Everyone already has their community beyond the screen: Reconceptualizing learning and expanding boundaries

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Abstract

Under a prominent recent regime of online education, often represented in the scholarship as a "social constructive learning paradigm", learning is defined as a social practice that involves a group of students actively participating in collaborative knowledge construction processes. Pedagogical theories and strategies developed and utilised in that regime focus extensively on enabling student-to-student interaction and building communities of learners in online learning environments. In this context, where the notions of "collaborative" learning and learning "community" have gained substantial legitimacy from relevant theoretical traditions, other beliefs about meaningful learning are likely to be harshly criticised or, at best, simply neglected. However, it is not at all difficult to notice a gap between the accepted theoretical ideas of effective online learning and actual pedagogical practices in most online education institutions. Here, I aim to reduce that theory-practice gap by reconceptualising online learning using a double-layered Community of Practice (CoP) model. That module conceptualises online learning as interlinked processes of participation and socialisation in multiple communities across internal and external or online and offline "layers" of learners' lives. The model helps online course designers and instructors to expand the boundaries of their course environments or designs to reach out to students' personal and professional lives and to make sense of online learning experiences that are shaped by their interactions with other members of different communities outside the course environments. Using data, three students' narratives, collected from a series of case studies on learners' learning experiences in three different types of online courses (or programmes), this article effectively demonstrates how difficult it is to develop a strong CoP nested and sustained within online learning environments, which usually have a close finish. The article further argues that it may be useful for instructional designers to expend their view on learning environment to include distance learners' life situations beyond their computer screens. Everyone has their own community in which they naturally learn, develop, and live with other members outside the courses. Thus, rather than putting so much effort to form a community inside our learning environment, we may want to think about more effectively support our students to form a stronger and more sustainable community in their lives through being engaged in learning activities in our course.

Keywords

Online learning, Community of Practice, Double-layered CoP model, Online course design

Introduction

Let us imagine ourselves in conversation with a student who has strong beliefs about what learning means. She positions herself humbly, saying "based on my experiences", but her position is firm: to her, learning means acquiring new knowledge through listening to lectures, reading guidebooks and writing exams; it should be an individual practice and a solo performance, with some support from tutors and institutions. Perhaps as researchers we start to subconsciously question the legitimacy of this student's experiences. However, how about if this student was a successful recent graduate of an online programme at an open university? Might we be tempted to question the quality of the programme, or the legitimacy of the university, or the extent to which the knowledge acquired was meaningful? If such a student has success in the assessment, then perhaps it is the assessment that was illegitimate? However, how about if she continued to list all of the meaningful things that she learned and achieved from enrolling in the programme; emphasised that she gained great satisfaction from completing her programme; described how it made positive changes in her life? At what point do we start to take this student seriously – not as some well-meaning but naïve ingénue, but as someone whose epistemological beliefs merit respect?

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Under a prominent recent regime of online education, often represented in the scholarship as a "social constructive learning paradigm" (Anderson & Dron, 2011; Harasim, 2012), learning is defined as a social practice that involves a group of students actively participating in collaborative knowledge construction processes (Scardamalia & Bereiter, 1994; Stahl, Koschmann, & Suthers, 2006). Pedagogical theories and strategies developed and utilised in that regime focus extensively on enabling student-to-student interaction and building communities of learners in online learning environments (Garrison & Arbaugh, 2007; Weller, 2007). In this context, where the notions of "collaborative" learning and learning "community" have gained substantial legitimacy from relevant theoretical traditions[1], other beliefs about meaningful learning (including the one of our student, above, who is actually a real interview participant in this study), are likely to be harshly criticised or, at best, simply neglected. However, as I demonstrate elsewhere (author, 2018), it is not at all difficult to notice a gap between the accepted theoretical ideas of effective online learning and actual pedagogical practices in most online education institutions, including many open universities.

