

Physiotherapy Students' Perspectives of a Blended Learning Approach Through the COVID-19 Pandemic Years

Suzanne Belcher *PhD, MSc, BSc Physiotherapy*

Physiotherapy Department, Centre for Health and Social Practice, Waikato Institute of Technology (Wintec) (Te Pūkenga – New Zealand Institute of Skills and Technology), New Zealand

Peter Larmer *PhD, MSc, Dip Physiotherapy*

Associate Professor, Faculty of Health and Environmental Sciences; Active Living and Rehabilitation: Aotearoa New Zealand, Auckland University of Technology, Auckland, New Zealand

Rory Christopherson *MSc, Dip Physiotherapy*

Physiotherapy Department, Centre for Health and Social Practice, Waikato Institute of Technology (Wintec) (Te Pūkenga – New Zealand Institute of Skills and Technology), New Zealand

Kesava Kovanur Sampath *PhD, MOst, BPhy*

Physiotherapy Department, Centre for Health and Social Practice, Waikato Institute of Technology (Wintec) (Te Pūkenga – New Zealand Institute of Skills and Technology), New Zealand

ABSTRACT

The Waikato Institute of Technology launched an innovative approach in 2019 to deliver a Bachelor of Physiotherapy degree. The programme utilised a blended-block learning andragogy of face-to-face (block-week) and online learning. At the end of the first 4-year cycle, it seemed pertinent to understand the students' perspective of this approach, while recognising possible effects of the COVID-19 pandemic. An online questionnaire was distributed to a sample of students ($n = 70$), with 44% completing the survey. Preference to continue with block-week learning was split: 32.2% of students wished to continue with the current approach, 32.2% preferred to discontinue and return to traditional campus teaching, and 35.6% were unsure. Those students who preferred to discontinue predominantly originated or moved to the Hamilton region for study. Students who preferred block-blended learning were often from a population that the programme was meant to serve, living in rural areas and/or having significant family/community responsibilities, meaning they were unable to move to the institute and would struggle to access the course in any other manner. To reduce fatigue and improve satisfaction, students also suggested mixing content delivery every week, engaging in 2–3 days of face-to-face sessions and 2–3 days online, moving away from block-learning yet retaining blended-learning. Most students believed the course was well positioned to manage the effects of COVID-19; however, they recognised practical skills learning and access to clinical placement experience was reduced. Future research could focus on exploring the benefits and barriers of online learning developed for physiotherapy-specific content.

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INTRODUCTION

In 2019, prior to the COVID-19 outbreak, Waikato Institute of Technology (Wintec) (Te Pūkenga), Hamilton, New Zealand launched a 4-year Bachelor of Physiotherapy degree, with an andragogy designed to utilise blended learning, from the outset. A blended-block learning approach was taken, in which students cyclically engage in several "block-weeks" interspersed with online teaching (eLearning) weeks. Block-weeks consist of more traditional face-to-face sessions, offering practical hands-on teaching. The programme was designed this way with an aim to improve access for students, who for financial or geographical reasons, or due to family/whānau or community responsibilities would struggle to move and place themselves full-time at an institute that offered traditional face-to-face physiotherapy teaching and learning (Bell et al.,

2022; Cleveland-Innes & Campbell, 2012; Means et al., 2010; Ranganathan et al., 2021).

To meet the demands of the COVID-19 pandemic restrictions, several vocational health-related degree programmes had to rapidly adapt their teaching delivery, moving from face-to-face teaching to eLearning or blended learning education (Ng et al., 2021; Ranganathan et al., 2021; Rossetini et al., 2021). Blended learning can be taught in a variety of forms, for example implementing a "flipped classroom" approach where students complete traditional theoretical learning online at home, then apply this knowledge to problem-solving or clinical reasoning tasks in a collaborative fashion in the classroom (Ozdamli & Aşıksoy, 2016). Although most traditional health professional courses are based on a face-to-face teaching andragogy, several studies have indicated benefits of online-

blended learning, such as enhanced student engagement and higher retention, even prior to the COVID-19 pandemic in a range of medical and associated professions, including physiotherapy (Adje et al., 2023; Al-Shorbaji et al., 2015; George et al., 2014; Green et al., 2018.) This is supported by recent studies exploring medical skill courses (Pham et al., 2021) and physiotherapy degree programmes (Ng et al., 2021; Plummer et al., 2021; Rossetini et al., 2021), all of which had to undergo the necessary switch to online delivery through the COVID-19 pandemic. Findings from these studies indicate some early success both in students' grades and satisfaction with the online delivery format, with requests received from students to continue with online delivery after the removal of the COVID-19 restrictions (Adje et al., 2023; Pham et al., 2021; Rossetini et al., 2021; Zheng et al., 2021).

