively. We surmise that reshaping a Learning Network as a community enhances the quality of the members' learning experience (Kester et al., 2007).

Large networks, that allow sub-communities to arise such that a few community members get together to address a specific goal, are usually more effective (Lui, Lang, & Kwok, 2002). This principle is captured by our notion of ad hoc transient communities: small communities in the larger network formed to obtain a specific learning related goal that cease to exist when the goal is reached. Through ad hoc transient communities we aim to increase the sociability in the Learning Network and enhance the knowledge sharing process (Kester, van Rosmalen et al., 2006; Kester et al., 2007). A first elaborated example of an ad hoc transient community is the scenario of a learner, while studying a particular topic, has a question related to the course contents and seeks answers for this question from his peers (van Rosmalen et al., in press).

What needs to be done to make this type of community for learning “tick”? What is important in the structure or design of this type of communities on the one hand and what triggers an individual to be an active participant in a learner community on the other hand? Within the TENCompetence project we investigate theories on community participation, collaborative learning in online communities to design triggers for co-constructive e-learning participation in Learning Networks at large. We analyze motivational factors and incentive mechanisms and their effect in successful communities as described in the literature; we look at effects of these mechanisms both as proposed by relevant theories and as found in successful online communities (Berlanga et al., submitted). Based on that, we propose and describe a design rationale for a profile and portfolio type incentive, and argue why it will enhance participation in (ad hoc transient) communities.

There is an extensive literature on how to set up and maintain communities as well as on policies for effective communication and stimulation of participation (Bitter-Rijkema, Martens, & Jochems, 2002; Bogenrieder & Nooteboom, 2004). The majority of this research however stems from the P2P systems that arose some years ago (like Napster, Kazaa), social communities such as movie rating communities, and communities of practice that have existed over longer periods of time with shared, long-term goals and a clear division of labour. In Learning Networks, however, users participate in a network for a relatively short period of time, they share a similar goal, e.g. to obtain a specific competence for a certain job or function, say travel agent, and become competent in booking complex travel arrangements using a new system. The shared interest and knowledge exchange time horizon in Learning Networks therefore are different from the mainstream public communities studied in existing literature. In the Learning Network communities of the TENCompetence Personal Competence Manager there is no division of labour, members of Learning Networks are all equal, they can take different roles and will do so depending on the issue central to the existence of the community. In addition, the ad hoc transient communities arising within a Learning Network will often start as a small community, living as long as the issue that triggered its existence is under debate and dissolving once no new issues arise. One may justifiably wonder whether policies and strategies found to work in large online communities that exist over long periods of time are applicable to Learning Networks and the ad hoc transient communities thereof that are so typical for the networked learning of TENCompetence.

As Kester, Sloep, et al. (2006) describe, effective learning communities depend on social space, characteristics of the members and characteristics of the community. Affective relationships, strong group cohesiveness, trust, belonging, and satisfaction characterise social space. Social interaction enhances the emergence of social space. For social interaction, in particular cooperation to occur there should be continuity (it must be possible and likely for people to meet again in future), recognisability (people should be able to recognise each other), and history (people should know the past behaviour of the other participants). If these conditions are not met, people are more prone to act selfishly, because they can not be held accountable for their actions (Kollock & Smith, 1996).

Further, to enable knowledge sharing and learning in communities, clear boundaries and rules that are monitored and sanctioned are required (Kollock & Smith, 1996) as well as a heterogeneous group composition (Preece, Nonneke, & Andrews, 2004), as summarised by Kester, van Rosmalen, et al. (2006).

Participation propositions

In the literature, many theories on motivation to contribute to and participate in, mostly peer to peer, communities have been described. Researchers looked at psychology and community behaviour reviews for theories to explain users' behaviour in communities and mechanisms to enhance contributions and participation. Social exchange theory is often mentioned as a theoretical framework for community behaviour. Millen and Patterson (2002) and Erickson and Kellogg (2000) argue that visualising users and their actions in a community is important to stimulate participation. Cheng and Vassileva (2005) present five theories (reciprocation theory, consistency theory, social validation, persuasiveness of liking, theories of discrete emotions) to explain why community members would participate and contribute; they applied design rules based on these theories to a P2P system used by university students. Lui et al. (2002) summarised psychological studies by several authors to explain motivation and incentives for participation in communities and reported that both individual and interpersonal factors play a role in the motivation of people. The individual factors again can be divided into extrinsic motivations (rewards, personal needs) and intrinsic motivations (altruism, reputation). Ling et al. (2005) applied design principles based on social psychology theory to the Movielens application, a movie rating site; they were able to confirm that people would contribute more when the system showed them how unique they and their contributions were, and when they set specific goals to attain. Most authors seem to conclude that incentive and reward mechanisms have to be in place for people to share knowledge.

