Exploring Adult Learners Usage of Information Communication Technology during a Virtual Peer Coaching Experience

Richard Ladyshewsky
Ronald G. Pettapiece
Curtin University

Abstract

The purpose of this study was to explore how post-graduate students in a fully online business course used information communication technology during a virtual peer coaching experience. In this exploration of technology use it was found students required additional guidance in the use of technologies such as email, telephone calling, and more media rich tools such as Skype and Blackboard Collaborate during a virtual peer coaching session. They did not fully understand how to use these different mediums to guide and structure the coaching experience. They were frustrated by the lack of media richness when using tools with low levels of audio-visual connectivity. The findings suggest that the increasing use of technology in education does not necessarily mean that students will use it appropriately, even if they are adept at learning online or use the technology in their daily lives. Therefore, instructors cannot make assumptions about students' technological literacy even though these same students may appear to have a high level of competency learning online. Guidelines for using ICT in virtual peer coaching are provided as a result of this exploration.

Introduction

The use of information communication technology (ICT) to deliver education is now well established in higher education (Ellis, Ginns, & Piggott, 2009). Learning management systems and ICT have evolved significantly over the past ten years and continue to evolve at a rapid pace. Higher bandwidth, faster internet speeds, mobile devices and advances in Web 2.0 technologies have also meant learning online is much easier and faster, particularly for tech-savvy learners. Adult education, particularly in the post-graduate business education market, has been strongly influenced by this growth in information communication technologies. Students in these programs require flexible learning designs

because they typically work full time and need to balance education with work and family commitments (Millson & Wilemon, 2008). Fully online and blended learning courses can provide this flexibility (De George-Walker & Keeffe, 2010) and academic programs have responded to this need by providing courses in both modes.

Understanding how students engage with ICT is an important part of instructional design in fully online and blended courses. By understanding student usage patterns, guidelines and criteria can be established to assist these learners to achieve optimal learning outcomes. This, in turn, prepares them for work in an increasingly global business environment where, for example, telecommuting (Zey, 2011), virtual mentoring and e-coaching are increasing in importance (Boyce & Clutterbuck, 2011; Boyce & Hernez-Broome, 2010; Clutterbuck, 2010; Khan, 2010; Meister, Kaganer & Von Feldt, 2011) along with other forms of communication to support virtual teams (Quinn, Faerman, Thompson, McGrath & St. Clair, 2011).

Yet, those who understand education and ICT recognize technology is just a medium for delivering content and interaction between teachers and learners. The pros and cons of educational technology must be understood and applied appropriately to achieve strong educational outcomes (Harris & Rea, 2009). Hence, with such a boom in ICT and education do we know whether students are using the technology appropriately (Khan, 2010) and do they achieve the purported benefits of the learning activity using the technology? If a student understands how to email and text, and use FaceTime or Skype to talk with friends, can we assume that this knowledge and skill is transferable to managing a virtual coaching context or chairing a virtual meeting?

To understand this question more deeply, the purpose of this research was to explore how post-graduate students enrolled in an online business course used ICT to support their virtual peer coaching experiences. Peer coaching is an effective strategy for helping students develop leadership and management skills and involves two or more learners of relatively equal status providing support and non-evaluative feedback to one another in pursuit of achieving specific goals (Ladyshewsky, 2010; Ladyshewsky & Ryan, 2006).

Literature Review

While there is ample research discussing how students learn online, there is far less research that explores how students use ICT as part of a virtual peer coaching (VPC) experience and little on e-mentoring (Murphy, 2011). The physical classroom and the virtual learning environment are distinctly different. The availability of virtual learning technology does not imply students use it appropriately (Proserpio & Gioia, 2007). A greater understanding of what people do online and how to connect it to good teaching practices is important (Harris & Rea, 2009) because of the increasing usage of ICT in everyday life and work (Baym, 2009; Haythornwaite, 2011; Zey, 2011). There is evidence that incorporating more advanced technology which captures video and sound into educational environments can enrich learning (Arbaugh, 2005). This is consistent with cognitive flexibility theory which espouses that students can learn complex material if they experience it in multiple formats (Hall, Watkins & Eller, 2003).

While there is little research on how students interact in a VPC program, there is research on e-coaching and virtual mentoring even though the definitions of these two processes can be quite diverse (Clutterbuck, 2010). Perhaps the most straightforward definition of these two interactions (e-coaching and virtual mentoring) is described by Clutterbuck (2010), “a developmental partnership, in which all or most of the learning dialogue takes place using e-mail, either as the sole medium or supplemented by other media” (p.4).

Yet, there are a range of other terms that are used to describe these types of interactions (e.g. tele-mentoring, cyber-mentoring, web enabled coaching, etc.) which essentially require some form of ‘electronic-based’ interaction as the primary format for communication (Akin & Hilbun, 2007; D'Abate, Eddy & Tannenbaum, 2003; Rowland, 2012; Zey, 2011). The interaction can involve telephone, video

conferencing, e-mail, online chat sessions, texting and can be synchronous or asynchronous. By introducing ICT into the coaching relationship, it influences the relationship between the coaching process and the coaching outcomes (Boyce & Clutterbuck, 2011). While the introduction of ICT to support e-coaching is controversial for some, it is becoming more commonplace and evidence increasingly suggests its effectiveness (Boyce & Hernez-Broome, 2010). E-coaching primarily is used by coaches to provide assistance on specific projects, to accelerate the achievement of competency and to facilitate transfer of training (Boyce & Hernez-Broome, 2010). Questions are emerging as to whether quality coaching can occur using ICT. A greater understanding of how ICT impacts coaching is needed, particularly the skill base that is needed for both the coach and the coachee to interact in this medium (Boyce & Clutterbuck, 2011).