Common barriers for distance or eLearning discussed in the literature for physiotherapy and other medical courses include the negative effects of reduced access to educators to confirm understanding, poor task instructions given, access to and economic impact of requiring technical equipment, the need to be an independent-driven learner, and a lack of regular verbal socialising or collaborative communication with peers (Al-Shorbaji et al., 2015; Ng et al., 2021; Plummer et al., 2021; Rossetini et al., 2021). Recent research suggests that while theoretical health education content is positively received by students in an online format, the acquisition of certain technique-oriented practical skills (especially for the novice learner) have failed to transition within eLearning approaches, rendering traditional face-to-face teaching methods essential (George et al., 2014; Ng et al., 2021; Plummer et al., 2021; Rossetini et al., 2021). Overall, the acceptance of eLearning has been supported as a legitimate teaching option for health-related courses including physiotherapy (Adje et al., 2023; Bell et al., 2022; Harvey et al., 2014; Pham et al., 2021; Plummer et al., 2021; Rossetini et al., 2021).

Previous research has explored students' perceptions of receiving online physiotherapy education for either individual courses (Adje et al., 2023; Harvey et al., 2014) or whole degree programmes during the COVID-19 pandemic (Ng et al., 2021; Plummer et al., 2021; Rossetini et al., 2021). However, no research has examined how a physiotherapy degree designed from the outset to be delivered via a blended approach (prior to and regardless of COVID-19), has been received by the student population.

As the physiotherapy programme at Wintec embarks on its fifth academic year and with the emergence of its first graduates, the objectives of this study were to (a) explore students' perceptions of their preferences for delivery of teaching and learning content (comparing alternating face-to-face block week and distance online delivery to full-time face-to-face delivery); (b) determine their thoughts on whether a block-blended approach is acceptable and/or effective for their learning; and (c) assess what effect the COVID-19 restrictions and adaptation to complete online learning have had on their education, thus far. It is anticipated that the information gained from this study will help develop improvements throughout the programme, whether through content, communication, access, or further delivery options for the future. Likewise, the findings may offer

practical implementation suggestions for similar programmes that are looking to create or adapt their courses to a blended-learning format.

METHODS

Ethical approval for this study was granted by the Wintec Human Ethics in Research Group (reference: WTLR13120422). This study was initiated to evaluate the operational performance of a "novel" method of delivering physiotherapy at the time. The questions generated for the online questionnaire were developed by the programme's academic team (SB, KSK, RC), with input from an experienced academic/researcher (PL). The questionnaire was piloted and feedback received from affiliates of the Wintec Physiotherapy partnership group (a small group of regional practitioner stakeholders who act as clinical supervisors or potential future employees for the programme's students). The questionnaire was distributed via the software program Qualtrics (Provo, UT) to a convenience sample (all second-, third-, and fourth-year students who were currently enrolled or had withdrawn from the programme between 2019 and 2022). The questionnaire largely comprised simple descriptive responses (i.e., yes, no, or maybe), with the opportunity to add further comments (open short answers) if participants wished (Appendix A). The questionnaire was anonymous, and no identifying data was stored. Potential participants were emailed an invitation to take part in the study. If the student chose to click the link on the email, they were directed to the study information page and an option to confirm consent. Only once the participant had clicked the consent box were they able to access the questionnaire. The advert and access to the questionnaire was open for 4 months (between 6 May 2022 and 6 September 2022).

Statistical analysis

Once the questionnaire had closed the data were exported directly from Qualtrics to Excel (Excel v.16.0.14701.20210, Microsoft 365). Any incomplete questionnaire responses (< 85% of questions answered) were removed from the data set and were excluded from the analysis. Descriptive analysis produced frequency distribution outcomes, mostly expressed as percentages. A descriptive content analysis was utilised for open-ended questions, by identifying common explicit terms and patterns (Stemler, 2000). The derived patterns from the student comments were identified by two researchers (SB and PL), independently. The two researchers then met to reach consensus on findings, with a third reviewer (RC) available if consensus was not reached.

