

# Communities of Learning Practice: Balancing Emergence and Design in Educational Settings

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**Abstract:** This paper explores the aspects of emergence and design in the theoretical notions and models of Communities of Practice (CoPs) and Communities of Learners (CoLs), along with the potential of a new notion and model to epitomize emergent communities in an educational setting. The need for a new notion and model emerged from a longitudinal study of communities in higher education that, among others, aimed to explore the communities' design principles and stages of development. The characteristics of emergent communities in an educational setting were not fully congruent with either CoP or CoL and their theoretical principles. This paper delineates the need for an emergent notion and model, termed "community of learning practice", which incorporates elements from both CoP and CoL, but simultaneously aims for balance between emergence and design in an educational setting to an extent that allows communities to grow through members' voluntary participation and negotiated community structure.

## Introduction

A number of notions, including communities of practice, communities of learners, knowledge building communities and learning communities, have been introduced by theoreticians and researchers in the fields of education and knowledge management since the late 1980s and early 1990s to describe social settings within which individuals share and co-construct knowledge, expertise and learning experiences towards a shared enterprise (e.g., Barab & Duffy, 2000; Bielaczyc & Collins, 1999; Brown, 1992; Brown & Campione, 1990; Lave & Wenger, 1991; Scardamalia & Bereiter, 1994; Wenger, 1998a). Although it would have been insightful to theoretically analyze all existing community concepts and their principles, for the purposes of this paper only the concepts of Communities of Practice (CoPs) and Communities of Learners (CoLs) are considered given their increasingly dominant profile supported by theoretical claims in contemporary research literature. Many contributions refer to the notions of CoP and/or CoL, but refer less consistently to the model and underlying theoretical framework that they represent.

CoPs were originally coined as an analytical notion by Lave and Wenger (1991) to describe already existing phenomena in craft production within a situated learning framework. A theoretical analysis of the concept was further developed by Wenger (1998a) highlighting the foundational principles of its meaning, structure and value. The popularity of the concept and its overuse both by researchers and practitioners in different contexts – although not always consistent with its foundational principles and initial conceptualization – has led to conflicting, contradictory, misleading or at least superficial treatment of the term on a theoretical and implementational level (Kimble, 2006; Roth & Lee, 2006; Wenger, 2010). This has contributed either to an instrumental interpretation of the concept used to design educational or organizational settings, or one-way-fit-all interpretations of the term to refer to groups of learners or co-workers (Hughes, 2007; Kimble, 2006; Roth & Lee, 2006; Vann & Bowker, 2001; Wenger, 2010). Wenger (2010) also reflected on the status of the community of practice concept, realizing that it is out of control, since practitioners and researchers have been using it without taking into consideration its theoretical framework and principles.

Apart from CoPs, the notion of CoLs has been also widely used by educators and researchers to refer to communities that aim for the advancement of knowledge and learning how to learn on the classroom level in educational settings (Bielaczyc, Kapur & Collins, 2013; Brown, 1992; Brown & Campione, 1990). Its initial conception by Brown and Campione (1990) aimed to describe the practical implementation of a set of theoretical principles in classrooms, based upon Vygotskian premises and Dewey's (1897) discovery learning, towards a reform movement in education through an innovative classroom design (Brown & Campione, 1994). CoLs in education are associated with a shift of the students' role in schools from passive knowledge recipients to active co-constructors of knowledge, while being responsible for their own learning and its design (Brown, 1992). Therefore, CoLs have been used as an educational technique to enhance knowledge sharing and distribution of expertise and responsibility among students and teachers aiming to build a collective learning culture in which students respect and value each other's contributions (Bielaczyc, Kapur, & Collins, 2013; Brown & Campione, 1994, 1996).

According to the foundational theoretical principles of the notions of CoP and CoL, the importance that has been attached to the aspects of emergence and design varies across the two community notions and models. CoPs are built on the idea of self-generation, self-directedness and voluntary participation, drawing their energy

and motivation from within the community itself (Janson, Howard, & Schoenberger-Orgad, 2004), whereas CoLs are designed and facilitated by educators, researchers or a combination, and typically applied into a classroom setting with fixed participants (i.e., students and teachers/adults) and pre-defined pedagogical objectives based on the curriculum (Rogoff, 1994). This paper aims to examine the emergence and design aspects in both community notions and models, which are represented in different ways in each one of the two models, and introduce the need for a new model to describe communities that emerged in an educational setting through the voluntary participation of learners, while recombining elements from both existing models – yet not fully fitting to either of both precursors.

