

Establishing, Cultivating and Sustaining Virtual Teacher CoPs

Author:

Ilse White – Learnovate Centre

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1.	Executive summary	4
2.	Background and Introduction	7
3.	Introduction to teacher communities of practice	9
4.	Deliberately Organising Communities of Practice	11
5.	Typology of structuring characteristics VCOPs	14
6.	Driving engagement in VCoPs	17
7.	Understanding engagement with VCoPs	21
8.	Monitoring knowledge sharing and value creation in VCoPs	26
9.	References	32
	Appendix 1	35

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1. Executive summary

Research questions

Learnovate set out to explore the research to answer the following questions:

- What are the best practices in relation to establishing, cultivating, and sustaining a CoP and its work?
- What are the skills necessary to be a successful moderator of CoPs
- How can engagement and empowerment be enhanced in the members of the CoP?
- What are the best practices in relation to sustainability and ownership of a CoP over time?

Research findings & recommendations

Designing a VCoP

After a brief section on the definition of Communities of Practice (CoPs) and its relevance and manifestation as a tool for teacher professional development, we explored the dimensions of interaction within a Virtual Community of Practice that is intentionally designed. A big takeaway is that members of the community need to be given time and space to establish its goals and objectives before the community can be 'managed' successfully. Learnovate recommend that Swisscontact to engage the community participants in meaningful conversation and activity to establish its goals and objectives before organising a handover.

Typology for managing a VCoP

Looking at best practice of managing a VCoP, the research presented us with a typology of 21 characteristics of a VCoP, highlighting that as no VCoP is the same, no strategy to manage it can be the same. The typology offers a great tool for Swisscontact to evaluate and assess the existing VCoPs of the S4J project and define specific strategies for sustainability of each.

Engagement with VCoPs

When it came to researching best practice around engagement of teachers in VCoPs, a wealth of empirical research is available. Learnovate highlighted some of the key pieces of research that provide detailed and practical recommendations to encourage and sustain engagement of teachers and other members with VCoPs.

Recommendations to encourage continuous engagement in a VCoP include:

- Defining and establishing leadership roles

- Aiming to provide personalised learning opportunities
- Ensuring organisational support
- Engaging in social learning best practice
- Developing a sense of purpose and belonging

It is important for the success of an intentionally created VCoPs to ensure that members feel a sense of belonging to the community. The most effective ways to achieve this is by:

- Providing members with opportunities to take leadership roles
- Offering opportunities for co-creation of content and activities
- Giving members a voice to how the community is formed and managed.

We recommend for Swisscontact to review and analyse to what extent these best practices on community engagement are currently implemented and how they might be introduced or improved for the existing VCoPs in the S4J project.

Sustaining a VCoP

To sustain a VCoP the most important objective is to ensure that its members continue to be engaged and continue to have an interest to learn from and contribute to the community. The research provided two interesting learnings in relation to sustaining CoPs that might be particularly relevant to Swisscontact.

First, the literature presents a good example of a successful *blended* CoP that combines virtual with face-to-face engagements, offering their participants the best of both worlds: the opportunity to make connections and build relationships face-to-face and benefit from the ubiquitous, instant and asynchronous nature of online learning and development. It would be worth for Swisscontact to consider a blended model to support the S4J communities long-term as the research suggests this might be a key component of success.

Second, our review of the literature reviewed the barriers, motivators, and enablers that play a role in participation in VCoPs. It is important for CoP initiators and managers to really understand these as they highlight areas of improvement to ensure the success of the community. The key takeaway from the literature is that it is essential to the success of a VCoP to first understand the barriers to participation in particular and then consider what can be done to take these barriers away.

Monitoring & Evaluating a VCoP

We conclude our literature review with an overview of some studies that provide some best practice for monitoring behaviours, gathering and analysing data on communication within the VCoP, and measuring the added value of the interactions within a VCoP. While there is

less research available on this, there are two valuable approaches that Swisscontact can reflect on and potentially apply to its own context. It is necessary for Learnovate to add that these models are largely conceptual and practical implementation could prove time consuming and complex. While there is an undeniable value in understanding the added value of a VCoP, Learnovate recommends for Swisscontact to carefully consider and plan any measurement activity to ensure it is carried out as efficiently and effectively as possible.

2. Background and Introduction

2.1 Background

Swisscontact are supporting professional development of teachers in Albania through the Skills for Jobs (S4J) project through the establishment of a Facebook community. This community offers Vocational Education & Training (VET) professionals in Albania the opportunity to connect and exchange knowledge, challenges, and best practice particularly in relation to online learning. The initiatives were born as a response to teachers' needs to connect to each other in a time when they are facing challenges in blending different methods of learning; digitization of teaching and learning has become imperative to ensure schools are safe and healthy environments.

S4J has established three communities of practice to support teacher vocational training in Albania. Each is currently managed by the S4J team.

1. Frymeso Group

This Facebook group is targeted at all VET professionals in Albania and currently has 875+ members. The objective of this group is for teachers to share best practice, challenges and knowledge on particularly online learning and teaching.

2. VET Curricula Coordinators Group and VET Continuous Professional Development Coordinators group.

This group offers CPD coordinators an opportunity to discuss issues related to the role or function of the coordinator and to undertake joint initiatives.

3. Instructor of Apprenticeships in VET schools.

This Facebook group currently has 600+ members and is targeted at professional practice instructors and teachers in Albania who want to expand their professional network and increase their know-how on apprenticeships.

Swisscontact engaged Learnovate to provide research support to S4J and help uncover the best practices and approaches to engage teachers to exchange knowledge, learnings, challenges and best practice through a CoP format. The objective is to ensure that the established communities become self-sustained once the S4J project concludes.

2.2 Research questions and scope

The following research questions determining the scope of this project were agreed upon:

In relation to Communities of Practice (CoPs) for teachers,

- What are the best practices in relation to establishing, cultivating, and sustaining a CoP and its work?
- What are the skills necessary to be a successful moderator of CoPs
- How can engagement and empowerment be enhanced in the members of the CoP?
- What are the tools and technologies best suited to facilitate knowledge sharing in CoPs?
- What are the best practices in relation to sustainability and ownership of a CoP over time?

We will address all but one of these questions in this report. The question around the best tools and technologies that are best suited to facilitate knowledge sharing in CoPs will not, or only indirectly be addressed.

The reason for this is that there appears to be very little empirical research that specifically focuses on the technology that supports CoP. The literature is more focused on uncovering how knowledge is shared between people, the technology is secondary to this. In addition, much of the literature stems from the first decade of the 2000s. Technology, in particular internet technology has advanced tremendously since then and many references to technologies used for online CoPs are simply outdated and not that relevant.

If Swisscontact should continue to have a desire to look into the technology aspect of CoPs, Learnovate would recommend conducting a State-of-the-Market analysis whereby the research team would conduct a thorough analysis of the current market for online collaboration and discussion tools and technologies. As this is a separate piece of work, it is not included in this literature review.