The literature on virtual mentoring is also beneficial for exploring VPC within an educational context. The literature indicates this type of virtual mentoring occurs in work contexts (Zey, 2011), services contexts (Aoun, Osseiran-Moisson, Shaid, Howat & O'Connor, 2012; Haythornwaite, 2011), and educational contexts (Bierema & Merriam, 2002) and is generally viewed as positive and effective when implemented appropriately. Issues that emerge with virtual mentoring typically relate to the loss of face-to-face contact (Rowland, 2012), the reduction in communication richness (Aoun et al., 2012; Zey, 2011) and the impersonal nature of the experience (Rowland, 2012). Many of these issues could be applied to e-coaching.

More advanced media which enables synchronous audio and visual communication can enable the transmission of multiple verbal and non-verbal cues, natural language, immediate feedback as well as the conveyance of empathy, personal emotions, and feelings (Akin & Hilbun, 2007; Daft & Lengel, 1986). This would strengthen the e-coaching and virtual mentoring experience. Daft and Lengel found that individuals perceived text-based chat as having lower media richness than video conferencing. Video conferencing was perceived, in turn, as having less media richness than face to face communication. Face to face communication and video conferencing were seen to lead to better team cohesion than text based chat and were more efficient as they eliminated the need to type, thus saving time.

This literature offers very useful insights on how virtual mentoring and e-coaching employ ICT and provides a foundation for exploring how post-graduate business students used ICT to support their VPC experience in this study. Further studies exploring virtual communication in mentoring/coaching relationships have been called for, along with qualitative methods to explore process issues (Murphy, 2011). The purpose of this study was to explore how post-graduate business students used ICT to support a virtual peer coaching experience.

Methodology

Sample and Procedure

The VPC experience was driven by two assignments to drive engagement and learning (Biggs, 2003). The first assignment was the completion of an online 360 degree leadership survey (Quinn, Faerman et al. 2011). This survey collected feedback on a person's leadership and management performance from subordinates, peers and supervisors. Each student received an interpretive 360 degree report and had to analyze their results and prepare a leadership development plan. The second assignment was to begin the implementation of the leadership development plan with the support of peer coaching. The use of peer coaching to support leadership development has been used successfully in the past (Ladyshewsky, 2007; Ladyshewsky & Ryan, 2006; Ladyshewsky & Varey, 2005).

The students were required to conduct three VPC sessions (over the course of 5–6 weeks) as part of an online management course. They used ICT for the sessions as they were not able to come to the campus and were dispersed regionally, nationally and internationally. The objectives of the peer coaching were to develop students' skills as coaches, to experience being coachees, and to help students integrate learnings from their course with real-world experiences. The students were given extensive guidance on how to prepare themselves for the peer coaching assignment with modules in the online course dedicated

to coaching theory and practice. The students were not told specifically what ICT tools they needed to use for their peer coaching although there was information in the course on Skype and MSN Messenger as alternative tools to facilitate more media rich communication. Students were familiar with using e-mail and chat forums as these were used in the course to communicate with one another. Blackboard Collaborate™ was used for synchronous discussions in the course.

Participants formed their own VPC teams (n=3) from within the course by reviewing each other's biographies which were set up using the home journal tool within Blackboard™. They could coach as a team or they could coach in pairs. The VPC team was set up as a triad in case one of the students withdrew from the course.

- Team coaching involved one person taking the role of coachee and the other two parties providing coaching. They would then rotate so each member of the triad had an opportunity to be a coachee. This approach resembles what occurs in action learning sets—although the number of participants are usually greater and the dialogue more reciprocal (Johnson & Spicer, 2006).
- If the triad decided to undertake coaching in pairs the following strategy was implemented so each person had an opportunity to experience the coach and coachee role.
  - Mary (coach) coaches John (coachee);
  - John (coach) coaches Bill (coachee);
  - Bill (coach) coaches Mary (coachee).

As a purposeful sample of convenience (Merriam, 1998) 49 students across two administrations of the fully online management course were invited to share their learning journals for this case study. In the end, a total of 22 students submitted three learning journals each—comprising a total of 66 learning journals.

Data Collection

The reflective journals were written in a format that modelled the experiential learning cycle (Kolb, 1984). This four stage cycle has subsequently been expanded and developed by others (Argyris, 1991; Boud, 1988; Boud & Edwards, 1999; Honey & Mumford, 1987) and involves reflecting on one's experience, making conclusions about the experience and then re-applying the learning to future experiences. Reflective learning journals are particularly useful for making thoughts visible and concrete and for allowing participants to interact with, elaborate on, and expand ideas (Kerka, 1996). Reflective practice is an essential part of professional development (Schon, 1991).

The written journals were submitted online. These were read by the instructor and then graded. At the end of the course students were invited to submit their reflective journals for review by the investigator (who was also the instructor) as part of this research project. This invitation occurred after the course was completed and their grades released. Students were advised that any identifying information would be removed and pseudonyms used where necessary.

To explore the phenomenon of the student experience using ICT during their VPC sessions, a qualitative methodology in the form of a case study was used. There is little consensus on what constitutes a case study or how this type of research should be done (Brown, 2008). However, Merriam (1998) argues the 'single most defining characteristic of case study research lies in delimiting the object of study: the case" (p. 27). The case is a "thing, a single entity, a unit around which there are boundaries" (p.27). In this research, the unit was the VPC assignment with its boundaries set by instructions on how to complete the task and achieve the learning outcomes.

Merriam also claims that a case study does not require a set data collection method, but instead, "focuses on holistic description and explanation" (p. 29) which is the purpose of this research—to explore students' experiences using VPC using ICT. Case studies also enable the investigation of contemporary phenomenon within a real-life context (Yin, 1994). While this VPC experience occurred within a course,

it has direct transfer to the workplace given the increase in virtual communication between managers and their teams.