Before the recombinant model can be discussed, it is of vital importance to understand the theoretical framework from which both community notions emerged and which elements are represented in the theoretical principles of both concepts. Despite the differences between both notions of communities, which will be explored later in this paper, they share similar theoretical underpinnings grounded in sociocultural approaches to learning.

## **Sociocultural Approaches to Learning: Situated Learning and Situated Cognition**

Sociocultural approaches to learning gained increasing attention in the 1980s by researchers to explore alternative ways of understanding learning beyond behaviorism and cognitivism (John-Steiner & Mahn, 1996; Wertsch, 1991, 1998). Sociocultural approaches to learning are often associated with Lev Vygotsky and his collaborators' works on learning and development of human behavior in the 1920s and 1930s (Vygotsky, 1978). Vygotsky, in his conceptualizations of development, learning and knowledge construction from a sociocultural perspective, emphasized the dynamic interdependence of socially shared activities and internalized processes in the co-construction of knowledge, since the internalization that takes place is situated within socially shared activities (John-Steiner & Mahn, 1996).

Situated learning and situated cognition developed as sociocultural approaches from Vygotsky's sociocultural theory. Both approaches emphasize that learning is a socially situated practice and learning, thinking, and knowing constitute relations among individuals, who engage in authentic collective activities, and arise from the surrounding sociocultural setting (Brown, Collins, & Duguid, 1989; Lave, 1988, 1990; Lave & Wenger, 1991). Yet, they differ with regard to how they could be implemented in educational settings.

### **Situated Learning**

Situated learning is interconnected with the notion of CoP and refers to learning as “not merely situated in practice – as if it were some independently reifiable process that just happened to be located somewhere; learning is an integral part of generative social practice in the lived-in world” (Lave & Wenger, 1991, p. 35). The constituent characteristic of engagement in social practice, within which learning occurs, is legitimate peripheral participation (LPP) and refers to the process by which newcomers move towards becoming more central participants of a CoP (Lave & Wenger, 1991). According to Anderson, Reder and Simon (1996), the foundational claims of situated learning are often misimplemented in educational settings, however, Lave and Wenger (1991) specifically highlighted that

“(…) legitimate peripheral participation is not itself an educational form, much less a pedagogical strategy or a teaching technique (...) this view makes a fundamental distinction between learning and intentional instruction (...) this is very different from attributing a prescriptive value to the concept of legitimate peripheral participation and from proposing ways of “implementing” or “operationalizing” it for educational purposes.” (Lave & Wenger, 1991, pp. 40-41)

This quote depicts that situated learning's constituent characteristic of legitimate peripheral participation cannot be operationalized as an instructional approach with pre-defined educational purposes.

### **Situated Cognition**

Situated cognition, proposed by Brown, Collins and Duguid (1989), argues that meaningful learning can only occur when embedded in the social context within which it is used to “(...) enculturate students into authentic practices through activity and social interaction” (Brown, Collins, & Duguid, 1989, p. 37). Situated cognition, as a theoretical model, can be translated into educational practice through the instructional approach of cognitive apprenticeship, and aims to foster learning in a domain by promoting students' knowledge acquisition and development through the use of cognitive tools in authentic activities (Brown, Collins, & Duguid, 1989; Collins, Brown, & Newman, 1989). Therefore, situated cognition positions itself closer to innovative educational reform and intentional instructional approaches, and is implicitly connected – through their focus on instructional purposes – with the notion of CoL.

## Two Contemporary Notions of Communities

Over the past two decades, the notions of CoP and CoL have flourished in research, and educational and workplace settings. Despite their popularity, their slightly different theoretical foundations have slipped out of focus. The following section will describe both notions of community – in close alignment to their foundational elements and theoretical principles – and the degree of emergence and design.

### Communities of Practice

Within the framework of sociocultural theory and situated learning, Lave and Wenger coined the multifaceted concept of CoP to refer to “(...) a set of relations among persons, activity and the world, over time and in relation with other tangential and overlapping communities of practice” (Lave & Wenger, 1991, p. 98). In other words, a CoP is formed by individuals who have a common interest in a domain of human endeavor and mutually engage in a process of social learning, working together and sharing ideas in order to collectively solve problems and co-construct knowledge over a period of time (Wenger, 1998a).