Here, I aim to reduce that theory-practice gap by reconceptualising online learning using a double-layered Community of Practice (CoP) model. That model was originally developed through incorporating CoP principles into an online teacher education course design in order to address a teacher learning-teaching divide (authors, 2013; 2015a). That module conceptualises teachers' online learning as interlinked processes of participation and socialisation in multiple communities across internal and external or online and offline "layers" of teachers' lives. During a course period, participant teachers interact with other members *at least* in two different communities, the first community is internal, being newly built by their participation within the course environment and the second one is external, usually pre-existing outside the course environment in each teacher's professional context. The fact that teachers are active members of school communities is not something new or surprising. However, from the perspectives of course designers or instructors, it can be challenging to expand the boundaries of their course environments or designs to reach out to teachers' personal and professional lives and to make sense of teachers' learning experiences that are shaped by their interactions with other members of different communities outside the course environments. Thus, the model proposes pedagogical strategies to support participant teachers' simultaneous presence across internal and external communities and provides a holistic view on teacher learning situated in multiple communities.

Perhaps one may wonder how the pedagogical ideas provided by the double-layered CoP model is relevant to the student's monologue above about individualistic learning and in which way, those ideas are useful to reduce the gap between social constructive learning theories and actual online learning practices. I will unpack those connections and provide a new way of conceptualising online learning throughout the article. Firstly, in the next section, I will present a brief discussion about the concept of CoP and difficulties with developing a sustainable CoP online – much of this discussion is contextualised in the topic of teacher education. Secondly, I will present some data from a series of case studies on students learning experiences in different kinds of online courses that illustrates central ideas in this article.

Communities of Practice

The concept of CoP is fundamentally based on situated learning theories that describe learning through active participation in shared practices of social communities (Lave & Wenger, 1991). Their original anthropological monograph did not provide a clear definition of CoP but rather focused on describing how newcomers are socialised in existing communities through a process of 'legitimate peripheral participation'. This new approach to understanding professional learning was further developed through Wenger's later work (1998). His basic argument in this second book was that CoPs consist of groups of people who share a common interest and a desire to participate in and contribute to the practices of their communities and that all individuals are involved in multiple CoPs at work, school or even at home. Wenger (1998) proposed a number of structural indicators of

[1] For example, Computer-Supported Collaborative Learning (CSCL) and Networked Learning (NL)

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CoP such as ‘mutual engagement’, ‘joint enterprise’, and ‘shared repertories’ and later defined CoP as ‘groups of people who share a concern, a set of problems, or a passion about a topic and who deepen their knowledge and expertise in this area by interacting on an ongoing basis’ (Wenger, McDermott, and Snyder, 2002, p. 4). The three structural characteristics of CoP were also more clearly defined and re-termed ‘domain’, ‘community’, and ‘practice’.

That is, all CoPs have a shared domain of knowledge, which creates common ground, inspires members to participate and guides their learning. In pursuing their interest in the domain, members engage in joint activities and interactions to share ideas, and build relationships that enable them to learn from each other. In this sense, CoP is distinguished from communities of interest or communities of learning that do not require the ‘practice’ element. The evolution of the CoP concept is often problematised that it has lost its original (or genuine) characteristics such as spontaneity and authenticity:

> Thus the prescription for management is not about making space for workers to appropriate a joint enterprise, as was implied in Wenger’s earlier book; rather the idea is to create or foster new groupings of people who work on similar or parallel, not joint, enterprises (practices) effectively to invent new practices. Ethically there has been a shift from a concern to reveal and celebrate the value of what people know, especially in seemingly routine or mechanical jobs, to a concern to design a tool for management to manage ‘knowledge workers’ and experts in blue chip companies. (Cox, 2005, p. 534)

Although we agree that the concept of CoP tends to be applied into organisational learning contexts with a managerialist interest, we do not perceive this newer definition of CoP in Wenger et al. (2002) as a distinctly different concept from Wenger (1998)’s earlier one. We rather understand this shift as a meaningful theoretical development of the CoP concept. It is also a natural (or unavoidable) result of their effort to meet the growing demands for practical guidelines on the application of the CoP and situated learning theories in real-life educational contexts. In fact, there has been an increasing focus on developing CoPs both in informal and formal education settings (including virtual environments).