Data Analysis

In order to analyze textual data (the learning journals) reduction strategies are needed to gain a holistic understanding of the information contained in the written passages. This is accomplished by coding the data into units of meaning. The units of meaning are then reviewed through an iterative process in which the investigator undergoes an analysis of the content—comparing and contrasting the content into themes and categories of meaning (Merriam, 1998). The investigator can code the data using their own defining labels—open coding—or have the labels emerge from the data itself—in vivo coding (Creswell, 2003). In this research labels were assigned by the investigator. Only textual data relating to the use of ICT during the VPC was coded.

Reliability and validity in qualitative research are measured in different ways and include terms such as trustworthiness, credibility, transferability and confirmability (Byrne, 2009; Golafshani, 2003). Trustworthiness and credibility are attained through triangulation, which is a validity procedure where the investigator looks for convergence among multiple sources to form themes or categories (Creswell, 2003). There were a total of 22 students who submitted 3 journals—each journal was 1000 words. As a result, there were 66 journals or data sources from which information was extracted on the VPC experience. Transferability refers to how the findings can be applied to other contexts and occurs by offering rich descriptions of the themes that emerge from the research. This makes the content plausible to others. Transferability and confirmability is achieved, in part, by finding supportive research in the literature that lends support to the findings, and by sharing the results for debate in the scholarly community through peer reviews and journal publications.

The strength of using the case study approach is that it provides the researcher with flexibility to work through the data within the bounded system, and to see what emerges from the interrogation of the data. By linking the findings to existing literature, a rich description of the phenomena can be more fully described and understood. While this rich description can be beneficial to others, it does not offer generalizability to all situations. A more controlled study with larger sample sizes would be needed.

Findings

The aim of this research was to explore how students used ICT to support their virtual coaching experience. During the coding process it was found that the best way to categorize data was through two themes. The first theme explored the technologies students used (email, telephone, Collaborate and Skype) and the impact it had on their virtual coaching experience. The second category categorized the learners' opinions of the ICT that was employed and the impact it had on their communication and technology selection. The students experienced several challenges when using the different forms of media for their coaching. They experienced challenges around being able to build rapport, communication, technology failure, and media richness. They also gained insights into how they might have improved their VPC through better use and selection of ICT. For each category of technology, example quotations from the participants are provided to illustrate the phenomena further.

Student Choice of ICT:

E-Mail

E-mail was used in different ways by the students. In some cases it was the sole mode of communication whereas for others it was used in addition to other media. E-mail was found to be very useful for exchanging information, sharing documents, gaining knowledge of the other parties involved in the VPC relationship and for setting up sessions and parameters for the coaching.

"AB and I made contact via e-mail and established a meeting time and clarified the intention of the meeting…"(004) …" I would send through an e-mail with some pre-reading around my role and my goals."(005) … "I often sent follow up e-mails to M and K providing additional thoughts." (024) …"All

initial communication from forming the triad to determining the first coaching session was conducted via e-mail"(021) …

E-mail also supported relationship building because information about one another could be shared. Individuals could seek further information about the individual after reading their online home journal profiles in Blackboard.

"Based on the on-line student home journal profiles, I selected AB as we both worked in similar industries." … my decision was limited to online information only, I felt that in order to maximise the coaching experience I should select a person with some similarities.." (004) … "I began building the relationship through the sharing of information via e-mail. "(010) … "Our initial meetings were conducted via e-mail due to the group being in different locations…these e-mails are referred to as the forming and norming stages of team development." (018)"

It was very clear that the medium did not provide a rich coaching experience other than the exchange of factual information. It led to potential miscommunication, lacked the ability to create more authentic communication experiences important to coaching, and did not provide enough information for building the relationship further. All in all, as a medium for undertaking coaching it was ineffective.

"… in the future I would consider if I need to have a verbal conversation, phone or face-to-face, with a potential peer coach rather than relying on an e-mail conversation." (004) … "The tone in e-mail correspondence from AB felt quite formal … I was mindful not to read too much into the tone of an e-mail as I understand e-mail can easily be misunderstood." (004)

When there was a failure in more advanced media e-mail often became the only option, particularly if people were in different geographical locations and did not have access to reliable telecommunications.

"I think the reason that the session was still productive (Blackboard technical issue) was that we had previously e-mailed information about ourselves so we didn't start the session from a stand-still." (020) … "…[we] also decided to use e-mails to keep discussions flowing and as a contingency if one was unable to attend the Blackboard Collaborate sessions….due to technical issues most communication was via e-mail as John found himself in hurricane Sandy in Jamaica and my site had issues with the satellite at the time of the meeting" (018).

Telephone

The telephone was used by some students to conduct coaching sessions. It offered a more expansive means of communication because of the verbal cues provided. While some students found it to be adequate, by far more students found it to be ineffective for the coaching experience. There were some issues with this medium, namely telecommunication satellite issues—in one instance, students had difficulty communicating via telephone with another student located on a remote oil rig.

Effective

"I had doubt on the effectiveness of coaching over the phone. But in my first coaching session with John and Brad made me realise that my intuition was wrong". (001) … "No further issues with telephone reception….this session was the best session in terms of output ….It went for a full hour."(023) … "I felt the telephone method of coaching was quite good… I found through the phone I was able to focus and listen to Jane." (024)

Ineffective

"…I knew that having this session over the telephone instead of face to face would potentially cause issues. … without that face to face communication I did not feel I built the same rapport as from the previous face to face sessions"(005). "…conducting all three sessions with John by phone was a limitation in that it hampered important non-verbal communication…"(016) … "Due to our strictly telephonic conversation non-verbal cues were not possible to gauge" (007).