CoPs share a common structure, which is constituted of three elements: domain, community and practice (Wenger, McDermott, & Snyder, 2002). The element of domain refers to a shared domain of interest that matters to members (Wenger, 1998a), contributes to the identity of the community which reflects “a set of issues, challenges and passions through which members recognize each other as learning partners” (Wenger, White, & Smith, 2009, p. 5). Individuals’ membership in a CoP is related to their dedication to that domain along with a communal competence that diversifies the members of the community from others, without necessarily requiring high expertise in a specific field (Wenger, 1998a). Members of the community tend to appreciate their collective competence and learn together, even though people outside of the community might not value or identify with their collective experience (Wenger, 1998a). The element of community is evident when individuals engage in joint activities and discussions, help each other, and share information, while building relationships that enable members to interact and learn from each other (Wenger, 1998a). This does not imply that members of a CoP work together on a consecutive basis, although interactions are essential in the constitution of a CoP (Wenger, 1998a). The element of practice refers to a shared repertoire of resources, like experiences, tools and ways of addressing issues (Wenger, 1998a). Hence, a CoP should not be conceptualized merely as a community of people with common interests, but rather as a community whose members develop a shared practice. The process of a sharing practice requires time and interaction and seems to be a more or less self-conscious process (Wenger, 1998a). Wenger (1998a) further defined the relationship between practice and community, within the framework of CoPs, by three core dimensions: mutual engagement, joint enterprise and shared repertoire (see Table 1).

Table 1: Dimensions of practice as the property of a community

Core dimension	Description	Implication	Value
Mutual engagement	Engagement in collectively negotiable actions	Does not imply homogeneity as a prerequisite for community development	Recognition of the importance of others’ competences, knowledge and contribution
Joint enterprise	Negotiated response to address their common situation	Moves beyond a common goal to involve relations of mutual accountability	Mutual negotiation of actions and sharing responsibility for the common enterprise
Shared repertoire	Developed routines, activities, artifacts and stories	Can be used as reference points for negotiation of meaning	Negotiation of new meaning and dynamic development

The mere existence of these dimensions does not imply a coherent community, but rather whether they are collectively used by the participants for a common enterprise (Wenger, 1998a). The major challenge of a CoP is to collectively identify the community, continuously negotiate the reasons of its existence and sustain a social space for learning along with being involved and committed over time (Wenger, Trayner, & DeLaat, 2011).

### Emergence and Design in CoPs

CoPs do not constitute formal structures among individuals, but informal entities within the minds of its members, built around the relationships that members develop with each other while sharing common problems and interests (Ardichvili, Mauer, Li, Wentling, & Stuedemann, 2006). As Kirschner and Lai (2007) explain, CoPs are not things, but processes in which social learning takes place. A CoP is perceived as a self-generated and self-organized system, an organism or an autonomous group that needs time to form itself, exists for the benefit of its members, and may continue its existence even after the completion of a project or task (Lave &

Wenger, 1991; Kimble, 2006; Wenger, 1998a; Wenger, McDermott, & Snyder, 2002). According to Wenger (1998b), communities go through various stages of development characterized by different kinds of activities and different levels of interaction among community members. Therefore, a CoP differentiates itself from other sets of people who operate in groups, because it neither starts its existence and its action the exact moment that a task or project starts, nor disappears at the end of it (Wenger, 1998a).

Since learning occurs in the sphere of experience and practice, CoPs cannot be designed in the sense of producing an “organizational unit” or being implemented as a pedagogical technique (Wenger, 1998a, p. 228), but they can be “recognized, supported, encouraged, and nurtured” (Wenger, 1998a, p. 229). However, as Wenger (2010) explains, “(...) it is indeed difficult to find the right balance between enough formality to give them legitimacy in the organization and enough informality to let them be peer-oriented, self-governed learning partnerships” (¶ A co-opted concept: on the instrumental slippery slope). In contrast to self-generated and self-developed CoPs, the emergence and design of CoLs in educational settings underlies intentionality and particular objectives.