Instead, Learnovate concentrated on addressing the remaining research questions in this report. We hope that the contents of this report provide Swisscontact and its S4J partner with valuable, insightful and practical information, models and approaches in relation to establishing, cultivating and sustaining online teacher CoPs

3. Introduction to teacher communities of practice

Before we present the finding from our research to answer the questions posed to Learnovate by Swisscontact, we first would like to remind ourselves what communities of practice are and to what extent they are manifested in the education/teacher landscape.

3.1 Definition of a Community of Practice

Since the inception of communities of practice (CoP), Etienne Wenger has been at the forefront of research into the topic and is widely regarded as the key researcher in the field on online collaborative learning. Wenger et al. (2002) defined a Community of Practice (CoP) as

“A group of people who share a common interest, a collection of problems, a passion for a subject and an interest in deepening their awareness and expertise in a given field by continuously engaging with the community.”

Over the last two decades, CoPs have been defined in a variety of ways but in the most general sense CoP refers to a group of people (the community) involved in practice (the social construction of knowledge).

CoPs include common features like:

- Participants work in groups to solve authentic problems
- Participants have shared learning goals
- Knowledge is emergent and experts in the group are facilitators
- Group members operate at varying levels of mastery
- There is a commitment on the part of group members to participation in the community

(Johnson, 2001; Lave & Wenger, 1991; Wenger, 1998)

3.2 Types of teacher CoPs

CoPs are widely used as a means for teacher professional development and there is a wide variety of teacher communities available. Vangrieken et al. (2017) distinguished three main types of teacher CoPs. The characteristics of each are summarized in Table 1.

Table 1: Characteristics of different types of teacher communities (Vangrieken et al., 2017)

	Type of Teacher CoP		
Characteristics	Formal CoP	Member-oriented CoP	Formative CoP
Structure	Teachers and outside experts	Focus on the teachers' needs and knowledge. Includes teachers from different schools	Fluid, facilitation, ownership, and leadership flow organically between participants
Initiators	Often originate from government initiatives	School principal, teachers, or researchers	Born organically out of a specific need or interest
Nature of activities	Regular, scheduled meetings	Pre-set schedules, session formats and pre-set objectives	Agenda is set throughout its operation
Goal	Achieving a specific pre-set goal to improve educational standards and practice at scale or at national level	Enhancing teachers' professional development and offering a solution for isolation. Uses teacher's practical experience as its main resource	There is no pre-defined goal or agenda and their way of working is established naturally from one session to another and over time
Group interactions	Participation is compulsory	Participation is mostly voluntary	Participation is voluntary, this is critical to its success
Conditions for success	Planned to achieve a specific objective and to last a limited period of time	Create a community that continues to exist	The community continues to exist as educators themselves are interested in attending because of their needs (for support, concern, improved practice)

In the context of this report, we will share research that specifically applies to the context of a deliberately organised CoP focused on encouraging collaboration between teachers through the S4J project that is implemented within the Albanian education system. In the next section we will take a closer look at some of the research that looks into the factors of success for these deliberately organised CoPs. This will help us to understand what is required to ensure successful (meaningful) engagement in an externally initiated CoP.

4. Deliberately Organised Communities of Practice

Akkerman, Petter and de Laat (2008) conducted a research project in which they analysed the initiation of 15 communities of practice in seven European countries. The focus was on analysing how meaningful, shared, and coordinative activity is organised. While the communities managed for the S4J initiative are already in existence, the intended transition of ownership is likely to lead to a re-launch of these communities and therefore we believe the findings of this study to be relevant.

4.1 Dimensions of community activity

Wenger (1998) has pointed out that the establishment of community, domain and practice mutually constitute a community of practice. Akkerman, Petter and de Laat (2008) derived from this that that leads to three dimensions of community activity:

- 1) Meaningful activity
- 2) Shared activity
- 3) Coordinative activity

When it comes to deliberately organising communities of practice, which is the case for the three communities under the S4J project, each of these dimensions in community activity requires attention and cultivation. The researchers evaluated 15 attempts to initiate communities of practice to understand what conditions allow successful deliberate organisation of a community of practice.

Meaningful activity

With respect to *meaningful activity* the comparison of cases pointed out that the challenge for deliberate organisation lies mostly in creating group ownership of the direction of community activity. In cases where there was a mismatch between the group members and the aims of the project partner, it was virtually impossible to get the group going. In many cases, the CoP is more an idea of the *project partner* trying to create a group that focuses on things that matter to the broader sector rather than identifying needs and developing a shared agenda based on what matters to the *participants*. Therefore, the external initiator should try to stimulate the group to discuss what is meaningful for them by engaging them in conversations about needs and objectives.

Development of shared activity

With respect to the *development of shared activity* the researchers conclude that when searching for potential participants to organise a CoP it is more fruitful to look for people who have a shared background or share cultural, social, economic, or political backgrounds. These people are more likely to discover similar needs and interests, thus stimulating the

development of a shared identity. It is important to remember that for shared activity to happen, it is necessary that the group discusses the questions of who they are and how they can be important for each other. Establishing a group requires a feeling of belonging to the intended CoP.

Coordinative activity

With respect to *coordinative activity*, the study suggests that when it comes to new groups, online communication can only be additional to face-to-face meetings. The CoPs that showed meaningful activity online were also the cases investigated that had face-to-face meetings.

In addition to this, when a group is becoming active, the external initiator can suggest that the group discusses roles and tasks, stimulating a division of work, but also allowing the group to gradually take over the role of coordination from the external initiator. This would happen over some time.

4.2 The importance of ordering activity

The most important point in the context of this report that Akkerman, Petter and de Laat make is that there is an order in which these dimensions of activity should receive attention. Most importantly they argue that attention for meaningful and shared activity should come first and that it takes time. This means that an external initiator should not start providing tools, organising online platform discussions or meetings, when the group has not yet asked for this facilitation or does not know yet whether and for what reasons they want to engage in collaborative activities.

In all successful communities investigated in Akkerman, Petter and de Laat's study, what typifies the initiation approaches is the time given for and the attention paid to formulating needs and aims from within the group. For initiators of CoPs it can be hard to allow time and space for this to happen, particularly as the initiators believe in the use of CoPs for fruitful learning experiences.

However, when it is not clear how members of a CoP are relevant to each other or when they have not established who they are or what their objectives are, concrete activities organised within the CoP cannot be meaningful to its participants. Akkerman, Petter and de Laat strongly argue that this should be decided and owned by the group. Any coordinative system, any practice, should be subordinated to such motives of the group. The initiator can certainly act as a catalyst though for coming together in the first place and explore potential motives to work together. They can create the space and time for the group to determine themselves why and how it is meaningful for them to collaborate.