Previous studies: developing a sustainable online teacher CoP

With a shared understanding that building a quality CoP is a complex task, there have been various studies to investigate the design principles effective for online teacher communities (Authors, 2013, 2015a; Liu, 2012; Lloyd & Cochrane, 2006; Wood, 2007). Most researchers agree that a sustainable CoP requires all of those structural conditions of ‘domain’, ‘community’, and ‘practice’ – in other words, mutual interests, joint enterprises, and shared resources – to facilitate and maintain continuous interaction among its members to learn and work collaboratively as Wenger (1998) originally suggested. Although different teacher CoPs come in a variety of forms, members and activities, all of them may have those structural elements with a central focus on improving their teaching so as to help students learning. In this perspective, teacher CoPs can be clearly distinguished from other forms of communities in educational research such as ‘communities of learners’, ‘communities of interests’ and ‘communities of teachers’ (see Barab & Duffy, 2000).

> [T]he well-being of students must be central. According to this criterion, not all gatherings of teachers, even those in which teachers offer each other fellowship and support, constitute professional community: Teachers who gather to read mystery novels, even if they do so in the school library, would not meet our definition of professional community. (Grossman et al., 2001, p. 951)

For that reason, it tends to be very difficult to expect teachers to spontaneously build a CoP without any institutional interventions or supports. Even though theoretically, teacher CoPs are often understood to be ‘open and voluntary gatherings of individuals concerned with the general practice of teaching or specialist disciplines or areas of interest’ (Lloyd & Duncan-Howell, 2010, p. 61), building a quality CoP can be highly demanding for

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teachers who are already busy with their heavy teaching load and different responsibilities (Chai & Merry, 2014). In particular, if the development of an online teacher CoP is aiming at the advancement of teachers' technological knowledge and the educational use of technologies, which require the transformation of their pedagogical beliefs (Authors, 2015b; Schibeci et al., 2008), one would hardly expect such a CoP to be naturally and voluntarily formed by teachers. Therefore, careful and deliberate design efforts may be required for developing a CoP supportive enough for teachers' transformative learning.

One of the first large-scale research projects to build an online teacher education environment incorporating CoP principles was *TAPPED IN* (see Farooq et al, 2007; Schlager, Fusco, & Schank, 2002; Schlager & Fusco, 2004). The project focused on developing an environment that enables i) teachers to participate in self-motivated development activities from their professional contexts, ii) educational organizations to cooperate with each other and develop larger CoPs, and iii) education agencies to organize and host online CoP activities including online seminars or courses. Much effort was made to sustain and maintain teachers' and educational organizations' active participation in their CoPs built in the environment. Although it was a successful project that produced a great deal of knowledge, the research team announced its closing in March, 2013 due to a shortage of research funding and a lack of continuing participation.

Another example of large-scale educational project using an online form of teacher CoP is the Florida Online Reading Professional Development (see Zygouris-Coe & Swan, 2010). The main purpose of this project is to develop a sustainable state-wide CoP for teachers and educators specialized in reading education using online technologies. Despite its successful results in building online communities and creating professional collaboration and shared knowledge, the authors conclude "[d]eveloping and sustaining an effective online learning community can be challenging even in the midst of an era of much technological advancement. Developing and sustaining an effective large-scale online community is even more challenging' (p. 130). Both examples demonstrate that sustaining teacher CoPs is generally more difficult than developing them.

There are also a few studies focusing on developing teacher communities nesting inside online teacher education courses. For example, Slaouti (2007) attempts to build a CoP in the course environment through facilitating teachers' interactive learning and reflective teaching and Hramiak (2010) has a similar emphasis on developing a course CoP into which teachers can bring their teaching practices and share those with their peers. However both studies were unable to provide useful strategies to sustain the CoPs after the course period. Tsai's (2011) study exclusively focuses on how to sustain inservice teachers' participation in online CoPs, built through their preservice teacher education courses. Tsai suggests computer-mediated communication tools facilitate teachers' ongoing discussions and online CoPs have great potential to connect teachers' formal educational experiences and their teaching practices. Nevertheless, participant teachers' participation tends to be mainly shaped by course activities and requirements so the sustainability of the CoP becomes questionable.