Blackboard Collaborate

Blackboard Collaborate provides the opportunity for chat with web cam thus enabling participants to see and hear each other in real time. There is also a text-chat window on the screen where participants can write comments as well. When the technology works well it can offer a media rich virtual experience to students, however, when it does not function well it reduces the efficacy of the coaching experience. It appeared that Blackboard Collaborate had many technical issues which impacted students' coaching experiences.

"Virtual face to face [coaching] was administered through Blackboard Collaborate Live Chat (only Mary and I were able to talk to each other, Jane had to write down her comments due to technical difficulties."(015) … "The technology issues we faced with BB Collaborate Live Chat … resulted in a non-visual PC session … we were all able to talk but stopped us from fully experiencing an up-close coaching session…." (015) … "… again our final sessions were hampered with technical difficulties. With only John being in a capital city both Frank and I struggled with internet connections … eventually John and I managed to log into Blackboard Collaborate for a discussion…"(018) … "As a result of the Blackboard configuration … we couldn't have three people using microphones [at same time] so I had to type my questions and responses. I found this to be quite disjointed and made it hard for me to be involved in the discussion."(020) …

Skype™

Skype offered the richest and most simplistic multi-media experience for students to complete their virtual peer coaching. When it worked well and when students used it appropriately, it was highly effective. When it did not work properly or was not used to its full potential it reduced the depth of the coaching experience.

Skype with WebCam

"….we had use of the videocamera which allowed for observation of body language….enhanced with the use of videocamera." (002) … "Two meetings via SKYPE webcam were used to establish the 'ground rules' and to build a relationship between John and myself ... overall our first sessions from a coach and coachee perspective were positive and face to face meetings via SKYPE enabled us to develop a rapport." (022)

Skype Audio Only

"Communicating via SKYPE was another challenge as the triad did not use video conferencing only audio. …The inability to see my peers resulted in issues with timing (e.g. 2 people speaking at once then silences; inability to gauge the impact of the information being shared eg. was it being received with interest or dismissed?) … The medium tended to inhibit the flow of the conversation. The need to defer to each other became paramount in overcoming this issue and by the end of the session we had become more adept at managing this." (002) … "Skype conference call without webcam (Skype quality was poor in that there were time delays between participants."(0015) … "Because I was not able to see my coaches, I could not use their body language for signs of support." (0015) … "When the coaching session was moved to SKYPE we were able to hold a three way conversation but without vision. This limited the richness of the communication."(021)

Skype was considered to be an efficient and flexible tool for communication that enabled students to meet and coach. It enabled them to hold meetings when they are in different parts of the world and in different time zones.

"As a method of communication it was flexible … easier to meet later at night without having to add …travel time."(006) … "Being able to engage in real time conversation (SKYPE voice conference) resulted in us trying to achieve a number of things in a time restricted session due to time zone differences." (011) … "I found this session to be very constructive and I felt I was able to coach effectively in comparison to last week's session where I could only communicate via text due to the Blackboard Collaborate configurations. …" (020) … "The final coaching session was used via SKYPE. I

would definitely use and recommend this technology in the future. However, I would investigate the package required to allow teleconferencing." (021)

Student Assessment of ICT Use for Peer Coaching

Virtual Communication Skills

Not all students found communicating virtually, especially without visual cues, to be easy. They were able to identify skill gaps and issues that they needed to address in order to maximize communication.

"When coaching, I continued to be hesitant to speak in danger of cutting into anything my peer coaches wanted to say but also at the same time tried to move the conversation forward to avoid awkward silences…." (015) … "I believe that my effective listening suffered because of the mode of coaching… I will make sure that the topic of silence is addressed in the introductory phase to raise awareness and understanding of it."(015) … …"having one person to focus on and consider in the communication loop…unlike the first two sessions where people spoke all at once or there were silences….the conversation flowed more freely." (002) … "My coaching sessions took place via SKYPE voice calls due to my peers being located in different countries. I use my hand gestures a lot so I had to adapt to only being able to use my voice. I feel the coaching sessions via SKYPE increased my listening skills and taught me to truly listen."(014)

Technology Selection

It did not appear that the students had a strong grasp of the various forms of communication technologies available to them and how they could use them to best support their VPC experiences. It seemed they used what was most easy or accessible to them but then realized that it did not provide them with the level of media richness needed to have an effective VPC session. It was at this point that they then started to explore other forms of media.

"In the future I would ensure more thorough investigation of the technology before use…perhaps have been a better result to switch to another form of technology (e.g. Skype) when we found we could not see or talk with Jane (using Blackboard Collaborate Chat)." (021)

Importance of Technology Mediated Communication

The other theme that emerged was the recognition by some students that the ability to communicate and conduct coaching virtually was an expanding role of the manager and a skill they needed to develop further.

"Even though my preferred method of communication is face to face, it is important I do not rule out other modes. Given the geographically diverse organisation I work within and the differing time zones, I must maintain flexibility in how I am able to communicate with people." (005) … "not having 'face time' however is reflective of my current work environment where members are geographically dispersed so I view this (voice only SKYPE) as a good experience in developing my coaching skills via this mode." (011) … I am glad I had the opportunity to practice this type of arrangement in a non-work environment because it is likely I will need to undertake a remote coaching role at some stage if I stay with my current employer." (016)

Discussion

The literature talks about how tech-savvy today's students are and how they are more technologically literate than their instructors (Harris & Rea, 2009). Prensky (2001) refers to these tech-savvy individuals as 'digital natives' because they have grown up with technology. In contrast, older instructors are likely to be considered 'digital immigrants' because they have had to learn and adapt to technology. (Prensky, 2001). While today's post-graduate business student is likely to be more 'native' than 'immigrant,' there is a risk in assuming that the use of technology and software in daily life will transfer to learning situations with specific learning outcomes (Pittaway, Downing, & Osborne, 2010). Making these assumptions can be a recipe for disaster (Bart, 2011) and the findings of this research

appear to lend further support to these views. Furthermore, the purpose of this research: to explore how post-graduate students used ICT to support their virtual peer coaching has revealed that technology was not used to its full benefit.