As the CoPs that were established as part of the S4J project transition their ownership, we recommend for the initiators (S4J/Swisscontact) to create the space for members and leaders

in the communities to evaluate, analyze and (re)assess why they are there and how they can ensure their interactions are meaningful at all levels of communication.

In the next section we will discuss a typology for virtual communities of practice (VCoP) that could serve as a helpful tool for S4J/Swisscontact to assess the make-up, challenges, opportunities, and character of each of the CoPs they are supporting.

5. Typology of structuring characteristics VCOPs

According to Dubé, Bouhris and Réal (2006), literature is ‘packed with “one-size-fits-all” advice’ on how to develop intentionally formed Virtual Communities of Practice (VCoPs).

5.1 A typology for VCoPs

In response, the researchers built a typology that, based on their extensive research and measurement methodology, contains and describes 21 structuring characteristics of VCoPs.

Dubé, Bourhis and Réal’s typology was developed to provide the groundwork for a deeper understanding of knowledge sharing through communities of practice. They believe the typology should:

- 1) Allow an accumulation of knowledge on the various types of VCoP evolving in an organizational context
- 2) Improve sense-making of empirical findings by considering the intrinsic characteristics of the VCoP under study
- 3) Provide practitioners with a useful framework to effectively describe, understand and manage VCoPs.

We have included an adapted version of the typology in Table 2. The full typology and descriptions are available in Dubé, Bourhis and Réal’s article.

5.2 Relevance of the typology

From the background information shared with Learnovate, it is clear that the three communities of practice that are currently in existence serve different audiences, have a different number of participants, and serve different goals. Sustaining each CoP will require a specific approach and strategy beyond ensuring a handover of ownership and we would recommend Swisscontact to leverage this typology as a framework to review and assess what would be the best strategy for each of the communities of practice.

This typology will help practitioners to recognise the diversity of VCoPs but also identify challenges, strategies, practices that are contingent upon their specific characteristics.

This analysis will raise challenges and opportunities for success for each of the CoPs and provide insights as to how the CoP can be best sustained and developed by specific and contingent management practices. These could be shared as suggestions for the core group of people that will choose to take responsibility for the CoPs. The key takeaway from Dubé, Bourhis and Réal’s research is that there are many structuring characteristics on which communities of practice vary. The researchers argue that while many authors have tried to identify a set of best practices to manage VCOPs (e.g., Lesser & Everest, 2001; Wenger et al.,

2002), their study clearly shows that in order to ensure success, management decisions and actions have to be fine-tuned towards the unique personalities of their VCoPs.

We recommend for Swisscontact to describe and analyse its existing VCOPs along the typology to better understand what specific strategies may be required to sustain the communities of practice beyond the scope of the current S4J project and a continuation plan to be prepared.

Table 2: Typology of VCoPs. Adapted from Dubé, Bourhis and Réal (2006)

Category	Characteristics	Scale		
Demographics	Orientation	Operational	<--->	Strategic
	Life Span	Temporary	<--->	Permanent
	Age	Old Young	<--->	Young
	Level of Maturity	Transformation stage	<--->	Potential stage
Organisational Context	Creation Process	Spontaneous	<--->	Intentional
	Boundary Crossing	Low	<--->	High
	Environment	Facilitating	<--->	Obstructive
	Organizational Slack	High	<--->	Low
	Degree of Institutionalized Formalism	Unrecognized	<--->	Institutionalized
	Leadership	Clearly assigned	<--->	Continuously negotiated
Membership Characteristics	Size	Small	<--->	Large
	Geographic Dispersion	Low	<--->	High
	Members' Selection Process	Closed	<--->	Open
	Members' Enrolment	Voluntary	<--->	Compulsory
	Members' Prior Community Experience	Extensive	<--->	None
	Membership Stability	Stable	<--->	Fluid
	Members' ICT Literacy	High	<--->	Low
	Cultural Diversity (same profession, language, vision)	Homogenous	<--->	Heterogenous
	Topic's relevance to Members	High	<--->	Low
Technological Environment	Degree of Reliance on ICT	Low	<--->	High
	ICT Availability	High Variety	<--->	Low Variety

6. Driving engagement in VCoPs

In this section of the report, we will discuss a number of studies that have investigated the factors that influence continuous engagement with CoPs. Some of these research pieces don't specifically focus on VCoPs; however, the findings from these studies are relevant to the core objective of all communities of practice and are therefore relevant to the context of the S4J CoPs and Swisscontact. Some of the suggestions and best practices outlined might serve as a reminder, and some might offer more specific guidance on how to manage a VCoP successfully and ensure its long-term activity.

6.1 Features that influence continual engagement and learning

Trust & Horrocks (2019) examined what features of a community of practice influenced participants' continual engagement and learning. They conducted a number of semi-structured interviews with teachers who participated in the DEN (Discovery Educator Network) CoP, a blended community of practice that positively impacted teacher growth. Through this study, they identified six key elements that were critical to the success of the community of practice, namely:

1. Leadership roles

CoP members have different roles such as curator, collaborator, contemplator, or observer that each influence the learning and engagement within a CoP. Leaders support and motivate members, share resources, enact governance structures, facilitate discussions, and serve as role models (Jones & Preece, 2006). Leadership roles give members agency in defining their learning experiences and shaping the growth of the CoP. Participants who take leadership roles are more likely to participate, share knowledge and support other members and ensure that the community remains an active space for learning and connecting. They also recruit teachers in their schools or districts, which further contributes to keeping the community alive.

2. Personalised learning

Online learning activities in particular give members the opportunity to develop a professional learning network that reaches beyond their local contexts and fosters personalised learning based on their professional interests, needs and goals. Teachers participating in Trust & Horrocks' study indicated that the difference between online or blended CoP professional development versus traditional channels was that they

could drive their own learning with the support of others. Providing a wide range of learning opportunities to do so ensures that this happens

3. Guiding principles

Guiding principles, referred to as rules, etiquette or policies, shape how members engage in a community and interact with one another (Jones & Preece, 2006; Preece; 2001, Trust, 2015). Guiding principles can ensure that all members behave in an appropriate manner and adhere to expected norms of the community. In the example of the DEN community, members are encouraged to follow explicitly stated and implicitly understood guiding principles.

When the guiding principles are described in a positive manner, they encourage collaborative learning, teaching, and reciprocity both within and beyond the community. This aligns with Jones & Preece's (2006) finding that reciprocity, or giving back, is an essential component of healthy communities

4. Organisational support

In the example of the Discovery Education Network, the supporting organisation (Discovery Education) provides funding for the learning opportunities, infrastructure, and a dedicated team of staff members. It also provides the community infrastructure in the form of digital spaces and tools where members can connect, get involved and learn. The key takeaway from this example of a successful community of practice is that the supporting team plays a very active role in supporting the community of practice.

