

Using the lenses of socio-cultural activity theory and communities of practice to guide an empirical study

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Abstract

This research used socio-cultural and activity theory as lenses for understanding the conditions for productive learning in a particular learning environment. The context was an online learning community in which practitioners and carers in the field of autism were undertaking a professional development qualification by distance learning. Socio cultural and activity theory guided the analysis of the learning community towards a focus on contexts and systems, providing a conceptual framework for defining and examining macro, meso and micro levels. The macro-analysis related to the socio cultural context in which learning took place and explored how the policy and practice community defined 'best autism practice'. The meso-analysis examined how acquisition of skills and competencies were facilitated through pedagogical design and learning activity in the course. The micro-analysis focused on online group interactions in discussion forums, exploring how skills and competencies were expressed through online discussion. Furthermore, by focusing on community, rules and division of labour, the study was able to identify contradictions inherent in the community. Given that the goals of the activity system were to enable practitioners to improve their practice, the study focused on the tools that could facilitate this development. This led to detailed analysis of students' online discourse, as expressed through archived forum discussions. It focused on learner appropriation of the discourse of the autism carer or professional and on changes in collaborative activity over time, using a combination of content and exchange structure analysis. The findings showed that the activity sets involved in creating this course built shared understanding of the task in hand. This pursuit of objectives required the participants to question, discuss and establish the concepts and objects serving the project. This heterogeneity of the diverse knowledge and competencies of their members indicated a capacity for innovation. The research demonstrated that students belonged to an overarching community of practice, with different subsets who worked at sharing and co-constructing common understandings. Once the community had become established, members were able to raise challenging questions and define further values and understandings through resolving possible areas of difference and conflict. Both the activity set that delivers the course and the activity set consisting of tutors and students were represented by different voices and perspectives and these different perspectives shaped the way that the community developed and moved forward.

Keywords

Applied research; theoretical lenses; socio-cultural and activity theory; communities of practice.

Introduction

This paper explores the strengths and methodological challenges of weaving strands of theory and practical application together in applied research. It does this through describing a research project that used both socio-cultural activity theory and communities of practice as theoretical lenses for conducting empirical investigation. The research aimed to identify the conditions for productive learning within a Continuing Professional Development (CPD) programme of study delivered by distance education. In this programme, the majority of teaching materials were delivered online, but students also met face to face in regional tutor groups. The programme had an annual intake of two hundred students who were support staff, teachers or parents who care for, or work with, people on the autism spectrum. Most were working full-time whilst studying, or were parents caring for a child, or adult on the autism spectrum. The programme prepared both practitioners and parents to draw upon strategies for meeting the needs of individuals with autism in a variety of settings. It was embedded

in learning theories inspired by socio-constructivist approaches (Mercer & Littleton, 2007) and situated cognition (Lave & Wenger, 1991).

Research design

The focus was on productive learning and in particular on the role of online discussions in enabling students to develop as reflective practitioners. The research used a case study design (Yin, 1984), with the unit of analysis being the learning environment, students and tutors involved in it. It was an ethnographic case study that used the theoretical concepts of socio cultural and activity theory and communities of practice to understand the multifarious phenomena that constitute the case, striving towards a holistic understanding of that cultural system of action. This enabled a focus on organisational structures as well as on relations between people and how these might influence the construction of community. As an interpretive, inductive form of research, the aim was to explore the details and meanings of experience.

The research drew on data about the pedagogy of the programme, including programme specifications, module evaluations, minutes of meetings, external examiner reports, a sample of assessed work and documentary reports highlighting how the programme team worked together to create and deliver the programme. This data was analysed through the theoretical lenses of socio cultural and activity theory, with Engestrom's (1999) principles of activity theory informing key themes. These five principles can be summarised as i) the activity system as a unit of analysis; ii) multi-voicedness and different perspectives; iii) historicity; iv) contradictions as a source of change and v) expansive transformation. The study was also located in its social and cultural context and aimed to understand how the macro, meso and micro levels (Dirckinck-Holmfeld et al., 2009) impacted on the values of the course and on student learning.

Furthermore, the study conducted discourse analysis of a sample of online discussions, focusing on participation itself *and* patterns of reciprocity in interaction. This was undertaken by using exchange structure analysis in conjunction with content analysis that used themes from communities of practice, namely mutual engagement, joint enterprise and shared repertoires, to measure how students developed as reflective practitioners. This focused upon community measurement through examining i) how the learners appropriate the professional discourse, values and goals of the ASD carer (one measure of learning to be a practitioner in this context) and ii) what kind of collaborative engagement students show with each other's contributions (another aspect of learning to be a practitioner in this context). The study was particularly focused upon how students discuss, collaborate, share practice, participate in a learning community, draw out sets of values associated with the community, and their expertise in the field.

