

From in-person to online: University student and supervisor experience of delivering a telehealth exercise physiology clinic

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Telehealth healthcare service delivery requires unique competencies, as it remains a valuable healthcare service post-COVID, including clinical exercise physiology (CEP) contexts. As such, it is imperative health students develop telehealth skills, with this pilot research exploring CEP student and supervisor experience of co-delivering a telehealth clinic. A 5-point Likert scale (frequencies; students only) and open-ended questions (inductive content analysis) captured their perceptions. Students (n=9) reported valuable learning experiences (56% strongly agree enhanced learning), highlighting an enjoyable, transferable experience. All participants reported key improvements are needed in areas including technology and preparation time. For supervisors (n=5), themes related to telehealth advantages and disadvantages, and clinic facilitation elements. Even with a small sample size, this pilot study identified potential learning outcomes and challenges related to telehealth. Findings can be used to guide development of more sustainable future WIL programs, within and beyond CEP, to continue building future healthcare professionals comfortable and competent in telehealth service provision.

Keywords: Telehealth, placement, student-led clinic, clinical exercise physiology, supervision

BACKGROUND

In an age of significant technological advances, it is no surprise that such advances are influencing and expanding provision of contemporary healthcare. One such service provision example is telehealth, defined by the World Health Organization as the "delivery of health care services, where patients and providers are separated by distance" (World Health Organisation, 2016, p. 56). The COVID-19 pandemic rapidly advanced the employment and uptake of telehealth across various healthcare practice domains, such as general practice, exercise physiology, and psychology services (Jayawardana & Gannon, 2021; Owen et al., 2022; The Royal Australian College of General Practitioners, 2020). Post-return of more traditional in-person healthcare service delivery modalities, telehealth has gained prominence as a viable service provision option, particularly for population groups who have restricted access to in-person healthcare (e.g., individuals residing in rural or remote areas), or limitations in community access (e.g., individuals with severe or profound disabilities and/or older adults) (Caffery et al., 2022; Dykgraaf et al., 2022; Friedman & VanPuymbrouck, 2021). According to Deloitte's (2019) vision for the future of health, care will involve customer-centric health communities existing virtually

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and provide personalized wellness and care, encourage behavior change, and provide consumer education. Telehealth presents a valuable opportunity to fulfil this vision.

With the decision to continue subsidizing telehealth services in Australia across a range of primary and allied health professions, (Department of Health and Aged Care, 2021) equipping the current and future workforce with a broadened range of competencies, as well as willingness to engage, in telehealth is essential to ensure continuation of this valuable service provision model. Central to achieving this outcome is ensuring a quality experience in telehealth exists in university health programs. While telehealth in clinical education is still limited, it has presented as a valuable form of work-integrated learning (WIL). Example formats may include all parties (students, clients, and supervisors) video-conferencing in from their own locations, or students attending a clinic with a supervisor present (in-room or watching from another room) and the client video- or audio-conferences in for services (Martin et al., 2024). Further, models like telesupervision, where the student(s) and client may be on site but the supervisor conferences in, may provide an opportunity to expand health services. This opportunity includes expanding into locations often impacted by geographical and funding challenges where on-site supervision is unavailable, or enhancing interprofessional placement opportunities where certain disciplines may not be on-site but can provide ad-hoc virtual support (Carlin, 2012; Dudding & Justice, 2004; Rule & Kelchner, 2017; Salter et al., 2020).

Already, telehealth has been demonstrated to impart equitable learning experiences for university students in health and medical programs as compared to that observed in ‘typical’ face-to-face clinical education (Grady, 2011; Lee et al., 2018), including in more rural settings (Salter et al., 2020). As WIL is heralded for its ability to support student transition from university to workforce through development of diverse, transferable skillsets, WIL in the form of telehealth may present a viable option. Specifically, research has demonstrated engagement in telehealth services may also support development of unique skills such as flexible and adaptable delivery, resourcefulness, and diversity of communication and coaching skills (Bacon et al., 2023). These outcomes are in part due to the additional challenges telehealth may present, including clients who must rely on audio-only (e.g., telephone-based) service delivery or have their own technological barriers, and limiting video session delivery to a small space within the camera frame for patient safety (Jang-Jaccard et al., 2014). Further, student engagement in telehealth has been demonstrated to increase their appreciation of its potential effectiveness and widespread application opportunities (Martin et al., 2024; Salter et al., 2020; Serwe et al., 2020), which may influence integration into future professional practice.

However, central to providing both students and clients with effective, impactful telehealth experience are the health professional providing supervision. While much research has explored the student experience of telehealth in various health programs (e.g., Bacon et al., 2023; Patterson et al., 2024; Salter et al., 2020), limited research explores the supervisor experience, including how it may differ or align with the student experience and what barriers may exist to providing students with WIL telehealth opportunities (Krahe et al., 2021; Martin et al., 2024; Ross et al., 2022). This research is particularly limited in professions where a very ‘hands-on’ approach to supervision and practice is common, such as clinical exercise physiology (CEP).