5. Social learning

Learning within a community of practice is a social process. Participants share their expertise and are able to learn from more knowledgeable others. A unique aspect of online communities of practice is that it reduces temporal and geographical boundaries. However, in the case of the Discovery Education Network, the hybrid model of face-to-face learning opportunities combined with online activities facilitates the type of close-knit relationships that teachers value and that are productive relationships. In addition, a diverse membership base allows for distributed learning in which teachers don't have to know everything and instead tap into the distributed expertise.

6. Purpose

The purpose of a community plays a pivotal role in shaping member participation Carr and Chambers, (2006); Jones and Preece, (2006); Booth, (2012). It is key to a

successful community that the purpose of the community is aligned to the teachers' needs. By developing a purpose, or shared vision, that aligned with members' goals, it encouraged members to actively participate.

What is particularly interesting about this study is that Trust & Horrocks have examined the inner workings of a *blended* community of practice, which is a relatively unexplored area in empirical research. Blended communities offer their participants the best of both worlds: the opportunity to make connections and build relationships face-to-face and benefit from the ubiquitous, instant and asynchronous nature of online learning and development.

We believe that a blended model would be worth considering and exploring for Swisscontact, particularly as we've learned earlier that to successfully start a CoP and ensure its continuity, face-to-face contact could be an essential ingredient to the recipe for success.

6.2 Recommendations for developing communities of practice

Trust and Horrocks (2017) conclude their study of the DEN Community of Practice with a number of recommendations for developing and fostering communities of practice that we believe could be highly useful for Swisscontact. We recommend the team to consider and evaluate the S4J communities of practice against these recommendations for a successful blended community that is considered a successful channel teacher for professional teacher learning and development.

- Provide members with opportunities to enact leadership roles
- Give members voice and choice in what and how they learn
- Collaboratively develop a set of guiding principles with members that set the tone for the community
- Provide substantial support for the community
- Create opportunities for social learning
- Use technology to support connected learning
- Build a sense of community
- Co-develop the purpose of the community with the members

6.3 Tips for implementing community of practice for faculty development

The next study we would like to highlight is that of Carvalho-Filho et al. (2020). These researchers argue that the research literature has many examples of cultivating a

spontaneous CoP. However, little is known about the necessary steps to achieve success when CoPs are intentionally created. As the S4J communities are intentionally created, the findings of their literature review seem particularly relevant for the context of this project.

Based on a comprehensive literature review and the experience from the authors, de Carvalho-Filho et al. (2020) uncovered some of the success factors of what makes a CoP effective and sustainable and engages participants to share knowledge and actively work to improve their practices and develop further expertise. They share 12 tips for implementing a community of practice for faculty development which we have summarized in table 3. These form a practical reminder of how to set up any CoP for success and we recommend for the S4J team to review the existing CoPs for the level in which these tips are implemented.

7. Understanding engagement with VCoPs

7.1 Motivators, Barriers and Enablers for knowledge sharing in VCoPs

Driven by the problem that factors leading to successful online knowledge-sharing and learning were not all that well understood, Ardichvili (2008) developed a framework for understanding motivators, barriers, and enablers for successful online knowledge sharing and learning. The goal of the research was to uncover:

- The motivational factors leading to members' active participation or lack of participation in VCoPs
- Barriers and enablers of participation
- Specific strategies leading to the removal of barriers and strengthening of enablers of participation.

VCoPs are organic systems that emerge and are constantly constituted and reconstituted through interactions among community members, community members and members of the larger institutional environment, and community members and numerous tools, constituting the community's 'repertoire' (Barab et al., 2004; Wenger, 1998).

The challenge in enabling VCoPs is not to create them, but to remove barriers for individuals' participation, support and enrich the development of each individual's uniqueness within the context of the community, and to link that uniqueness with the community purpose.

Community managers should encourage participation or remove barriers to participation of which a multitude have been identified. These are summarized in Figure 1.

According to a research analysis carried out by Ardichvili (2008), motivating factors suggest that VCoP participation can be encouraged by promoting members' sense of belonging to the community, by promoting conditions for an open, uninhibited exchange of ideas and information, by creating time and space for exchanging stories and expertise, and by teaching community members about the value of storytelling and how to develop and share stories.

Community managers need to pay special attention to activities aimed at creating the sense of community and belonging as in a VCoP opportunities to meet face-to-face are likely to be limited.

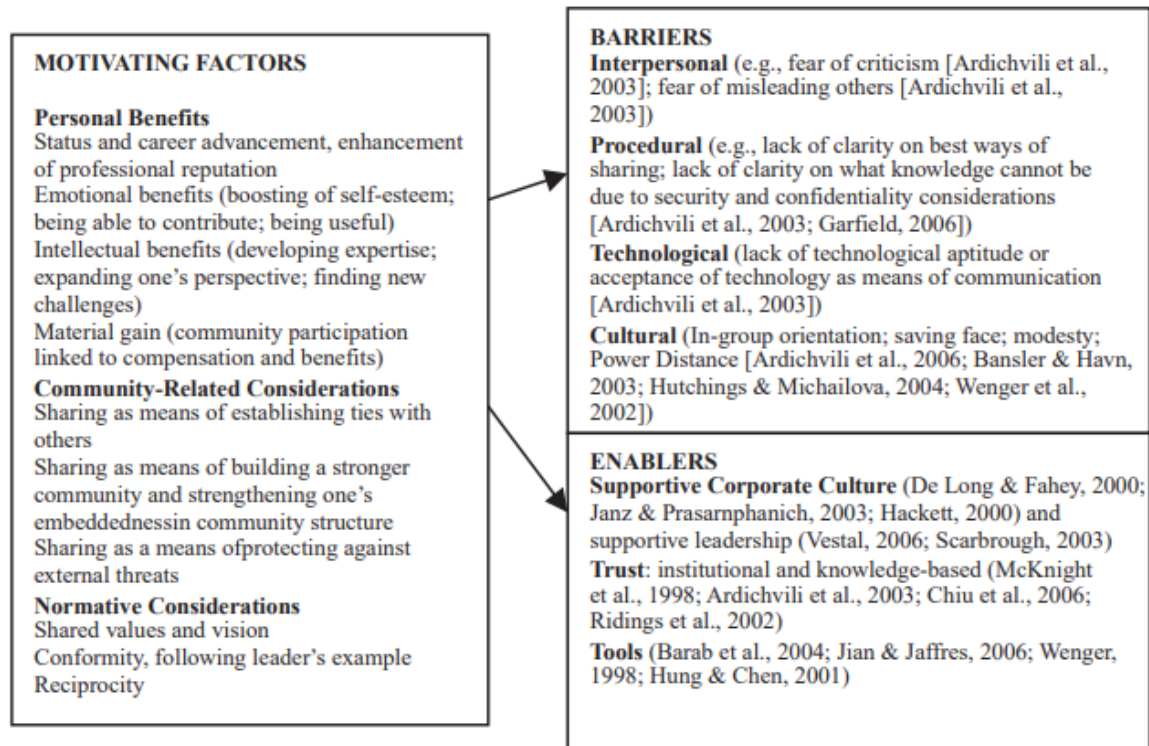


Figure 1: Motivating factors, Barriers and Enablers of Knowledge Sharing in Virtual Communities of Practice (VCoPs). Ardichvili (2008).

