



THE IMPORTANCE OF COLLABORATIVE LEARNING IN MULTI-PROFESSIONAL CONTINUING EDUCATION

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Introduction

Due to continuous advances in professional knowledge and the concomitant challenges posed in the workplace, professionals in most fields need to engage in further learning, both formal, as provided by accredited academic institutions, and informal, initiated in the workplace or fuelled by own initiative. Another way of remaining current is through inter- and intra-professional networking and communication using various media. The skills needed to be successful in the abovementioned activities are seldom addressed in the curricula of the initial qualifications. The challenge to both the professional bodies and the higher education institutions are to identify the skills that, over and above the subject matter expertise, need to be cultivated for the workplace. Many professions require additional formal qualifications after completing the initial full-time degree, which provide the ideal opportunities to cultivate skills and attitudes complementary to the subject expertise that will launch proponents into successful careers (Baartman & de Bruijn, 2011), and equip them for life-long learning.

Continuing education for practicing professionals often follows an e-learning delivery. While formal continuing education is coming under much pressure from MOOC (massive open online courses)-type offerings, such courses do not always deliver the desired completion numbers and quality of integrated learning. While e-learning is fraught with challenges, there are well-established design protocols for designing effective e-learning courses that will deliver content knowledge successfully. In addition, continuous learning should respond to the required workplace competencies, accommodate heterogeneous learners while being sustainable in the long run (van Merriënboer et al., 2009). Persistence is one of the greatest challenges in both classic e-learning and massive online courses (Walsh, 2012). Interaction and feedback which depends on online facilitation, is needed to establish a successful learning community (Collison et al., 2000). The role of the online facilitator is crucial in keeping participants motivated, engaged, on topic and guiding them to learn collaboratively (Boud, Cohen & Sampson, 1999; Collins & Berge, 1996), so as to tap into each person's unique knowledge and insights. Learning facilitation has to respond to the context in which the learning takes place, "typically situated in professional or daily life; with regard to skills to be developed, with a strong focus on higher-order skills (e.g., setting own goals, evaluating and planning own learning) and professional skills" (van Merriënboer et al., 2009).

The Community of Inquiry (CoI) Survey (Garrison, Anderson & Archer, 2010) which has been developed for appraising the experience of students in constructivist online courses, was used to investigate the quality and suitability of e-learning in a continuing education course for a heterogeneous group of health and education professionals. The findings of the survey were triangulated with open-ended responses that address students' perception of their learning gains and professional learning needs.

Literature

Lifelong learning

In response to changing demands in the workplace and the need to improve knowledge, skills and competence with a work-related focus (van Merriënboer et al., 2009; Koper et al., 2005), qualified people often continue studying. A whole spectrum of formal, accredited, informal and incidental learning activities fill the void, some with doubtful merit. Higher and distance education institutions are therefore also providing more certified continuing learning courses (Koper et al., 2005). Continuing education is defined as „education for adults returning to university education after a break following their initial education” (Dinevski & Kokol, 2004). Learning design for continuing education that adequately supports the integration of knowledge, skills and attitudes in the execution of complex professional tasks, is largely unexplored (Baartman & de Bruijn, 2011).

Learning communities and online facilitation

Arbaugh clarifies the role of an online facilitator “to structure and organize their courses beforehand so they can focus on efficient engagement with their students while the class is in session” (Arbaugh, 2010). Boud suggests that “various forms of peer, collaborative or cooperative learning, particularly small group activities, are increasingly used within university courses to assist students meet a variety of learning outcomes. These include working collaboratively with others, taking responsibility for their own learning and deepening their understanding of specific course content” (Boud, Cohen & Sampson, 1999). Self- and critical reflection in conjunction with peer learning processes promote integration of knowledge, skills and attitudes needed in complex professional tasks (Baartman & de Bruijn, 2011; Boud, Cohen & Sampson, 1999). The role of the online facilitator is essential to the development of a learning community through interaction, scaffolding, and maintaining a friendly social environment and pedagogical approaches. “The instructor contributes their special knowledge and insights and uses questions and probes for student responses that focus discussions on critical concepts, principles and skills. By modelling appropriate online behaviours, the instructor can prepare students, alone or in groups, to experience moderating the conference for themselves” (Collins & Berge, 1996), and become more autonomous.

