Newcomer Integration Strategies in Blogger Online Knowledge Building Communities: A Dialog Analysis

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Abstract: Online knowledge building communities (OKBCs) are sustainable over longer periods of time only if they constantly integrate newcomers. Previous research, based on self-reported data, suggest that OKBC members intentionally use strategies such as advertising, positive or negative welcoming, knowledge assessment, mentoring, or consistent newcomer training. Based on dialog analysis of approx. 143,000 comments produced by 2085 participants during one year in twelve blogger OKBCs, this study confirms the use of newcomer integration strategies. Moreover, it refines and structures the analysis instrument, describing three categories of strategies (recruiting activities, practice-oriented interaction, and socializing) with further sub-categories, thus contributing to a deeper understanding of socio-cognitive processes in OKBCs, and potentially to extending Social Knowledge Analytics applications in CSCL.

Introduction

Online knowledge building communities (OKBCs) are already established for more than two decades as environments for collaborative, formal or informal learning environments (e.g., Scardamalia & Bereiter, 2006). They are sustainable over longer periods of time only if they constantly integrate newcomers. Eberle, Stegmann, and Fischer (2014) examined faculty student councils in face-to-face settings, and identified a number of specific strategies, further asserting that the intentional use of newcomer integration strategies generally occurs in communities of practice. So far, such strategies were insufficiently studied in OKBCs.

In this study, newcomer integration strategies were identified in blogger OKBCs by means of dialog analysis. Moreover, the analysis categories proposed and applied by Eberle et al. (2014) were refined and structured. For educational practice, the study suggests a way of connecting informal learning in OKBCs with formal learning, e.g. in higher education (Greenhow & Lewin, 2016). OKBCs with appropriate discussion topics and, additionally, with a more frequent use of newcomer integration strategies can be selected for student inquiries. At the same time, the underlying dialog analysis can be performed automatically (Nistor, Dascălu, & Trăușan-Matu, 2016). For educational research, the study extends the insight in the socio-cognitive processes in OKBCs, provides an instrument of analysis, and potentially supports Social Learning Analytics applications.

Theoretical framework

Relying on a definition provided by Wenger (1998), OKBCs are groups of mutually engaged people communicating online over longer periods of time, and sharing interests, knowledge and activities. Most researchers assume that OKBCs display core-periphery socio-cognitive structures similarly to those described by Lave and Wenger (1991) in communities of practice. These include experts at the center, novices at the periphery, and in between regular, active members who carry out the largest part of the community practice. A knowledge building community lives from the diversity of its members, meaning that there are oldtimers and newcomers, experts and novices, all of which can participate at the center, at the periphery, or in the intermediate socio-cognitive layers, and learn from and with each other. According to Lave and Wenger (1991; also Scardamalia & Bereiter, 2006), learning in such communities is tightly connected with the negotiation of a peripheral vs. central member identity. The ideal learning trajectory begins for newcomers with the novice identity and peripheral participation, and evolves in time towards the expert identity and central participation (Lave & Wenger, 1991). According to Wenger (1998), learning resides in the interplay of participation and reification. Participation supports the construction of experiential knowledge, which is being reified, i.e., transformed to material or immaterial (conceptual) artifacts that, in turn, support participation at a higher level.

Users of communication technologies, from email and newsgroups to social media (including blog platforms; Deng & Yuen, 2011) and virtual reality, build similar communities with similar socio-cognitive structures. However, some researchers (e.g., Zhang, Ackerman, & Adamic, 2007) argue that online communities are mainly help-seeking communities (Karabenick & Puustinen, 2013). Here the members who most intensively seek help play the central role, while experts participate only peripherally. Either way, significant learning seems to take place at the OKBC periphery, which nevertheless corresponds to Lave and Wenger's (1991) view

of learning as legitimate peripheral participation. Reification, i.e., artifact production plays the same central role in the process of learning, whereas OKBCs mostly produce immaterial or conceptual artifacts such as collections of frequently asked questions and answers, or blog articles (Deng & Yuen, 2011).

There are always members leaving the community for some reasons, so that the remaining members constantly need to integrate newcomers in order to keep the community alive and sustainable over longer periods of time. Therefore, they intentionally apply newcomer integration strategies, observed and described by Eberle et al. (2014) as follows.