## **Communities of Learners**

Based upon the premise of sociocultural theory and situated cognition, the conception of CoL emerged in the early 1990s as part of the *Fostering Communities of Learners* project by Brown and Campione (1990), which aimed to transform traditional classrooms into innovative learning environments that foster the distribution of expertise among adults and children underlying a need for educational reform (Brown, 1992, 1994; Brown & Campione, 1996). According to Rogoff (1994), learning emerges in CoLs when individuals participate in shared enterprises with others by having active, but often different, roles in sociocultural activities. According to Rogoff, Goodman-Turkianis and Bertlett (2001), a community is constituted of relationships among individuals, who collectively try to accomplish common enterprises, while being stably involved, and considering those multifaceted relationships as fundamental for the evolution of the community. The aim of a CoL moves beyond successfully accomplishing tasks to developing collective practices that transcend the particular individuals involved (Rogoff, Goodman-Turkianis, & Bertlett, 2001).

A variety of CoL models have been operationalized and implemented by researchers over the years (Bielaczyc, Kapur & Collins, 2013; Brown, 1992; Brown & Campione, 1996; Rogoff, 1994; Rogoff, Goodman-Turkianis, & Bertlett, 2001; Scardamalia & Bereiter, 1994). Regardless of the differences in operationalization and implementation of the models, which move beyond the scope of this paper, they share several underlying principles. According to Bielaczyc, Kapur and Collins (2013), the constituent characteristics of CoL models are: diversity of expertise among participants through valued contributions, a shared objective of developing collective knowledge and skills over time, learning how to learn, and mechanisms for sharing. The main objective of a CoL is to promote a learning culture, in which individuals and the community as a whole are learning how to learn and develop disciplinary knowledge, while respecting and valuing different contributions of its members (Bielaczyc, Kapur, & Collins, 2013).

## **Emergence and Design in CoLs**

CoLs have been used as a community-based instructional approach by educators who aim to foster student-centered learning, therefore CoL is associated with a shift in the learners’ role in schools from a passive knowledge recipient to an active co-constructor of knowledge responsible for their own learning (Brown, 1992). Intentional CoLs by educators often start with a course, operate on the classroom level, assume that the classroom is one community, and the participants are students whose individual achievement is evaluated and rewarded and prioritized over the collective success (Barab, Kling, & Gray, 2004; Roth & Lee, 2004). CoLs are supported and guided by a teacher-facilitator or other adults (Brown, 1992). However, the implementation of the CoL notion by educators in classrooms has been a challenging process and often misrepresented the notion itself (Barab, Klinef, & Gray, 2004), which has been often employed by educators “(...) as a slogan rather than as an analytical category” (Barab, Kling, & Gray, 2004, p. 3).

## **A Recombinant Model of Communities: Communities of Learning Practice**

Despite the differences between the notions of CoP and CoL, their commonalities have contributed to theoretical and implementational confusion. In an attempt to clarify theoretical contradictions in the notion of CoP, Roth and Lee (2006) claim that “(...) the notion of community in the context of classrooms is inappropriate or even false – unless the students concretely realize the collectively defined motive and have some choice and control in the matters” (p. 32). Indeed, it is misleading to consider whole classrooms as CoPs, because the notion of CoP entails emerging elements and not pre-defined, forced attributes to students in classrooms. However, several CoPs may exist within the context of the classroom or the broader educational setting, in the same way that they may exist in any other social context. In contrast, CoLs have been used in educational settings as an instructional approach by educators to foster students’ control and responsibility in collectively developing knowledge through sharing of contributions, which are respected and valued by others

(Rogoff, 1994). Therefore, classrooms were transformed into CoLs as part of an educational reform movement. The CoL notion does not include emergent elements, but instructionally designed and defined ones. Is there room for a middle path between those two notions by employing theoretical values from both? What could a middle path be for a community model to emerge in an educational setting and be “designed” to an extent that such a “design” does not interfere with its underlying “emergent” values and principles?

## Communities of Learning Practice

During a longitudinal study in higher education, in which we explored the aspects of design and emergence, developmental stages (Dingyloudi & Strijbos, 2014), sharing practices and value creation in multiple extra-curricular emergent communities in parallel to a Learning Sciences master’s program, we initially expected to be able to describe our communities under study by either adopting the CoP or the CoL model. However, as our research progressed it proved impossible to provide a description of our emergent communities that would be compatible with either the CoP or CoL model. How our communities under study emerged, were structured and evolved generated the need for a new conceptual descriptor, which operates in-between and beyond the existing models. This third notion aims to describe emergent communities by incorporating elements from both CoP and CoL models, but simultaneously creating a unique profile without being a mere variation of either of the two models.