Affording building swift trust via profile and portfolio information

Focusing on community member profile information and member portfolio information, what would be possible incentives to participation? The rationale behind this question is that in Learning Networks and in ad hoc transient communities members have to become acquainted to a certain degree to learn to appreciate the context and ambition from which peers act and interact. This, in its turn, is needed in order to develop sufficient trust to engage in the learning conversations and find enough common ground for fruitful knowledge exchange.

Visualizing the users in the system and their contributions to and participation in the community should promote contribution and participation because it raises awareness of a user's own actions and those of others; it also demonstrates people's responsibility and the consequences of their actions (Erickson & Kellogg, 2000). Meyerson, Weick, & Kramer (1996) and Coppola, Hiltz, & Rotter (2004) discuss the notion of swift trust, which emerges in temporary teams whose existence is formed around a clear purpose and common task with a finite life span. Swift trust helps to establish engagement and commitment (Sloep et al., 2007). Community member characteristics are also important. People differ with regard to their experiences in communities. Veterans show good community behaviour in that they help others, share knowledge, and sustain relationships (R. E. Brown, 2001). Additionally, participants differ in their willingness to post. A lurker or free rider never posts (Preece et al., 2004). All these mechanisms and factors relate back to personal characteristics and information present in the user's profile and portfolio.

Bitter-Rijkema (Rutjens, Bitter-Rijkema, & Crutzen, 2003) and Rusman (Rusman, van Bruggen, & Koper, 2007) emphasize the relevance of background information on personal identity and expertise to provide a foundation for effective knowledge communication and (swift) trust. In 2003 Bitter-Rijkema (Rutjens et al., 2003) designed an easy-to-use template for community members to introduce themselves and their expertise; it also allowed them to give relevant context information and communication style preferences as a means to start further interaction. This so called pEXPI (abbreviation for **personal expertise inventory** or personal identity and expertise profile) was received well. It has been reused and adapted to various communities since its introduction, including various academic learning communities; the authentic virtual business learning environment OTO, a virtual software computer science company, is a case in point. Another example is the European Virtual Seminar, a community of international students in environmental sciences collaborating on European sustainability issues. More recent implementations involve the academic competence development environment (AIC) of the Master of Computer Science students at the Open Universiteit Nederland and a community of management professionals. Recently Rusman et al. (2007) investigated the value of pEXPI for trust building in a community (Meyerson et al., 1996).

Two survey studies (Ogg et al., 2004; Rusman et al., 2007) showed positive perceptions of the use of pEXPI to kick-start the learning interaction and collaboration in the European Virtual Seminar. Bitter-Rijkema and Schoonenboom (Ogg et al., 2004) found that according to both students and tutors a pEXPI did indeed contribute to the emergence of community feeling in the start-up phase of a community. It proved that pEXPI especially contributed to building up a mental picture of one's peers and to feeling comfortable to get in touch with each other. As one respondent said "Group feeling requires at the start a personal click! You need to get to know each other in a way ... for more than the task alone ...". With this insight information "it is easier to get commitment from a few mates..." Interestingly, tutors also value the pEXPI later on to use as a quick reference to the student.

The 2007 survey of Rusman showed that pEXPI increased the perceived trustworthiness of peer community members; it also pointed out pEXPI's use as a trigger for further collaboration, being especially helpful to quickly form a first image of peer community members at the start of the project, allowing subsequent further elaboration of this image based on a person's contributions to community interaction. Two pEXPI users articulated their experiences as follows: "It helps me a bit to visualize the people. Otherwise it will just be a name on the email headings. A pEXPI make them more real" (student 1, 31.50). Referring to the pEXPI, "It's the only idea that you have of your team members...It's the only way that you can get a kind of personal bond with them and see what they look like and to form an impression of what kind of person they are" (student 2, part 2, 19.37) (Rusman et al., 2007).