Several papers have been published which document the data and findings in detail (Pilkington & Guldberg, 2009; Guldberg, 2008; Guldberg & Pilkington, 2007 and Guldberg & Pilkington, 2006). The purpose of this paper is to explain how socio cultural and activity theory guided the research and to give an overview of the key findings within this framework.

Structure of the study: Macro, Meso and Micro

Jones et al. (2006) propose that it is useful to divide an activity set into levels, incorporating macro, meso and micro and thus enabling granularity of analysis, locating activity systems at various layers of any given social system, including whole institutions. With this comes recognition that groups have clear social connections to larger networks. This perspective resonates with Alexander's (2000) study of culture and pedagogy, in which he conducted a comparative study of primary teaching in five different countries. He conceptualised his approach as concentric circles: the micro-culture of the classroom, with its routines and rituals, the culture of the school (the collective values and unique way of mediating the values of the community), and the culture of the country, all of which are historically embedded.

The structure of this study was based upon conducting a macro-analysis related to the socio cultural context in which learning takes place, a meso-analysis of the course as a learning zone (Engestrom, 1987) and micro-analysis which focused on group interactions. Macro level broadly covers large scale institutional or policy processes. In this study, analysis of the macro level focused upon exploration of policy and cultural conventions around education and care in the field of autism, and on what stakeholders, the policy community and practitioners perceive to be the necessary skills and competencies of the autism carer or practitioner.

The meso level analysis examined how acquisition of these skills and competencies were facilitated through pedagogical design and learning activity. Meso pointed to the place of social practice in which broader social processes are located in small, local group activity (Schatzki, Cetina & von Savigny, 2001). In this study, this included the University and School, the expertise of course team and tutors as well as the Virtual Learning Environment (VLE), the different components of the structure of the programme and how technical, administrative and academic staff interrelated with one another. Meso level analysis examined how acquisition of skills and competencies were facilitated through pedagogical design and learning activity.

The third level of granularity was the micro level and this focused on small group interaction within a highly local setting. As Jones et al. (2006) highlight, this does not necessarily need to be spatially local. In this research the micro level focused on the online tutorial group and the routines, tasks and ways of communicating that arose out of that. It represented relations between individuals in their tutorial groups in the form that they were expressed through archived records of online discussions. The interest was in how the tool of online dialogue was used by students and what this tool could tell us about both the system itself and the productive learning that was taking place. There was therefore a focus on the 'dialogic' aspects of activity and 'multi-voicedness', signalling an emphasis on how ideas form in dialogue, and secondly, the recognition that actions and voices are informed by many perspectives (Daniels, 2001). Engestrom (1999) sees these as changing both the participants and the system itself through contradictions and tensions. In this study, the approach to the analysis of online dialogue saw talk itself as a tool for creating shared understanding but also appreciated that language is not a single, homogenous 'mediating artefact' but is a communicative toolkit, taking on a variety of forms as it is used in teaching and learning (Mercer & Littleton, 2007). The notion of a cultural tool therefore refers not only to physical tools and artefacts but also extends to the symbolic tools elaborated within this specific culture and it is these that were of particular interest in this research.

Findings from the research were conceptualised through the theoretical lenses of communities of practice and Engestrom's (1999) principles of activity sets, namely the activity system as a unit of analysis, multi-voicedness, historicity, contradictions as a source for change and expansive transformation.

The activity system

The first principle highlights that the activity system is a unit of analysis in which a collective group centre their activity round an objective that is mediated by the use of tools or artefacts (Engestrom, 1999). Goal directed and group actions need to be understood within the context of the activity system as a whole. Socio-cultural and activity theory thus enables us to approach the course as an activity system built around the pursuit of creating a learning environment for the qualification of the University Certificate.

The overall activity set consists of the programme team as a whole who work together to achieve community goals, which include technically supporting the communication channel itself; managing the academic community; and developing the academic content. This programme team interrelates with external examiners, students and other university and school departments. The resources for this set consist of the programme resources as a whole. This includes the VLE, the content within it and the administrative systems used to support it, the staff and the students. This broader activity set exists within the wider institutional environment of the University, in which the activities of the set interrelate with many other activity sets, such as Information Services staff, the Admissions Department and the Student Records Department. Within the activity set, there are three key activity sets contained within it and these exist in a relationship to other activity sets. These can be conceptualised as the teaching activity system, the technical activity system and the administrative system.