One of the major concepts that emerged across the technologies was the issue of media richness to support high quality VPC interactions. Research has indicated when a combination of technologies are used, e-mentoring relationships are strengthened (Murphy, 2011). Applying this to virtual coaching, using e-mail and asynchronous communication tools to exchange information, to set up meeting times, and to forward pre-reading was appropriate. When engaged in coaching, ICT that enabled full audio-visual contact was more appropriate because of the media richness it offered—provided there were no issues with connectivity. Coaching that used e-mail instead of more media rich tools resulted in very different coaching outcomes in one study (Clutterbuck, 2010). As a result, individuals that use ICT to support coaching must use the communication technologies strategically in order to achieve outcomes in line with their expectations (Moreme, 2013). This suggests that students and perhaps even coaching practitioners and their recipients of coaching, need to understand ICT more fully and how it moderates and affects coaching outcomes for both parties.

The students expressed many concerns about the lack of media richness associated with text only or audio only communication. It was not entirely clear why they did not progress to more media-rich platforms where they could use webcams. In some cases it stemmed from not having a webcam, access to high speed internet because of geography, or not having smart phone technology that would enable face to face audio-visual communication such as FaceTime on iPhones. In some cases attempts were thwarted by software and operational difficulties. This is where stronger guidelines and recommendations are needed to support students (Headlam-Wells, Craig & Gosland, 2006; Rowland, 2012) as understanding and skill in using ICT to support coaching is a requisite (Clutterbuck, 2010; Moreme, 2013). These issues become even more pronounced in online delivery, particularly with students in countries where access to hardware and high speed broadband is an issue. Students from these countries may be even more unfamiliar with using ICT and associated software applications within an educational context.

The literature suggests that training in electronic arts is important in order to use communication technologies well (Headlam-Wells et al., 2006; Rowland, 2012) and to achieve success and program outcomes (Zey, 2011) even though electronic communication is used in daily personal and professional practice (Murphy, 2011). Instructors also need to understand the communication technology deeply, how it might affect student learning, and structure the learning experience so students use the technology successfully (Proserpio & Gioia, 2007). This may be difficult for instructors who are considered digital immigrants (Prensky, 2001) and may be part of the reason students don't necessarily use ICT appropriately.

Other reasons for not shifting or using more advanced forms of communication technologies to support their VPC may find explanation in the Technology Acceptance Model (Davis, 1989) and the Task-Technology Fit Model (Goodhue & Thompson, 1995). The Technology Acceptance Model notes that the perceived usefulness of technology and the perceived ease of use of technology are variables that influence technology adoption and usage. The model is well accepted in the literature and is a valid predictor of computer software use. Students who used technologies such as telephone or e-mail or live chat either may have stayed with those mediums because they were easy to use and useful enough for achieving the learning outcomes. Because the more advanced technologies were less easy to use they were likely not adopted. The Task-Technology Fit Model is based on the idea that tasks and technology need to be compatible. Students may have felt that the coaching task could be done easily by using less complicated forms of technology. In order to increase task-technology fit, the instructor recognized the need to provide more detailed and expansive guidelines to the students. For instructors who are digital immigrants, it may be possible that some of their own incapacity in using ICT may be leading to poor adoption by the students.

There may also be other reasons students did not move to more advanced audio-visual communication. They may have remained with the same media despite its low efficacy, because they only

had three VPC sessions to complete and it may have been too difficult to try and learn and develop competency in a new media within the confines of the assignment. Had the VPC been longer it may have led to more advanced adoption and usage of more complex communication technologies. Students who used the lower media-rich tools may have also used these because they were more superficial learners (Biggs, 2003) and just chose an easy medium to complete the assignment.

Many of the students who started off with these tools became frustrated with them and started to move to more media-rich tools. Several experienced technical difficulties such as slow internet speeds leading to lags in communication, bad internet connections in remote areas and software issues with Blackboard Collaborate. These technical difficulties may have been due to poor skills in using the software or genuine technical issues at the time.

Some students expressed a desire to move on to more media rich tools to enhance the VPC experience. This finding is supported in the literature which found that as bonds increased between individuals communicating virtually, they used more media to communicate with one another—a term called media multiplexity (Haythornwaite, 2011). In other words, by combining different media forms into an e-mentoring experience, relationships may be more successful (Rowland, 2012). This was evident in the comments made by students who used multiple forms of media to support their virtual peer coaching. This suggests that students—and professional coaches for that matter—who use ICT in support of coaching should use multi-layered approaches. For example, use email, telephone and full audio-visual software tools interchangeably based on the objectives they are seeking to achieve in the coaching.

What is interesting is that 'what' the students were trying to communicate did not differ by mode of media. They were all trying to ask coaching questions, answer them, build their relationship and assist their peers to progress in their development plans. The telephone was used in different ways to support the VPC in comparison to Skype; for example: e-mail and asynchronous discussion offers more time for reflection and thinking before a response is made (Akin & Hilbun, 2007; Daft & Lengel, 1986) which may be very appropriate for coaching. These mediums are also good for sending information, sharing documents, setting up meetings and discussing content (Purcell, 2004). That said, Purcell argues it is not a good medium for providing feedback or exploring ideas which are important parts of building a relationship, and many of the students' comments echoed this fact. E-mail and chat may also contain grammar and punctuation issues and abbreviations which interfere with communication. Ideally, telecommunications should be used initially to build the relationship instead of e-mail if virtual face-to-face means are not possible (Haythornwaite, 2011). Several students relied solely on e-mail and from the comments provided, consequently did not have the best experience. Integrating media may be the most appropriate strategy for building successful VPC relationships (Headlam-Wells et al., 2006; Purcell, 2004)

Recommendations

Students had difficulties selecting the appropriate ICT and using it effectively. Hence, students would benefit from having information on communication technology selection, tip sheets on how to use the technology, and guidelines for virtual communication to ensure educational objectives and learning outcomes are met (Haythornwaite, 2011). This would help to reduce what appears to be an ongoing issue with technology adoption and usage in online learning (Proserpio & Gioia, 2007). The guidelines developed in response to the findings of this research are attached in the appendix. Hopefully these guidelines will assist other instructors to create better student support when using ICT in their courses.

