

Evolution of Communities of Learning Practice in Higher Education: Collective Units of Analysis

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Abstract: This study explores the development of Communities of Learning Practice (CoLP) over time, using Wenger, McDermott and Snyder's (2002) indicative developmental model of communities of practice (CoP) as a point of reference. The participants were 23 international graduate students from two different cohorts enrolled in a two-year Learning Sciences master's program. Students from each cohort formed a different community, with Community 1 having thirteen participants and Community 2 having ten participants. A mixed methods approach was adopted to capture community development from different angles. Data were collected through video recordings of community meetings and a needs analysis questionnaire. Results show that although the stages of development suggested by Wenger, McDermott and Snyder (2002) are apparent in a similar fashion in both communities, they do not follow a linear and smooth sequence, which signifies that communities go through the stages but in their own "living" way.

Introduction

Socioculturalism became particularly prominent in the 1980s, when researchers applied Vygotskian premises to understand learning, which emphasize the importance of socially shared activities in individuals' knowledge construction (John-Steiner & Mahn, 1996). Socioculturalists are not interested in the confined individual, but in "(...) events, activity and practice, and they are considered to be irreducible to properties of individuals" (Sawyer, 2002, p. 285). Therefore, the unit of analysis for socioculturalists is the socially situated practice, since the individual and the group cannot be studied in isolation due to their interrelation (Hatano & Wertsch, 2000; Sawyer, 2002). The individual is perceived as a singular plural (Nancy, 2000), which emphasizes the idea that "(...) individual actions always constitute concrete realizations of collective actions possibilities" (Roth & Lee, 2006, p. 30). As Vygotsky (1986) also claims, "(...) unlike elements, units are capable of retaining and expressing the essence of that whole being analyzed" (p. 211).

Even though behavioral researchers in the 1960s explored group formation and processes, Tuckman (1965) observed that the temporal changes that might occur over time were neglected. While building upon this observation, Tuckman (1965) and Tuckman and Jensen (1977) considered the temporal changes in group development and were particularly interested in the stages of small group development. On the basis of a review of fifty-five articles (Tuckman, 1965) and twenty-two articles (Tuckman & Jensen, 1977) on group formation and development, they suggested a group development model consisting of five stages, namely *forming*, *storming*, *norming*, *performing* and *adjourning*. These stages are characterized by different group structures (also: interpersonal realm) and tasks (also: task-activity realm). Although a full description and operationalization of this model and stages would have been insightful, it moves beyond the scope of this paper.

With respect to the development of Communities of Practice (CoPs), Wenger (1998b) proposed a developmental model consisting of five stages. The degree to which Wenger (1998b) built his developmental stages on the stages of small group development suggested by Tuckman and Jensen (1977), has not been explicitly clarified in any of his works (yet a small note at the back of the Wenger, McDermott and Snyder (2002) book signifies some awareness of these small group stages). The term CoPs refers to groups of people who share a common interest in a domain of human endeavor and mutually engage in a process of working together to accomplish enterprises like knowledge exchange and construction, or complex problem solving within their shared domain of interest (Lave & Wenger, 1991; Wenger, 1998a). According to Wenger (1998b), communities move through various life phases and stages of development with their own rhythm, which is associated with the members' interaction levels and the kinds of activities they undertake. Wenger (2000) and Wenger et al. (2002) emphasize the developmental nature of CoPs by adopting a humanization approach: CoPs grow and develop like humans, going through different stages in their lives but still remaining the same persons. Wenger (2000) highlights that although the reasons for staying together over time, may differ from the reasons that initiated the community formation, all these reasons are relevant to community members.

Wenger (1998b) initially suggested a developmental model, which after some variations in the labeling of the stages, came to be what is shown in Figure 1 (Wenger et al., 2002). According to Wenger (2000) and Wenger et al. (2002), the model has indicative and not prescriptive connotations and value. CoPs do not necessarily progress through all suggested stages, since they may skip, merge, revisit or not even reach some of

the stages. They grow in their own rights, and their developmental cycle may vary. Regardless of the shape of the developmental cycle, CoPs do have a lifecycle and they should not be perceived as one-state stable entities.