We have termed this third notion “Communities of Learning Practice” (CoLP) (See Figure 1). The inclusiveness of this notion is initially depicted by using the terms “learning” and “practice” in its conception. The relationship between learning and practice seems to be realized at two levels in the CoLP model. It can be either perceived as (a) “learning how to practice” (e.g., academic skills) that has the potential to contribute to the broader educational context, or (b) “practicing how to learn”, through the practice of skills within the community setting. How participants may experience the relationship between learning and practice may vary, as well as how they value this relationship.

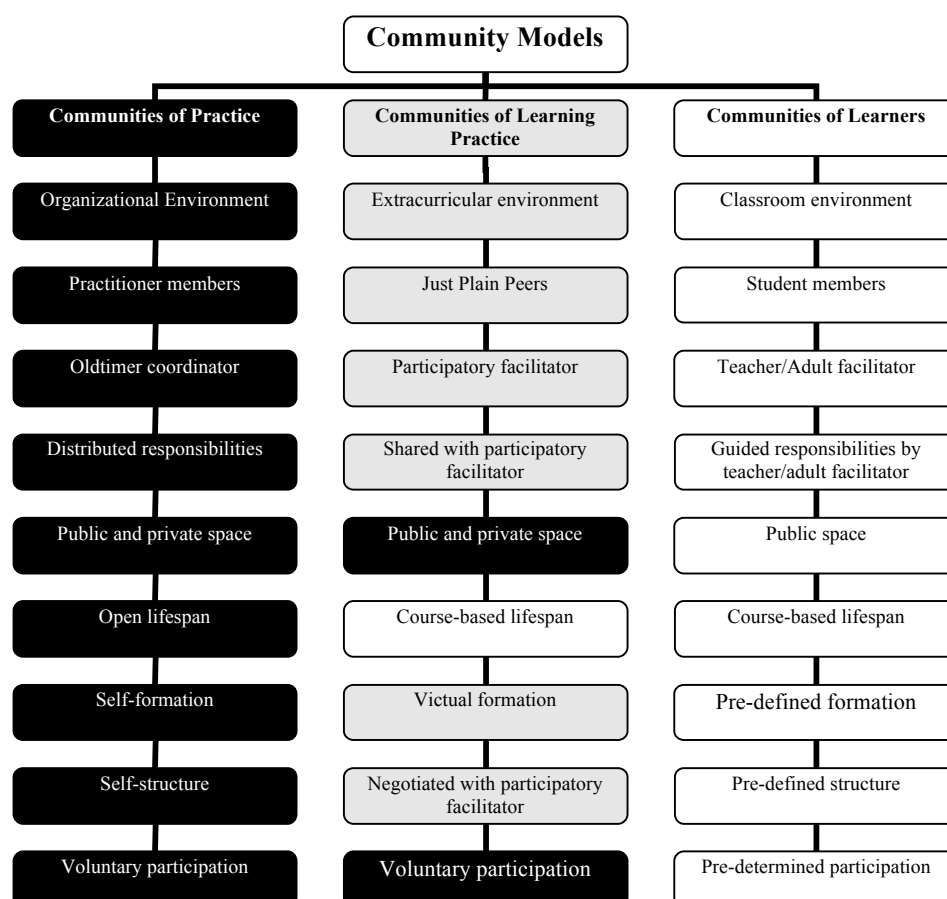


Figure 1. A recombinant model of Communities of Learning Practice (CoLP)

CoLPs derive from and operate in educational settings, and in parallel with – but not integrated into the curriculum – by having no pre-defined pedagogical objectives. Therefore, CoLPs are extra-curricular entities that emerge from students’ common needs and are not used as an instructional approach by educators,

researchers or stakeholders to foster curricular learning objectives. With respect to the environment within which communities grow, CoLPs and CoLs are both formed in an educational setting, but the CoLP lives *in parallel* as opposed to *in* the curricular setting. Although CoPs could also be formed in educational settings, they typically find better ground for development in organizations in an attempt to contribute to organizational success through transfer of professional skills and profitable work place practices (Wenger & Snyder, 2000).

