Telesupervision Benefits for Placements: Allied Health Students' and Supervisors' Perceptions

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Abstract

Telesupervision (TS) uses Information and Communication Technology (ICT) for communication between university-based staff, clinical supervisors and students undertaking placements in the presence or absence of a clinical supervisor onsite. Despite examples of successful implementation (Carlin 2012, Chipchase *et al.* 2014, Dudding and Justice 2004, Hall 2013) there has been minimal uptake of TS in allied health. This study investigated students' and clinical educators' perceptions of the potential benefits and barriers of TS using readily accessible ICT during placements. During 2014-2015, telesupervision/telesupport was provided to a total of 54 Undergraduate and Graduate Entry Masters students from Speech Language Pathology (SLP), Occupational therapy (OT) and Physical therapy (PT) programs at one Australian and two Canadian universities and Exercise Physiology (EP) students at the Australian university. After receipt of TS, 39 students completed an online survey. Nine participating university-based clinical education coordinators (CECs) were interviewed about their experiences. Survey data were analysed using descriptive statistics and interview data were analysed using thematic analysis. Students valued regular TS contact/communication with their CEC to discuss challenges that arose during their placements. CECs believed students benefitted from the opportunities to discuss their placement experiences through TS sessions used for direct supervision and/or for complementing onsite supervision. Students used TS sessions to debrief and reflect on their placement experiences. CECs gained a better

understanding of the students' placement experiences. TS has the potential to develop greater connection between students and CECs and enhance student and supervisor experience of clinical education.

Keywords: allied health; placements; telesupervision; telesupport

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Introduction

We define Telesupervision (TS) as the use of ICT for communication between university-based staff, clinical supervisors and/or students undertaking placements in the presence or absence of a clinical supervisor onsite. TS is attracting interest as an alternate or supplementary method of supporting students during off-campus placements. Dudding (2012) states that TS can involve *a)* direct observations of student and client interactions using distance technology; *b)* students and their clinical educators consulting about students' experiences using ICT; and *c)* clinical educator review of video, data or other materials and then providing feedback or discussion through email or video/audio-conferencing. Some studies suggest that TS has similar outcomes, or at least no negative impact, on students' capacity to develop and demonstrate professional competence in comparison with traditional models of supervision (Chipchase *et al.* 2014, Dudding and Justice 2004, Reese *et al.* 2009).

Developed countries such as Australia and Canada with low population density and vast areas to service have benefitted from adoption and application of telehealth care systems and e-health approaches to healthcare (Australian Government 2011, Theodoros *et al.* 2006). However, the adoption of ICT to supervise health students on distant placements is still largely unrealised. There are several possible reasons for this. Firstly, very few studies have explored or quantified the effectiveness of TS in health programs to support student learning during distant placements. For example, conclusive evidence suggesting that there is cost and time effectiveness of communication using TS for clinical education is still lacking. Some evidence is starting to emerge indicating that there are benefits of using mobile technologies during clinical training (Lee *et al.* 2008, Vyas *et al.* 2010) to support professional development of health professionals working in remote areas in addition to using such technologies to reach remote and regional communities. For example, a US study (which used a TS model of supervision) of interns in remote areas reported high levels of satisfaction and feelings of reduced isolation amongst interns (Reese *et al.* 2009). Secondly, not all telehealth systems are suitable for supporting clinical supervision for reasons such as cost and lack of access for students and university-based clinical educators. Development of new and different models of TS approaches that can be customised to address the needs of distant placement contexts, students and supervisors is essential (Jones, McKenzie, and Wong 2010). For example, could we use readily available ICT tools and technologies already held by staff and students to provide/receive TS? Such approaches have not been explored adequately in health disciplines. Studies exploring TS in allied health will allow us to establish if staff and students can access portable, readily available technologies, and if TS is as effective as traditional (face-to-face) supervision.