RESULTS

Of the 70 students approached to take part in this study, 31 (44.2%) participated and completed the questionnaire with 4 (5.7%) responses excluded because they were incomplete. Of the 31 responses, 11 (35.5%) were received from the second-year group, 9/31 (29.0%) from the third year, and 11/31 (35.5%) from the fourth year.

Demographic information

Table 1 indicates where participants lived across various regions of New Zealand, prior to the commencement of the programme. Just over half the students (16/31, 51.6%) were

based out of Kirikiriroa (Hamilton), Cambridge, or Hawke's Bay/ Napier. Of those students who did not live in Kirikiriroa prior to starting the programme (23/31, 74.2%), 13 resided at their original address. Five students relocated yet still resided outside of the Kirikiriroa area, and a further 5 chose to relocate to Kirikiriroa for the duration of the study year.

Block learning delivery

The responses to three questions (questions 4–6) that were chosen to seek feedback regarding the students' preferences for block learning delivery are shown in Figure 1.

For these questions, on average, 48.4% (15/31) students offered written comments with a mean of 19 words per response. The students who offered the responses "no" or "maybe" indicated a need to reduce the content load in terms of new knowledge covered within the sessions, and the number of hours per day taught consecutively. For example: "block weeks can be very content heavy and it makes it difficult to retain ..." (Participant (P) 27) and "so much is taught in a short period of time, you cannot digest and process the learnings" (P29).

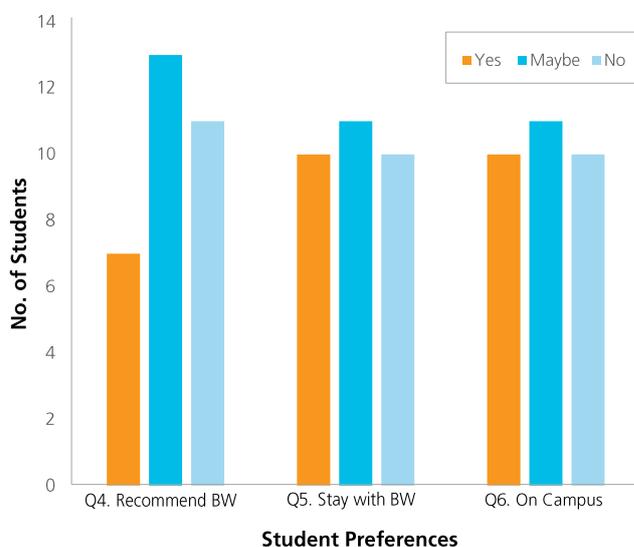
In addition to being voluminous, the content covered in block-weeks was often physical, and students found too many consecutive hours caused fatigue. The "block-week" content felt "crammed", "tiring physically and mentally" and sometimes "stressful". On the other hand, some students suggested retaining the blended approach to delivery with perhaps two–three days face-to-face followed by two–three days online, with the discontinuation of block-weekly learning. Two participants commented: "... something like 2–3 or 4–6 hour days a week would more evenly spread the workload ... we would have a good even spread and not get too overworked during long block weeks" (P26); "... a mix of online and face-to-face each week would be better" (P24).

Some students also mentioned they believed online teaching sessions needed to be consistently set at the same time each week, as variation made accessibility and time-management planning more complicated: "...regulated times for classes, same day, same time otherwise it makes it difficult to work other things around study..." (P9).

Several fourth-year students commented that the first three years of study would be better suited to full-time on-campus

Figure 1

Block-week Learning Responses



Note. BW = block-week.

delivery; however, block-learning "works well in the final year". Moreover, several participants from the whole participant cohort indicated their wish for the course to change to traditional full-time, face-to-face, on-campus delivery throughout: "in-person learning is easier all the time" (P3) and "it would allow for more practical sessions overall" (P27).

In contrast, the students who responded "yes" to the three "block delivery" questions favoured this learning format as it provided an opportunity to access an undergraduate physiotherapy course, which they could not have accessed otherwise. Such respondents indicated that a block-blended learning approach allowed them to manage family commitments (especially young children), community-based job commitments, and balance their health and wellbeing overall: "I wouldn't be able to participate if it wasn't" (P31) and "block delivery makes the course a lot more accessible to people who have life commitments and cannot uproot their family ..." (P22).