The potential participants of CoLPs are peers, who are students in the broader educational setting, and gather together to address identified common needs (e.g., academic challenges) that derive from the broader educational setting. Their participation throughout the CoLP lifespan is voluntary and members are free to withdraw whenever the value of their participation fades away. CoLPs are open to any student who wishes to act as a peer among peers and share, negotiate and co-construct learning experiences through the sharing mechanism of peer feedback. The participants of CoLPs can be described as *Just Plain Peers* (JPPs) as a context-specific instantiation of the term “Just Plain Folks” (JPFs) introduced by Lave (1988). Following Brown, Collins and Duguid (1989), the issues and problems that Just Plain Folks face “(...) arise out of, are defined by, and are resolved within the constraints of the activity they are pursuing” (p. 35). Table 2 provides a summary of the features characterizing JPFs/JPPs, students, and practitioners. CoLs typically involve students as participants, although CoLs are designed to enhance a shift in students’ activity in classrooms and move beyond laws, symbols and fixed meanings. CoPs may have as participants either practitioners or JPFs. The JPPs in a CoLP resemble the activity of practitioners, although JPPs are more closely related to everyday activity.

Table 2: JPFs/JPPs, Students and Practitioners (adapted from Brown, Collins, & Duguid, 1989)

	JPFs/JPPs	Students	Practitioners
<b>reasoning with:</b>	causal stories	laws	causal models
<b>acting on:</b>	situations	symbols	conceptual situations
<b>resolving:</b>	emergent problems and dilemmas	well-defined problems	ill-defined problems
<b>producing:</b>	negotiable meaning and socially constructed understanding	fixed meaning and immutable concepts	negotiable meaning and socially constructed understanding

CoLPs act as a support structure for students, are generated by the students themselves but facilitated by a *participatory facilitator*, who is neither an expert nor a peer-member. The participatory facilitator and the JPPs *share responsibility* for coordinating and co-structuring the *public space* and reinforcing social interactions in the *private space*. The public space refers to informal events which are open to community members to exchange ideas, and find solutions to their problems, attributing a ritualistic and substantive dimension to the community by offering its members the experience of participation and meeting other members. The private space refers to a web of relationships among members who can be involved into one-to-one informal discussions that inform any design decision of the public space (Wenger, McDermott, & Snyder, 2002). In contrast, the facilitator in CoLs is the teacher or another expert (Brown & Campione, 1996), whereas in CoPs the coordination role can be taken on by any of the community members (Wenger, McDermott, & Snyder, 2002). CoLs and CoPs further differ regarding the spheres within which they operate, since the CoL operates in the public space (e.g., classroom) whereas the CoP operates in both the public and private space.

CoLPs are *virtually formed*, since the participatory facilitator communicates the invitation for a CoLP to be initiated (if relevant to the JPPs) to the potential JPPs. The participatory facilitator also supplies the community with ritualistic sustainability (i.e., a consistent rhythm of public community events), enhances the informality of the public community events, facilitates the “learning how to practice” and “practicing how to learn” aspects of the community on a public level, and builds private social bridges with the JPPs with the aim to reinforce community aliveness (Wenger, McDermott, & Snyder, 2002). Therefore, the community formation is not entirely self-generated (as is the case for a CoP), but there is a virtual approach to this formation by the participatory facilitator, i.e. supplying the community with mechanisms that facilitate community sustainability and members’ social bounding. Along with the virtual formation, the structure of the community is also *negotiated* among the JPPs and the participatory facilitator. Structure refers to the ritualistic and structural dependence of the members on each other, which is negotiated throughout the lifespan of the CoLP. Contrasting the formation and structure of CoLPs with both two existing community models – CoLs are instructionally pre-defined, pre-structured and guided, whereas CoPs are self-formed and self-structured – it becomes evident that the aspects of emergence and design in CoLPs do not reflect either the CoL or CoP model, and move beyond them by employing a balanced approach to emergence and design.

The lifespan of CoLPs is course-based, given the broader socio-educational context within which they evolve. Since the relevance of forming the CoLP derives from the broader educational context, this context constitutes the defining element of its lifespan as well. However, the CoLP might regenerate or transform itself

as long as the JPPs continue to identify potential values of participation in their CoLP. Regarding lifespan the CoLP resembles a CoL and differentiates a CoLP from a CoP, which does not start or end with a task or project (Wenger, 1998a).

## Balancing Emergence and Design of Communities

The rationale for another community notion relies on the need for balancing emergence and design of a community in an educational setting. According to Wenger (1998a), the balance between emergence and design in the community context is depicted in the paradox that “(...) no community can fully design the learning of another (...) no community can fully design its own learning.” (p. 234). The emphasis expressed by “fully” in Wenger’s statement is what makes the relationship between emergence and design complex and asks for an equilibrium between the two.

