

# Virtual Learning Professional Development: Moderators and Cognitive Presence

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## Abstract

The aim of this research is to examine the interactivity between participants in a Virtual Learning Professional Development (VLPD) course to see how moderating facilitation and strategies, particularly scripting, affect the interactivity and quality of the postings in three different modules which were coded using the Community of Inquiry Framework (Garrison, Anderson & Archer (2000)). There were over 500 postings submitted in the investigated discussion forums, and there was a marked increase in the postings of the forums throughout the duration of the course. Upon analysis of the discussion forums Akyol & Garrison's (2011) metacognition assessment was also considered. The VLPD introduced the instructors to learning about Web 2.0 technologies and the pedagogy of using IT in the classroom by using the technology. The participants were foreign language instructors at tertiary level who teach English, Spanish, French, Italian, Turkish and Russian as a foreign language. The need for such a course is based on the idea that teaching is a life-long learning profession in which further education/training is essential to offer best practices in language teaching today. Moreover, it affords motivation and opportunities of career development for the educator. The course was a bottom-up approach with instructors designing, facilitating and voluntarily participating in the program. The VLPD had the intention of (1) introducing the use of technology in foreign language learning by using technology, (2) offering current professional journal articles as well as set tasks that would increase instructors pedagogical knowledge of the hows and whys in applying web 2.0 technologies in their teaching, (3) allowing the foreign language instructors to share and collaborate on professional knowledge and the co-construction of knowledge, and (4) enhancing professional growth and qualifications in a technology enhanced learning environment in a theoretical framework of social constructivism free from time and place constraints. This investigation of three similar discussion forums in three different modules does confirm that scripting as role assignment is effective in leading participants to achieve cognitive presence as determined through the Community of Inquiry Framework.

## Keywords

Virtual Learning Professional Development, Community of Inquiry, Cognitive Presence, Scripting, Metacognition

## Introduction

The aim of this research is to investigate how moderating strategies affect the interactivity and quality of the postings in the discussion forums of a Virtual Learning Professional Development (VLPD) course. The participants are foreign language instructors at tertiary level – who are learning about and using Web 2.0 technologies. The need for such a course is based on the idea that teaching is a life-long learning profession in which further education/training is essential to offer best practices in society; moreover, it affords motivation and opportunities of career development for the educator. The VLPD had the intention of (1) introducing the use of technology in foreign language learning by using technology, (2) offering current professional journal articles as well as set tasks

that would increase instructors pedagogical knowledge of the hows and whys in applying web 2.0 technologies in their teaching, (3) allowing the foreign language instructors to share and collaborate on professional knowledge and the co-construction of knowledge in a non-threatening environment, and (4) enhancing professional growth and qualifications in a technology enhanced learning platform (MOODLE) supported in a theoretical framework of social constructivism free from time and place constraints.

The participants of the course engaged in a number of activities in the five modules presented in the VLPD. The design of the modules was so created to encourage collaboration between the participants, between themselves and their moderators as well as with pedagogical material made available in the course. All three of these aspects of learning are evident in the discussion forums offered throughout the different modules in the course. The discussion forums illustrated whether interactivity between the participants was taking place and if moderating strategies affected the interactivity as well as the quality of the postings (higher-order learning) within the forum. This paper will discuss specifically the moderating strategies that were applied in the discussion forums in order to investigate how moderation styles can affect the interactivity and cognitive presence in the modules.

## Research Framework

“...teacher development is optimally a collective, interactive process made up of modeling, mentoring, apprenticing, dialoging, and scaffolding with the goal of transforming novices into active participants” (Meskill et al., 2006) (pg. 284) who work together in a community to help one another learn. The idea of community can be traced back to Vygotsky who viewed learning or cognitive development as a collaborative and social phenomenon where learners construct knowledge by reflecting on past experiences to assist in the present learning environment with other learners. Like Vygotsky, Lave & Wenger support the sociocultural framework of human development in that learning occurs in socially organized practices and it is situated in a community of practice made up of experts and novices alike (Lave & Wenger, 1991; Wenger, 1998). Learning occurs through community, identity, meaning, and practice. According to Wenger (1998) practice “...is an ongoing social, interactional process...members interact, do things together, negotiate new meanings, and learn from each other...” (p.102). Thus, learning can be seen as by Dewey, as a collaborative constructivist process centered within inquiry. And it is this perpetuating role of inquiry in education which can lead participants of a community through exploration, integration and resolution according to the Practical Inquiry Model of Garrison, Anderson & Archer (2000), which leads to the Community of Inquiry (CoI) – the underlying framework for the investigation in this project.