Some students also lacked the processes and conventions for managing online communication (Headlam-Wells et al., 2006), such as how to listen more effectively and how to manage virtual conference calls. Guidelines on how to communicate in virtual teams and in pairs would also be useful along with practice prior to the advent of the virtual peer coaching sessions.

It was also very clear from students' comments that the loss of face to face contact (Rowland, 2012) and the reduction in communication richness (Aoun et al., 2012; Zey, 2011) was problematic when

telephone, e-mail or virtual chat (audio) were employed (Haythornwaite, 2011). The use of a webcam to support full audio-visual conferencing was seen as a very effective solution for those students who used this technology. It offered the type of media richness described in the literature that would support successful virtual peer coaching (Daft & Lengel, 1986).

Limitations

There are several limitations associated with this research. First, it does not encapsulate all forms of virtual communication technologies. There are many software programs and mobile device applications that are being used to support virtual communication. Keeping up with these can be very difficult. This study only looked at what would be commonly used by most students enrolled in an online course that are dispersed geographically. Secondly, the focus of this study was on how students used communication technologies. It is important to acknowledge that there are different issues that emerge in e-coaching when multiple parties (three or more) are involved in comparison to only two parties. Some of these were apparent in the outcomes of this study, for example, how can you visualize all three parties during a coaching session and how do you manage pacing and speaking intent when there are more than two people on line with no visual contact.

Conclusion

Information communication technology continues to revolutionize how human beings interact and communicate with one another. Eventually, these communication formats find their way into the educational environment especially if learning occurs in an online format. Research suggests virtual coaching can be effective if the communication technology is used effectively by all parties, and if these parties are very clear of the intent behind the sessions (Boyce & Clutterbuck, 2011; Boyce & Hernez-Broome, 2010; Clutterbuck, 2010; Moreme, 2013) The technology has to be able to provide a solution to reach the agreed upon coaching outcomes.

This research has demonstrated that post-graduate students did not use communication technologies appropriately or to their full effect as part of a VPC exercise to support their coaching and leadership development. This had a negative impact on the cohort achieving the educational objectives set by the instructor. Therefore, the need for best practice guidelines and trouble-shooting support is necessary when using ICT to support learning in situations such as e-coaching. Otherwise, students may use technology inappropriately and not receive the full benefit of their learning in a course. Educators should not shy away from using e-coaching in their courses, but must recognize that there are specific outcomes associated with this type of coaching and a set of competencies users need to have in order to make the experience effective. These considerations need to be built into the course experience and may involve additional training and preparation.

References

Akin, L., & Hilbun, J. (2007). E-mentoring in Three Voices. *Online Journal of Distance Learning Administration, 10*(1), 1.

Aoun, S., Osseiran-Moisson, R., Shaid, S., Howat, P., & O'Connor, M. (2012). Telephone Lifestyle Coaching: Is It Feasible as a Behavioural Change Intervention for Men? *Journal of Health Psychology, 17*, 227.

Arbaugh, J. (2005). Is There an Optimal Design for On-Line MBA Courses? *Academy of Management Learning & Education, 4*(2), 135-149.

Argyris, C. (1991). Teaching Smart People How to Learn. *Harvard Business Review, 69*, 99-109.

Bart, M. (2011). Teaching with Technology; Tools and Strategies to Improve Student Learning *Faculty Focus Special Report* (Vol. January, pp. 1-18). Wisconsin.

Baym, N. (2009). A Call for Grounding in the Face of Blurred Boundaries. *Journal of Computer-Mediated Communication, 14*(3), 720-723.

Bierema, L., & Merriam, S. (2002). E-mentoring: Using Computer Mediated Communication to Enhance the Mentoring Process. *Innovative Higher Education, 26*(3), 211-227.

Biggs, J. (2003). *Teaching for quality learning at university* (2nd ed.). Buckingham: Open University/Society for Research into Higher Education.

Boud, D. (1988). How to help students learn from experience. In K. Cox & C. Ewan (Eds.), *The Medical Teacher* (pp. 68-73). London: Churchill Livingstone.

Boud, D., & Edwards, H. (1999). Learning for practice: promoting learning in clinical and community settings. In J. Higgs & H. Edwards (Eds.), *Educating Beginning Practitioners: Challenges for Health Professional Education* (pp. 173-179). Oxford: Butterworth-Heinemann.

Boyce, L., & Clutterbuck, D. (2011). E-Coaching: Accept it, It's Here, and It's Evolving! In G. Hernez-Broome & L. Boyce (Eds.), *Advancing Executive Coaching: Setting the Course for Successful Leadership Coaching* (pp. 285-315). San Francisco: Jossey-Bass.

Boyce, L., & Hernez-Broome, G. (2010). E-Coaching: Consideration of Leadership Coaching in a Virtual Environment. In D. Clutterbuck & Z. Hussain (Eds.), *Virtual Coach, Virtual Mentor* (pp. 139). USA: Information Age.

Brown, P. (2008). A Review of the Literature on Case Study Research. *Canadian Journal for New Scholars in Education, 1*(1), 1-13.