Wenger, McDermott and Snyder (2002) suggest a set of design principles that could foster a sense of community aliveness without designing an intervention to achieve this. Hence, designing a CoP would be contradictory with the underpinning theory of self-organized systems. In contrast, CoLs do not allow for much freedom on behalf of the community members, since the participation and objectives are pre-defined and pre-structured for pedagogical purposes. Therefore, in an attempt to achieve an equilibrium between emergence and design – without being conflicting or incompatible with any of the CoL and CoP notions – the CoLP constitutes a middle path that incorporates community values from both notions *and* stands on its own as well.

## Implications and Conclusion

This paper explored the aspects of emergence and design that are attached to the dominant notions of CoP and CoL and presented the need for a new community notion to characterize emergent communities in education. This new notion of “Communities of Learning Practice” (CoLP) emerged from our longitudinal study on emergent communities in higher education, during which we aimed to achieve a balance between emergence and design. CoLP incorporates elements from both community models, constituting an entity in-between and beyond them. Metaphorically, this resembles the reproduction of living organisms, in which a new living entity is generated by recombining different chromosomes from two other living organisms.

The emergence of the CoLP notion has theoretical and practical implications. First of all, the emergence of the notion by itself calls researchers’ and educators’ attention to the aspects of emergence and design within either the CoP or the CoL model, highlighting the importance of considering them before attributing the label of CoP or CoL to the communities under study or being implemented, to avoid theoretical misinterpretations. In addition, a CoLP and the community model it represents, offers a theoretical model for a community that is neither self-generated and self-developed, nor instructionally designed and pedagogically guided. This model has the potential to describe emergent communities in educational settings that move beyond the curriculum and the constraints of the classroom supported by a participatory facilitator. With respect to the practical implications in education, CoLPs suggest an even more autonomous community model compared to the CoL that educators should allow to emerge out of the voluntary participation of the students and let them be JPPs for their own emergent needs and problems, which might not necessarily be addressed in the curriculum. A CoLP model cannot be used as an instructional approach, but it should be provided the ground, space and time, to flourish.

## References

- Ardichvili, A., Mauer, M., Li, W., Wentling, T., & Stuedemann, R. (2006). Cultural influences on knowledge sharing through online communities of practice. *Journal of Knowledge Management*, 10, 94-107.
- Barab, S. A., & Duffy, T. M. (2000). From practice fields to communities of practice. In D. H. Jonassen & S. M. Land (Eds.), *Theoretical foundations of learning environments* (pp. 25-55). Mahwah, NJ: Lawrence Erlbaum Associates.
- Barab, S. A., Kling, R., & Gray, J. H. (Eds.) (2004). *Designing for virtual community in the service of learning*. Cambridge: Cambridge University Press.
- Bielaczyc, K., & Collins, A. (1999). Learning communities in classrooms: A reconceptualization of educational practice. In C. M. Reigeluth (Ed.), *Instructional-design theories and models: A new paradigm of instructional theory* (pp. 269-292). Mahwah, NJ: Lawrence Erlbaum Associates.
- Bielaczyc, K., Kapur, M., & Collins, A. (2013). Cultivating a community of learners in K-12 classrooms. In C. E. Hmelo-Silver, A. M. O’Donnell, C. Chan & C. A. Chinn (Eds.), *International Handbook of Collaborative Learning* (pp. 233-249). New York: Taylor & Francis.
- Brown, A. L. (1992). Design experiments: Theoretical and methodological challenges in creating complex interventions in classroom settings. *The Journal of the Learning Sciences*, 2, 141-178.
- Brown, A. L., & Campione, J. C. (1990). Communities of learning and thinking, or a context by any other name. *Contributions to Human Development*, 21, 108-125.