Since Garrison, Anderson and Archer’s important paper in 2000, there has been much research undertaken to validate the triangulation of the three elements of the CoI - social presence, cognitive presence and teacher presence - as a framework for higher education and technology enhanced learning (TEL) activities in the learning paradigm. The three elements are interdependent and entail the following tasks according to Garrison et al. (2000): *social presence* consists of emotional expressions, autobiographical narratives, acknowledging others and encouraging group cohesion as well as supporting group members; *cognitive presence* is illustrated as taking place through a triggering event – recognizing there is a problem, exploration – finding and exchanging information, integration – connecting ideas and creating solutions, and resolution – applying new ideas and critically assessing them; *teacher presence* consists of discussion forums in the VLPD and how this can be related to the online moderation of discussion forums providing instructional design, discourse facilitation, and direct instruction for the learning environment. Garrison, Anderson & Archer (2000) agree that this model has been generated out of parsimony and are keen on research being undertaken to validate the model as a possible theory for TEL. This study will use the CoI Framework to investigate the existence of cognitive presence in some of the discussion forums.

## Background/Method

A Virtual Learning Professional Development course (VLPD) began in February 2011 and continued until May 2011 at a language centre of a tertiary education institution. Seven full-time instructors and eight part-time faculty participated in the VLPD. Instructors came from the English, Spanish, French, Italian, Turkish and Russian language sections and were all gainfully employed at the university throughout the course.

The VLPD consisted of five modules (getting to know you and the Moodle, blogging, podcasting, WIKIs and reflection) with each module lasting two weeks containing at least three separate discussion forums. The first discussion forum was centred around the readings available on the course, the second focused on any questions and answers the participants had concerning the IT being used in the module, and the final discussion forum was devoted to the participants showing the tasks designed for IT use in the classroom and participants commenting on the artefacts created in the module. A conscious effort was given to scaffold the learning environment for the participants. The design of the modules was undertaken to allow for both individual and collaborative learning to take place as well as including individual and group reflection. These are the characteristics of online learning in an asynchronous environment Ausubel (1963) claimed was ideal and led to meaningful learning. Collaboration and reflection are two key elements that shape cognitive presence in an online environment.

The discussion forums in the VLPD provide insight into the collaborative and reflective learning process that the participants underwent through the weeks. They also provide us with patterns of interactivity from participants and moderators which should lead to cognitive presence in the VLPD (Garrison & Ines-Cleveland, 2005). These patterns of interaction were coded according to the CoI. Individual messages were taken as samples and where applicable they were also double coded, meaning that one message could illustrate two different presences according to the framework as carried out by Gunarwardena et al. (1997). The work of Akyol and Garrison (2011) is also touched upon as to whether identification of metacognition, an awareness and ability for learners to take responsibility and control to construct meaning and confirm knowledge, can be identified in the discussion forums.

## Discussion of Findings.

The course had three moderators, who were also participants in the VLPD. Moderator one was responsible for Modules 1, 3 and 5; moderator two was responsible for Module 2; and moderator three for Module 4. Each moderator had a different level of experience in facilitating online discussion forums, so at the onset of the course a discussion was held concerning their responsibilities as moderators: reviewing the roles and competencies of an online moderator from Anderson et. al. (2001), Salmon (2003) as well as Rovai (2007).

Anderson et.al (2001)	Salmon (2003)	Rovai (2007)
Instructional design and organisation is concerned with thinking through the process, structure, evaluation and interaction components of the course.	Understanding of online processes and technologies to be able to design and organise the activities.	Provide opportunities for authentic content-and-task oriented discussions.
Facilitating discourse is critical to maintaining the interest, motivation and engagement of students in active learning.	Online communication skills and be able to diagnose and solve problems and opportunities online.  Use emotions and solve conflicts constructively.	Develop social presence and motivate students to engage in productive discussions. Emphasize student-to-student interactions.
Direct instruction is concerned with providing intellectual and scholarly leadership and sharing their subject matter knowledge with students.	Content expertise and knowledge about valuable resources, give creative feedback and build on participants' ideas.  Positive attitude, commitment and enthusiasm for online learning.	Describe the ground rules for online discussions.