Our study used TS to support supervision of students on placements remote from their university campus. Students and staff used low-cost ICT devices that they already had access to, thus eliminating the need for expensive infrastructure such as videoconferencing equipment. The purpose of the study described in this article was to:

a) understand barriers and challenges to using ICT tools (e.g. iPads/iPhones/ laptops) and technologies (e.g. Skype™) for TS during allied health placements;

b) understand allied health student and clinical education coordinators' (CEC) experiences of TS; and

c) identify benefits of TS to students and CECs.

A previous conference paper by the authors (Nagarajan *et al.* 2015) reported on the interim study findings based on data collected during 2014 through student surveys and clinical educator interviews from Speech Language Pathology (SLP), Occupational therapy (OT) and Physical therapy (PT) disciplines at the three universities. The findings discussed in this paper are derived from our final analysis of the qualitative data collected during 2014 and 2015 through student surveys and clinical educator interviews from the three disciplines. Additionally, analysis of 2015 Exercise Physiology (EP) discipline students and CEC interviews are also included.

Study details

This study explores TS in three universities in Australia and Canada in SLP, OT, PT and EP programs. The majority (9 out of 10 programs) had not previously utilised TS. In this study, students and their clinical educators communicated about student experience and competency development. TS was not used to observe direct clinical interactions and clinical educators did not review video, data or other materials using ICT. Students were involved in a variety of placement types, ranging from 4 to 8 weeks' duration, providing care to diverse groups of patients. Placements included local, interstate or international sites in rural, regional, and metropolitan contexts. In all cases, students received onsite supervision either from a supervisor from their own discipline or another allied health discipline while also receiving TS.

Methods

In 2014-2015, students from SLP, OT, PT and EP at the participating universities were invited to receive TS. Convenience sampling was used to recruit from a variety of placement contexts. Placement administration staff emailed invitations to selected students with the contact details of the local researchers. Interested students contacted the researcher for further study information, participation requirements and to provide consent. A combination of one to one or group TS was used, and the choice of supervision model was dependent on placement context and needs. EP students at one site received TS as a group while the other students (example, PT) received TS on an individual basis. Some SLP and OT students on international placements also received TS in small groups when students were located at the same site. TS was provided by university-based CECs who were also recruited to participate in this study. Ethics approvals were obtained from participating universities in Australia and Canada. Skype™, Google® Hangouts, Cisco® WebEx and Apple® FaceTime were typical applications used for videoconferencing. Information regarding methodology, recruitment procedures, profile of participants, placement details and data collection and analysis approaches used is summarised in Table 1.

The online student survey was hosted by the lead university's survey management system known as RedCap™. A link to this survey was forwarded in an email to all students who received TS. The survey asked students about the ICT technologies and tools they used to receive TS; ease of access and proficiency of use of ICT technologies and tools; barriers, difficulties, and challenges they encountered in using ICT technologies and tools; benefits of using ICT during placements; ratings for interest in using ICT applications during placement with reasons for interest or lack of interest and suggestions and ideas for improving TS in the future. Survey data were analysed using *a)* descriptive statistics (example, proficiency of use of ICT tools) and *b)* thematic analysis responses to open-ended questions (example, benefits of TS). The lead author read each open-ended response, and assigned a code that reflected the main message of the response. For example, the response to a question (What did you find helpful or useful about the use of ICT in clinical placements?), '*It was nice to be able to talk out an issue rather than writing out a long winded e-mail. It's also nice not to have a paper trail if you want to talk about something of a sensitive matter*' was assigned a code of '*videoconferencing more suitable for communication with supervisor than email*'. Similar codes were grouped together to form categories and similar categories grouped together to form a major theme (example, v*ideo conferencing better option for communication than email*). Two additional authors reviewed the coding and agreed to emerging categories and themes. A group discussion then occurred during monthly teleconferences amongst the other authors to confirm emerging themes. Tables of frequencies and column graphs of percentages were generated to summarise the survey data (Nagarajan *et al.* 2015).