Table 1

Students' Place of Residency (N = 31)

Place of residency	N	Place of residency	N
Auckland	1	Taumarunui	1
Bay of Plenty	2	Tauranga	1
Cambridge	4	Taupō	1
Hawke's Bay/Napier	4	Waikato	2
Kirikiriroa/Hamilton	8	Wairarapa	1
Matamata	1	Whanganui	1
Rotorua	1	Whitianga	2
Taranaki	1		

Effect of COVID-19 on student learning

Three questions (questions 7, 8, and 13) related to the impact of COVID-19 on students' learning. For these questions, on average 38.7% (12/31) of participants offered written comments with a mean of 21 words per response. Of note, regarding questions 4–8 and 13 inclusive, the highest number of responses were for question 8 – exploring the student's perceptions of missed practical learning due to the COVID-19 restrictions, with 18 responses.

In regard to question 13, almost two-thirds (64.5%, 20/31) of participants felt their clinical placement experience had been affected by COVID-19, versus 34.5% (11/31) who did not. Seven participants indicated that their clinical placements were cancelled, irrespective of whether the public District Health Board or private clinic locations were within the COVID-19 restricted lockdown zone. Likewise, not being able to achieve full COVID-19 vaccination status before attending placements was mentioned as a challenge: "I couldn't do my hospital placement due to not being vaccinated yet" (P19).

There was some suggestion that participants believed they received less direct supervision exposure due to staff shortages over the period during which the government placed more stringent COVID-19 travel and isolation restrictions. Similarly, they felt they had less exposure to a variety of conditions and clients in private practices, due to a reduction in referrals: "... COVID-19 has affected placements, there is a reduced number of patients in the private practice setting, because people were isolating or sick or being careful. There also appeared to be less ACC contracts coming through to private practice" (P22).

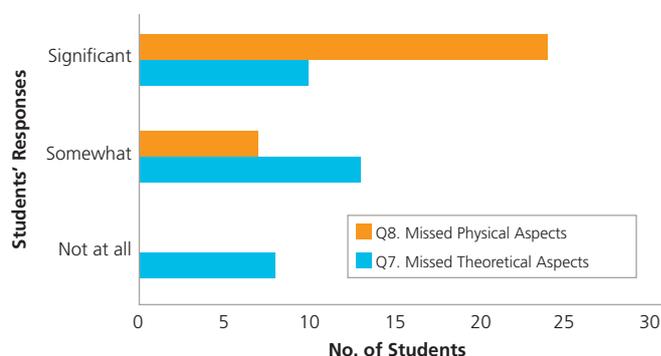
Finally, six students suggested they would be under extra workload pressure to complete additional placement hours in the following years, for those placements missed during the COVID-19 period.

The results of questions 7 and 8 are shown in Figure 2. Those who responded "significantly" suggested that the transition to completely online eLearning led to lengthy eight-hour Zoom sessions, which made maintaining concentration and absorbing information difficult. They also perceived barriers to eLearning that included the ability to ask questions, as they found participating within the online forum intimidating or anxiety-inducing when they became the focus of attention. Two students commented: "it was extremely hard to concentrate on 8 hr zoom theoretical lectures ... Zoom also made me feel a bit intimidated to ask questions" (P25) and "... 8 hr of sitting in front of Zoom! ... ridiculous ... what a terrible way of encouraging us to absorb information. I couldn't feel comfortable asking questions" (P26).

The Zoom sessions were perceived as not being interactive enough and they believed online teaching could never substitute, or replicate fully, the benefit and skills learnt from physical hands-on face-to-face practical lessons. Students suggested that at times tutors struggled to adapt to teaching traditional physiotherapy content via Zoom, which affected the interactive nature of the learning and subsequent motivation to learn: "You can't properly learn physiotherapy treatment techniques online. There is no guidance or physical help to assure we are on the right track and completing things safely" (P8).

Figure 2

Impact of Moving From Face-to-face To Completely Online Learning



Similar responses as those above were given by the students who responded "somewhat". This group felt the theoretical content was not necessarily affected by being online. However, they considered the lack of opportunity to directly learn from or interact with peers made their learning less resonant and reduced the chance to build non-verbal communication skills: "I feel like we have missed the opportunity to learn and communicate" (P4).

The experience of the tutors and guest speakers presenting within an online format seemed to be lacking, although students did appreciate that the tutors were often transparent about their growing skills in this area and this built some empathetic rapport.