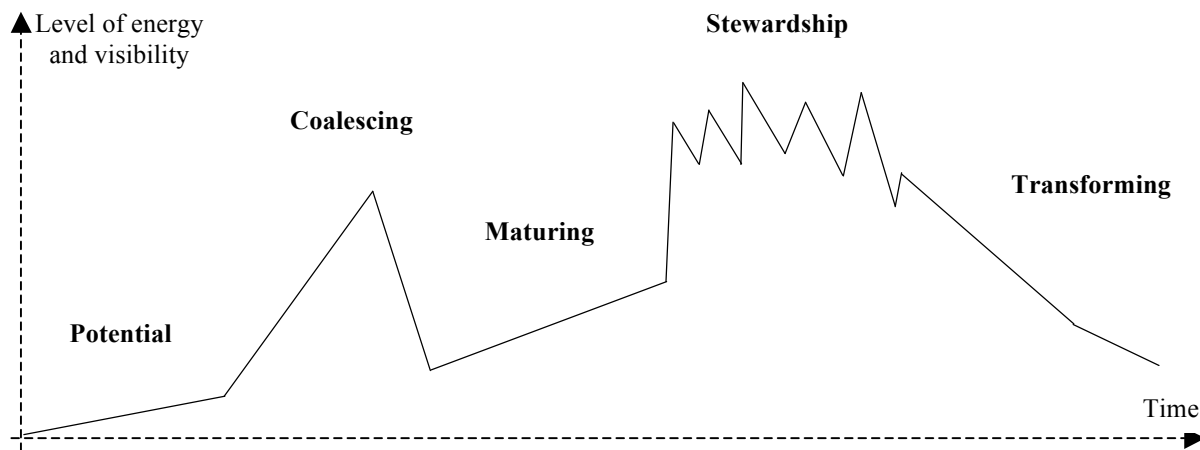


Figure 1: Stages of development of Communities of Practice (Adapted from Wenger et al., 2002)

Based on Wenger et al. (2002), the first stage, called *potential*, refers to a network of individuals who identify an interest in a domain or deal with a similar situation. Within this network of people, the idea of community formation emerges and individuals start to view their domain of interest from a collective perspective, which further intensifies the need for interaction among the potential members. Once individuals identify the potential for the community to form, the critical *coalescing* stage in the lifecycle of the community follows. At this stage, the community members start building relationships, establishing a public (i.e., community meetings) and private (i.e., one-to-one discussions) rhythm and finding opportunities to help each other. With the coalescing stage the community becomes more tangible in the experiences of its members. After establishing its formation, the community proceeds to the *maturing* stage. During this stage the community forms its own identity by exchanging information, developing focused activities, establishing ways for addressing problems, and sharing responsibilities. The community then broadens its scope, through the *stewardship* stage, during which community aims to solve new problems and increases the complexity of the activities, relationships and interests involved. Newcomers may also enter the community at this stage, and through this modified membership the community is prompted to readapt to the dynamic needs of its old and new members. During this stage it is time for the community to question and reflect on the gained values and as a result a need for reconfiguration might arise. The community also explores and tries to establish connections and implications of gained knowledge beyond the community boundaries. The final stage of community development is the *transforming* stage, when the community has fulfilled the purposes of its existence and members move on into other CoPs that are more relevant to their new developmental trajectories.

Research questions

Despite the theoretical identification of the developmental stages for CoPs by Wenger et al. (2002), there are to date no studies that empirically examined whether – and to what degree and/or which temporal order – communities develop along the lines of these indicative stages. This study aims to address this gap by exploring the occurrence of the stages within two communities of learning practice (a detailed theoretical account is provided in Dingyloudi & Strijbos, 2014) that developed in parallel to a Learning Sciences masters' program. The following research questions will be addressed: (1) How do communities develop over time in the public space?, (2) To what extent are the theoretical stages of community development represented in the communities under study?

Method

The present study applied a mixed-methods approach. In mixed methods there is concurrent implementation of both qualitative and quantitative data collection, with qualitative data being more dominant in the present study, due to the main research interest, which is to deeply explore a composite phenomenon within a particular setting (Creswell, 2008). Wenger, Trayner and DeLaat (2011) also highlight the importance of being able "(...) to attribute observable outcomes to community and network activities so that one can establish enough causal links to go beyond mere correlations between distinct data streams." (p. 8).

Participants

The participants were twenty-three international graduate students ($M_{\text{age}} = 25.1$, $SD_{\text{age}} = 2.3$) enrolled in a two-year research oriented Learning Sciences master's program. The 23 students are part of two different student cohorts and constitute two communities of learning practice in parallel to the master's program: Community 1 consisted of thirteen participants ($M_{\text{age}} = 25.2$, $SD_{\text{age}} = 2.8$) out of the twenty-seven students enrolled in their cohort. Community 2 consisted of ten participants ($N = 10$, $M_{\text{age}} = 25$, $SD_{\text{age}} = 1.8$) out of the thirty students enrolled in their cohort. Participation in both communities was voluntary and participants were free to join or withdraw from any community meeting.

Design

The communities of learning practice were formed by students, who gathered together as plain peers in order to address their problems and help each other with respect to academic skills that were relevant to their study program. Peers voluntarily participated in the public space of the community through community events (i.e., informal face-to-face community meetings), which lasted approximately two hours each. There were six and five events in Community 1 and Community 2, respectively. The community events were co-organized and co-structured among the community members and a non-peer facilitator, who was present at every community event in order to facilitate the members' interactions and community activities. The sharing mechanism, used by the community members and coordinated by the community facilitator, was face-to-face peer feedback on work in-progress that was relevant to the study program. The lifespan of the community was one semester, with Community 1 taking place during the second semester of their study program and Community 2 during the first semester.