Table 1: Summary of project methods and procedures

Project Methods	Summary of procedures and approaches used
Methodology	• Quantitative (Online student surveys) • Qualitative (Semi-structured interviews with CECs)
Student participants	• Undergraduate and Graduate Entry Masters students from SLP, OT and PT at one Australian and two Canadian universities. Additionally, EP students from the Australian university • Locally accessible student placement databases for placement allocation for identifying student cohorts
Telesupervisor participants	• CECs from SLP, OT and PT from all three universities • EP CECs from Australian university
Recruitment process (students)	• Students at sites that were suitable for TS identified by the CECs • Placement administration staff emailed invitations to the identified students • Local researcher contact details included in the invitations • Local researchers managed consenting process
Recruitment process (CECs)	• CECs from SLP, OT, PT and EP from all three universities were invited by the lead author to participate in the study • CECs who consented were recruited
Placement details	• Duration (ranged from 4-8 weeks) • Location (local, interstate, international) • Contexts (rural, regional, metro, international) • Supervision mode (distance, face-to-face, combination, onsite supervisor, locally contracted supervisor from private practice or another university academic) • Settings (hospital, non-hospital, community, school-based or role-emerging)
Sampling (student)	• Convenience sampling • Sample size varied between supervision model, contexts and the four disciplines
Student sample characteristics	• N= 54 students received TS • Includes – *a).* Students who do not normally receive TS while on placements; *b).* Students who normally receive TS while on placements (only applies to OT students from Canadian University #2) • Onsite supervision from an allied health or non-allied health supervisor • Assessments conducted by onsite supervisor in consultation with the university-based CEC • Students used their own mobile ICT device for receiving TS; choice of using freely available videoconferencing software for receiving TS • Reimbursement up to $15 (Australian) or Canadian equivalent for students incurring a cost for using their own mobile devices for receiving TS
Telesupervisor sample characteristics	• N=9 (2 from SLP, 4 OT, 2 EP, 1PT)
Data collection (students)	• Online survey link emailed to students by placement administration staff • Seventy-two percent (N=39) completed an online survey at the conclusion of TS sessions
Data collection (CECs)	• Nine university-based CECs were interviewed about their experiences providing TS • Seven were interviewed by the lead author (face-to-face on-campus) and two by another co-author (via teleconference) • Semi-structured interviews ranged from 45-60 minutes
Data analysis approach	• Descriptive statistics (student surveys) • Thematic analysis (CEC interviews and open ended responses from online student surveys)

CECs were asked about changes to their attitudes towards providing telesupervision (before/after experience), level of confidence with using ICT before/after telesupervision, challenges encountered with using ICT technologies, perspectives on how students benefitted, beliefs about impact on student learning outcomes and rationale for their response, the impact telesupervision had on their workload, and any suggestions they had for implementing telesupervision in their disciplines.

CEC interview data were analysed using thematic analysis steps proposed by Braun and Clarke (2006). Each interview was transcribed and analysed collaboratively by at least two co-authors who did not provide telesupervision to students. For example, a CEC response regarding benefits of telesupervision, '*I think if there's a student having trouble, on a face to face I'm going to hear that in their voice, I'm going to see that, I'm going to be able to probe. I think, in the long run…,I think it's going to be better for me in terms of getting the information I need about what's happening there for the student'* was coded as 'Personal relationship during TS more conducive to seeking information needed' by one author and coded as 'Advantages of using TS for information gathering' by another author. All interviews were coded using a similar approach and agreement on codes was reached after discussion between the coding authors. A team of ten authors met in a combination of ways (visits to each other's universities, monthly teleconferencing sessions, and email conversations) during 2014 and 2015 to discuss coding, development of themes, and to reach consensus regarding codes, categories and final list of themes to be reported.