DISCUSSION

The findings of this study broadly suggest that students perceive blended learning as a feasible teaching andragogy for a bachelor's physiotherapy degree. However, some negative perceptions about the efficacy and challenges faced by students were expressed about this delivery format. In particular, some students perceived that online learning was potentially reducing or replacing hours of physical practical skills' practice, which students and professionals consider a requirement of a proficient physiotherapist (Ng et al., 2021; Rossetini et al., 2021).

One of the key concerns for students about blended learning was the feeling that key practical skills and new learning was being compressed into the block-weeks, which may have subsequently reduced the opportunity to effectively reflect upon and analyse their learning, causing cognitive overload (Sewell et al., 2020; Zilundu et al., 2022). One solution students identified to alleviate this cognitive overload was to spread the block-weeks across the semesters more equally or to discontinue block-learning completely. A more considered distribution of the block-weeks spaced across the semesters (i.e., no two block-weeks running consecutively), may reduce cognitive overload and fatigue among students. This in turn may make the learning of new fundamental practical skills more effective through having more frequent opportunities to reflect and consolidate learning (Sewell, et al., 2020; Zilundu et al., 2022). However, the effects of adjusting block-weeks throughout the

academic year upon those students with whānau responsibilities or those challenged by inequities across rural geographical and deprivation areas are yet to be understood. Likewise, theoretically leaving too much time between block-week and face-to-face delivery may also have some negative effect upon learning retention, particularly with respect to communication and interpersonal skills that may be developed more easily through frequent face-to-face peer interaction.

A significant barrier to the eLearning mentioned within this research, and supported by the literature, is the inability to easily or immediately receive feedback or clarify questions around new learning (Al-Shorbaji et al., 2015; Ng et al., 2021; Rossetini et al., 2021). Block-week sessions offer an opportunity to gain feedback and clarify questions more immediately on an individual basis with peers and tutors, which subsequently may guide and/or accelerate future learning while reducing the likelihood of retaining incorrect thought processes (Wood et al., 2020). Similarly, research has indicated theoretical learning of new medical skills needs to be followed up with opportunities to apply practical skills and knowledge to real-world physical settings, to be reasoned and retained effectively (Abela, 2009; Barradell et al., 2018; Rappazzo et al., 2022; Sadideen & Kneebone, 2012). Delaying the gap between learnt theory and the ability to practise skills in a classroom setting on block-weeks may be detrimental to students building proficiency and self-efficacy in their fundamental hands-on practical skills (Barradell et al., 2018; Wood et al., 2020). Therefore, considered distribution of the block-week learning sessions across the academic year may be an essential step to improve student learning, motivation, and satisfaction for those students who have identified a variety of accessibility challenges.

A fundamental design component of the bachelor's physiotherapy degree at Wintec is the delivery of online eLearning. eLearning is achieved through two-hour tutor-led online live Zoom sessions (occasionally, more than one session per day), alongside material delivered asynchronously, such as pre-recorded videos, a variety of integrated collaborative learning tasks, and formative assessment tools (e.g., quiz activities). All these are accessed via an interactive online learning platform, Moodle (Moodle, 2023 v4.1.2). Research exploring the effectiveness of eLearning within health courses has increased in the last few years, even prior to the COVID-19 pandemic (Al-Shorbaji et al., 2015; Green et al., 2018; Harvey et al., 2014). The underlying principle that eLearning can offer greater accessibility and a reduction in resource pressure (finance, travel, time) for student, tutor, and institutions alike has made this andragogy a popular one (Al-Shorbaji et al., 2015; Means et al., 2010; Pham et al., 2021).

However, several limitations to eLearning were identified in this study. These limitations included a reduced ability to clarify learning, lack of interactive or engaging content, and poor technical skill levels of tutors utilising this medium. Poorly constructed, unengaging interactive content is a common shortcoming described in the literature around eLearning efficacy and is often associated with perceived lack of tutor skills at applying this andragogy (Green et al., 2018; Ng et al., 2021; Rossetini et al., 2021). An implication from previous research is that insufficient time is spent developing