To address potential differences in cultural norms (both on the national culture and organizational culture levels), companies would be advised to take into consideration values and cultural preferences of employees in each of the affected locations.

As *trust* was identified as one of the main enablers for knowledge sharing in VCoPs, a number of suggestions for building and strengthening trust were made.

- To build interpersonal knowledge-based trust, it is advisable to supplement online community interactions with face to face meetings, either online or in person.
- To ensure institutional trust, organizations need to make the organizational expectations and procedure transparent through clear and widely accessible communication of these expectations and rules.

A lack of technological proficiency (often combined with an aversion to the use of online technology as a communication medium), could be a serious barrier to knowledge sharing. Providing both the initial and follow-up training in the use of Knowledge Management (KM) tools, and organising periodic formative feedback and user evaluation is essential to understand where community members are in terms of their level of comfort with the supporting technology available to them.

Lastly, Ardichvili argues that to design a VCoP, practitioners need to understand the individual elements of systems, tensions and dualities in systems, and the role of these tensions in systems' evolution and functioning.

Wenger (1998, p. 66) defined a duality as "a single conceptual unit that is formed by two inseparable and mutually constitutive elements whose inherent tensions and complementarity give the concept richness and dynamism. Some of the dualities in VCoP are:

- The need for globalisation of VCoP support activities versus the need for utilisation of local talent
- The need to ensure manageability of the content (avoiding information overload and eliminating redundancies and obsolete content) versus comprehensiveness of coverage and respect for contributions made by all members
- The need for standardisation of community norms and practices versus the need for promoting diversity of opinions and development of local norms and rules of behaviour
- The need for achieving economies of scale through global coordination of VCoP support versus leaving open space for local self-organisation and spontaneous emergence of new organisational forms and processes.

7.2 Teacher engagement with Virtual CoPs

In order to find out more about how teachers engage with online communities of practice and learn more about their behaviours and preferences, we examined two studies by Macià and García (2006) and Lantz-Andersen et al. (2018). These researchers published two papers and reviewed a combined number of 75 studies focusing on teacher communities over a 20 year period. They researched the social as well as the technological aspects of participation in virtual CoPs.

It is interesting to note that one of their main conclusions from this meta-study is that online teacher communities are established as part of mainstream teaching practice and routine elements of teachers' working lives. They even argue that the novelty of online teacher communities has subsided somewhat over the years, impacting overall engagement levels. They conclude that very little is known about how online communities of practice impact the quality of teaching and teacher professional development in the long-term and encourage scholars to conduct more empirical research in this field.

The following sections contain some insights into how teachers have engaged with Virtual Communities of Practice (VCoPs) to date.

Macià and García (2016), who conducted a review of 23 studies on VCoPs, provide some valuable insights on issues around engagement, including:

- the nature of sharing and support in online communities
- the initial barriers to individual teachers moving beyond peripheral participation and actively contributing to a community
- the important role of individuals who work to coordinate (and moderate) communities.

Lantz-Anderson et al. (2018) set out to build on Macià and García's work to further advance insights on the rigor and complexity of how relationships between teachers and digital technologies are understood within the field of teacher education.

These provide a great insight into what behaviour teachers have displayed in the online formal and informal teacher communities and what the longer term impact of that has been on teacher professional development and practice. This overview of formal and informal online teacher communities provides a great starting point for Swisscontact's ambitions to cultivate and sustain practice and process of the S4J online teacher communities.

Some of the most interesting observations from this study are:

- Online communities offer an opportunity to build professional relationships and collegiality that has the potential to translate into face-to-face interactions
- Discussions on online community platforms can take the form of general encouragement and support rather than a critical and in-depth specific discussion on an educational problem
- Teachers develop an increased confidence in their professional capabilities and adopt teaching strategies and techniques that are endorsed and approved by the community
- Active participation in online teacher communities requires a significant time investment. This can be a substantial barrier for teachers to engage deeply or at all.
- Community engagements and interactions are usually driven by a small and vocal number of community members. The majority of teachers either visit the community to find an answer to a specific question or are silent participants who tend to 'lurk' without actively contributing to the discussion (some research suggests this could be a result of a lack of time for teachers to engage properly). However, some researchers like Zuidema, (2012) and Macià and García, (2016) argue that lurking forms of

engagement are most probably meaningful for teachers even if their internalization of the online information is not visible to the other community participants.

- While teacher professional development is increasingly facilitated through online teacher communities, the diversity of topics discussed in these communities is not as diverse as the teaching profession is, with many online communities focusing on development of technology based teaching.
- There is a sense in the research that online communities were supporting different, but not necessarily better, forms of professional learning practice among teachers. Both formal and informal communities tend to be used as a site for superficial sharing of information, quick exchanges and a 'smash-and-grab' approach to become informed rather than an extensive process for individuals to develop their professional teaching practice. (Lantz-Andersen et al., 2018)
- Online communities (whether formal or informal) depend on sustained efforts of moderators and require management and leadership. Sometimes the guiding roles are criticized in terms of implying an uneven distribution of power. What is important though is to look at the impact of moderation undertaken on an informal basis by teachers who might not have the experience or understanding of best practice of community building.

8. Monitoring knowledge sharing and value creation in VCoPs

Krischner & Lai (2007) argue that while there is a wealth of literature exploring the conceptual and theoretical issues related to CoPs, many of which we have shared in this report, very few empirical studies have been undertaken to document how CoPs work and how they can be sustained in an educational community.

They explored five studies that provide some of this much needed empirical evidence to document the nature of online communication process. They all try to understand how CoPs as a reflective tool can help improve professional practice in the knowledge that designing and implementing online communities of practice is a complex process.

Two of the studies identified by Krischner & Lai are discussed briefly in the following sections.

8.1 Community evolution and communication graphs

Hlapanis and Dimitracopoulou (2007) address two questions in their study:

- how do we know when a learning community comes to life?, and
- how can it be sustained?

They conclude that the creation of a learner community does not arise automatically or suddenly; it is a result of all members' (members, instructors, e-moderators) specific efforts and actions.

They identified six phases to the community's evolution:

- 1) Preparation and organizing phase
- 2) Early community creation phase
- 3) Temporary decrease in communication phase
- 4) Community maturing phase
- 5) Community sustenance phase
- 6) Community decomposition phase

Each of these phases were characterized by a certain level of community member activity which was monitored, measured, and analysed through the use of communication graphs. These communication graphs, which were available to everyone in the community, provided a tool for specific community participants: e-moderators (analysis and e-moderation), instructors (student assessment and self-assessment) and members of the community (self-regulation).