The current implementations of pEXPI are templates that are completed by the students. In the context of a Learning Network, a pEXPI can be extended by automatically including portfolio information into the pEXPI and supplementing the pEXPI information with evidence from the portfolio. A portfolio is a relevant source of background information on what the peer interests as well as on past performance/work results. Information on the type of (study) work a person has already done in the domain provides both the request side (the person initiating the ad hoc transient community) and those providing "answers" (supply side) with clues/background information provisional for matching expectations and tuning in on the right wavelength for a fruitful knowledge exchange (Bitter-Rijkema et al., 2002; Coppola et al., 2004; Meyerson et al., 1996; Rutjens et al., 2003).

In Learning Networks portfolio information in the sense of goal, (level of) competences attained, and personal and professional interests is equally important when trying to get into contact with experts or peers, or finding the most suitable course to continue with, or any other form of learner support. Ad hoc transient communities for which members were selected based on content competence, eligibility (similarity to peers) and availability seemed to be more successful in providing peer support than communities whose members were selected on the basis of availability alone (van Rosmalen et al., in press).

pEXPi

Personal data

First name:

Surname:

Position within OTO

[[Briefly describe your objectives and which tasks you have within the team.]]

Availability for OTO

[[Which hours (date/time) are you available for OTO; at which moments are you active in eRoom?]]

Mindmap

[[Make a Mindmap. This serves a twofold objective: make a mindmap indicating your expertise; you practise mindmapping technique. Place here a reference to the location of your mindmap.]]

Knowledge and expertise domains

[[Indicate your areas of expertise (programming languages, methods, techniques, skills, competences, etc.). And describe how other can contact you for your expertise.]]

Work-related interest

[[Indicate your interests. Also those for which you have no to limit experiences, but you like to expand.]]

Study and work-related experiences

[[Briefly describe your study and work history.]]

Other interest and hobbies

[[Provide other interests and hobbies that are not related to your job.]]

My relevant links

[[Links to website you consider important for learning and working within OTO.]]

Figure 1: original pEXPi template

Conclusion

In this paper we described motivational mechanisms that build on psychological and behavioural theories. The mechanisms are to stimulate social interaction and knowledge sharing in order to enhance sociability in Learning Networks and therewith ensure that the community is effective and thriving.

All these factors and conditions, in some way or another are important for the working of communities and to stimulate participation and contribution in communities. For most of the conditions, factors, mechanisms, etc. theoretical backing can be found in social and behavioural studies. It turns out that most successful communities make use of this by either making the characteristics apparent, by providing incentives or even rewards. Most theories somehow relate to personal factors or characteristics. Based on this assumption we propose the use of pEXPi combined with portfolio information as incentive mechanism to enhance participation and contribution in communities, building on the notion that trust is a result of relationships between people and can only arise when people get to know each other. This combined with other incentives and policies for online communities should enhance sociability in the Learning Network and thereby have a beneficial effect on learning.

The next step forward is to determine which of the motivational mechanisms and incentives described in literature are relevant and appropriate to Learning Networks and the functioning of ad hoc transient communities, how they should be implemented and incorporated in Learning Networks and how and which portfolio information is used and required to stimulate the working of communities and promote

learning in Learning Networks. To that end, we will build upon an existing prototype for ad hoc transient communities designed to promote peer tutoring (van Rosmalen et al., in press).