Case studies: learners' experiences in different online courses

This section is written based on narratives of three distance learners and each from a different online programme: i) the first learner, Sumi is a recent graduate from online management programme at an open university whose view on learning is seemingly individualistic as shown in the opening paragraph of this article, ii) the second learner, Oliver is a recent graduate from online doctoral programme in educational research whose view on learning is greatly aligned with the one based on social constructivist learning theories, and iii) the third learner, Jane, has earned her Master's degree in education from a traditional research-extensive university offering a great number of online courses and her conceptualisation of meaningful learning is also in line with the one of social constructivist learning theorists, but uniquely differentiated from the one of Oliver. The three learners are purposely selected from three different case studies conducted by the author between 2013 and 2017 (2015a; under review; under preparation) in order to effectively demonstrate the usefulness of the double-layered CoP model not only to improve online learning experiences but also better conceptualise online learning.

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To be clear, the three online programmes within which each of the three learners' experiences and perceptions were constructed are all very different from each other, in terms of their academic levels, disciplines, and cultural and educational contexts. More importantly, the ways in which the programmes were designed and operated are considerably different, simply putting: i) the first programme was not at all designed using the principles of CoP, ii) the second programme was designed based on the pedagogical principles closely relevant to CoP but exclusively focused on building a learning community inside the course with course participants, and iii) the last programme was designed using the double-layered CoP model with serious effort to build sustainable offline CoPs outside the learning environment. One of the shared characteristics among the three learners is that all of them are adults married with a child (or children) and working as educational practitioners.

The narrative presented earlier in the introduction belongs to Sumi from the first case. 10 adult students who successfully completed an online programme at an open university (including Sumi) were interviewed towards the end of their study. Those online courses they completed did not offer any structured collaborative learning opportunities although each course environment has a built-in discussion forum space in which some discussion topics and resources were listed. Contribution to the discussions was not carefully facilitated and so unsurprisingly, an average rate of online discussion participation was very low across those courses. The interview results suggest that all of those 10 students, at the beginning of their study, experienced an enormous struggle to understand what to do in such a new "online" learning environment where they had never been in before entering the open university. Sumi said "my first semester was a real struggle with a massive level of uncertainty and anxiety – so I had to take time off from my study and many of us in my cohort did anyway." Fortunately, she was able to return to her programme after a couple of years and pursued her study to the completion at the second time: she recalled "the second time was so much easier because I learnt from the previous failure." Through various processes of "trial and error" in their first year, those students established certain lifestyles to balance their work, family, and study responsibilities.

In Sumi's case, she set her study pattern of waking up in the early morning and watching an online lecture and writing a learning note to which she would revisit during exam periods for about an hour every day. Once she successfully set up the habit and completed the second semester, her study pattern remained the same throughout the next five years of her study. For her and many other students in the first case study, online discussions or any other social interactions within the programme became considered "distractions" that may disturb their properly set-up study pattern. Sumi said:

> There is enough knowledge in textbooks and I can read them alone. Listening to professors' explanations based on good examples in those online lectures help me better understand knowledge – once I understand some challenging concepts through repeating the process, then it is really fun to learn... Of course, if I cannot understand something, then I can ask a question on the course website and I know some of my classmates or tutors may answer – but, it is not really necessary. I can just google it and search for other materials online – then there are tons of good quality materials developed by experts anyway. This is quicker.

Just like that, as an independent learner, Sumi earned her university degree and started her graduate study in the following year. She repeatedly emphasised how much she likes to learn new knowledge and to use them in her professional context where she was an educational programme coordinator and where she met close colleagues who were also doing a degree at the open university. However, this should be noted here: although social interactions she had had in those "formal" learning environments seem extremely limited, she had established a strong community working, learning, and living together outside her programme. Each of her "friends" in the "study group" was in different online programmes but in the same work place and they had provided each other with endless emotional and social support. Sometimes, Sumi found listening to what they studied was helpful for her to understand her things clearer. She continued: "in reality, open university degrees tend to be recognised as something inferior to the ones of traditional universities, however, the best value of being an open university

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student is to learn how to be an independent and self-regulated learner. I am very proud of myself now and my degree from open university." She believes being able to learn in totally "her way" enabled her to complete this challenging learning process while working and raising her child.