Within Australia, CEP is a profession that designs and employs physical activity and behavior interventions for persons with chronic disease and disabilities, historically done through primarily face-to-face contact (Exercise & Sports Science Australia, 2024; Smart et al., 2016). While proficiency in telehealth service delivery has become an expected graduate outcome for CEPs following the COVID pandemic, universities are left to address this requirement within curricula as they deem best, with

little guidance on approach (e.g., format, hours, timing around external placement). For example, there is no specific minimum number of hours or guidance on whether this should occur before any external, in-person placements. This situation has magnified existing significant pressures and challenges already experienced around provision of practical experiences, as students must now obtain telehealth experience as well. While innovative service models such as online student-led university clinics may provide some opportunities for exposure (Bacon et al., 2023; Ruiz Colón et al., 2021), they can be costly, administrative-heavy, and resource- and equipment-limited (Buchan et al., 2021; Wynne & Cooper, 2021). Another opportunity to expand student telehealth exposure is to better equip current industry supervisors with the knowledge and confidence to deliver such services, not only increasing student WIL opportunities but also the practitioner's ability to expand client service options. However, doing so requires better understanding of what both students and supervisors view as challenges and opportunities of telehealth, particularly in a 'hands-on' profession like CEP.

As such, this pilot research sought to understand both the student experience of telehealth engagement, as well as that of the supervisors who are supporting and upskilling them. This collective case study did so by evaluating the experience of CEP students and supervisors participating in a co-delivered exercise physiology telehealth clinic. While the project was undertaken in the CEP setting, it is anticipated learnings will be transferable to various education and healthcare settings where telehealth is utilized, enhancing both the supervisor experience and service provision competency, as well as student learning.

METHODOLOGY

This pilot study used a quasi-experimental design, applying a post-program mixed-methods survey to evaluate student and supervisor experiences with WIL placement in the form of a telehealth CEP clinic. It took a collective case study approach in that it investigated multiple cases simultaneously, including those of students and supervisors, to better understand the telehealth experience. Instrumental case study aspects of this particular group were anticipated to generate information transferable to other telehealth and placement settings (Crowe et al., 2011). The telehealth clinic was co-delivered by five accredited CEPs and nine student CEP practitioners as a student placement, undertaken prior to industry-based, in-person placements (all students had completed 140 hours of 'healthy population' industry-based, in-person placements the year prior though). A detailed description of this clinic is under review elsewhere. Inclusion of students aimed to replace cancelled external, industry-based in-person clinical practicum experiences in response to the COVID-19 pandemic, with the purpose of replicating previously scheduled learning experiences and providing opportunities for students to meet the overall hour requirements for CEP accreditation purposes (minimum of 360 hours). As such, telehealth was completed prior to any industry-based clinical placements. Students were divided into three groups, with Group 1 and 2 assigned five clients each, and Group 3 assigned four clients each, due to number of clients recruited for each program block. Clients had one or more pathologies in the following clinical domains: musculoskeletal, cardiovascular, metabolic, cancer, neurological, pulmonary, renal, and/or mental health. While there were no specific inclusion criteria relating to the physical activity participation levels of the participating clients, it should be noted that opportunities to engage in previously established, routine exercise and physical activity programs were limited due to COVID-19 restrictions.

Students rotated through the clinic in three, six- to eight-week blocks, from April to August 2020. Session supervisors were CEPs recruited from the clinical team and academics teaching into the relevant degree program. Sessions included initial and final assessments, exercise prescription,

behavior change strategies, and relapse prevention strategies - consistent with face-to-face clinical practice. The clinic was facilitated over Zoom (Zoom Video Communications) and Microsoft Teams (version 1.5.00.33362). Telehab (VALD Health <https://valdhealth.com/>) was used as a means of providing exercise programs to the client. Each student group had a separate Microsoft Teams site, which was used as a means of sharing resources and case notes, facilitating immediate communication between supervisors and students for the purposes of navigating issues like client cancellations and changed appointments, as well as developing a community of practice where students were able to communicate regarding shared challenges.

Students also attended a weekly debrief session outside of scheduled client sessions, which were loosely structured around the following topics:

- Week 0 (started 1 week before the first client session): Designing an assessment program; delivering services through telehealth; SOAP note expectations; and Telehab (Vald, Brisbane QLD) demonstration.
- Week 1: Elements of prescription; exercise prescription via telehealth; and rapport building in online mediums.
- Week 2: Progressions and regressions of exercises; and timing of session delivery.
- Week 3: Cueing and practicing exercises; reflecting and referring models; behavior change strategies; and relapse prevention models.
- Week 4: Eliciting change talk; goal setting; and future planning.
- Week 5: Final session structure; empowering client ownership over exercise programs; and final report writing.