This is a good example of an approach to data collection on the displayed behaviours in a community of practice with the objective for all participants in the community to reflect on their behaviour and change it (if and as needed) to sustain the vitality of the CoP.

An example of a communication graph from the Hlapanis and Dimitracopoulou study can be found in figure 2.

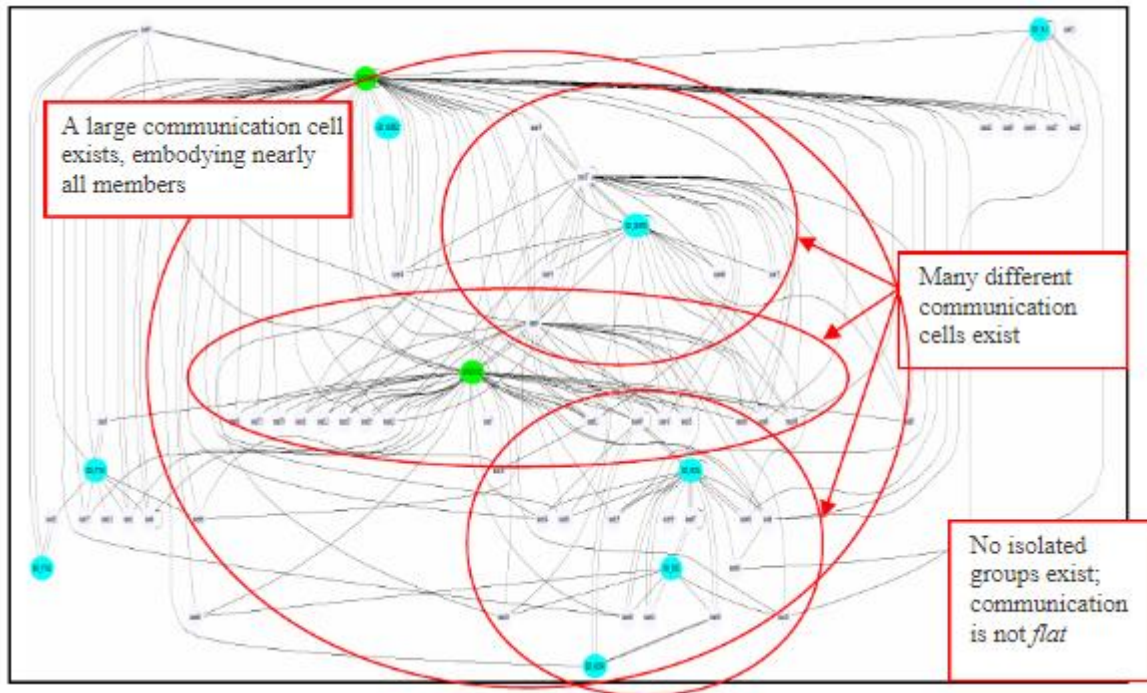


Figure 2: An example of a communication graph (taken from Hlapanis and Dimitracopoulou, 2007)

8.2 A model to support the collaborative construction of knowledge online

Seddon & Postlewhaite (2007) developed a model to help participants of a VCoP to improve collaborative knowledge-building. This prototype model, the most recent version displayed in Figure 3, groups online dialogue in to five 'zones': sharing, comprehending, analysing, synthesizing, and transforming. The model offers a useful tool to help understand the nature of online communication and can be used to evaluate the contributions of the participants in online learning communities.

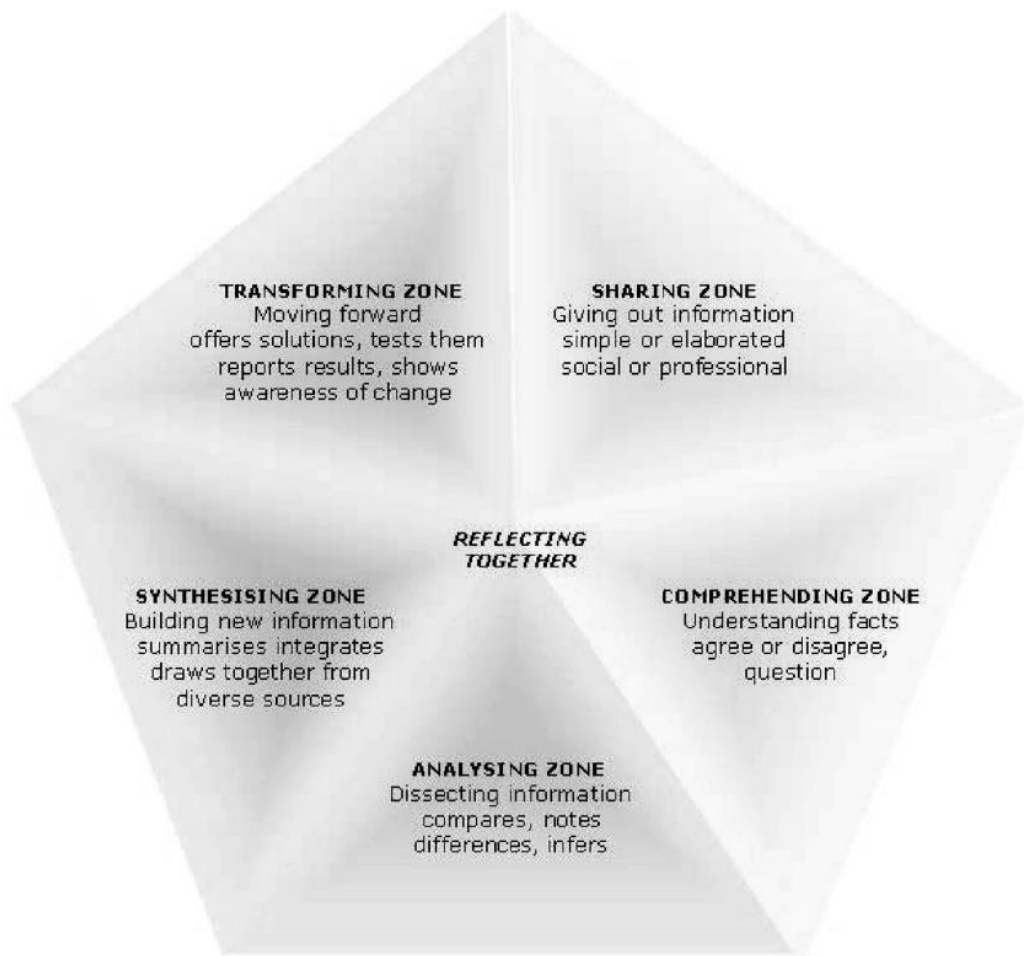


Figure 3: Prototype model for understanding online communication in CoPs (Seddon & Postlewaite, 2007)

8.3 Value creation through CoPs

One of the most important questions to answer in leveraging communities and networks for teacher professional development is what value participation and engagement provides.