Oliver in the second case is an educational developer planning and organising faculty development programmes in one university in UK. When being interviewed, he had just finished his thesis viva. The online doctoral programme in which he was trained to be an educational researcher is offered by a research-intensive university in UK and it is, in its essence, collaborative and community-oriented. The programme consists of two academic phases: in the first phase (Part one), approximately 25 doctoral students as a cohort (all inservice educational professionals) enter the programme at the same time and take six courses together for the first two years. All of the six courses are very carefully designed to increase a strong sense of social presence among participant students and tutors and to build a supportive learning community among the cohort. This social learning process is effectively facilitated by a range of collaborative activities (e.g., group discussions, group presentations, peer-reviews) and two annual residential meetings during which all cohort members come to the university and participate in face-to-face group learning activities. Then they move to the second phase (Part two), in which each student as an independent researcher works on their thesis project with some guidance from their supervisors for the next two or three years. In this case study, 22 doctoral students who were close to the completion of their thesis project from four doctoral programmes of the similar nature were interviewed to understand their learning experiences in the two different phases. Oliver describes his experiences in Part one as:

> [T]he sense of community aspect was great. I think we all benefited from learning as a group and we had a lot of conversations around the value of learning together in a group, because it really helped to keep you focused, keep you engaged. So that was a real bonus, and let's be honest, that's one of the key aspects of what I was looking for in a doctoral programme... we had the residential in the first year and after the residential I think we all really bonded as a group, and that was a really pivotal moment, going through module one. But then my subsequent modules were… you would go into the next module and you kind of knew who everyone was so you could just get straight on with answering the discussions and the content and that kind of thing… I started to feel more confident with what I was dealing and was making more informed decisions.

It can be argued that during Part one, Oliver and his cohort had effectively formed a learning community in which they could learn together and "get through" this challenging path of doing a doctoral study as part-timers. Similar to Sumi in some sense, Oliver also suggests that he established or became used to the particular way of learning (very different one from Sumi's though) in the programme, which made him feel more confident in the subsequent courses in Part one. However, Oliver's experiences in Part two seem quite different:

> It's definitely a very different experience I think… because our group really enjoyed both residentials, we organised a residential earlier on in the third year. So during the transition to part two, about six of us went to [the university], some of us are from overseas. We sort of self-organised a little programme … Because we felt that we really wanted to maintain that sense of community and it was actually really important to us. So we tried to extend it as long as we could, and then we all went off after the residential… the community aspect just sort of dissipated really… As soon as you get into Part two, it's really difficult to maintain those community ties. We'd set up a little sort of learning group… A lot of people had used Facebook in the past and we tried to keep it going and it just died really as everyone gets immersed in their Part two… we had a really strong sense of community in part one but we couldn't find a way.

It may be useful to add here, quickly – John, another member of Oliver's cohort who is based in Japan, said during his interview:

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> I know my cohort I guess had like another residential, which I heard about after the fact. That they had organised their own. So some parts of [the cohort] still have a sense of community. I don't feel the sense of community in my cohort… there's an inner group and the outer group. So some groups are going to form. And I mean I'm fine with that. There's no way I was going to [the university] if I really didn't have to. Not that I don't like it. But I like to visit and I like hanging out with [tutors], but it's just too expensive. For me it's just a big expensive trip, going to the UK.

The data here suggest two interrelated points of: i) the difficulty to build a "strong" or "equally strong" learning community in "fully" online courses and ii) the difficulty to maintain the community after the formal course period. The stressed usefulness of residentials for increasing a sense of community in Oliver's excerpt also suggests, conversely, the challenging nature of having that sense of community without having those face-to-face interactions, which may be too costly for some students to voluntarily carry on. In addition, unlike Olive who seems to belong to the "inner group" (using John's term), John's experiences with most of collaborative activities in those modules were a consistent struggle that eventually left him behind in the "outer group" who was not invited to the third residential of the cohort. Moving to the second point, even Oliver found it very challenging to maintain the frequent contacts with his cohort members during Part two – the cohort community, which had been carefully built throughout the Part one with lots of pedagogical efforts of tutors, students, and programme administrators, was just dismantled as soon as there was no "imposed" shared practices or collaborative activities in Part two. More importantly, it is not that Oliver and other students do not need that community support anymore. A sense of the absent of community and support system, which had existed before, was certainly not helpful to smooth out the challenging process of becoming an independent researcher who is expected to manage a large scale thesis project independently or alone.