Community of Inquiry

The quality of e-learning is often evaluated by using the Community of Inquiry (CoI) survey instrument, developed by Garrison, Anderson and Archer (2010), to obtain an indication of the three most salient aspects of constructivist learning, namely

- Teaching presence (the design, facilitation, and direction of cognitive and social processes for the purpose of realizing personally meaningful and educational worthwhile learning outcomes),
- Social presence (the ability of learners to project their personal characteristics into the community of inquiry, thereby presenting themselves as ‘real people.’) and
- Cognitive presence (the extent to which the participants in any particular configuration of a community of inquiry are able to construct meaning through sustained communication, and critical, practical inquiry).

The CoI framework has been well-researched and validated. The premise is that all three presences are necessary for the establishment of a learning community (Garrison, Anderson & Archer, 2010). The CoI website <https://coi.athabascau.ca> provides a comprehensive description of the model, underlying theories and relevant literature.

Background and context

The programme

The University of Pretoria has been offering a two-year, part time, multi-professional coursework Masters in Early Childhood Intervention (MECI) programme for healthcare and education professionals for seven years. The MECI program focuses on assisting professionals such as speech therapists, occupational therapists, physiotherapists, medical doctors, nurses, educators, educational psychologists, nutrition specialists and social workers in providing early intervention services. They are working with children between 0 and 7 years of age and within high risk contexts characterised by issues of poverty, HIV/AIDS, violence and abuse and chronic diseases. In modelling the collaborative requirements of the early intervention field, group work forms an essential part of the programme (Alant & Dada, 2005). It aims to develop critical thinkers who can use best practice principles from the field and apply them in their own situations. In order to gain from multiple perspectives, students are required to participate in regular online class discussions with lecturers and fellow class members during discussion weeks for each module. In addition they are also allocated to smaller, multi-professional study groups that work closely together over the two-year period, simulating the functioning of an early intervention team. These smaller teams are required to discuss and provide solutions to real life intervention challenges typically encountered in the South African context and to submit these discussions for formal appraisal.

Online and face to face components

As the MECI students were usually situated all over South Africa, the African continent and at times abroad, an e-learning delivery was used. Although students meet twice a year for week-long contact sessions at the University of Pretoria, they completed the bulk of the academic work while not in physical contact with each other or with the university. The online sections of the programme were delivered using a learning management system (LMS); prior to 2011 WebCT5 Campus Edition, phasing in Blackboard Learn™ for the new 2012 enrolments who graduated in 2013. Online facilitation included the creation of a welcoming environment, approaching students personally, participating in synchronous communication and requesting frequent feedback. Three avenues for collaboration were provided:

- Asynchronous online communication using the LMS enabled sharing of knowledge, expertise, social cohesion and emotional support when needed, as the heart of the course was the online discussion tool. The aim of the discussions was twofold; namely task-related interaction in which concepts were explored and unpacked in various configurations of the whole class or groups, as well as social (ludic) interaction in ice breaker games and informal virtual “water cooler” forums and blogs. The facilitator graded discussions for evidence of higher-order learning.
- Synchronous chat rooms were used for brainstorming, team meetings and clarification, and the facilitator was privy to all conversations. The Who’s Online function in WebCT CE was also well-utilised for check-ins, encouragement and motivation. Later BbCollaborate™ also assisted in bridging some of the physical distance between participants. Due to the Chat Room facility not functioning in Bb Learn™, later students used other means outside the LMS for immediate communication, particularly a mobile WhatsApp Messenger© group. Unfortunately the facilitator was not privy to these communications.
- Onsite contact weeks were scheduled on campus, during which time students attended lectures, worked in groups and most importantly addressed any issues in terms of group assignments and collaboration that could not be resolved in the online environment.