Table 1 adapted from DeLaat, M. et. al (2006). Online teaching in networked learning communities: A multi-method approach to studying the role of the teacher. *Instructional Science*, 35(1)

Garrison (2009) states that “clarifying, explaining and summarizing are legitimate functions of a facilitator” (pg. 10) in an asynchronous online environment. And it is this distinctive role of the facilitator/ moderator that plays a key role in reaching cognitive presence in the learning experience by” informing and guiding” the learner. The teaching presence analysis for modules 2, 3 and 4 reflect this informing and guiding. The analysis was based upon the three categories of teaching presence in the CoI Framework: A-Design and Organization, B- Facilitating Discourse and C- Direct Instruction as seen in figure 1. The three categories of teaching presence used in the CoI Framework indicate a significant difference between the moderators :

	Module 2	Module 3	Module 4
Instructional Design and Organization	10%	0%	0%
Facilitating Discourse	90%	30%	50%
Direct Instruction	0%	70%	50%

Table 2. The CoI categories of teaching presence throughout the modules.

The Instructional Design and Organization of the moderators was actually performed before the discussion forums took place, thus the lack of this category of teaching presence in the three modules. The setting of the curriculum, designing methods and time parameters preceded the discussion forums in that this information was either completed beforehand or stated in the instructions before the conferencing transpired. The moderator for module 2 put a lot of emphasis on drawing in participants and prompting discussion as well as encouraging, acknowledging or even reinforcing participant contributions. These two categories account for 90% of her facilitating in the module. Possible reasons for this could be found in students' hesitation in discussion since it was the first task oriented module that dealt with scientific texts and producing a web 2.0 artefact and/or due to the inexperience of the moderator. In module 3 the moderator spent less time facilitating the discourse and much more time encouraging further development in the discussion forum through direct instruction. This moderator spent some time encouraging, acknowledging or even reinforcing participant contributions as well as prompting discussion. However, presenting content/questions, confirming understanding through assessment and explanatory feedback as well as injecting knowledge were the main type of contributions that the moderator in module 3 offered. The moderator for module 4 had a more balanced approach to facilitating the discussion forum concentrating on encouraging and acknowledging participant contributions, drawing in participants and prompting as well as identifying areas of agreement/disagreement in the facilitating discourse category. Equally important for this moderator was injecting knowledge from diverse sources, focusing the discussion on specific issues as well as presenting content/questions to the participants. One reason for this difference in moderation can be found in the individual interviews that took place 4-6 weeks after the VLPD closed. When the moderators were questioned in the semi-structured interview if they had followed any strategy for the moderation of their modules, a recurring comment was that they modeled their discussion forum facilitation closely to what they had themselves experienced in online learning. This is supported in the work of Richardson, 2003 and Opfer & Pedder, 2011 in that teachers often model their very own experience as a student in their teaching practice. A more significant contribution to the diverse facilitation in the modules is the introduction of scripting that took place between modules 2 and 3/4. After week four of the course (and the completion of module 2), the moderators reviewed the reading discussion forums in modules 1 and 2 and decided that a different approach was needed in order to draw out discussion, i.e. the desired interactivity between the participants was not being reached. In order to address this problem, the moderators agreed on the introduction of scripting in the discussion forums. It was decided that this could be a good strategy to encourage the interactivity between the participants that would encourage cognitive presence in the computer conferencing.

Dillenbourg (2002) stated that learning is not a linear process. Active participation and collaboration in small groups often lead to interactive construction of knowledge in an online learning environment and scripting, or the assignment of roles, can augment that construction of knowledge in the VLPD (Goodyear et al., 2001; De Laat et al., 2006). Although scripting does not guarantee higher-order critical thinking skills, it can facilitate getting participants to negotiate learning together. Thus, the moderators chose to follow communication-oriented scripting by role assignment in the reading discussion forums of modules 3 and 4.

Three different role assignments were given to the learning groups: the enquirer, the facilitator and the scribe. The enquirer was responsible for setting discussion questions (preferable 2 – 3) based on the journal articles posted for the discussion forum. The facilitator/s was/were responsible for keeping the discussion going in the forum by encouraging others to comment or ask for clarifications, and the scribe was responsible for writing a summary of the main points brought up and discussed in the forum. Learning sets changed in size and roles were issued to different people in modules 3 and 4. In module 3 there were three readings, so there were three learning sets consisting of five participants in each group and in module 4 there were two articles and two different learning sets of 7-8 participants respectively. Figure 1 illustrates the total number of postings in the discussion forums and a further breakdown of individual postings with no response and postings which illustrate threaded discussions in the forums.