Instruments

Video recording. Video recording allows for retrospective analyses of group interactions (Brown, 1992; DiSessa & Cobb, 2004). In total eleven community events (i.e., face-to-face community meetings) were recorded: six events for Community 1 and five events for Community 2. The events lasted approximately 2 hours each, resulting into 22 hours of video data. A coding scheme was developed to identify and explore the occurrence of the five developmental community stages suggested by Wenger et al. (2002). In the first step three coders identified relevant episodes for each video within which potential thematic units constituting the five stages could be observed (Krippendorff's alpha = .83). In the second step, several coding trials were conducted on the video of two events. After refining the coding scheme, all 22 videos were analyzed by two independent coders and interrater reliability was calculated. The interrater reliability for both communities was high (Community 1: Krippendorff's alpha = .85; Community 2: Krippendorff's alpha = .81).

Needs analysis. A needs analysis was conducted via a questionnaire designed for this study, and administered on the cohort level before the initiation of each community. The questionnaire items were context dependent and aimed to capture "(...) the gap between real and the ideal that is both acknowledged by community values and potentially amenable to change" (Reviere, Berkowitz, Carter, & Gergusan, 1996, p. 5). The items covered three topics: (a) background information, (b) needs realization, and (c) feedback preferences. Background information addressed potential community members' former participation in extracurricular groups and the experienced value, the frequency of seeking help from peers in general, and extent of acknowledgement of improvement after receiving peer feedback. Needs realization addressed students' needs regarding academic skills they would like to practice and receive support in an extracurricular group, and needs regarding frequency of community events. Feedback preferences addressed the extent to which students perceive their peers as valuable feedback source, and appreciate their peers' opinions on academic work. The needs analysis aimed to uncover the potential for a community to emerge.

Findings

The needs analysis was considered vital to identify the potential stage of development, since it indicates the possibility for a community to emerge based on collective goals. Since the community sharing mechanism was peer feedback, it was of major importance to also identify any previously experienced value of peer feedback (see Table 1).

Table 1: Main results of needs analysis prior to community formation for both cohorts

	Cohort 1 (N = 15)	Cohort 2 (N = 28)
Seeking help from peers on academic work	80%	89%
Appreciation of peers' opinions on academic work	79%	86%
Extent of acknowledgement of improvement after receiving peer feedback	73%	85%
Extent to which they perceive peers as valuable feedback source	57%	82%
Willingness to participate in extracurricular support groups	100%	100%

The results of the needs analysis indicate that there is a potential for students to address their needs regarding the academic requirements through formation of and participation in a community together with their peers. This is reflected through the extent to which they had sought help from peers, appreciated peers' opinions and acknowledged improvement in their performance after receiving peer feedback. In addition, most of the students perceived peers as valuable feedback sources and they all expressed their willingness to participate in an extracurricular group that could support them with academic skills.

The analysis of the video data for both communities revealed the presence of the developmental stages described by Wenger (2000). Also, both communities seem to follow a similar, but not identical, developmental cycle. As illustrated in Figure 2, analysis of the first community event of Community 1 revealed that 88% of the identified thematic units referred to the *potential* stage and 12% to *coalescing*. Respectively, content analysis of the first community event of Community 2, revealed that 60% of the identified thematic units referred to the *potential* stage, 30% to *coalescing* and 10% to the *maturing*. The content analysis of the second community event of Community 1 revealed that 70% of the identified thematic units referred to *coalescing* stage, 20% to *potential* and 10% to *maturing*. Respectively, content analysis of the second community event of Community 2, revealed that 75% of the identified thematic units referred to *coalescing* and 25% to *potential*. The content analysis of the third community event of Community 1 revealed that 50% of the identified thematic units referred to the *potential* stage and 50% to *coalescing*. Respectively, the content analysis of the third community event of Community 2 revealed that 50% of the identified thematic units referred to the *stewardship* stage, 33% to *potential* and 17% to *coalescing*. The content analysis of the fourth community event of Community 1 revealed that 33% of the identified thematic units referred to the *potential* stage, 33% to *maturing*, 22% to *coalescing* and 11% to *stewardship*. Respectively, the fourth community event of Community 2 revealed that 36% of the identified thematic units referred to the *coalescing* stage, 27% to *potential*, 18% to *maturing*, and 18% to *stewardship*. The content analysis of the fifth community event of Community 1 revealed that 60% of the identified thematic units referred to the *stewardship* stage and 40% to *coalescing*. Respectively, the content analysis of the fifth and final community event of Community 2 revealed that 62% of the identified thematic units referred to the *transforming* stage and 38% to *coalescing*. Community 1 continued its public development in a sixth community event, and its content analysis revealed that 73% of the identified thematic units referred to the *transforming* stage, 18% to *coalescing* and 9% to *stewardship*.