Participants

Students were fulltime professionals stationed all over the country and some outside the country. The age distribution of the largest group (2013 graduates) was as follows: seven in the age-group 25-30; four in 31-40 and one aged between 40 and 50. The spread of current ages also in the other respondents suggested that many had been working for a number of years before commencing this degree. Table 1 shows that on average 85% of students completed the course in 2 years. While the 2013 graduation rate was lower than the previous 5 years, it was not statistically significant. From the fourteen 2013 graduates, eleven participated in the survey, representing a 79% response rate.

Table 1: MECI Graduate numbers

Graduating	enrolments Y1	graduates Y2	Respondents
2013	18	14	11
2012	20	18	5
2011	19	17	1
2010	19	17	3
2009	18	16	2
2008	14	13	3
2007	21	15	3

The Z-Score for the difference in completion numbers between 2012 and 2013 is -1.0317.

The p-value is 0.30302 and the result is not significant at $p < 0.05$.

Methodology

A pragmatist stance was adopted for the research (Denscombe, 2010), and mixed methods were used to analyse the data obtained from a variety of sources. A survey consisting of the 34 item CoI survey instrument using a 5 point Likert scale, (scoring 5 for “totally agree”) was supplemented with demographic and open-ended questions. It was deployed using a commercial online survey instrument (Survey Monkey®) and distributed via an e-mail notification to graduates of the programme; 28 students who graduated during the past 7 years responded regarding modules taught by one specific instructor (AS). The responses to open-ended questions were collated per question and qualitatively analysed using ATLAS.ti© version 7, a computer-based qualitative analysis software package, using a grounded theory approach (Denscombe, 2010). We used the Student T-test calculator for 2 independent means on the Social science statistics website <http://www.socscistatistics.com> to analyse the results from the CoI. In order to confirm that the student experience did not change significantly over time, the responses were first grouped according to year of graduation, cultural group and age, and after verifying that no significant differences existed, grouped data were pooled again.

Rich descriptions of the course design and the nature of online discussions obtained from the lecturer / online facilitator (AS), who also acted as a participant observer in documenting student experiences, were triangulated with survey responses. The instructional designer (GP) who collaborated closely with the lecturer in designing the online course for delivery via LMS, and was instrumental in the initial training of the students in using the different online tools in the LMS, also provided context.

Findings and Discussion

CoI survey

The average scores obtained for all the respondents (n=28) in the CoI survey were calculated for each presence. Teaching presence (TP) was the most highly rated presence (average 4.50), followed by Cognitive presence (CP) (average 4.35) and Social presence (SP) (average 4.0). Considering the prominence of interaction and social exchanges in the course, the Social

presence score prompted further investigation, as shown in Figure 1. Group Cohesion and Open Communication questions about the online medium showed lower scores. The 2013 graduates had a significantly lower average score ($p < 0.01$) for Open Communication than the rest of the students combined. This was attributed to reported difficulties and user unfriendliness in the Discussion board and synchronous Chat tool in the new LMS that had been phased in and used for this group in 2012/2013. The lower Social presence seemed to be due to technical factors, and not due to a change in course presentation.