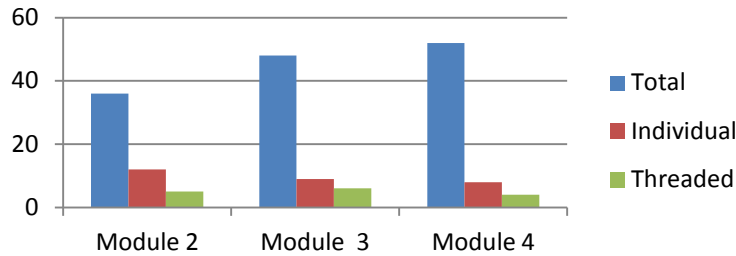


Figure 1. A breakdown of the total number of postings in each module.

It is evident here that the assignment of roles did change the types of postings in the discussion forums with a decrease in individual entries and an increase in threaded discussions throughout the modules.

Thus a correlation can be identified through the introduction of scripting in the discussion forums 3 and 4, the moderators facilitation and the increase in participant interaction (see figures 1). The scripting or assignment of roles provided the opportunity for the participants to take on a more active role in the discussion forums, increased threaded discussions and length of threaded discussions and finally allowed moderators for modules 3 and 4 to focus on direct instruction rather than only facilitating discourse. The following step in this investigation is then to establish whether this increase of interactivity assisted in reaching cognitive presence in the VLPD.

This is where the Community of Inquiry Framework comes in to play, particularly concerning *cognitive presence* which is defined as taking place through a triggering event , recognizing there is a problem; exploration, finding and exchanging information; integration – connecting ideas and creating solutions; and resolution – applying new ideas and critically assessing them (Garrison, Anderson, Archer, 2000).

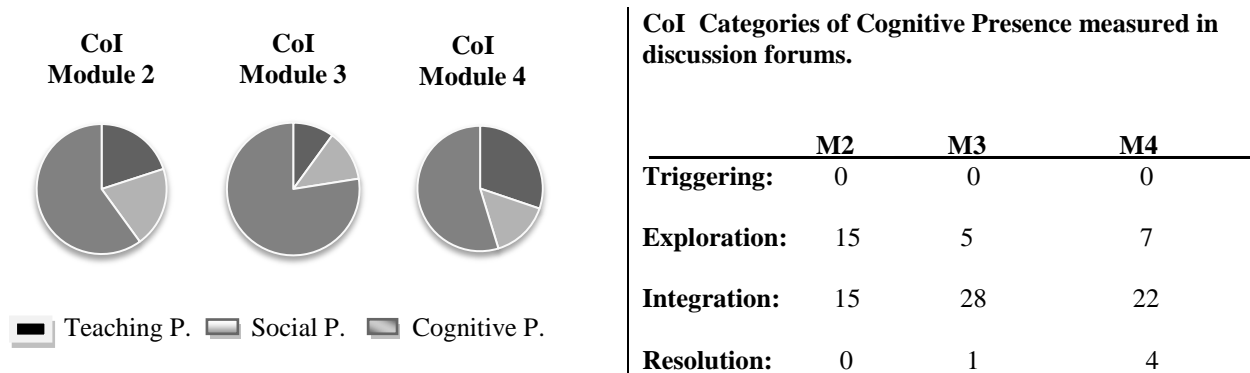


Figure 2. Teaching, Social and Cognitive presence in modules 2, 3 and 4.

After the completion of Module 2 the moderators identified that the rate of interactivity was not developing as they had so desired. However, cognitive presence did occur as indicated in figure 2. The content analysis illustrates that the participants did offer information, unsubstantiated opinions and past experiences, but they did not respond to messages posted by other participants or build upon the information given. They were, so to say, talking “by” each other. In Module 3 there is a much higher level of integration evident and this can be attributed to the scripting by

role assignment corresponding as well to the increase of the number of participants engaging in the threaded discussions towards the end of the two week period. In addition to this, the moderator of Module 3 also put much emphasis on providing direct instruction in the facilitation of the discussion forum which could be seen as a contributing factor in the identification of cognitive presence. Module 4 identifies a large increase in teacher presence accompanied with a slight raise in social presence as well. This can be accounted for in that moderator three followed a slightly different approach to moderation and felt that acknowledging postings and commenting on them immediately would in fact increase the participants' interaction. Furthermore, the moderator in module 4 offered as many facilitating discourse entries as direct instruction entries in the discussion forum. These two moderating strategies can be justified in that the cognitive presence reached the highest level in this discussion forum with the highest number of participants reaching resolution.