In order to understand how the above aspects of the social unit interrelated and impacted on one another, the research analysed how different activity systems were involved in the design and management of the VLE, and how these worked to create and maintain the programme in order to meet the design for collaborative learning at the institutional level of the programme. The research analysed the roles and division of labour within the community, including how members of the community worked together from diverse perspectives towards shared visions and goals. Analysis focused on the rules concerning who may act on what aspect of the task and the access to different tools to help them as well as the ways in which these enabled or constrain individuals in performing their tasks, thus giving a framework for how roles, tasks and tools interacted to change the way that the activity system worked.

The research found that the different elements of the activity set brought different knowledge bases and competencies to the set. They also had a variety of perspectives depending on those competencies and knowledge systems. Although the activity sets had different responsibilities and very different roles and tasks there was nevertheless much overlap between the tools that they worked with. The three activity sets worked together towards a specific mandate (Fischer, 2001) of constructing learning objects for the programme, so the roles and tasks showed that different expert individuals worked with the tools in different ways according to their competence and experience. The activity sets therefore needed to build shared understanding of the task in hand and this pursuit of objectives required the participants to question, discuss and finally establish the concepts and objects serving the project. It has been postulated that if the community manages to benefit from heterogeneity of the diverse knowledge and competencies of their members in this type of community, they can exhibit great capacity for innovation and social creativity (Henri & Pudelko, 2003).

This close multidisciplinary team generated learning activities through a process of contradictions that were resolved through shared praxis and which ultimately led to further innovation. The members had various stakes in the community and in order to move forward, the activity sets needed to elaborate common meanings in order to achieve synthesis of their various knowledge systems. The above system space had their own set of rules, tasks and tools but these differed from the tasks, roles and rules of the community of tutors and students, despite these different activity systems accessing and working with the same tools (for example the learning VLE, the online Sections and the online discussions).

A community of practice

Analysis of the local level examined how students talked with other students about their practice and how they constructed meaning, using what they were learning within this learning community to apply to their work based communities. Polin has highlighted that a community of practice model can be particularly suited to students who arrive in the 'university classroom to acquire knowledge in one formal context in order to transfer it to another practical context at a later time' (Polin, 2008, p. 267). The students in this study were learning in a formal context in order for this learning to be applicable to their work based contexts whilst they were in the process of studying. It therefore became important to try to capture what was happening in the boundary between the formal course in which they were studying and the informal learning related to their work based practice.

The research found that there are a number of issues that do seem to affect many collaborative contexts (Pilkington & Walker, 2003; Guldberg & Pilkington, 2006) and that are also emerging from the networked learning field more generally (Preece, 2000; Salmon, 2000; 2002). The research found that students belong to a learning community in that they have joined the course to follow a programme of study, which leads to a qualification at the end. Within this course, tutors have recognised the importance of social learning and have built in opportunities for interaction and learning with and through one another into the structure of the course. Positive aspects of the facilitation model include the integration of discussion tasks with good quality resources and regional tutors who give students time to talk amongst themselves, give supportive and reassuring comments, yet do not interrupt too often. Students talk in lots of different ways and for different reasons. The research shows that many of these are all important to a sense of community and, in the end, to helping each other learn. This research also shows that in any discussion there are clearly complexities resulting from multiple interacting variables which are difficult to isolate but include: the communication medium; the group dynamic; the topic or content to be discussed; the task and ground rules (instruction) and individual differences (see Guldberg, 2008).

The research found evidence of some specific properties of this course, which include collaboration as discussion (as opposed to, for example, joint collaborative construction of a resource or joint problem solving). A further more specific property of this learning context relates to the value placed on developing empathy for the person with on the autism spectrum through the sharing of experience. This changes the nature of the kinds of task and the sorts of contribution valued such that narrative and an empathetic stance is valued as much as argument, with multi-voicedness and learning from others' perspectives itself clearly representing a core value of the community. Furthermore, within discussion there are some properties of the student constituent that are very specific. These include the authentic focus on reflective practice, the very personal and affective nature of the discussion topics that require particular sensitivity and the authentic need to communicate through the VLE

provided by the wide dispersal of students. Students were also unusually mature given the academic level of the course.