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References

1. BERLANGA, A. J., SLOEP, P. B., BROUNS, F., VAN ROSMALEN, P., BITTER, M., & KOPER, R. (SUBMITTED). *FUNCTIONALITY FOR LEARNING NETWORKS: LESSONS LEARNED FROM SOCIAL WEB APPLICATIONS*. PAPER PRESENTED AT EPORTFOLIO 2007.
2. BITTER-RIJKEMA, M. E., MARTENS, R. L., & JOCHEMS, W. M. L. (2002). *SUPPORTING KNOWLEDGE ELICITATION FOR LEARNING IN VIRTUAL TEAMS*. EDUCATIONAL TECHNOLOGY & SOCIETY, 5(2), 113-118.
3. BOGENRIEDER, I., & NOOTEBOOM, B. (2004). *LEARNING GROUPS: WHAT TYPES ARE THERE? A THEORETICAL ANALYSIS AND AN EMPIRICAL STUDY IN A CONSULTANCY FIRM*. ORGANIZATION STUDIES, 25(2), 287-313.
4. BROWN, J. S., & DUGUID, P. (1991). *ORGANIZATIONAL LEARNING AND COMMUNITIES OF PRACTICE: TOWARD AN UNIFIED VIEW OF WORKING LEARNING AND INNOVATION*. ORGANIZATION SCIENCE, 2(1), 40-57.
5. BROWN, R. E. (2001). *THE PROCESS OF COMMUNITY-BUILDING IN DISTANCE LEARNING CLASSES*. JOURNAL OF ASYNCHRONOUS LEARNING NETWORKS, 5(2), 18-35.
6. CHENG, R., & VASSILEVA, J. (EDS.). (2005). *USER MOTIVATION AND PERSUASION STRATEGY FOR PEER-TO-PEER COMMUNITIES* (PROCEEDINGS OF THE 38TH ANNUAL HAWAII INTERNATIONAL CONFERENCE ON SYSTEM SCIENCES (HICSS'05) – TRACK 7, 2005).
7. COPPOLA, N., HILTZ, S. R., & ROTTER, N. (2004). *BUILDING TRUST IN VIRTUAL TEAMS*. IEEE TRANSACTIONS ON PROFESSIONAL COMMUNICATION, 47, 95-104.
8. ERICKSON, T., & KELLOGG, W. A. (2000). *SOCIAL TRANSLUCENCE: AN APPROACH TO DESIGNING SYSTEMS THAT SUPPORT SOCIAL PROCESSES*. ACM TRANSACTIONS ON COMPUTER-HUMAN INTERACTION (TOCHI). SPECIAL ISSUE ON HUMAN-COMPUTER INTERACTION IN THE NEW MILLENNIUM. PART 1, 7(1), 59-83.
9. EUROPEAN COMMISSION. (2001). *MAKING A EUROPEAN AREA OF LIFELONG LEARNING A REALITY*. RETRIEVED 16 JUNE 2007, FROM [HTTP://EUROPA.EU.INT/COMM/EDUCATION/LIFE](http://europa.eu.int/comm/education/life)
10. KESTER, L., VAN ROSMALEN, P., SLOEP, P., BROUNS, F., BROUWERS, M., & KOPER, R. (2006). *MATCHMAKING IN LEARNING NETWORKS: A SYSTEM TO SUPPORT KNOWLEDGE SHARING*. PAPER PRESENTED AT THE INTERNATIONAL WORKSHOP IN LEARNING NETWORKS FOR LIFELONG COMPETENCE DEVELOPMENT, TENCOMPETENCE CONFERENCE, 30-31 MARCH, 2006, SOFIA, BULGARIA.
11. KESTER, L., SLOEP, P., BROUNS, F., VAN ROSMALEN, P., DE VRIES, F., & DE CROOCK, M. (2006). *ENHANCING SOCIAL INTERACTION AND SPREADING TUTOR RESPONSIBILITIES IN BOTTOM-UP ORGANIZED LEARNING NETWORKS*. PAPER PRESENTED AT THE IADIS INTERNATIONAL CONFERENCE WEB BASED COMMUNITIES, 26-28 FEBRUARY, 2006, SAN SEBASTIAN, SPAIN.
12. KESTER, L., SLOEP, P. B., VAN ROSMALEN, P., BROUNS, F., KONÉ, M., & KOPER, R. (2007). *FACILITATING COMMUNITY BUILDING IN LEARNING NETWORKS THROUGH PEER-TUTORING IN AD HOC TRANSIENT COMMUNITIES*. INTERNATIONAL JOURNAL ON WEBBASED COMMUNITIES, 3(2), 198-205.