The results presented in this paper are part of a wider research project evaluating the client, student, and supervisor perspectives of the online clinic. All clients, students, and supervisors were asked to complete a post-clinic online survey, which included a combination of Likert and open-ended questions. The results of the student and supervisor clinic evaluations are presented in this paper. Outcomes relating to the client evaluation of the program are under review elsewhere.

The student survey consisted of 17 Likert questions, evaluating: preparedness and perceived expectations; clinic logistics and user-friendliness; perceived learning and behavioral outcomes including clinical skills and knowledge; supervisor and fellow supervisor support; and enjoyment. Three open-ended questions were included in the student survey related to perceived enjoyment, suggested improvements or adjustments for improved learning experiences, and additional comments regarding their experiences. For the supervisor evaluation, 17 open-ended questions focused on: advantages, disadvantages, and challenges of providing clinical services via telehealth; perceived improvements in student competencies, skills, and scope of practice; ease of use of online programs; and elements of program facilitation including safety, supervision, and suggested adjustment. A survey approach was taken instead of focus groups or interviews for a few key reasons. Firstly, this process ensured protection of respondent privacy, as research team members were part of the student teaching staff, as well as colleagues of many of the supervisors, with funding unavailable to support an independent interviewer. Further, during COVID it was common to observe 'Zoom fatigue' (Williams, 2021, p. 164), and as physical distancing would not allow face-to-face interviews/focus groups, a survey approach with open-ended questions allowed respondents to complete it in their own time without further Zoom or other online meeting time required.

Results of the Likert survey questions are presented as the frequency of response expressed as a percentage of the total number of responses. Open-ended survey question responses were imported into NVivo (Version 12) and analyzed using inductive content analysis using a six-step approach described by Vears and Gillam (2022). An inductive process was applied in which codes were used to label the data during the process of coding. Iterative coding was applied to compare, group and sub-divide codes into content categories and sub-categories. Where required a third round of coding was iteratively undertaken to un-group subcategories to account to the complexity of the information included. Coding was undertaken by two researchers and differences of opinions on the deconstruction, interpretation and reconstruction of data were resolved through discussion until consensus was gained. Results were collated into a coding schema, presented in the results section of the article. This schema is discussed in detail, with quotes used to illustrate the sub-categories.

Ethical approval for the study was provided by Griffith University's Human Research Ethics Committee (HREC 2020/988). Questionnaire data was provided to the study authors in a de-identified format, prior to collation and analysis. Consequently, a waiver of participant consent provision for this specific study was sought and approved by the Committee.

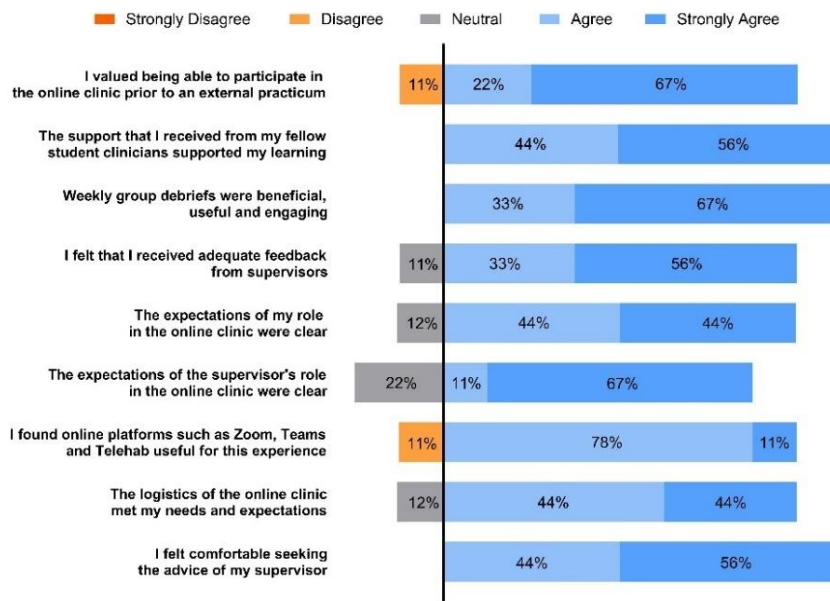
FINDINGS

Nine final-year undergraduate CEP students participated in the telehealth clinic, with 6 identifying as female (67%) and 3 as male (33%). Supervisors had a minimum of 3 years supervision experience, with 2 female (40%) and 3 male (60%).