Jane was a MA student and a secondary teacher teaching ESL in a private school to immigrant girls when the third case study was conducted in three graduate courses designed using the double-layered CoP (see authors, 2015a for a detailed description of the study). The online course, in which Jane was one of the 17 student-teacher participants, is different from those courses in the online doctoral programme described above in terms of the nature of the participation and participants. The notion of cohort is not salient in the Master's programme to which hundreds of students are admitted each year and there are a large number of courses offered that each student can freely navigate and choose from. Thus, those 17 participants all voluntarily selected and signed up for this online course for the specific term. Although some of them had previously met in other courses, it is fair to say that most of them did not know each other at all when the course started. The course is fully online and only 12-weeks long, after which all participants would be dispersed into other courses: that is, the course does not provide optimal conditions for forming a strong learning community within the course. The course instead provides guided activities for student-teachers to search for an existing community in their professional context that they are already a member of and nurture that community to become a good CoP meeting the three structural characteristics of CoP: domain, community, and practice.

The course description explicitly states "bring your external CoP stories into your online course CoP and bring your course knowledge back to your external CoP" and specifically asks each participant to write CoP journal entries during the course period reflecting on their experiences with nurturing the chosen community and connecting course ideas to the practices in the community. This is to encourage each student to take the lead in building a supportive learning community in their own professional context, which will certainly last longer than the course environment. The main subject areas of the course discussions are the various characteristics of computer-mediated communication (CMC) and its educational applications and pedagogical considerations for using CMC tools in classrooms. During the course period, Jane continued to speak of her colleagues who could be her external CoP members as an inspiring group of teachers and expressed her desire to develop this group into a good CoP. Then, Jane initiated a series of afterschool conversations aiming to exchange useful teaching

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ideas and tips with her colleagues as the first step to nurture the pre-existing collegial relationships into a CoP with shared purposes and projects. In her final CoP journal entry, she says:

> So, now that my [course] journey is ending, it has provided a perfect starting point to re-pay the [external] CoP I began to speak about in this course – the faculty I work very closely with at my school… I enjoyed the rich conversations, inspirational ideas and stimulating environment [in the afterschool conversations]. I like that belonging to CoPs. This [course] has inspired me to embrace more technology in my classroom… Now it is my turn to take on more of a leadership role within my faculty and bring some of the ideas we have discussed (and that I have tried in my classes) to them in a way that inspires them to join me on the journey to masterful teaching!

When I followed up with the course participants several months after the course was completed to ask whether they are continuing with participating in their professional CoPs. Several teachers responded yes they were including Jane. She said:

> Definitely, I have been participating in my CoP at school (after school) and continue to do so because I find it extremely helpful to collaborate with other members on certain tasks. The question we continue to address is how we can incorporate technology effectively into our classes... I love being part of my CoP and I think everyone should participate in one, especially if they are educators.

Conclusion

Petraglia (1998) earlier argued that educational technologies (or instructional designers) had tended to overlook the original, fundamental, epistemological ideas of constructivism by "pre-authenticating" learning environments, that is, by creating environments that are predetermined to reflect the real world and knowledge in a very specific way even though constructivist theory contraindicates precisely this pre-authentication or pre-determination (p. 53). This article echoes that argument by demonstrating how difficult it is to develop a strong CoP nested and sustained in online learning environments, which have a close finish. Thus, it may be useful for instructional designers to expend their view on learning environment to include distance learners' life situations beyond their computer screens. Everyone has their own community in which they naturally learn, develop, and live with other members outside the courses as Sumi's case demonstrates. Rather than putting so much effort to form a community inside our learning environment, we can support them to form a stronger and more sustainable community in their lives through being engaged in learning activities in our course as Jane did.