Byrne, M. (2009). Evaluating the findings of qualitative research. *AORN Journal, 73*(3), 703-706.

Clutterbuck, D. (2010). Welcome to the World of Virtual Coaching and Mentoring. In D. Clutterbuck & Z. Hussain (Eds.), *Virtual Coaching, Virtual Mentoring* (pp. 3). USA: Information Age.

Creswell, J. (2003). *Research Design: Qualitative, Quantitative and Mixed Methods Approaches* (2nd ed.). Thousand Oaks CA: Sage Publications Inc.

D'Abate, C., Eddy, E., & Tannenbaum, S. (2003). What's in a name? A Literature-Based Approach to Understanding Mentoring, Coaching, and Other Constructs That Describe Developmental Interactions. *Human Resource Development Review, 2*(4), 360-384.

Daft, R., & Lengel, R. (1986). Organizational Information Requirements, Media Richness and Structural Design. *Management Science, 32*(5), 554-571.

Davis, F. (1989). Perceived Usefulness, Perceived Ease and Use and User Acceptance of Information Technology. *Management Information Systems Quarterly, 13*, 319-349.

De George-Walker, L., & Keeffe, M. (2010). Self-determined blended learning: a case study of blended learning design. *Higher Education Research & Development, 29*(1), 1-13.

Ellis, R., Ginns, P., & Piggott, L. (2009). E-learning in higher education. Some key aspects and their relationship to approaches to study. *Higher Education Research and Development, 28*(3), 303-318. doi: 10.1080/07294360902839909

Golafshani, N. (2003). Understanding reliability and validity in qualitative research. *The Qualitative Report, 8*(4), 597-607.

Goodhue, D., & Thompson, R. (1995). Task-technology fit and individual performance. *Management Information Systems Quarterly, 19*(2), 213-236.

Hall, R., Watkins, S., & Eller, V. (2003). A Model of Web-based Design for Learning. In M. Moore & W. Anderson (Eds.), *Handbook of Distance Education* (pp. 367-376). Mahwah, NJ: Lawrence Erlbaum Associates.

Harris, A., & Rea, A. (2009). Web 2.0 and Virtual World Technologies: A Growing Impact on IS Education. *Journal of Information Systems Education, 20*(2), 137-144.

Haythornwaite, C. (2011). Social Networks and Internet Connectivity. *Information, Communication and Society, 8*(2), 125-147. doi: 10.1080/13691180500146185

Headlam-Wells, J., Craig, J., & Gosland, J. (2006). Encounters in Social Cyberspace: E-mentoring for Professional Women. *Women in Management Review, 21*(6). doi: 10.1108/09649420610683471

Honey, P., & Mumford, A. (1987). *A Manual of Learning Styles*. Maidenhead, UK: Honey Publications.

Johnson, C., & Spicer, D. (2006). A case study of action learning in an MBA program. *Education and Training, 48*(1), 39-54.

Kerka, S. (1996). Journal writing and adult learning. *Available: ERIC Digest 174*.

Khan, A. (2010). *Virtual Mentoring: A Quantitative Study to Measure the Effectiveness of Virtual Mentoring Versus Face-to-Face Mentoring.* (Ph.D.), Capella University, Ann Arbor, MI. (UMI 3404631)

Kolb, D. (1984). *Experiential Learning: Experience as the source of learning and development.* Englewood Cliffs, New Jersey: Prentice-Hall.

Ladyshewsky, R. (2007). A Strategic Approach for Integrating Theory to Practice in Leadership Development *Leadership and Organization Development Journal., 28*(5), 426-443.

Ladyshewsky, R. (2010). The Manager as Coach as a Driver of Organizational Development. *Leadership and Organizational Development Journal, 31*(4), 292-306.

Ladyshewsky, R., & Ryan, J. (2006). Peer Coaching and Reflective Practice in Authentic Business Contexts: A Strategy to Enhance Competency in Post-Graduate Business Students. In A. Herrignton & J. Herrington (Eds.), *Authentic Learning Environments in Higher Education* (pp. 61-75). Hershey PA: Idea Group Publishing.

Ladyshewsky, R., & Varey, W. (2005). Peer Coaching: A practical model to support constructivist learning methods in the development of managerial competency. In M. Cavanagh, A. Grant & T. Kemp (Eds.), *Evidence-Based Coaching: Volume 1; Theory, research and practice in the behavioural sciences* (pp. 171-182.). Bowen Hills, Qld: Australian Academic Press.

Meister, J., Kaganer, E., & Von Feldt, R. (2011). 2011: The Year of the Media Tablet As a Learning Tool. *Training and Development, 65*(4), 28-31.

Millson, M., & Wilemon, D. (2008). Educational Quality Correlates of Online Graduate Management Education. *Journal of Distance Education, 22*(3), 1-18.

Moreme. (2013). White Paper on Virtual Coaching and Mentoring: The value of coaching and mentoring over distance. https://www.moreme.com/blog/wp-content/uploads/2013/07/White-paper-Virtual-Coaching-Final.pdf

Murphy, W. (2011). From E-Mentoring to Blended Mentoring: Increasing Students' Developmental Initiation and Mentors' Satisfaction. *Academy of Management Learning & Education, 10*(4), 606-622.

Pittaway, S., Downing, J., & Osborne, P. (2010). Guidelines for Online Facilitation. In U. o. Tasmania (Ed.), (pp. 1-10). Tasmania: Univesity of Tasmania.

Prensky, M. (2001). Digital Natives, Digital Immigrants. *NCB University Press, 9*(5).

Proserpio, L., & Gioia, D. (2007). Teaching the Virtual Generation. . *Academy of Management Learning & Education, 6*(1), 69-80. doi: 10.5465/AMLE.2007.24401703

Purcell, K. (2004). Making e-mentoring more effective. *American Journal of Health-Systems and Pharmacy, 61*(February), 284-286.