Participation and Program Logistics

Figure 1 presents results on the students' (n=9) perception of clinic participation and program logistics. While the majority of students reported understanding of both their personal role (88% agree/strongly agree) and the supervisor's role (78% agree/strongly agree), just over half of the students (56%) agreed they felt prepared to commence the clinic. Of note is that all students were comfortable seeking advice from their supervisor and also found benefit in the weekly group debriefs. A small percentage of students, however, disagreed the online platform was useful (11% disagree) and did not find value in participating prior to industry-based, in-person placement (11% disagree).

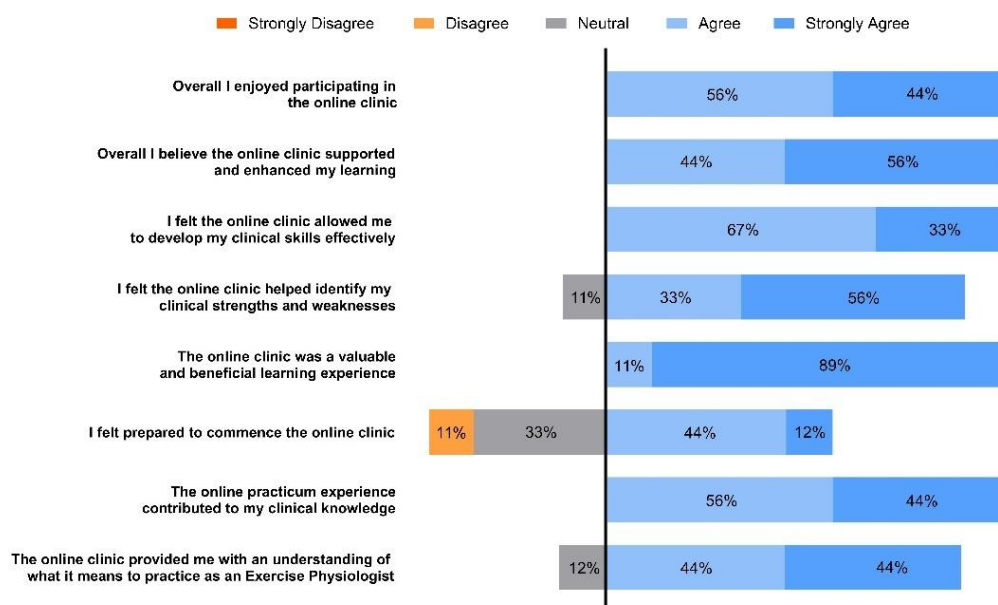
FIGURE 1: Student perception of clinic participation and program logistics.



Student Learning Outcomes

When asked to rate what outcomes they perceived participation in the telehealth clinic provided, on average students agreed or highly agreed that the opportunity offered a range of diverse learning opportunities and outcomes (Figure 2). They highly agreed (89%) that participation was a beneficial learning experience and that it supported and enhanced their learning (56%). A further 88% agreed or highly agreed it enhanced their understanding of CEP practice, and all students enjoyed participating in the clinic.

FIGURE 2: Student perception of clinic learning outcomes.



Student Qualitative Evaluation

Table 1 presents the coding schema resulting from inductive analysis of student-reported online clinic experiences.

TABLE 1: Themes and sub-themes arising from inductive coding of students' evaluation of the telehealth clinical exercise physiology clinic.

Theme	Sub-Themes
Enjoyable experience	Realistic learning • Working with real clients • Diversity of situations presented • Requirement to work autonomously Supervision • Relatable • Actual clinical exercise physiologist • Timely feedback provided Learning environment • Peer-supported • Provided comfortable and safe environment
Transferable learning experience	Development opportunity • Supportive environment allowed learning from mistakes • Opportunity to identify personal strengths and weaknesses • Promoted growth of self-confidence • Ability to self-critique • Presented variety and challenge Professional learning • Understanding how to practice as a clinical exercise physiologist • Preparation for future external placement • Opportunity to improve and diversify skillset • New outlook on prescribing exercise and communicating
Opportunities for improving future programs	Technology • Consideration and training in platforms used • Impact on consult time Structure • Longer duration • Allocated debrief time • Timing considerations around external placements • Pre-program preparation time

The majority of students reported enjoying the overall experience, citing the realistic learning, supervision, and learning environment as central to this enjoyment. "Seeing real people" they "have to adapt to" (St1) was central to creating this realistic environment, with students enjoying the autonomy required as the program progressed: "I enjoyed having control and designing everything myself" (St1). The supervision was also key to enjoyment for some students, getting to learn with individuals "who work as a CEP 5 days a week" (St1) and offered "detailed feedback...each session" (St4). Multiple students also highlighted their experience was enhanced by the comfortable, safe environment created in the telehealth clinic.