tutors' transferable teaching abilities to meet the demands of eLearning teaching mediums (Ng et al., 2021; Ranganathan et al., 2021). This ultimately leads to a reduction in confidence in the tutor or quality of the taught content, as well as decreased student motivation to engage (Green et al., 2018; Ng et al., 2021; Ranganathan et al., 2021). It has been suggested that professional development be afforded to tutors in guiding them in how to adapt content to include interactive, online-friendly activities such as short video material, games, or quiz tasks, and inquiry-based learning projects that encourage online research investigations (Means et al., 2010; Pham et al., 2021). A particularly effective activity appears to be short authentic simulated case scenarios, followed by inquiry or evidence-based questions that students can collaboratively solve in "break-out rooms" (Bell et al., 2022; Wood et al., 2020). A "breakout room" is a virtual space that is separate from the main online tutorial, where students can be placed into working groups (Chandler, 2016). Creating effective, safe, and collaborative learning break-out room spaces has been shown to improve student satisfaction and outcomes (Baehr, 2012; Chandler, 2016; Wood et al., 2020). So, if institutions are looking for effective learning and satisfaction from students, upskilling tutors on using eLearning technology, tools, and activities is essential.

Additional challenges expressed by participants within this study were feelings of intimidation or strain when put "on the spot" in front of the camera, isolation, cognitive or workload fatigue, and reduced motivation as an effect of eLearning. Similar, perceptions among tutors and students alike using eLearning have been discussed previously (Cleveland-Innes & Campbell, 2012; Pham et al., 2021; Ng et al., 2021; Rossetini et al., 2021). The rapid transition to full eLearning caused by the COVID-19 pandemic likely only heightened the level of negative emotions that are sometimes associated with eLearning (Besser et al., 2022; Ng et al., 2021; Rossetini et al., 2021).

In addition to the uncertainty brought on by rapid changes in learning activities during the COVID-19 pandemic, many students may have experienced other life-changing situations, including loss of employment or social support network (e.g., social gatherings, amateur sports) (Ng et al., 2021; Plummer et al., 2021). Several participants highlighted the challenge of coping with potentially 8 hr hours of online learning for up to two weeks in a row as an effect of all tutor contact times (including block-week sessions) being transitioned to online Zoom sessions. The reported effect of this was a subsequent increase in cognitive overload and fatigue. Excessive screen time and fatigue is a recognised issue (Besser et al., 2022; Ng et al., 2021; Plummer et al., 2021; Rossetini et al., 2021). Therefore, to improve efficacy and reduce negative physiological responses such as fatigue, the sessions should remain short with rest periods in-between (Bell et al., 2022; Ng et al., 2021; Plummer et al., 2021).

Although there is uncertainty surrounding the most effective length of an eLearning session in a health-related programme, studies suggest general cognitive learning strategies for retaining new information are effective up to 15 min, deteriorating beyond this (Alksne, 2016; Özkara, 2021). Thirty minutes has been suggested as an optimum timeframe

for retaining learning, while offering the tutor time to detail theoretical knowledge. Similarly, video learning or webinars should be no longer than 15 min before taking a rest (Alksne, 2016; Kumar et al., 2022; Özkara, 2021). Therefore, designing content topics to last approximately 30 min, with a 15–30-min break in-between may be beneficial to the students' wellbeing and learning. However, splitting the teaching content this frequently may be difficult to achieve in all instances and some students have commented that they prefer a 60–90-min-long session, suggesting the above times should be considered approximations at present (Kumar et al., 2022; Özkara, 2021; Stephens, 2012).

Healthy eLearning hygiene or habits should not only focus on reducing fatigue or cognitive overload, but also consider the potential effects of isolation. Research on student satisfaction often details that many students feel more isolated when they have to learn from a distance or online (Bell et al., 2022; Ng et al., 2021; Rossetini et al., 2021). On the removal of the lockdown protocols, many students immediately returned to campus, even when teaching remained online, citing the need to feel connected to their institution, purpose, and peers, and for the benefits of socialising and accessing institutional materials (Ng et al., 2021; Rossetini et al., 2021). Learning new physiotherapy practical skills often requires students to perform the actions on their peers. This requires the students to build rapport and trust among themselves. This form of interaction is considered a fundamental part of learning communication and social and networking skills, within the course with peers and tutors alike (Green et al., 2018; Ranganathan et al., 2021; Rossetini et al., 2021). Therefore, separation from face-to-face contact, preferably on campus, between students and tutors, should not be prolonged if a reduction in feelings of isolation and improved interprofessional skills is to be improved. Similarly, educating students around healthy eLearning habits may be beneficial to their wellbeing and learning efficacy. Essential habits include establishing a schedule, taking breaks from studying, exercising, regulating stress, and having a dedicated study space at home (Kumar et al., 2022; Ng et al., 2021; Rossetini et al., 2021).