References

Anderson, T., & Dron, J. (2011). Three generations of distance education pedagogy. *International Review of Research in Open and Distance Learning, 12*(3).

Barab, S. A., & Duffy, T. (2000). From practice fields to communities of practice. In D. Jonassen & S. M. Land (Eds.), *Theoretical foundations of learning environments* (pp. 25-56). Mahwah, NJ: Lawrence Erlbaum Associates.

Chai, C. S., & Merry, R. (2006). Teachers' perceptions of teaching and learning in a knowledge-building community: An exploratory case study. *Learning, Media and Technology, 31*(2), 133-148.

Cox, A. (2005). What are communities of practice? A comparative review of four seminal works. *Journal of Information Science, 31*(6), 527-540.

Farooq, U., Schank, P., Harris, A., Fusco, J. & Schlager, M. (2007). Sustaining a community computing infrastructure for online teacher professional development: A case study of designing Tapped In. *Journal of Computer Supported Cooperative Work, 16*(4-5), 397-429.

Garrison, D. R., & Arbaugh, J. B. (2007). Researching the community of inquiry framework: Review, issues, and future directions. *Internet and Higher Education, 10*, 157–172.

Grossman, P., Wineburg, S., & Woolworth, S. (2001). Toward a theory of teacher community. *Teachers College Record, 103*(6), 942-1012.

Harasim, L. (2012). *Learning Theory and Online Technology: How New Technologies are Transforming Learning Opportunities.* New York, NY: Routledge Press.

ISBN 978-1-86220-337-2

Lave, J. & Wenger, E. (1991). *Situated learning. Legitimate peripheral participation.* Cambridge, UK: Cambridge University Press.
Liu, K. Y. (2012). A design framework for online teacher professional development communities. *Asia Pacific Educational Reviews, 13*, 701-711.
Lloyd M., & Cochrane J. (2006). Celtic knots: Interweaving the elements of effective teacher professional development in ICT. *Australian Educational Computing, 21*(2), 16–19.
Lloyd, M., & Duncan-Howell, J. (2010). Changing the metaphor: The potential of online communities in teacher professional development. In J. Lindberg & A. D. Olofsson (Eds.), *Online learning communities and teacher professional development: Methods for improved education delivery* (pp. 60-76). Hershey, PA: IGI Global.
Scardamalia, M., & Bereiter, C. (1994). Computer support for knowledge-building communities. *Journal of the Learning Sciences, 3*(3), 265-283.
Schlager, M. S., Fusco, J., & Schank, P. (2002). Evolution of an on-line education community of practice. In K. A. Renniger & W. Schumar (Eds.), *Building virtual communities: Learning and change in cyberspace* (pp. 112-145). New York, NY: Cambridge University Press.
Slaouti, D. (2007). Teacher learning about online learning: Experiences of a situated approach. *European Journal of Teacher Education, 30*(3), 285-304.
Stahl, G., Koschmann, T., & Suthers, D. (2006). Computer-supported collaborative learning: An historical perspective. In R. K. Sawyer (Ed.), *Cambridge handbook of the learning sciences* (pp. 409-426). Cambridge, UK: Cambridge University Press.
Tsai, I. (2011). Levels and patterns of participation and social interaction in an online learning community for learning to teach. *Journal of Interactive Learning Research, 22*(2), 191-239.
Wenger, E. (1998). *Communities of practice*. New York, NY: Cambridge University Press.
Wenger, E., McDermott, R., & Snyder, W. (2002) *Cultivating communities of practice: A guide to managing knowledge*. Cambridge, MA: Harvard Business School Press.
Zygouris-Coe, V. & Swan, B. (2010). Challenges of online teacher professional development communities: A statewide case study in the United States. In J. Lindberg & A. D. Olofsson (Eds.), *Online learning communities and teacher professional development: Methods for improved education delivery* (pp. 114-133). Hershey, PA: IGI Global.

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