Additionally, students found participation in the telehealth clinic a transferable learning opportunity, reporting it as “very beneficial” (St1) and highlighting the value of the learning experience. Students expressed that the program provided an opportunity to develop professional and career-specific skills, indicated in responses such as, “I was able to discover my strengths and weaknesses I need to work towards improving before I graduate” (St5) and was provided opportunities to develop skills of “prescribing and communicating with patients” (St6). They also valued the professional learning the clinic provided, increasing their skillset, outlook on how to interact with clients, and understanding of being a practicing CEP. For example, one student reported participation “allowed me to learn from my mistakes which originally someone would have stepped in before I made them and, therefore, not fully learning” (St3), while another highlighted the clinic “gave me a new outlook on prescribing and communicating with clients” (St6), with “the detailed feedback from supervisors each session helped me to think like an exercise physiologist” (St4).

Students also suggested opportunities for program enhancement. A primary challenge related to technology difficulties, indicated in statements reporting there were “way too many technical difficulties that chewed into consult time” (St9) and the “Teams platform was quite confusing at first” (St8). Overall program structure, particularly related to program length and pre-program preparation time, was also highlighted as an improvement area. For example, students suggested the length of the program be extended to allow for greater results, alongside a longer student preparation period prior to starting the program: “I would’ve liked to have more time beforehand to prepare” (St6).

Supervisor Qualitative Evaluation

Themes and sub-themes arising from the supervisors’ (n=5) evaluation of the clinic are presented in Table 2, with overarching themes of: advantages of telehealth; clinic facilitation; and disadvantages of telehealth.

Advantages of telehealth were identified by all supervisors and included general, client-specific, and student-specific. Overall, an increase in student competencies relating to preparation and planning, communication, and client cueing and instruction were identified most frequently. Supervisors reflected: “Students took on greater responsibility in managing their clients and did more background work in developing their programs than may otherwise have occurred in a face-to-face environment” (Su2). In turn, this increase in student competency was identified as broadening potential scope of practice:

It prepares the student to assess and prescribe individuals and programs...for when face-to-face may not be an option. I feel it gave the students an opportunity to expand on the discussion style of treatment and also shift their focus to behavior change and a physical activity focus, as opposed to repetitive exercise sessions face-to-face where this element may be missed. (Su3)

TABLE 2. Themes and sub-themes arising from inductive coding of supervisors' evaluation of the telehealth clinical exercise physiology clinic.

Theme	Sub-Themes
Advantages of telehealth	General • COVID-safe environment Client-specific • Patient convenience • Provision of tools for self-management Student-specific • Student confidence in abilities • Virtual supervision presence used to facilitate independent practice
Clinic facilitation	Challenges • Communication between supervisors • Connectivity • Technology considerations ◦ Immediate provision of technical support ◦ Navigation of online programs and platforms ◦ Session time restrictions due to account settings • Supervisor flexibility with changing appointment times • Unable to monitor vital signs during exercise prescription Feedback provision • Quality and timeliness of feedback provided • Limitations in feedback provision due to back-to-back client appointments • Limitations in providing feedback specific to movement demonstration • Physical space limitations affecting feedback • Use of weekly reflections and program notes Supervisor intervention • Exercise prescription ◦ Correction of technique ◦ Exercise prescription inappropriate ◦ Safety concerns • Client assessment ◦ Elaborating on client medical history ◦ Investigation of client symptoms • Provision of education ◦ Confirmation of student provided information ◦ Explanation of exercises ◦ Provision of adherence strategies ◦ Provision of post-clinic information • Inadequate student communication
Disadvantages of telehealth	Limited scope of objective assessments available Limited view of the client and student Restricted exercise prescription due to client safety Student competencies difficult to assess • Client assessment • Client cueing and instruction • Interpersonal skills Tactile cueing and technique guidance limited

Additionally, it was perceived providing supervision via telehealth compared to in-person increased students' confidence in their abilities and their comfort being under supervision. This outcome was highlighted by comments such as: "With students being in their own environment their comfort and confidence was enhanced during the session. I feel this helped decrease nervousness and pressure when being observed by a supervisor" (Su3) and

I believe that having an online presence gave the student confidence and comfort, knowing they could just ask a question and I'd be able to answer. In person presence still has an element of comfort, but I believe it also has an element of stress as a physical presence feels more obvious that they are being watched. (Su5)

Another key category related to clinical facilitation, with all supervisors identified at least one challenge relating to clinic facilitation via telehealth, including technology-related challenges and safety considerations. There was an identified need for a more flexible scheduling system to immediately address supervisor schedule inflexibility and missed and/or late appointments. All supervisors were required to intervene at some point during student session delivery. Supervisors identified that deciding when to interrupt the session was challenging: "A specific challenge was trying to find the balance between what was a necessary interruption of the session to alter/suggest changes and what was something that could be saved until the debrief afterwards" (Su5). However, they also identified that the need to intervene in the sessions reduced as students' skills developed: "At the beginning environmental safety was not being addressed by students in some cases, and needed prompting. However, as students' skills developed prompting was no longer needed and I felt comfortable it was prioritized" (Su5).