Our primary audience for this paper is allied health placement or fieldwork coordinators who have academic responsibility for placement programs and onsite placement supervisors. Only findings related to student and CEC perceived benefits and barriers are discussed in this paper. Detailed discussion of other findings, including limitations to using TS, is published elsewhere (Nagarajan *et al.* 2015).

Results

Student perceived benefits

Qualitative data analysis of textual data from student surveys identified four themes relating to enhanced learning experiences on placement and improved communication (see Table 2). Students perceived that the TS interactions with their CEC enhanced their learning experience by providing opportunities to reflect on their performance, debrief whilst still in the clinical setting, and discuss novel or challenging situations when they arose. Some students also reported that the TS increased their confidence and self-efficacy on placements.

Students reported that visual communication with their CEC using applications such as Skype was more beneficial than communicating purely by text (e.g. email) as it allowed for a deeper conversation. This was particularly important when the issue to be discussed was of high importance or of a sensitive nature. Students also believed that the TS enabled timely feedback on placement challenges and valued the feeling of connectedness with their university-based CECs. This was particularly important to students at international sites.

University clinical education coordinator perceived benefits

Four themes emerged from the qualitative analysis of interviews with the CECs regarding the perceived benefits to students and the CECs themselves. These are shown in Table 3 with illustrative quotes.

CECs perceived that TS provided the support and advice that students needed while they were on placements rather than after the event, enhancing student learning, and enabling provision of timely feedback to students to develop and manage their own practice. TS also allowed professional supervision of students on placements where a discipline-specific onsite supervisor was absent. CECs believed TS allowed them to gain a better understanding of students'

placement experiences. Similar to students, CECs also valued the depth of conversations they were able to have with students in comparison with limitations imposed by email. Some CECs perceived TS as an efficient way of communicating with students on placements because they were able to deal with student issues proactively.

Table 2: Major themes and sample student quotes

Theme	Sample student quotes
Enhanced learning experience on placements	*Especially for international placements, ICT are very useful. It provides a platform for students to be able to connect with people from their university to communicate ideas, provide support and advice.* [SLP, Canadian University#2]
	[TS sessions] definitely add value to the learning experience on placement … a guided learning experience is many fold more beneficial than an unguided learning experience. I felt that the guidance and weekly presence [of campus instructor via TS] of using ICT tools allowed me to have a more 'evidence-based' or 'scientific' approach rather than simply a 'clinical experience' approach. [PT, Canadian University#1]
	[TS] would allow for more opportunities for communication and dialogue, allows for supervisor + student to experience an environment or situation together; may improve student's confidence and push them to do more with comfort of easy access to supervisor. [OT, Canadian University#2]
Videoconferencing better option for communication than email	*It allows you to feel like you're not …bombarding them with emails. It also allows for richer discussions about experiences and a greater understanding of suggestions.* [SLP, Canadian University#1]
	If you don't really have any issues/questions/concerns to talk about, then skyping can be way more time consuming than just e-mailing your response. On the other hand, if there is an issue to discuss, I found talking it out on skype easier than e-mail. [SLP, Canadian University#1]
Timely feedback	*Speeding up the response time to queries from students Allowing more in depth conversations/explanations to occur that would otherwise require a face to face visit* [EP, Australian University]
	It adds value because it provides an opportunity to deal with issues in a timely fashion and it also provides extra support for challenging cases. [PT, Canadian University#1]
	Increasing timely feedback is important in managing clients. Also the increased support through increased level of contact …The flexibility in receiving feedback outside of typical practice hours is also an advantage. [EP, Australian University]
Feeling of connectedness	*There is an added level of support when you can connect with someone face-to-face; it feels as though when you hang up that you've just left their office.* [PT, Canadian University#1]
	Allows you to have a virtual contact with your home site to access the support you may need… a more personal connection. [OT, Canadian University#1]

Two common themes arose from our analysis of student and CEC qualitative data. Participating students and CECs expressed mutual feelings of connectedness to each other and perceived enhanced learning experience for students on placements. This suggests that telesupervision may be a valuable adjunct to student placement, regardless of whether the onsite supervisor is present.