Quinn, R., Faerman, S., Thompson, M., McGrath, M., & St. Clair, L. (2011). *Becoming a Master Manager: A Competing Values Approach* (5th ed.). New Jersey: Wiley.

Rowland, K. (2012). E-Mentoring: An Innovative Twist to Traditional Mentoring. *Journal fo Technology Management and Innovation, 7*(1), 228-237.

Schon, D. (1991). *The Reflective Practitioner: How Professionals Think in Action*. London: Ashgate Publishing Ltd.

Yin, R. (1994). *Case Study Research Design and Methods* (2nd ed.). Thousand Oaks CA: Sage Publications.

Zey, M. (2011). Virtual Mentoring: The Challenges and Opportunities of Electronically-Mediated Formal Mentor Programs. *Review of Business Research, 11*(4), 141-152.

Appendix

Research has demonstrated that students do not necessarily use information communication technology (ICT) appropriately or to its full advantage when pursuing specific educational objectives. While we may feel we are competent in using our day to day communications technology to conduct our personal affairs, when trying to achieve specific educational outcomes, technology might have to be used in a more strategic manner.

Students enrolled in this course may find this information of benefit to ensure they start their peer coaching assignment successfully. An important aspect of using the technology is to obtain media richness so you can communicate more deeply and comprehensively. By having full audio and visual communication, it is much easier to read body language, respond to facial cues and interpret messages. This is important for a rich coaching experience. Please review the following forms of ICT before making a decision on how to structure your virtual peer coaching experience.

I would recommend you experiment with the technology BEFORE you start your first formal peer coaching session to work through any learning and technical issues.

EMAIL: This technology is good for exchanging background information about each other prior to the start of coaching. It is also good for sharing documents or reports for review prior to a meeting, to confirm coaching times and other administrative aspects of managing the coaching session.
It is not a good medium for engaging in an actual coaching session as visual and verbal clues are lost and the possibility of misinterpretation increases. Only in a situation where there is no other means to communicate should email be used as the 'live coaching' tool.

TELEPHONE (Traditional or Mobile): While this technology can be used for live coaching it does not provide access to visual cues, only verbal intonation. Hence, it is possible to lose important information that may be helpful in the coaching session. Feedback suggests this medium is ineffective for a good coaching experience. Again, if all other forms of technology fail or there is no access to the internet, then you may need to use telephone. If your peer coach is overseas and long distance charges apply, here are some products you can use over the internet/wifi to communicate freely.

- **OVERSEAS TELEPHONE CALLS:**
  - **VIBER** http://www.viber.com/

This smart phone APP enables you to speak to each other via a WIFI connection without incurring a telephone or long distance charge.

  - **SKYPE** http://www.skype.com/en/

This APP/Software can be used as a telephone medium via WIFI is you are in different countries and want to avoid long distance charges.

SMARTPHONE TECHNOLOGY:

- **TEXT MESSAGING** should be used in much the same way as email, in particular, for confirming times and other administrative aspects of managing the coaching session.

o **FREE OVERSEAS TEXTING:** - smartphone APPS such as

- **VIBER** (see above)
- **WHATSAPP** http://www.whatsapp.com/

Both of these APPS enable you to exchange text messages via WIFI if your coaching partners are overseas. This is free and does not incur a text messaging or overseas message charge.

- **AUDIOVISUAL APPLICATIONS**

o **SKYPE MOBILE**

http://www.skype.com/en/download-skype/skype-for-mobile/

can be used successfully as a virtual coaching tool as it offers full audiovisual communication with your peer coach.

o **FACETIME** http://www.apple.com/ca/ios/facetime/

If you have an apple iPad, iPhone, iPod touch or MAC you can make face to face audiovisual calls to another person with the same device with a WIFI connection.

o **Google Hangout** http://www.google.com/+/learnmore/hangouts/

You can use this APP/Program to make a live video call with up to 10 people.

SOFTWARE PROGRAMS

- **SKYPE** http://www.skype.com/en/

Skype is a very affordable software tool that can enable you to communicate directly with others via a good WIFI or Internet Connection. Both audio and visual communication provides for a rich media experience. When using SKYPE it is important to use both the microphone and WEB CAM so you can hear and see each other during coaching.

Feedback from students suggests that this provides the richest coaching experience. It also has a low technology failure ratio so it is generally very reliable when used.

SKYPE enables team coaching to occur. In other words three or more participants can participate in the coaching with full audio and visual dimensions. The website offers a tutorial and with advanced membership also enables you to record and save the meeting.

- **GoToMeeting** http://www.gotomeeting.com/online/

This is a software program you can use for a one month free trial, otherwise there is a monthly cost to use this software. The software enables you to run a meeting and to invite one or more other individuals (who don't have to purchase the software) and allows for full audiovisual communication. You can also share a desktop and work on a document collaboratively. Parties can log in via telephone (although you don't have visual if you use this aspect) or via their internet with webcam (which provides visual communication).

The website above provides a walk through tutorial

- **WEBEX** www.webex.com

This is a video conferencing program that enables live audio-visual virtual conferencing, including sharing of desktop, whiteboard and documents. It can be delivered across a range of platforms. It offers a FREE license to run WEBEX meetings for up to 3 people per meeting which makes it a good option if you're in a triad peer coaching arrangement and want to teach coach. This link provides an overview and training in how to use the software. http://www.webex.com/products/elearning-and-online-training.html

BLACKBOARD COLLABORATE

This unit has a 24 x 7 open Blackboard Collaborate site where students can log into and communicate with one another. The link is located on the left hand menu in your Blackboard Unit. This software can provide for audio-visual communication.

The software is rather complex so technical issues are more common place than using other software programs or APPS noted above.