All supervisors felt there was adequate time to provide students with feedback and that this provision was as effective in online mediums compared to in-person service provision. The majority of supervisors preferred to provide feedback immediately post-session, although methods such as a weekly written reflections and program notes were highlighted for providing in-depth feedback in the presence of time constraints:

Students were required to prepare weekly reflection and program progress reports (e.g., SOAP notes). The online format did facilitate this as it required students to adhere to submission deadlines. This provided more time and opportunity for supervisors to review information pre-post consult sessions. (Su2)

There was an identified challenge relating to providing feedback relating to movement demonstration, "The only feedback that may have hindered is providing movement demonstration feedback - but often this was still managed by moving the camera or changing space" (Su3).

Finally, key disadvantages to telehealth were identified (Table 2), with these areas inter-related. For example, restrictions in exercise prescription relating to client safety arose concerning restricted objective assessments, view limitations, and the inability to provide tactile cueing and technique guidance to patients while undertaking complex movements.

As reported by student participants, supervisors also identified strategies for program improvement, relevant to both delivery of the telehealth clinic and the facilitation of student involvement within the clinic. These included consistency in appointment scheduling to reduce administrative burden, with patients, students, and supervisors agreeing upon one time for the duration of the clinic with limited allowance for changes. Also related to administration was use of a scheduled submission time-point

for students, irrespective of student service delivery schedule. Further, two specific suggestions were made to augment students' experiences in the clinic: 1) rotation of supervisors between students to expose students to different knowledge and skill bases and feedback styles; and 2) the inclusion of telehealth specific simulation-based activities to familiarize students with the modality prior to the clinic delivery.

DISCUSSION

This study has highlighted the perceived learning outcomes and advantages for CEP students and supervisors delivering a telehealth CEP clinic. Further, it has identified key challenges and barriers to delivery, alongside suggestions for enhancement, which are valuable in informing both future service provision and professional development areas for students and industry professionals alike, including beyond CEP. As the Department of Health and Aged Care (2021) has confirmed telehealth subsidies will remain in the allied health services space, there is undeniable value in ensuring health students and practitioners are competent, but also willing, to provide such services.

In exploring the student perception of engaging in a telehealth clinic, participants reported a range of positive aspects around program logistics. Similar to previous research in medical students (Patterson et al., 2024) and a mixed cohort of 49 students from 5 different allied health programs, including exercise physiology (Bacon et al., 2023), students found the online clinic to provide a valuable learning experience (100% reported 'agree' or higher). This outcome was despite only 56% of students reporting they felt prepared to engage in the clinic, suggesting the value of active, 'hands-on' learning opportunities in developing professional competency and self-efficacy, even through a virtual medium. Important to note is that student-perceived learning benefits and competency development were supported by supervisors' qualitative feedback. All supervisors reported a range of student learning benefits and development of essential professional competencies as key outcomes of the online program, across a range of areas including preparation and planning, communication, and patient cueing and instruction. These outcomes were despite supervisors identifying challenges related to the online delivery approach itself, including restricted communication between supervisors, navigation of online programs and platforms, session time restrictions, inability to monitor vital signs, and restricted exercise prescription due to factors including safety considerations linked to the patient's home exercise space. Students not reporting similar restrictions may be in part due to them having limited to no experience conducting and delivering as broad a range of assessments and programs as supervisors. It is worth noting, however, that many of these supervisor-perceived challenges are in alignment with those reported in other research investigating barriers reported by practitioners related to telehealth implementation (Cottrell & Russell, 2020; Martin et al., 2024). However, more unique to a profession like exercise physiology (and likely others including physiotherapy, occupational therapy, and osteopathy) were the multiple barriers and concerns related to supervisor inability to have more hands-on interaction and engagement with patients and students alike (e.g., checking vitals, adjusting exercise form, conducting assessments). These issues may present as significant barriers to telehealth being more readily offered as a WIL opportunity in such professions, particularly when supervisors themselves have not gained training in how to reduce these barriers. As such, further research should seek to investigate these findings, in part to explore ways to reduce these reported barriers from industry professionals and increase openness to telehealth service provision, both for client services and student WIL opportunities alike. Future research should also explore if supervisor competency and skills are also enhanced from participation in such a co-delivered program, and if that translates into their personal professional competency and confidence in offering telehealth services, including as an option during WIL placements. This opportunity is particularly important, given the growing body

of evidence supporting the clinical effectiveness of telehealth across healthcare (Snoswell et al., 2023) and many health professions (e.g., exercise physiology, speech pathology, medicine, dietetics) encouraging telehealth competency or even mandating it as an essential graduate outcome (e.g., Exercise & Sports Science Australia).