Table 3: Major themes and sample CEC quotes

Theme	Sample CEC quotes
Enhanced learning experience for students on placements *[cont.]*	*In one case it probably did impact learning outcomes because it … helped the student feel confident that proceeding with that way of dealing with the conflict is effective. Once that was resolved and I heard via email follow up that it was - I think that student felt better about the whole situation, which probably improved her self-representation and her confidence.* [OT, Canadian University#1]

Theme	Sample CEC quotes
[*continued*] (perceived benefit to students)	*The once a week telesupervision session was additive to what would have happened otherwise and the fact that you're able to talk about different things… the students got together a bank of questions over the three days in between us going there on a site visit and we're able to get all those answered rather than having to wait until the following week, or do it over email.* [EP, Australian University] *I think it's absolutely critical. They absolutely need - without having an OT on site … they need someone to bounce ideas off…. … they need support, they need mentoring.* [OT, Canadian University#2] *I think it was towards the weeks four and five of their placement where they actually saw, oh Skyping can be of value, in that they were more ready to ask questions rather than me ask the questions to get the information out of them that they wanted* [PT, Australian University] *I mean a lot of the feedback that you give is around the learning outcomes, because that's what the student needs to achieve on placement. So you are commenting on their communication skills, their documentation skills, their ability to interpret exercise test data and if that feedback and then subsequent action is coming more regularly, then … it seems logical that the student's going to do better than if it was coming less regularly.* [EP, Australian University]
Greater understanding of placement experiences for CECs (perceived benefit to CEC)	*[The students] were far away from home and I really enjoyed seeing that they were safe and happy where they were. Even though they had said everything was fine, it was nice to see it first-hand.* [SLP, Canadian University#1] *Also they were storytelling with us and it was a chance to get excited with them, which is fun for us because we don't always get to do that. Sometimes with our jobs you get to hear all the tough stuff, right - in large volume, even though it's only a few students. It was an opportunity to share in their positive experience.* [OT, Canadian University#1] *So basically I'm getting an insight into the actual placement site, about what type of patients that the students are seeing, … which is very helpful to know if I need to place a student in a situation because they have had lack of that particular clientele. So I was able to see - well basically four sites, and have a real good feel about what was occurring at those particular places* [PT, Australian University]
TS an efficient way of communicating with students (perceived benefit to CEC and/or students)	*So our students were in pairs and we Skyped them in pairs as well. At times we had four students and it took us about 20 minutes to half an hour per session, so it definitely added time wise, but I do think it's a bang for your buck in the end because … we were able to maybe avoid problems later on. So I think the investment in time by doing it might actually save you time in the end rather than having to deal with a student afterwards* [OT, Canadian University#1] *I don't know if it's actually [saving] time but it's like one event to get the information I need from the student versus a couple of [emails to get] feedback. That's kind of nice, to be able to just do it and be finished.* [SLP, Canadian University#2]
Feeling of connectedness (perceived benefit to CEC and/or Students)	*But in absence of [onsite visits], [TS] would definitely be a good alternative because I do think for the students it is important to have that connection with the faculty, not only from that organisational perspective, but also from that personal perspective and a clinical perspective* [OT, Canadian University#1] *…[TS] it's a way to continue a relationship with me and I'm going to be following her in her next two placements as well.* [SLP, Canadian University#2] *So I don't get to see their faces or know them and so I found that this was a really good way for me to put names to faces and to start to develop a bit of a relationship with the students, especially in these first initial placements. So it wasn't so much the value of me providing supervision support as it was to start to develop a relationship, so that in the case that they did have any questions or needed to ask me anything it would be easier to do that.* [OT, Canadian University#1]

CECs also saw potential future uses for TS in their programs:

a) connecting with solo students from different placement sites and providing joint supervision sessions;

b) connecting students from different sites with each other so they could engage in some peer learning activities;

c) selectively using TS to monitor and support students experiencing difficulty or at risk of failing placements.