First, these were participation support structures derived from workplace learning research. *Positive welcoming strategies* accompany a newcomers' first contact with the community and aim to foster newcomers' gratitude towards the community and their interest to acquire specific community knowledge. On the other hand, *negative welcoming strategies* are initiations confronting newcomers with their own shortcomings, which aim to show them the need to attain a higher level of knowledge and skills to become full community members. Further, *modeling* is performed by senior community members who show newcomers how to behave according to community norms. *Sponsoring* is done by existing members who bring new members, and take the responsibility for their behavior and participation in the community. *Mentoring* designates a long-term newcomer-oldtimer relationship, in which the oldtimer shares knowledge and experiences, and supports the newcomer deliberately. Oldtimers *encapsulate* newcomers by encouraging them to spend time with and for the community. *Consistent training* aims to support a constant learning process, in line with community norms and values. *Monitoring* and *knowledge assessment* evaluate newcomers' knowledge about, and their behavior in the community practice.

Second, Eberle et al. (2014) added two categories they regarded as classical participation support structures in communities of practice (Lave & Wenger, 1991). Offering *opportunities for peripheral participation* (accepting and inviting to different levels of participation, including passive participation, offering small tasks, working together) opens the entrance of a community and supports the newcomers to participate according to their wishes and aptitudes. Also, *legitimation strategies* include advertising, approaching potential newcomers directly, and welcoming interested newcomers.

Third, the authors observed additional participation support structures. *Recruitment strategies* (job offers, written information, contact) comprise advertising and offering general information about the community in order to attract newcomers. *Accessibility of community knowledge* enables knowledge sharing and participation (listening, asking, job introduction, general introduction, written information), and may complement recruitment strategies.

A critical examination of these categories reveals a clear research gap. Eberle et al. (2014) provide an additive, unstructured category system that includes redundancies between the three categories. Their study is based on subjective data from face-to-face settings. To our knowledge, their studies have not been replicated, yet. In online settings, Nistor (2016) has conducted a questionnaire survey in massively multiplayer online role-playing OKBCs confirming the use of newcomer integration strategies. Furthermore, Nistor et al. (2016) have performed automated dialog analysis in OKBCs, predicting the success of newcomer integration, i.e., whether newcomer inquiries lead to integration in the community discourse. Gaining more in-depth understanding of the newcomer integration process in OKBCs may extend the existing automated dialog analysis methods and tools, thus extending the Social Learning Analytics applications in CSCL.

Purpose and methodology

Addressing the research gap discussed above, this study aimed to identify newcomer integration strategies in blogger OKBCs and their occurrence frequencies. At the same time, difficulties with applying the available analysis categories were recorded, helping to specify them for the OKBC environment, to refine and structure them for the use in further research.

Accordingly, a dialog analysis with both quantitative and qualitative components was conducted. The quantitative part addressed the occurrence frequencies of the newcomer integration strategies, while the qualitative part comprised the specification and refinement of the analysis categories for the OKBC environment, including their structured representation in categories and subcategories. The corpus of analysis was produced in 12 blogs, four in each of the three topic categories: cooking, politics and economy, and science. Here, a total of N = 2085 active participants had made approx. 143,000 comments within one year.

The newcomer integration strategies described by Eberle et al. (2014) were used as analysis categories. Each of six groups of graduate students of Educational Sciences analyzed the dialog from two blogger OKBCs. The groups were composed of 4-5 students who searched and identified expressions of newcomer integration strategies in the OKBC dialog. Whenever the group members coded the material differently, they discussed the dialog and proposed rephrasing the original categories so that they could agree on the coding. Finally, the

refined categories were synthesized and grouped according to the logic of the integration process, building categories and subcategories at four levels (Table 1).

Findings

The frequencies of the newcomer integration strategies (Table 1) and the refined category definitions are briefly presented in the following.