Additionally, students also highlighted a perceived value in being able to engage in an internal, university-run telehealth clinic prior to external industry placements (89% 'agree' or 'strongly agree') and that participation helped them identify professional skills and weaknesses (89% 'agree' or 'strongly agree'). This opportunity was further supported by qualitative feedback, which indicated key themes around enjoyment of working with real clients and development of skills, alongside better understanding of what being a CEP entails. Of interest is that students also reported engagement in weekly debriefs and support from fellow student clinicians as highly valued components of the experience. Online connectivity may have provided the opportunity to directly interact with peers who were delivering similar services, establishing a community of practice. Indeed, previous research has highlighted, both within telehealth (Salter et al., 2020) and service-learning WIL (Mackenzie et al., 2019), that peer supported learning models are reported as a key strength of the experience. Given lack of student knowledge and preparedness has been identified in the placement space as a key factor in restricting supervisor willingness to offer student placements (Buchan et al., 2023; Reynolds & McLean, 2023; Rothwell et al., 2021), short university-facilitated telehealth placements prior to industry-based in-person ones may enable students to be better prepared and upskilled while also reducing the upskilling burden on supervisors. However, research is warranted exploring student experience and learning competences when completing a telehealth placement prior to compared with after an in-person industry-based placement to better understand impacts. Staggering student participation in telehealth may also make programs more sustainable, instead of being set up solely for one or two placement blocks (for those programs where students complete multiple placements).

Similar to other recent research around telehealth (e.g., Bacon et al., 2023; Walker et al., 2022), technology challenges emerged as a key issue, identified by both students and supervisors. Both stakeholder groups suggested an initial orientation period was needed for the utilized platforms, which cut into consultation time. Supervisors specifically suggested the inclusion of a simulation-based learning activity, where students engaged in a practice session with a mock client using the intended platforms as a means of preparing. Further, pre-WIL preparation in formats such as videos has demonstrated improvement in students' perceived competency in areas including telehealth (Martin et al., 2024) and culturally diverse communities (Ward et al., 2018). While the urgency of transitioning to online delivery prevented an opportunity to offer students and supervisors an orientation to the program and related online delivery platforms, such findings justify ensuring telehealth is scaffolded into curriculum. This development will lead to more prepared, confident, and technology-versed students and future practitioners, thereby maximizing experience and efficiency of telehealth programs for all stakeholders. Future research in health programs, CEP and beyond, should aim to explore if an orientation or scaffolding approach does, indeed, yield such results. Additionally, further research is warranted into healthcare professionals and what impacts technology-related barriers may have on their own professional practice, including related to supporting students on WIL.

Worth noting is the resource intensiveness of delivering a program such as the one examined in this study, supported by other research into student telehealth programs (e.g., Martin et al., 2024; Salter et al., 2020). The coordination of multiple parties, including students, supervisors, and participants, resulted in little flexibility in changing session times to accommodate patients who were late or needed to reschedule, or students/practitioners who were unwell or had unexpected engagements arise.

Additionally, the workload hours required by university staff to develop and deliver this program were significant, compared to the limited placement hours students were able to gain towards accreditation for participation (in an Exercise & Sports Science Australia accredited CEP program students must complete at least 360 hours of clinical placement in total, although there are no minimum or maximum guidelines around number of telehealth hours). This limitation suggests a WIL placement that is solely telehealth may not be feasible for professions that have high placement hour requirements or industry-based supervisors with businesses to run, even with delivery supported by the university. This consideration is important to note, as in some health programs, including CEP, telehealth is now a professional standard students must demonstrate experience in prior to graduation, where the requirement falls to the university to evidence how this outcome is achieved. While it is feasible that, in future offerings, significantly less administration hours may be required and thereby present this opportunity as more scalable and sustainable to provide students with telehealth exposure, in many health programs, it may be best suited that telehealth remains a small, but still invaluable, part of WIL. In fact, Salter et al. (2020) found coordinators of an allied health telehealth placement reported improved efficiencies on follow-up offerings. Therefore, future programs should consider hybrid models that offer telehealth and face-to-face opportunities if extensive placement hours are required, to ensure meeting accreditation requirements in this space while also retaining the multiple benefits reported by students and supervisors engaging in telehealth related to professional competency enhancement and readiness to practice.