The integration of course material and carefully structured discussion opportunities enabled students to develop a holistic perspective on the needs of the person with on the autism spectrum across settings and age ranges. Students used online discussions to talk about themselves, their communities and their practice. They asked each other for advice and reflected on each other's contributions. They described ways in which they changed their own behaviour and adapted their environment to the person on the autism spectrum. The students also showed evidence of familiarity with the language of a discipline and its academic genre, which is indicative of students' abilities to read and write appropriately within a discipline. The students developed their own discourse and showed a certain consensus of what constitutes a good practitioner as well as a shared set of values. This entailed having an identity as a carer or practitioner in the field, which then impacted on their sense of belonging to this particular programme. They participated in discourse over time and through this they shared practice, challenged one another, and learnt from one another's perspectives. Furthermore, students belonged to different subsets and they worked at sharing and co-constructing shared understanding through this.

The findings from this research highlighted that asynchronous online discussion can be a strong medium for certain types of learning. The online discussion boards were used well and were a good medium for the development of reflection. The groups recalled their past discussions by looking back at them and they were required to do so through the assessment process so the environment itself encouraged reflection and an ability to stand back from discussion to view it with more distance. The facilitation model was one in which tutors structured the learning opportunities carefully but then stepped back to enable students to develop dialogue. The research showed that it is possible to enable discussion whilst giving the tutor a less interventionist role than we would normally expect the e-moderator to take on, particularly if the learning environment is well structured. The research found that this model was a contributing factor in enabling students to learn from one another, to motivate one another and to be co-learners and co-tutors together as it opened up opportunities for more distributed learning within that particular learning activity as peers became central in enabling one another to move from a peripheral position in the community to a more central position. Students did this by sharing authentic stories with one another.

Furthermore, the findings highlighted that the nature of the question impacts on discussion. Some questions led to greater interaction than others and to greater adherence to topic than others, highlighting that it is important to ask different questions for different reasons. The analysis found that interaction patterns were influenced by the extent to which students had opportunity to comment on experience. If questions were too directly related to personal experience, then they tended to result in longer more monologue type contributions that tended to close discussion down. When reflecting on practice more generally and less personally, there were shorter contributions, which had more interactive nature and the character of lively debate. This was particularly true if the question encouraged students to reflect on a particular concrete case or personal experience but then asked them to express an opinion on a specific issue. Furthermore, the medium of online discussion was helpful in the context of this programme, as it took the emotionality out of the situation in that parents had a safe space in which they could 'tell their story' to professionals whom they were not directly involved in and in a way that enabled professionals to listen to their story.

Historicity

Findings from this research showed that there were several steps in constructing this online community (Paloff & Pratt, 1999) and that the community developed over time. There were therefore temporal characteristics that were reflected in attachment to and departure from this 'virtual community'. These encompassed the need to define the community's purpose, establish norms and codes of conduct and identify the range of members' roles (Pilkington & Walker, 2003). The question of whether the environment was successful appeared to be dependent on a variety of factors and had a series of stages (Salmon, 2000; 2002). These included a combination of community building roles (sending, receiving, acknowledging, ground rules, positive feedback and validation roles); management roles (negotiation of task and the use of group resources to meet discussion objectives; and argumentation roles (broad range of dialogue to enhance reasoning and explore ideas) (Pilkington & Walker, 2003). Discovering overlap in boundary communities helped group members identify with each other.

The research highlighted the importance of giving students the chance to participate in discourse over time in order to allow them to share practice, challenge one another, learn from one another's perspectives, and to consider strengths and weaknesses of ideas from multiple perspectives. In this course, a combination of face-to-face meetings, online dialogue and a shared sense of values contributed to the development of a community of practice, enabled reflective skills and promoted a sense of 'togetherness' in the groups. The findings highlighted the importance of dialogue and discussion in building a community of practice that enabled people to change understandings, perspectives and practice.

Multi-voicedness and contradictions

The course should not be seen in separation from the wider communities in which the students exist, as parents and practitioners in a wide range of settings. The purpose of the course was that practitioners should be able to seek to solve problems in other settings where they should be guided by the activity within the course itself, even when this community is physically absent. The success of the course would thus lie in the extent to which the participants' voices were carried outside the network in which they reside, particularly because in order to change and develop their practice in caring for or working with a person on the autism spectrum, students needed to communicate and work with others within their practitioner communities.