13. KOLLOCK, P., & SMITH, M. (1996). *MANAGING THE VIRTUAL COMMONS: COOPERATION AND CONFLICT IN COMPUTER COMMUNITIES*. IN S. HERINGS (ED.), *COMPUTER-MEDIATED COMMUNICATION: LINGUISTIC, SOCIAL, AND CROSS-CULTURAL PERSPECTIVES* (PP. 109-128). AMSTERDAM: JOHN BENJAMINS.
14. KOPER, R., & SPECHT, M. (2007). *TENCOMPETENCE: LIFELONG COMPETENCE DEVELOPMENT AND LEARNING*. IN M. A. SICILIA (ED.), *COMPETENCIES IN ORGANIZATIONAL E-LEARNING: CONCEPTS AND TOOLS*: IDEA GROUP.
15. LING, K., BEENEN, G., LUDFORD, P., WANG, X., CHANG, K., LI, X., ET AL. (2005). *USING SOCIAL PSYCHOLOGY TO MOTIVATE CONTRIBUTIONS TO ONLINE COMMUNITIES* [ELECTRONIC VERSION]. *JOURNAL OF COMPUTER-MEDIATED COMMUNICATION*, 10(4). RETRIEVED 16 JUNE 2007 FROM [HTTP://JCMC.INDIANA.EDU/VOL10/ISSUE4/LING.HTML](http://jcmc.indiana.edu/vol10/issue4/ling.html).
16. LUI, S., LANG, K., & KWOK, S. (2002). *PARTICIPATION INCENTIVE MECHANISMS IN PEER-TO-PEER SUBSCRIPTION SYSTEMS*. PAPER PRESENTED AT THE 35TH ANNUAL HAWAII INTERNATIONAL CONFERENCE ON SYSTEM SCIENCES (HICSS'02).
17. MEYERSON, D., WEICK, K. E., & KRAMER, R. M. (1996). *SWIFT TRUST AND TEMPORARY GROUPS*. IN R. M. KRAMER & T. R. TYLER (EDS.), *TRUST IN ORGANIZATIONS: FRONTIERS OF THEORY AND RESEARCH* (PP. 166-195). THOUSAND OAKS, CA: SAGE.
18. MILLEN, D. R., & PATTERSON, J. F. (2002). *STIMULATING SOCIAL ENGAGEMENT IN A COMMUNITY NETWORK*. PAPER PRESENTED AT THE CSCW '02, 16 - 20, NOVEMBER, 2002, NEW ORLEANS, LOUISIANA, USA.
19. OGG, H., VAN ELK, L., HONDIUS, A., STOFBERG, A., VAN DER AA, P., BITTER-RIJKEMA, M., ET AL. (2004). *HANDBOEK SAMENWERKEND LEREN DIGITAAL ONDERSTEUND*. UTRECHT: DIGITALE UNIVERSITEIT.
20. PREECE, J., NONNEKE, B., & ANDREWS, D. (2004). *THE TOP FIVE REASONS FOR LURKING: IMPROVING COMMUNITY EXPERIENCE FOR EVERYONE*. *COMPUTERS IN HUMAN BEHAVIOR*, 20, 201-223.
21. VAN ROSMALEN, P., SLOEP, P., KESTER, L., BROUNS, F., DE CROOCK, M., PANNEKEET, K., ET AL. (IN PRESS). *A LEARNER SUPPORT MODEL BASED ON PEER TUTOR SELECTION*. *JOURNAL OF COMPUTER ASSISTED LEARNING*.
22. RUSMAN, E., VAN BRUGGEN, J., & KOPER, R. (2007). *FROM PATTERN TO PRACTICE: EVALUATION OF A DESIGN PATTERN FOSTERING TRUST IN VIRTUAL TEAMS*. PAPER PRESENTED AT THE CSCL 2007.
23. RUTJENS, M., BITTER-RIJKEMA, M. E., & CRUTZEN, C. (2003). *HANDLEIDING VOOR DE INRICHTING VAN EEN ONTWERPOMGEVING VOOR INFORMATICA-OPLEIDINGEN*: DIGITALE UNIVERSITEIT.
24. SLOEP, P. B., KESTER, L., BROUNS, F., VAN ROSMALEN, P., DE VRIES, F., DE CROOCK, M., ET AL. (2007). *AD HOC TRANSIENT COMMUNITIES TO ENHANCE SOCIAL INTERACTION AND SPREAD TUTOR RESPONSIBILITIES*. PAPER PRESENTED AT THE SIXTH INTERNATIONAL CONFERENCE ON WEB-BASED EDUCATION WBE 2007, 14-16 MARCH, 2007, CHAMONIX, FRANCE.
25. VOGTEN, H., KOPER, R., MARTENS, H., & VAN BRUGGEN, J. (IN PRESS). *USING THE PERSONAL COMPETENCE MANAGER AS A COMPLEMENTARY APPROACH TO IMS LEARNING DESIGN*. *INTERNATIONAL LEARNING ENVIRONMENTS*.

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