Interpretation and translation of findings from this study should take into account key limitations. Students and supervisors were required to partake in this program, due to COVID-mandated closure of external industry-based placement options and, therefore, only found out about program participation a few weeks prior to commencement. This requirement may in part have influenced both groups' perceived lack of preparation and even potential expectations around program outcomes. Future research should examine if these findings remain when students have longer awareness of participation, as well as survey perceived benefits and challenges prior to participation and then examine if they change following participation. Additionally, it was a small sample size with no 'control' students or supervisors who did not partake in the telehealth clinic to compare perceptions and feedback to, and all students were CEP students from a single university. An additional limitation was, while all supervisors were CEPs, three of the five supervisors were university academics and not typically work placement supervisors or regularly involved in recent clinical practice. However they did maintain recency of practice through activities like research and teaching. While there was not a sufficient sample size to compare response differences, it is feasible this limitation may have impacted supervisor-reported feedback and perspectives of the clinic experience and related outcomes; however, telehealth was a novel practice for all supervisors involved. Future research should aim to use supervisors who are typically in a placement supervision role, to minimize any potential impact. This balance could also impact the administration requirements and challenges in organisation, whereby it could become an integrated part of university-based supervisors' workloads instead of an addition to an academic workload. Finally, this program used multiple platforms to deliver the sessions and engage with patients and colleagues, which may have increased the commonly reported perception of technological and structural challenges. Future research should aim for consistency in technology used, to better allow orientation and trouble-shooting, as this issue is a common barrier reported by patients and practitioners alike.

CONCLUSION

While in-person health WIL and practitioner services have returned, awareness and offering of telehealth appears to be here to stay in many health services. This current research highlights both the efficacy and multi-dimensional learning benefits of telehealth WIL, both for students and supervisors. Findings can guide future implementation of telehealth programs, using the information presented around potential challenges to factor into program design, as well as sustainability and workload considerations. While both supervisors and students reported key challenges like technology and enhanced safety considerations, these may be easily addressed with improved preparation and training resources. The provision of a peer-supported, comfortable, and autonomy-building experience for students, as well as upskilling opportunities for supervisors, highlights that WIL, as well as healthcare service provision, in the form of telehealth, should continue being explored well beyond COVID-19. Findings can be used to guide development of more sustainable future WIL programs within and beyond CEP, to continue building a future workforce of healthcare professionals comfortable and competent in telehealth service provision. Ultimately, this development will provide greater patient service access opportunities that are safe and effective, delivered by trained health professionals.

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About the Journal

The International Journal of Work-Integrated Learning (IJWIL) publishes double-blind peer-reviewed original research and topical issues related to Work-Integrated Learning (WIL). IJWIL first published in 2000 under the name of Asia-Pacific Journal of Cooperative Education (APJCE).

In this Journal, WIL is defined as:

An educational approach involving three parties – the student, educational institution, and an external stakeholder – consisting of authentic work-focused experiences as an intentional component of the curriculum. Students learn through active engagement in purposeful work tasks, which enable the integration of theory with meaningful practice that is relevant to the students' discipline of study and/or professional development (Zegwaard et al., 2023, p. 38).*

Examples of practice include off-campus workplace immersion activities such as work placements, internships, practicum, service learning, and cooperative education (co-op), and on-campus activities such as work-related projects/competitions, entrepreneurship, student-led enterprise, student consultancies, etc. WIL is related to, and overlaps with, the fields of experiential learning, work-based learning, and vocational education and training.

The Journal's aim is to enable specialists working in WIL to disseminate research findings and share knowledge to the benefit of institutions, students, WIL practitioners, curricular designers, and researchers. The Journal encourages quality research and explorative critical discussion that leads to the advancement of quality practices, development of further understanding of WIL, and promote further research.

The Journal is financially supported by the Work-Integrated Learning New Zealand (WILNZ; www.wilnz.nz), and the University of Waikato, New Zealand.

Types of Manuscripts Sought by the Journal

Types of manuscripts sought by IJWIL is primarily in two forms: 1) *research publications* describing research into aspects of work-integrated learning and, 2) *topical discussion* articles that review relevant literature and provide critical explorative discussion around a topical issue. The journal will, on occasions, consider good practice submissions.

Research publications should contain; an introduction that describes relevant literature and sets the context of the inquiry. A detailed description and justification for the methodology employed. A description of the research findings - tabulated as appropriate, a discussion of the importance of the findings including their significance to current established literature, implications for practitioners and researchers, whilst remaining mindful of the limitations of the data, and a conclusion preferably including suggestions for further research.

Topical discussion articles should contain a clear statement of the topic or issue under discussion, reference to relevant literature, critical and scholarly discussion on the importance of the issues, critical insights to how to advance the issue further, and implications for other researchers and practitioners.

Good practice and program description papers. On occasions, the Journal seeks manuscripts describing a practice of WIL as an example of good practice, however, only if it presents a particularly unique or innovative practice or it was situated in an unusual context. There must be a clear contribution of new knowledge to the established literature. Manuscripts describing what is essentially 'typical', 'common' or 'known' practices will be encouraged to rewrite the focus of the manuscript to a significant educational issue or will be encouraged to publish their work via another avenue that seeks such content.

By negotiation with the Editor-in-Chief, the Journal also accepts a small number of *Book Reviews* of relevant and recently published books.

Reference

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