Perceived barriers to telesupervision

Although TS has many benefits, participants experienced barriers in using TS (see Table 4). These are discussed in detail in (Nagarajan *et al.* 2015). Technology-related barriers and lack of access to ICT at sites dominated student responses. CECs also cited technological barriers, however, they considered scheduling for TS sessions, a non-ICT barrier, as the most frequently encountered barrier.

Table 4: Perceived Barriers

Student Perceived Barriers	CEC Perceived Barriers
• Technological barriers (N=24) • Lack of access (N=11) • Scheduling difficulties (N=8) • Lack of privacy (N=1) • Lack of familiarity (N=2) • Compatibility issues with devices (N=3) • Absence of communication protocol (N=1) • Burden of carrying personal ICT devices (N=1)	• Scheduling TS sessions (N=9) • Workload implications (N=7) • Concerns about Time-Cost Benefit of TS (N=7) • Lack of confidence with using technology (N=3) • Technological barriers (N=4)

Discussion

Our study extends the knowledge of benefits in providing TS to students for CECs and illustrates that in an appropriate context, TS offers substantial support for students on placements. These findings are in line with similar studies which reported positive student outcomes and experiences resulting from TS. The benefit of using video technology for conversations with the CEC was valued by all the students, particularly when discipline-specific supervision was absent or minimal (Carlin 2012, Chipchase *et al.* 2014, Dudding and Justice 2004, Hall 2013). Students who participated in this study were undertaking placements in a variety of placement contexts and therefore presented with differing needs and specific challenges. Our data suggests that CECs adapted their TS sessions to suit the needs of the placement and student. Students and CECs discussed a variety of topics related to patients, the placement site, clinical supervision and personal issues. CECs used the TS sessions to guide students to learn from new situations they were facing on placements and to mentor them through challenging situations. Although the impact of TS on students' learning outcomes was not formally evaluated, students and CECs perceived that TS had a positive impact on the learning experience. Both students and CECs valued the feeling of connectedness that the TS provided, and the opportunity to debrief placement experiences in a way that cannot be easily accomplished over emails. CECs' understanding of the placement experiences of their students is vital information for pre-placement preparation of students as well as professional development (or mentoring) of onsite clinical supervisors.

Constructivist theories (for example, Vygotsky 1978) state that students need to be active learners and managers of their own learning by creating and understanding meaning from their own experiences with teachers assuming the role of a facilitator. Regular interactions with CECs (example, weekly debriefing while still on placements) during TS sessions provide students with the guidance they need to create such meanings, integrate knowledge with practice, and become a reflective practitioner (Kolb 1984). Although these theories are applicable to placements not requiring TS, our study results suggest that TS facilitates and may necessitate a student-focussed interactive and reflective learning environment, and can enhance the learning experience for students on placements.

TS is effective only when technological and scheduling barriers are overcome. Participants' familiarity with using ICT needs to be considered. Training and preparation of students and CECs for using ICT before adopting TS is necessary. An understanding of time and cost benefits of providing TS is also critical for success of TS in placement education.

Limitations and future work

Our study was limited by the small sample size and involvement of only four allied health disciplines from three universities. We acknowledge a bias in the student sample. Students who participated did so voluntarily, and hence it is possible that the study only captured the impressions of those who already saw potential benefits.

The study investigated the perceptions of students and CECs of the TS experience. We believe our work could be the basis for further research to measure the actual impact of TS on student learning outcomes. Future work should involve an increased number of allied health disciplines, and larger sample sizes of participants from a variety of placement types. The barriers in Table 4 need to be addressed for TS to be successful and sustainable.

Conclusion

This article provides an account of student and supervisor perceptions of the benefits of TS during placements. Taken together, the study findings suggest that TS can support student learning in specific contexts, and is perceived to enhance communication and the overall experience of placement education for both students and CECs.

Acknowledgements

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