The following entries are examples of one participant, Viviana, and illustrate how her postings had changed throughout the course thereby supporting the importance of moderation skills and the contribution that scripting made for increased cognitive presence.

<p>Module 2 Exploration <i>Opinion</i></p>	<p>I think the choice of one or another tool depends on what we want to do and not so much the level of students. I mean, if you want to get in contact with your students and post things like articles, music, photos...social networks are better because are faster, easier and almost everyone has an account in a social network. Moreover, if you want to do a learning journal, reflexive or creative writing I think tools like blogs are more appropriate, because blogs allow category entries by topic, store information, blogs are more steady than social networks.</p>
<p>Module 3 Integration <i>Convergence/ Connecting Ideas</i></p>	<p>Hi!,I agree with you, I prefer face to face communication with the students. However, I was thinking about using synchronous communication as part of a task with other students from another university or with another context. For example, we can do an interchange of communication with students from other countries using Skype or MSN Messenger. I don't know, I'm thinking about an interview or something similar, the students, before chatting, prepare the interview (topics and questions) and then, they could do the interview to others students from other university, country... finally, with the data, they would have to write an article for a newspaper regarding this person. I don't have a lot of imagination today... , but I think that something like this would be a good way to use synchronous communication. What do you think? Anyone of us has experience with this type of tasks?</p>
<p>Module 4 Integration <i>Collaborative Learning/Encouraging Teaching Presence of other student</i></p>	<p>Hi Cherise and all!, Yes, maybe wikis can be worked with our students, I don't know because I didn't try it yet. I have doubts about the efficiency of this tool because of my experience using IT with our students and the characteristics of the tool. However your experience could be very interesting for us, because we have to follow a syllabus with a lot of contents. Could you explain us or could you show us what you did with your students using mind42.com?</p>
<p>Module 4 Integration/Resolution <i>Teaching Presence of other student</i></p>	<p>The students had to create trees of words (that's how mind42 works) around a subject. Our subject was talking about characters so it was a good to build vocabulary. I gave them some websites to visit on astrological signs, and they had to write, each one of them at least 3 adjectives for 5 different signs including their sign. They had to be careful though as they could not repeat the same adjective for a same sign. That resulted to a huge tree with adjectives describing character and personality which was then printed out as a pdf document and they could all have a copy of it. In class, randomly, students presented the personalities of the signs and as there were words unknown to them, they were responsible for the explanation (to make them search for the meaning of the word and not just copy it from the websites). The objective was not to learn all the words but to enrich their list of adjectives by learning at least 5-10 new words. I'm sure that they ended up learning much more because in their written productions later I could see the difference. I'm attaching one pdf print to see the result of their work.</p>

And here is Cherise's answer to Viviana's question:

## Conclusion – Future work

Although all three moderators had varying experience in networked learning and little to no experience as moderators, they began the journey of the VLPD feeling confident that they had the skills to encourage collaborative learning – promoting cognitive presence. The approaches of the three moderators were thought to be similar and discussions were held throughout the project to ensure that quality moderating skills were employed. Through their close work together and ability to be flexible in the learning environment, they were able to identify the lack of interactivity among the participants and introduce scripting in the discussion forums in order to increase the interactivity which would eventually lead to a richer learning experience. This investigation of three similar discussion forums in three different modules does confirm that teacher's presence is essential as well as scripting as role assignment being effective in leading participants to achieve cognitive presence as determined through the Community of Inquiry Framework. Moreover, the actual participants took on teaching presence in modules 3 and 4, illustrating moments of metacognition. Future action concerning this investigation is to code the postings according to metacognition (monitoring, regulating, sharing, and justifying) fleshing out a more definitive explanation as to what takes place in the discussion forums in order to reflect in greater detail as to how the learning process takes place. Further investigation/cross-investigation concerning all three discussion forums in each module is also foreseen. Moreover, the modules overall contribution to the participants' learning and use of Web 2.0 technologies must also be identified.



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