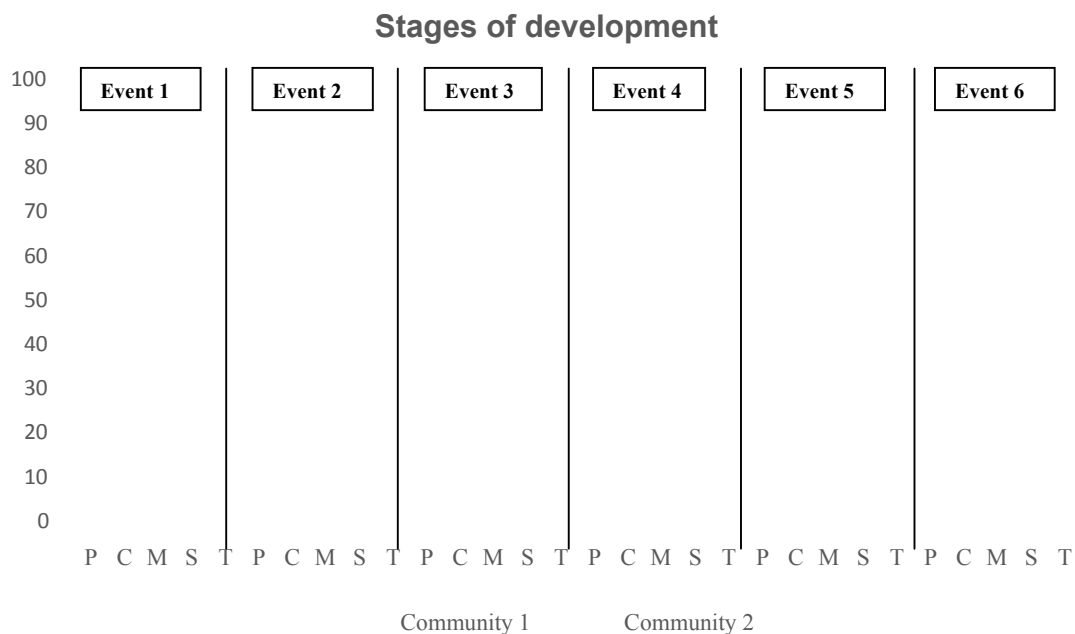


Figure 2: Stages of development of Community 1 and Community 2

Discussion and Conclusion

The present study explored how communities of learning practice (i.e., extra-curricular communities in an educational setting) develop over time. In particular, whether and to what extent the five theoretical stages of development (Wenger, 2000; Wenger et al., 2002), were represented in the developmental cycles of the observed communities. Both communities of learning practice went through the five stages of development, but not in a linear sequence. This is in line with the evidence for the non-linear and context-dependent order of the stages for small group development as groups may return to a previous stage or even skip a stage (Tuckman & Jensen, 1977). Furthermore, both communities' developmental cycles evolved in a similar fashion, with slight

variations. The most prominent stage in both communities was the *potential* stage, since it emerged and re-emerged in every community event up until the fourth event for both communities. This prominence reflects that either the community (a) continuously reformed itself by identifying different potential interests and ways to connect to each other, or (b) struggled to find a rhythm and build relationships strong enough for the community to further develop. The least prominent stage pertains to *stewardship*. This might be attributed to the way the communities structured themselves in this particular setting, i.e. without involving experts as oldtimers and novices as newcomers, which is a typical feature of CoPs but not for the present CoLPs (see Dingyloudi & Strijbos, 2014). Aspects of prominence and relevance of specific stages in various contexts should be further examined.

Overall, the findings of the present study address the gap between the theory of five stages of development in CoPs (Wenger, 2000; Wenger et al. 2002) and their actual exploration by researchers and practitioners. This study provides some empirical evidence for the five theorized developmental stages at a community-level as well as some empirical evidence that these stages can be inferred from a needs analysis and video-recordings of community meetings. With respect to theoretical implications, this study confirms the applied value of the theoretical stages of development for communities in an educational setting, although an adaptation of the model can be explored further in order to capture elements of the CoLP community model (see Dingyloudi & Strijbos, 2014). Future research will explore social network data and value creation stories (see Wenger et al., 2011) – collected as part of the research project, but their inclusion is beyond the scope of the present paper – which may aid interpreting this prominence. Our findings suggest researchers and educators to observe how communities under study or in implementation develop, in order to further facilitate the development and aliveness of communities, while taking into consideration the stage or combination of stages communities experience at some given time.

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