- Brown, A. L., & Campione, J. C. (1994). Guided discovery in a community of learners. In K. McGilly (Ed.), *Classroom lessons: Integrating cognitive theory and classroom practice* (pp. 229-270). Cambridge, MA: MIT Press.
- Brown, A. L., & Campione, J. C. (1996). Psychological theory and the design of innovative learning environments: On procedures, principles, and systems. In L. Schauble & R. Glaser (Eds.), *Innovations in learning: New environments for education* (pp. 289-325). Mahwah, NJ: Erlbaum.
- Brown, J. S., Collins, A., & Duguid, P. (1989). Situated learning and the culture of learning. *Educational Researcher*, 18, 32-42.
- Collins, A., Brown, J. S., Newman, S. E. (1989). Cognitive apprenticeship: Teaching the crafts of reading, writing, and mathematics. In L. B. Resnick (Ed.), *Knowing, learning and instruction: Essays in honor of Robert Glaser* (pp. 453-494). Hillsdale, NJ: Lawrence Erlbaum Associates.
- Dewey, J. (1897). My pedagogical creed. *School Journal*, 54, 77-80.
- Dingyloudi, F., & Strijbos, J. W. (2014). Evolution of communities of learning practice in higher education: Collective unites of analysis. In *Proceedings of the ICLS 2014 conference "Learning and becoming in practice"*. Boulder, CO: International Society of the Learning Sciences.
- Hughes, J. (2007). Lost in translation: the journey from academic model to practitioner tool. In J. Hughes, Jewson, N., & L. Unwin (Eds.), *Communities of practice: critical perspectives*. New York: Routledge.
- Jackson, J. (2008). *Language, identity and study abroad: Sociocultural perspectives*. London, UK: Equinox.
- Janson, A., Howard, L., & Schoenberger-Orgad, M. (2004). The odyssey of Ph.D. students becoming a community of practice. *Business Communication Quarterly*, 67, 168-181.
- John-Steiner, V., & Mahn, H. (1996). Sociocultural approaches to learning and development: A Vygotskian framework. *Educational Psychologist*, 31, 191-206.
- Kimble, C. (2006). Communities of practice: Never knowing undersold. In E. Tomadaki & P. Scott (Eds.), *Innovative approaches for learning and knowledge sharing: EC-TEL workshop proceedings* (pp. 218-234). Knossos, Crete: Sun SITE Central Europe.
- Kirschner, P. A., & Lai, K.-W. (2007). Online communities in education. *Technology, Pedagogy and Education*, 16, 127-131.
- Lave, J., & Wenger, E. (1991). *Situated learning: Legitimate peripheral participation*. New York: Cambridge University Press.
- Rogoff, B. (1994). Developing understanding of the idea of communities of learners. *Mind, Culture, and Activity*, 1, 209-229.
- Rogoff, B., Goodman-Turkanis, C., & Bartlett, L. (2001). *Learning together: Children and adults in a school community*. New York: Oxford University Press.
- Roth, W.-M., & Lee, Y.-J. (2006). Contradictions in theorizing and implementing communities in education. *Educational Research Review*, 1, 27-40.
- Scardamalia, M., & Bereiter, C. (1994). Computer support for knowledge-building communities. *The Journal of the Learning Sciences*, 3, 265-283.
- Vann, K., & Bowker, G. (2001). Instrumentalizing the truth of practice. *Social Epistemology*, 15, 247-262.
- Vygotsky, L. S. (1978). *Mind in society*. Cambridge, MA: Harvard University Press.
- Wenger, E. (1998a). *Communities of practice: Learning, meaning and identity*. Cambridge: Cambridge University Press.
- Wenger, E. (1998b). Communities of practice: Learning as a social system. *System Thinker*, 9, 1-5.
- Wenger, E. (2000). Communities of practice and social learning systems. *Organization*, 7, 225-246.
- Wenger, E. (2010). *Communities of practice and social learning systems: The career of a concept*. Retrieved November 8, 2010, from <http://wenger-trayner.com/wp-content/uploads/2012/01/09-10-27-CoPs-and-systems-v2.01.pdf>
- Wenger, E., McDermott, R., & Snyder, W. M. (2002). *Cultivating communities of practice: A guide to managing knowledge*. Boston: Harvard Business School.
- Wenger, E. C., & Snyder, W. M. (2000). Communities of practice: The organizational frontier. *Harvard Business Review*, Jan-Feb, 139-145.
- Wenger, E., White, N., & Smith, J. D. (2009). *Digital habitats: Stewarding technology for communities*. Portland, OR: CPsquare.
- Wenger, E., Trayner, B., & De Laat, M. (2011). *Promoting and assessing value creation in communities and networks: A conceptual framework*. Heerlen, the Netherlands: Ruud de Moor Centrum.
- Wertsch, J. V. (1991). *Voices of the mind: A sociocultural approach to mediated action*. Cambridge, MA: Harvard University Press.
- Wertsch, J. V. (1998). *Mind as action*. New York: Oxford University Press.