The results from this survey suggested that the effects of the COVID-19 isolation and lockdown policies did not vastly affect participants' theoretical learning; however, they did negatively impact their perceived practical skills development. eLearning is largely supported as a successful tool in presenting theoretical knowledge, yet it can present a hindrance to developing practical health skills (Ng et al., 2021; Pham et al., 2021; Plummer et al., 2021; Rossetini et al., 2021). For students who had limited ability to attend classes or who were faced with significant accessibility issues, the flexibility to still receive tutor-led theoretical online teaching sessions was greatly appreciated, which resonates with other studies (Ødegaard et al., 2021; Rossetini et al., 2021). Indeed, research has shown that satisfaction and academic performance are similar for both distance/online and face-to-face teaching (Ødegaard et al., 2021; Rossetini et al., 2021). However, the consensus is that a physiotherapy degree can never be delivered effectively with a solely eLearning approach. A pragmatic compromise could be a block-blended mode of delivery (Ng et al., 2021; Ødegaard

et al., 2021; Plummer et al., 2021; Rossetini et al., 2021). As demonstrated in this study and in agreement with the literature, some students believe a blended approach would be likely to allow them more time to comprehend lecture content via online lectures and then consolidate information through face-to-face practical classes (Ng et al., 2021; Ødegaard et al., 2021; Rossetini et al., 2021). The current block-blended andragogy Wintec uses for delivering the physiotherapy degree is backed by this evidence base, assuming the programme continues to recognise the importance of offering face-to-face practical classes and dedicates resources and time to developing effective eLearning-specific content. The participants in this study also indicated that they would have benefitted from being offered extra practical on-campus sessions, to make-up for lost opportunities during the COVID-19 lockdowns and placements missed. This should also be considered a priority, as the research clearly indicates that online learning alone is not enough to reproduce work-readiness confidence in practical skills (Bell et al., 2022; Ng et al., 2021; Plummer et al., 2021).

This study includes some limitations, which require consideration. The sample was small, but in this instance, there was only a small population to draw upon; the 44% completed return rate was considered moderate. Sex, age and ethnicity demographic data was not captured in this questionnaire, and therefore could not be considered within the analysis of the findings. Future research studies should consider these variables to perceive any inferences they have on results. Although the survey was anonymous, the participants may have suspected that tutors could access the data, potentially leading to un/intentional responder social desirability bias (Baldwin et al., 2022). Likewise, the survey questions were generated in conjunction with the programme's academic staff and subsequently analysed by some of the same staff members, which may raise concerns about potential reporter bias (Baldwin et al., 2022). Similarly, minimal assessment of the validity of the survey content by external sources beyond the authorship/survey team was undertaken prior to release, further increasing risk of bias and reduced validity (Tsang et al., 2017). However, some efforts were made to involve a small group of local industry physiotherapy stakeholders (private clinic, special interest group members, and District Health Board), to ask their opinion on what they would like to ask the students prior to completion of the questionnaire design stage.

This study explored students' perceptions regarding the impact of teaching format or changes in delivery, but offered limited opportunity for participants to provide their thoughts on whether this delivery format and learning was effective in preparing them for their professional role. Future studies should focus on student, tutor, and hiring employee satisfaction (DHB or private physiotherapy managers) in regard to work-readiness and the behavioural transition of skills learnt via a blended-block learning andragogy once put into practice, against some form of patient or treatment outcome performance. Perhaps a Kirkpatrick evaluation model could be utilised when planning for future studies, utilising the four domains – the assessments of reaction, learning (knowledge, skills, and attitudes), behaviour, and outcomes (Smidt et al., 2009). Similarly, while this study reports students' perspectives of the block-blended learning

approach, it does not detail which specific teaching strategies are most effective for block-blended learning, which could also be a focus of future research.

CONCLUSION

The findings of this study suggest that a block-blended andragogy for a physiotherapy degree is plausible and can be accepted by students in terms of satisfaction. However, we were unable to evaluate student performance, which is an area of future research.