As Swisscontact are entering a new phase of engagement for its S4J communities of practice, we believe it is relevant to reference and explain one of the most comprehensive developments in the area of measuring the value of a CoP: a conceptual framework of value creation developed by Wenger, Trayner & De Laat (2011).

Similar to Wenger's concept of CoP, this framework appears to be widely regarded as the most developed and researched framework around value creation in communities and networks. The framework, its application, and its implications for practice and research are valuable to support further development and design of effective CoPs and will describe the concept of the framework next.

However, Learnovate wishes to make Swisscontact aware that practical application of the value creation framework could be time consuming and complex and a decision would need to be made whether or not the time and effort necessary to carry out the value assessment exercise is feasible in the context of the S4J project.

Five cycles of value creation

To account for the various ways in which communities and networks create value, five cycles of value creation are distinguished. These cycles, described in Table 3, define a spectrum of value creation, from the day-to-day life of the community or network all the way to outcomes beyond its confines. Each of these cycles produces a distinct data stream with specific indicators that can be monitored.

Table 3: Five levels of value creation of a community or network (Wenger & Trayner, 2011)

Cycle 1: Immediate Value	The activities and interactions between members have value in and of themselves
Cycle 2: Potential Value	The activities and interactions of cycle 1 may not be realized immediately, but rather be saved up as knowledge capital whose value is in its potential to be realized later.
Cycle 3: Applied Value	The knowledge capital may or may not be put into use. Leveraging capital requires adapting and applying it to a specific situation.
Cycle 4: Realized Value	Even applying new practices or tools are not enough. A change in practice does not necessarily lead to improved performance, so it is important to find out what effects the application of knowledge capital is having on the achievement of what matters to stakeholders
Cycle 5: Reframing Value	This happens when learning causes a reconsideration of how success is defined. It includes reframing strategies, goals and values.

Value creation matrix: combining stories and indicators

Wenger & De Laat (2011) developed a model for value creation by accumulating evidence of the value created by a community or network and representing it as a matrix of indicators and stories. The value creation process offers a practical conceptual framework to measure value creation in a CoP through collecting and analysing stories through reflection and feedback.

The updated version of the value-creation framework

The value-creation framework was updated in 2014 (see Figure 4) when Wenger and Trayner realized that sharing stories of success and failure through feedback loops are crucial for learning and add great value to the process.

Feedback loops are a key dimension of the model. Learning has to go all the way into practice and then back. And then into practice again. According to Wenger and Trayner (2014)

“It’s these learning loops that make the learning relevant, adaptive and dynamic”.

In social learning, a key factor in the learning potential is the quality of the conversations among stakeholders that allows them to fit their activities in a bigger picture. There are three types or conversations or values they identify:

- Strategic value: The quality of strategic conversations
- Enabling value: the learning of the project support team and community leaders
- Transformative value: the learning that generates new perspectives or new definitions of success that can trigger broader cultural and institutional transformation.

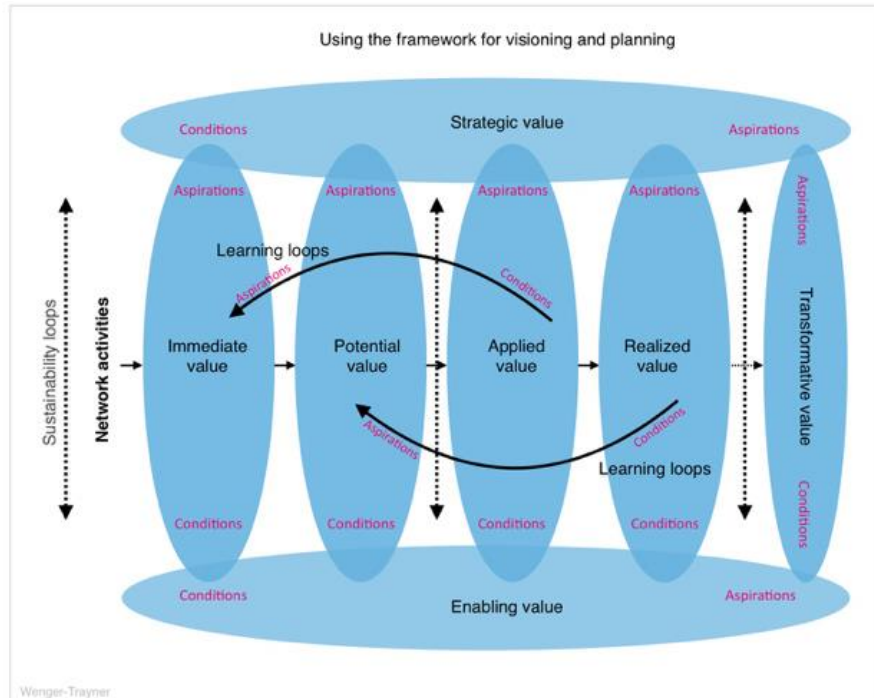


Figure 4: Updated Value-creation Framework (Wenger & Trayner, 2014)

According to Trayner and Wenger (and their particular view of this framework as an element of social learning), all of these pieces need to be in place and with a dynamic flow among them if learning is to make a difference in today's world.

Practical application of the value-creation framework

Wenger and Trayner argue that embedding social learning should be a strategic part of any innovative project and the value-creation framework can act as a shared language for negotiating aspirations, for framing the design, and for driving the learning through ongoing feedback loops and data collection.

The evolved framework can be used in many ways and would offer a strategy for evaluating and further developing a CoP and its activities:

- The value-creation cycles can help focus the attention
- Value creation stories explain how the project is making a difference
- The framework can structure the conversation around project planning with various stakeholders, set aspirations and decide on the conditions that need to be in place
- The value creation cycles can be used to design activities and stories and create ongoing feedback loops
- For project evaluation, the framework can be used to structure the data collection and analysis. You can follow indicators at each cycle and use stories to attribute outcomes to project activities.

Toolkit for collecting value creation stories

Wenger, Trayner & de Laat (2011) have introduced a practical toolkit for collecting value-creation stories with templates to guide the telling and collection of these stories.

A detailed example and copy of this toolkit can be found in the published article that we have shared along with the report and can also be found in a recently published book (Wenger, Trayner & De Laat, 2020).

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Appendix 1

12 tips for implementing a community of Practice for Faculty Development.