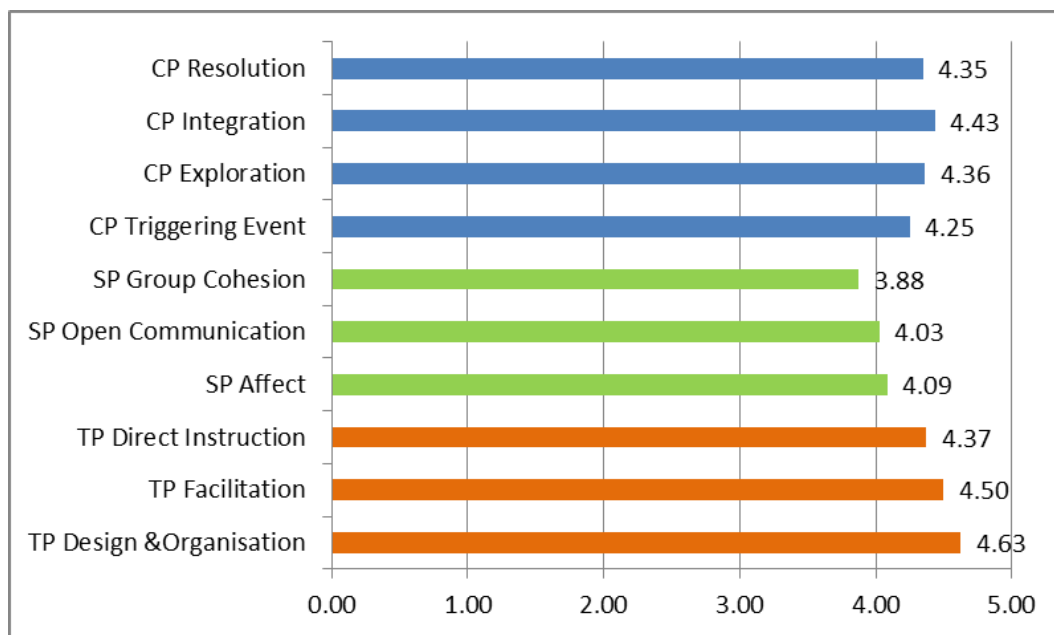


Figure 1. Average Col constructs (n=28)

The excellent organisation of this online course was reflected in the high Teaching presence averages for design & organisation and facilitation. Facilitation style further enhanced and integrated team activities and cognition, illustrating that „course design and presentation mechanisms – together with excellence in online dialogue facilitation – separate the excellent online course from the mediocre or weak one” (Colins et al, 2000). High scores in Cognitive presence indicated the establishment of a learning community where students collaboratively explored the problems posed to them, integrated solutions and reached resolution and application. How the learning communities contributed to success in course completion and preparing participants for the workplace, will be answered from the analysis of the two open-ended questions.

Qualitative analysis of open-ended questions

The CoI survey had shown that Teaching and Cognitive presence particularly contributed to the formation of the community and hence enhanced the quality of learning. We triangulated those findings with the responses to the two open-ended questions in the survey. The responses to the following question were grouped into four themes, namely Collaborative activities, Teaching activities, Personal development and New approaches.

Question: “The following course activity/activities contributed most to my successful completion of the course”

Collaborative activities

This theme was by far the most salient, being coded 25 times, of which “class online discussions” (11 codes) was the most prominent. Others included team work, -team building, collaboration, brainstorming, onsite weeks, group assignments, self and team reflection and portfolio, and being a support system. It was clear that the team approach and community collaboration were important in keeping students engaged. According to the codes, it seemed that team activities contributed to some Social presence and to all aspects of Cognitive presence, as triangulation with the CoI survey’s very high Cognitive presence (average 4.35) indicated.

Teaching and facilitation

The role of the instructor / facilitator was the second most salient theme with 8 codes, where students mentioned facilitation, feedback, instructional design, guidelines and schedule plan. These codes paralleled the high Teaching presence in the CoI.

Personal development

This theme was characterised by 5 codes representing self-evaluation, reflection, specialisation and critical thinking, which corresponded with the CoI framework Cognitive presence’s integration and resolution phases.

New approaches in the curriculum

The curriculum and new approaches to their profession also contributed to students’ success. Their responses were represented in 5 codes: practical, new, relevant content, cases studies and the ecological model. The following questions probed how the course prepared graduates for professional intervention.

Question: “The one aspect of this course that made the greatest contribution to my professional career was...”

From the perspective of practicing their profession, respondents reflected on the contribution of their studies to their current career. The most salient theme was the team-related skills obtained in the course, followed by their own personal development, new intervention paradigms and integrating theory to practice.