Preliminary to newcomer integration, OKBC members carried out *recruitment activities* (33 occurrences in total), posting messages about their communities in other OKBCs, inviting individuals to participate in their OKBCs, offering their contact addresses, or offering jobs. This category was relatively infrequent, as compared with the *practice-oriented interaction* (229 occurrences), which was further divided in three subcategories:

- Within *beginning interaction* (67), newcomers were individually, either explicitly and positively welcomed (28), or negatively welcomed, often by ironical comments questioning newcomer's knowledge (24). Additionally, generic expressions of openness towards newcomers (6), of opportunities for peripheral participation (5), and statements accepting different levels of participation (4) were found.
- Within *short-term interaction* (85), oldtimers often referred newcomers to information reifying community knowledge as written text, such as frequently asked questions (FAQs)(51), or simply answered newcomers' questions (27). In some cases, oldtimers helped newcomers to understand specific aspects of the OKBC practice.
- Within *long-term interaction* (77), oldtimers kept employing integration strategies, however in a more complex way. Detailed activity descriptions (e.g., how to season Asian pickles, or how house and ground prices change when interest rates vary) were coded as modeling an activity within the limits of text-based communication. Thus, roles and activities were frequently modeled, and oldtimers together with newcomers reflected and elaborated on these (33). Similarly, newcomers were consistently trained (11), their participation in the OKBC practice was monitored, and their corresponding knowledge was assessed (8). Beside expert-novice interaction, situations were also found where oldtimers and newcomers collaboratively explained or elaborated on concept meaning, which was regarded as peer interaction (25).

Finally, a few cases of oldtimer-newcomer interaction were found that did not address the OKBC practice. These were forms of *socializing*, such as oldtimers introducing themselves (7), sponsoring newcomers (3), or inviting them to face-to-face activities (1).

Table 1: Structured categories of newcomer integration strategies, and their occurrence frequencies

Recruitment activities (33)	Advertising (16)		
	Invitations to participation (15)		
	Initiating contact (1)		
	Job offers (1)		
Contents/practice oriented interaction (229)	Interaction begin (67)	Positive welcoming (28)	
		Negative welcoming (24)	
		Expressing generic openness towards newcomers (6)	
		Offering opportunities for peripheral participation (5)	
		Accepting different levels of participation (4)	
	Short-term interaction (85)	Referring to written information (e.g., FAQ) (51)	
		Answering newcomer questions (27)	
		Offering comprehension support (7)	
	Long-term interaction (77)	Expert-novice interaction (52)	Offering role models, modeling activities, reflecting, elaborating (33)
			Consistent training (explaining basic knowledge, explaining expectations) (11)
			Monitoring, knowledge assessment (8)
		Peer interaction, working together (25)	
Socializing (11)	Self-introduction (7)		
	Sponsoring (3)		

	Encapsulation, offline social activities (1)

Conclusions

This study examined blogger OKBCs (Deng & Yuen, 2011; Greenhow & Lewin, 2016; Nistor et al., 2016; Scardamalia & Bereiter, 2006), identifying newcomer integration strategies (Eberle et al., 2014) used within the community dialog. The most frequent integration strategies occurred in the context of community practice. The frequency of use was roughly the same at the beginning, in short-term, and in long-term interaction newcomer-oldtimer interaction. However, the specifically used strategies were different in these three categories. At the beginning of the interaction, oldtimers welcomed newcomers in a way meant to stimulate them to reflect about their own capabilities, and to participate in the OKCB at corresponding level. In short-term interaction, oldtimers shared knowledge with newcomers. Long-term interaction added oldtimer contributions to, and responsibility for, newcomers' knowledge construction and identity development from a peripheral towards central participation. This was essentially done as consistent training within expert-novice interaction on the one hand, and as collaboration within peer interaction on the other. Beside practice-oriented interaction, recruiting activities and socializing were also present, although less frequent.

These findings are consistent with previous research in face-to-face communities of practice (Eberle et al., 2014), and in massively multiplayer online role-playing OKBCs (Nistor, 2016). However, unlike previous research that is based on self-reported data from interviews and questionnaire surveys, this study is grounded on dialog analysis data. Therefore, it displays higher internal and ecological validity. Moreover, the study revalidated, refined and structured the dialog analysis instrument, thus potentially contributing to an automated dialog analysis focused on newcomer integration strategies (Nistor et al., 2016).

The presented findings are soon to be complemented by the assessment of inter-rater reliability; larger samples of online OKBC discussions may additionally increase the result validity. Broader dialog analyses should examine learning trajectories in OKBCs, and possibly connect informal learning in OKBCs with formal learning, e.g., in higher education (Greenhow & Lewin, 2016).

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Acknowledgments

The authors are thankful to the participants of the first author's seminar "Online Knowledge Building Communities", who significantly contributed to the dialog analysis described in this paper, and to Joan Bruner-Timmons who proofread the paper.