1	Gather a core group to launch the process	<p>This core group should:</p> <ul style="list-style-type: none"> - Be passionate about learning - Respected as leaders - Strive to create a safe environment that invites cooperation for knowledge sharing and creation - Nurture a collaborative atmosphere <p>They need to be role models who are open minded, capable of incorporating new ideas and members and acknowledge the importance of creativity & communication (Probst and Borzillo, 2008)</p> <p>CoP initiators should be aware of the complexity of faculty development and choose one element to start, keeping the goals as clear and as practical as possible.</p> <p>The goal should address the perceived need of the participants.</p> <p>The CoPs goal should be the simplest way to assure its value and attract new members.</p>
2	Articulate the goals and value of the CoP	<p>The CoP could start by targeting an urgent problem, or broader issues when specific problems cannot be identified. The informal and formal socialization around a common goal associated with the mutual support inside the CoP creates a sense of belonging that culminates in a shared identity and the translation of the generated knowledge into meaningful practices (Wenger, 2000; Krishnaveni and Sujatha, 2012)</p> <p>The ultimate goal of a faculty development CoP is to influence the institutional culture in a way that it will embrace and support the improvement of educational practices (Wenger et al, 2002; Probst and Borzillo, 2008). CoP can thrive particularly well in situations of insufficient, or less than ideal institutional support.</p>
3	Start with a specific task or project – make it problem oriented	<p>The practice domain is crucial to the development and functioning of a CoP (Probst & Borzillo, 2008).</p>

Establishing, Cultivating and Sustaining Virtual Teacher CoPs

		<p>Collaborating on a solution to a specific problem is fundamental to connecting the members. Having a shared problem to solve is intrinsically rewarding since it generates a feeling of competence and mutual understanding. The lack of a “problem to solve” can hinder motivation and possibly demobilize the group.</p> <p>It is important for the CoP to balance autonomy with institutional alignment, stressing the importance of communication and collaboration to find a common purpose. The solution(s) should have an institutional impact otherwise the CoP members will lose the meaning of their practice, which may lead to discouragement and disengagement.</p>
4	Keep the CoP open	<p>The CoP should be inclusive and faculty members who want to join must feel welcome to share ideas and ask for help. The atmosphere should not be judgemental, and the team should address all the problems presented.</p> <p>The openness of the CoP is aligned with two of the principles introduced by Wenger: CoPs should be designed for aliveness, which demands constant dialog between the internal and external world and should combine familiarity with excitement (Wenger et al., 2002)</p> <p>While the core members of the group are responsible for creating and sustaining the identity of the group, peripheral members are also important as they can function as bridges, connecting the faculty development CoP work with other professional CoPs inside the institution (Borthick, 2000)</p>
5	Intentionally invite members with expertise (memory) and fresh ideas (innovation)	<p>Even though the CoP should be open to anyone interested in teaching and learning, the core group should actively invite selected members for their expertise and influence. Brining in people who have mastered different aspects of education contributes to the CoPs sustainability and credibility.</p> <p>In addition expertise, a CoP should also benefit from fresh ideas. Novice members can be the best antidote to structures that are incapable of adapting. Without</p>

Establishing, Cultivating and Sustaining Virtual Teacher CoPs

		support however, new members can freeze in the face of the difficulties of implementing change.
6	Choose a facilitator – “primus inter pares”	<p>The authors argue that if a CoP is intentionally created, a facilitator is essential. They can actively improve relationships and connections, helping to build trust and lending social capital to the group. Communication is critical to coordinate the activities of the CoP, but also to share its results within the institutional community. Facilitators can bridge the CoP with the overall organization. A good facilitator recognizes the tension and provides relief through communication, tolerance and understanding (Probst & Borzillo, 2008).</p> <p>Facilitators should develop strategies to mitigate hierarchy inside the CoP, assuring horizontal dialog among active members, fostering collaboration over competition and co-creation over authorship. (Roberts, 2006; Pemberton et al, 2007)</p>
7	Make it worthwhile for members and the institutions	<p>Becoming a member of a CoP should bring a sense of accomplishment and recognition (Lieff et al., 2012). Teachers must believe that belonging to the CoP culminates in self-improvement and better qualifications. The CoP can optimize the personal fulfilment of its members, matching the individual preferences and competencies with the needs of the group and delegating the right problems to the right people. In the long run, organizational leaders should assure that being an active member of a CoP will have a positive impact on teacher’s professional careers.</p> <p>CoPs can also provide participants with a safe environment. Connecting with people that have a shared understanding and mindset can be revitalizing. Membership can create a sense of belonging while providing agency and empowerment, nurturing the identity of a member.</p> <p>Lastly, CoPs offer a practical and potentially cost-effective solution for knowledge sharing and creation. They are malleable structures that can independently move the institutional agenda forward.</p>
8	Work to ensure institutional support	The institution should provide a budget, space, and technical support to the CoP. A defined budget is essential for planning the activities and assuring

Establishing, Cultivating and Sustaining Virtual Teacher CoPs

		<p>autonomy.</p> <p>Whenever possible, members should have protected time to devote to CoP activities. CoP members need to reserve time to read, understand, reflect on and apply new knowledge to the problems and challenges faced by the CoP.</p> <p>If possible, institutions should formally reward departments and disciplines who have members participating in such activities.</p>
9	Promote sustainability	<p>The creation of a CoPs is an opportunity to consolidate the culture of quality in teaching and learning. However, the sustainability of CoPs represents a challenge. Members must see CoPs as a practical trustworthy and available advisory board to help solve a challenge. It is therefore crucial that members understand CoP activities as a way of addressing their routine problems as a help, not a burden.</p> <p>The best way to keep sustain the CoP is to make the CoPs achievements public within the institution.</p> <p>Action research practices are another way of achieving sustained engagement as it provides a rhythm of problem identification, planning, acting, observing and reflecting. This fosters a feeling of continuous improvement that will sustain the morale.</p>
10	Communicate success	<p>The recognition of the CoP as a valuable organizational asset brings a direct and positive impact on the self-esteem of members while advertising the CoPs' qualities to attract new members and opportunities.</p>
11	Go online	<p>The online environment can reach people in different places and contexts. Members can connect to each other whenever they want to ask questions, share solutions of think together. The online environment can also store the answers according to their primary subjects, functioning as an online repository of solutions that can be applied to different problems and contexts, optimizing time and efforts.</p> <p>The online environment also serves the purpose of communicating the successes of the group to the entire</p>

Establishing, Cultivating and Sustaining Virtual Teacher CoPs

		community, through private as well as public community spaces.
12	Evaluate the CoP	<p>There is an ongoing debate about the best strategy to evaluate a CoP. Experts do agree on the necessity of regularly listening to members to identify areas of improvement and understand the impact of CoP activities on the institution as a whole.</p> <p>It is essential that a transparent evaluation process parallel any activity developed in the context of the CoP.</p> <p>If an action research framework is adopted, CoP members can keep a record of the consecutive cycles of development together with the projects that were devised and implemented.</p> <p>Although CoPs have many advantages, they also have limitations that can consolidate CoPs into stationary structures, with fixed norms and hierarchical relationships, resisting the changes that CoPs were supposed to guide. To mitigate this risk CoP members should at all times create a safe environment to discuss.</p>