Team-related skills

This most salient theme describing what they took from the course into their careers represented 23 coded passages. Team-related skills included, in declining order of magnitude: team meetings and –reflection, enhanced team work, trans-disciplinary teams, collaboration,

introspection, differing insights, conflict management, online discussions, a common vision and cultural competency, many denoting necessary multi-professional attitudes (Baartman & de Bruijn, 2011).

Personal development

This theme was more salient in the workplace than in the course with 11 coded sections: self-reflection, self-evaluation, onsite weeks and critical thinking. The only notable suggestion was for more guidance on how to reflect.

New intervention paradigms and theory-to-practice

The codes included the ecological model, new approaches and information and challenging paradigms. A few students needed “procedures” to help applying theory to practice. This section confirmed that, while new theories were appreciated and made a difference, content was not the most important asset in the course.

While the facilitator’s actions were not prominently mentioned, the CoI survey confirmed that the facilitator’s guide-on-the side style was the key to the community (Collins et al., 2000; Collins & Berge, 1996; Arbaugh, 2010) and hence to achieving successful course outcomes, while personal development, characterised by self-directed and reflective learning, as well as relevant content contributed to the needs of their professions to a lesser degree..

Conclusions

Collaborative activities in the course were the most salient aspect, followed by teaching and facilitation activities, Surprising was how sensitive online discussions were to technical issues, as experienced by the 2013 graduates. Technical problems did not hamper the establishment of the learning community (Collins et al., 2000), as shown by the high esteem accorded to collaborative team work. This finding illustrates the commitment and motivation of these students who continued participating despite the difficulties and how they valued the online discussions. Collaboration, therefore, was the teaching and learning activity in this two-year online masters’ course that, as reported by the ex-students, contributed most to their success. Behind this successful collaboration was a skilful online facilitator who maintained a very high Teaching presence, as measured with the CoI, and unobtrusively promoted the formation of a learning community (Collins et al., 2000; Arbaugh, 2010). Higher order thinking flourished in this community, characterised by critical discourse and reflection. Such activities are inherent in the practical inquiry model on which Cognitive presence theory was based (Garrison, Anderson & Archer, 2010). These findings corroborate the high cognitive presence obtained in the CoI survey as students explored and integrated new ideas in answer to the given questions and devised new applications to solve the challenges in their multi-professional working context. It can be concluded that the online discussions were central in enabling collaborative and team-based activities (Boud, Cohen & Sampson, 1999; Collins & Berge, 1996), which, being skilfully facilitated (Arbaugh, 2010) made the greatest contribution

towards developing a learning community as defined by Collison et al. (2000) and achieved the learning outcomes as measured by the CoI framework (Garrison, Anderson & Archer, 2010).

The important aspects of the course that the alumni eventually experienced as valuable in their workplace, corresponded with those indicated as valuable for completion of the course, namely collaborative activities. This research illustrated how collaborative approaches to learning answer to van Merriënboer and co-workers' (2009) design approaches for life-long learning by being: "(1).responsive [to] required competencies; (2) flexible in order to serve highly heterogeneous lifelong learners, and (3) sustainable". As alumni, respondents clearly identified collaboration and team work as the skills they needed and used most in the workplace (Baartman & de Bruijn, 2011), and individuals learnt more from dynamic interaction with their environment and each other than from content alone, as reported in the open-ended responses. Team-related skills were indeed the most beneficial abilities taken to the workplace, followed by personal skills and self-reflection. Functioning well in teams provided professionals with lifelong learning opportunities (Koper et al., 2005) through the means to tap into the collective wisdom of their own professions, and the flexibility (van Merriënboer et al., 2009) to benefit from the viewpoints of other professions. In answer to Baartman's "black box" of learning processes (Baartman & de Bruijn, 2011), we propose that carefully crafted and facilitated collaborative online courses can develop the competences needed for complex professional tasks.

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