KEY POINTS

1. Practical block-weeks should not be placed consecutively in the timetable, with a recommendation of having blocks no longer than 3 weeks apart. This dispersion may reduce the chance of cognitive overload and fatigue yet retain effective transition of theoretical knowledge to practical skill development and reduce feelings of isolation. If programme resources allow, consider a mixed weekly eLearning and face-to-face teaching delivery approach.
2. Students suggested shorter online teaching sessions and consistent scheduling within the timetable – approximately 60–90 min session length and regular 15–30 min breaks.
3. Institutes should prioritise the upskilling of tutors on designing eLearning-specific content that is interactive, engaging, and effective.
4. For students who miss aspects of the programme (e.g., full-time eLearning during the COVID-19 pandemic), catch-up face-to-face classes/workshops should be offered to build self-efficacy in practical skills for students.
5. Healthy eLearning habits should be promoted among students and staff including establishing a schedule, taking breaks from studying, exercising, regulating stress, and having a dedicated study space at home.
6. Care should be taken to check students are not feeling isolated by eLearning and more opportunities for intra- and inter-class bonding, on campus learning, or interaction may be beneficial.

DISCLOSURES

No funding was received to assist with the preparation of this manuscript. All four authors are currently or were recently employed in the physiotherapy department, Waikato Institute of Technology (Wintec) (Te Pūkenga), whose programme is being discussed within this study. However, the published results of this study are to explore programme development and will not result in any financial gain or loss to the institute or affect author employment.

PERMISSIONS

Ethical approval for this study was granted by the Wintec Human Ethics in Research Group (reference: WTLR13120422). All participants provided written, informed consent via the online Qualtrics questionnaire as stated within the methodology of this manuscript.

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CONTRIBUTIONS OF THE AUTHORS

Conceptualisation and methodology, SB, KS, PL, and RC; writing – original draft preparation, SB; writing – review and editing, SB, KS, and PL.

ADDRESS FOR CORRESPONDENCE

Suzanne Belcher, Physiotherapy Department, Centre for Health and Social Practice, Waikato Institute of Technology (Wintec) (Te Pūkenga – New Zealand Institute of Skills and Technology), New Zealand.

Email: suzie.belcher@wintec.ac.nz

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Appendix A

STUDENT QUESTIONNAIRE

The Wintec physiotherapy department is undertaking a review of how the programme is delivered.

We are very keen to gain taurira (student) input. Your answers will be anonymised. The information from the survey will be used to guide future development of the programme.

1. What year are you presently enrolled in?
 - a. Year 2
 - b. Year 3
 - c. Year 4
2. Where was your usual place of residence prior to starting the programme?

If Kirikiriroa (Hamilton) was and still is your place of residence, please go to Question 4.
3. If Kirikiriroa was not your place of residence prior to starting the programme do you still reside at this original address?
 - a. Yes, full time
 - b. Yes, except for block-weeks
 - c. No, but still reside outside of Kirikiriroa
 - d. No, have moved to Kirikiriroa for the study year
 - e. Other

The Wintec Physiotherapy programme has been developed as a bespoke block delivery. We want to reassess if this is still the best option for taurira.

4. Would you recommend the block delivery?

Yes / No / Possibly

Comments
5. Would you prefer to stay with the block delivery over the course of your study?

Yes / No / Possibly

Comments
6. Would you prefer being on campus for the full semester?

Yes / No / Possibly

Comments

The following questions relate to the impact of Covid. Covid has had a significant effect on us all; however, we are keen to gain an understanding of how it has impacted your learning.

7. As we moved from kanohi ki te kanohi (face-to-face) to being completely online do you feel you have missed out on theoretical aspect of your education?

Not at all / Somewhat / Significantly

Comments

8. As we moved from kanohi ki te kanohi to being completely online do you feel you have missed out on practical aspect of your education?

Not at all / Somewhat / Significantly

Comments

9. Has the physiotherapy department been proactive in supporting you during these difficult times?

Yes / No / Somewhat

Comments

As a department we want to learn and improve on how we handled the Covid crisis. We would appreciate you outlining things we did well and things we need to improve on.

10. Did you feel the programme supported you with your learning?

Yes / No / Somewhat

Comments

11. Did you feel the programme made allowances for the impact of COVID on you?

Yes / No / Somewhat

Comments

12. How would you rate your clinical/placement experience?

Excellent / Very good / Good / Fair / Poor / Have not had clinical yet

Comments

13. Has your clinical/placement experience been affected due to COVID?

Yes / No

Comments

14. Thinking about this year are there specific areas that you feel the programme could offer to ensure you have the best learning experience?

Comments

15. Have you felt supported by Wintec student services during the COVID pandemic?

Yes / No / Somewhat / Have not needed to use them

Comments