The analysis found that parents had a strong voice in tutorial groups, playing a specific role that was often nurturing and supportive of other students (see Guldberg, 2008). This is a positive aspect of the learning environment as parent/practitioner partnership is clearly important in all fields of education although it has added importance in the education and care of people on the autism spectrum due to the particular importance of consistency for this population. Parents are their children's first educators and are also the greatest experts on their children, so an environment which values parents and listens to them, can be empowering for all. Discussions clearly showed that practitioners learnt from parents and gained new insights from listening to them so it works both ways. Contradictions between parents and practitioners were picked up on several levels, from the literature of the autism field, through to analysis of feedback in the meso level, with key themes related to this issue emerging through analysis of data from bulletin board discussions. Careful investigation of this potential schism showed that it generated tensions in the community, but it also represented a strength of the community. Through these contradictions, students learnt from one another's perspectives. Parents emerged as playing a strong role in the community and whilst practitioners and parents needed to be encouraged to show greater criticality in thinking and towards one another's perspectives, the perspectives of parents featured strongly in this community. This might ultimately have a greater impact on how they related to their networks of interacting activity systems outside the course. Thus a contest of values within the course, between parents and practitioners, might lead to greater empathy and perspectives outside the community, where the literature review of the field found that parents report a substantial component of their stress as being related to that fact that professionals do not listen to them.

In this study, analysis of the micro level found that the students defined themselves in relation to an 'out group' and felt that people who worked in the field had a sense of 'specialness.' The complexities of the modern world highlight that one needs to take into account that people are likely to belong to a number of different activity systems or communities during the course of their lives and it is difficult to determine the extent to which people's sense of meaning-making is influenced by these different activity systems. This discourse analysis of online discussions found that students showed evidence of mutual engagement, joint enterprise and shared repertoires (Guldberg and Pilkington, 2006). It demonstrated that students belonged to an overarching community of practice, with different subsets who worked at sharing and co-constructing common understandings through talking about shared practices in their workplaces and day-to-day life (Guldberg and Pilkington, 2007; Reeves and Forde, 2004).

Expansive transformation

As students engaged in discussion there was some evidence of supporting each other in changing the practice of their workplace and therefore, transforming boundary communities. This practical exchange was just one of the reasons why students valued the network and wanted to continue to access it at the end of the course. Analysis suggested that development of a community was a stage-like process, dependent upon the development of relationship and trust: once students had got to know and trust each other they felt it was safer to share experience. Later the community had developed the potential to transform practice in the home or workplace.

However, as far as goal, activity and task dimensions were concerned, the research also found that some discussion questions were better than others at either helping students share experiences or in provoking more critical debate.

One of the key limitations of this study is that the analysis has not been able to investigate the relationship of individuals to other communities and to study how interaction in other communities affects the joint constructive activity of this community. For example, whether the activity system has the transformative power to change institutions and other neighbouring communities will be based upon the extent to which students are able to contest the values of others with whom they work in these 'outside systems' (Reeves & Forde, 2004). It was outside the scope of this study to try to assess the extent to which these voices have been carried outside the network or to assess the conflicts and tensions for these practitioners in making their voices heard outside the network. Some feedback nevertheless highlighted some of the difficulties involved in influencing change in their own settings. This related in part to the relatively low status role that these practitioners and carers have in many of their settings. This is an issue worthy of further investigation, as it would enable more direct study of the impact that the course has in the field.

Concluding comments

The use of socio-cultural and activity theory to guide empirical investigation of this case study enabled a detailed investigation of the learning community, viewing the activity within it from a number of perspectives and different vantage points. By focusing on the social activity taking place within the learning environment, and by locating that activity within a social structure, in which participants work towards goals through using tools specific to that community, the theoretical perspectives enabled a focus on what makes learning productive. Activity theory enabled a focus on the social elements of the system (the activity set), which are community, rules and division of labour, with the emphasis being on how these interacted with one another (Daniels, 2004). The unit of analysis was on how joint activity is constructed with a particular emphasis on the 'dialogic' aspects of activity and 'multi-voicedness'. They signal an emphasis on how ideas form in dialogue, and secondly, the recognition that actions and voices are informed by many perspectives (Daniels, 2001).

The model can act as an aid for identifying units for analysis, for describing prevalent practices within the community and for locating important contradictions. In this study it involved the study of a number of processes in understanding the development of this productive learning community. Activity theory provides a framework for integrating three key aspects: the acting subject, the object acted upon and what is described as the mediating artefact, which is the tool or the sign (Daniels, 2004). This approach captured the ways in which productive outcomes are dependent on a number of different factors including: the nature of the task or activity (Fung, 2004); the rules concerning who may act on what aspects of the task and their access to different tools to help them (Benzie, 2000); the ways in which these tools either enable or constrain individuals in performing the task (Jones et al., 2006) and the affective and social relationships between individuals, their roles and interaction with each other through the tools. This includes how participants co-construct their current understandings through developing shared understandings and resources and therefore transform the object through this interaction with one another and the tools. In this holistic perspective, a learning environment that supports collaborative learning integrates various artefacts and spaces for acting, and allows for diverse individual and social participation.

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