

Enriching clients' lives and student learning through a University work-integrated learning exercise prescription program

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Traditionally work-integrated learning (WIL) programs document tripartite outcomes for students, workplace organisations and universities. This qualitative research study considers a fourth stakeholder, the client. It examines clients' (n=40) perceptions of the benefits of being part of an on-campus Exercise Prescription Clinic (EPC), and students' (n=22) perceptions of their learning outcomes from participation in a New Zealand university's WIL program within a Bachelor of Sport and Exercise. The clinic provides opportunities for clients to undertake physical activity, training and rehabilitation programs in a social, supervised and safe environment, and is accessible to anyone who wants to improve their fitness for sport or health. The findings reinforce the importance of developing WIL experiences that enrich both benefits for the clients and enhance the learning outcomes for students. Designing authentic industry WIL clinical experiences for future health professionals should also enable students the opportunity to engage with a range of clients.

Keywords: Work-integrated learning, exercise prescription, client benefits, student perceptions, qualitative research

Exercise prescription programs have long had a positive relationship among scholarly literature with management and prevention of disease, and reducing risk factors for chronic conditions (Hodges et al., 2018). However, within New Zealand half of all adults are classified as sedentary and are not achieving the minimum recommended amounts of exercise for at least 30 minutes or more five days per week (Ministry of Health, 2014). Exercise interventions have demonstrated improvements in a range of physical fitness components including muscular strength, aerobic capacity, walking performance, fatigue, balance and gait whilst also improving quality of life (Motl & Pilutti, 2012). In many exercise prescription programs clients usually attend a total number of sessions, 2-3 per week for around 8-12 weeks (DeBolt & McCubbin, 2004; Carter & White, 2003; Umpierre et al., 2011; Hoffman et al., 2016). Physical activity programs have also documented a reduction in disease flare ups such as those related to multiple sclerosis (Motl & Snook, 2008; Petajan et al., 1996), and disease progression in some clients who incorporate long-term physical activity into their lives (Stuifbergen et al., 2006).

Clinical Exercise Physiology is an emerging health profession within New Zealand, that has seen significant growth (Sealey et al., 2013; Smart et al., 2016). A registered Clinical Exercise Physiologist (CEP) is an allied health professional specialising in the management of a wide range of non-communicable diseases and conditions. They are equipped with the knowledge, skills and competencies to design, deliver and evaluate safe and effective exercise prescription programs, which typically vary in length of intervention. To become registered in New Zealand, exercise science students are required to complete 500 hours of testing, program planning and supervision of individual clients with non-communicable diseases. Students complete at least 200 hours of clinical practice at undergraduate level before they are able to move to postgraduate level where they complete a further 300 hours and can apply to become a registered clinical exercise physiologist. Maximising such authentic work-integrated learning (WIL) experiences for exercise science students and developing competencies in this context (Fleming et al., 2009) requires organizational, pedagogical and

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interpersonal support (Clarke et al., 2010), as well as being responsive to student interests to meet the needs of industry and employing groups (Reddan & Harrison, 2010). Enhanced self-efficacy, career development, and employability outcomes have been highlighted for exercise science students through participation in WIL programs (Redden, 2015; 2016; 2017; Reddan & Rauchie, 2016).

The benefits of WIL programs are well documented in terms of the tripartite outcomes for students, workplace organisations and universities (Martin et al., 2011). Sealey et al. (2015) reinforced the importance of enhancing and sustaining placement supervision in such clinical settings to ensure safe practice and competency based assessment. This supervision needed to be focused on effective communication, clinical and procedural skills, and technical proficiency, as highlighted by Naumann et al. (2014). A review of exercise science students' WIL experiences undertaken by Hall et al. (2017) noted that "key graduate attributes of communication, discipline specific knowledge and skills, and to some extent, global citizenship, were attained" (p. 110).

This study considers a fourth stakeholder: the client. To date, the benefits for the clients of such programs have not been documented. Instead research has focused on a simulation-based education experience for students training to be a Clinical Exercise Physiologist (Horstmanshof et al., 2016), where the authors argued that further research is needed to demonstrate the health gains for clients who participate in such programs. Therefore the aims of this current study are to examine the benefits for the clients who participate in the Exercise Prescription Clinic, along with the students' perceptions of their learning outcomes from participating in a WIL program. In terms of exercise prescription, students provide individualised programs for clients depending on their goals.

CONTEXT

The purpose of this paper is to examine how a New Zealand University's WIL program within a Bachelor of Sport and Exercise major in Exercise Prescription and Training has benefitted clients and students. Third year (Exercise Prescription major) students take a double semester 30 credit Exercise Prescription Practicum course, where over the duration of 8 months they exercise test and train clients in an on campus supervised clinic. Many of these clients are impacted by non-communicable diseases including cardiovascular, neurological and/ or muscular skeletal conditions such as chronic fatigue syndrome and multiple sclerosis (Hodges et al., 2018), but may also be healthy individuals who want to regain fitness, or athletic populations looking for an edge for performance. Clients are referred to the Exercise Prescription Clinic from three primary sources: a regional Sport Trust's 'Green Prescription' program, the Multiple Sclerosis Society and a local psychology clinic. All students apply theory to practice by using evidence based literature whilst designing their own fitness assessments and exercise programs, which are related to the goals of their clients, along with developing, exploring and sharing ideas amongst the class. These are checked by the course coordinator to ensure the program is safe and appropriate for the client to complete. Many students taking the Exercise Prescription Practicum are contemplating a role as a Clinical Exercise Physiologist. This WIL opportunity allows the students to explore a real and authentic learning experience where students develop professional relationships and confidence whilst exploring the attributes required to be a Clinical Exercise Physiologist. All clients have medical clearance before being accepted into the program, and most clients return for multiple semesters to optimise their health and fitness outcomes.

In 2015, Massey University established an Activity-based Locomotive Exercise therapy program (ABLE-T) to help provide independence and functional ability in individual clients with spinal cord injury and mobility problems with multiple sclerosis. The locomotive exercise therapy utilises a

harness lift system, which provides partial bodyweight support for these clients. Access to locomotive exercise therapy is limited and costly in New Zealand, however in Australia and the USA it is offered and is a supported treatment for those with spinal cord injuries. The impact of locomotive exercise training is not well reported in the literature. In this paper, two case studies detailing examples of the transformative impact of the ABLE-T program through WIL are further examined, exploring clients' improvements in independence and physical functioning, along with feedback from their respective student trainers.

METHOD

In line with the research aims, data was collected from two groups of WIL stakeholders – clients and students. They were asked to reflect on the benefits of being part of the Exercise Prescription Clinic (clients), and perceptions of their learning outcomes on completion of the Exercise Prescription Practicum (students). Feedback was analysed from 40 clients (30 female and 10 male) after participation in the EPP and 22 WIL students (12 female and 10 male) studying at Massey University, Palmerston North, New Zealand. Students were aged between 20-25 and clients were aged between 20-75 years.

In this case study both authors undertook a thematic content analysis (Braun & Clarke, 2006) of all the clients' feedback and the students' post-practicum reflections from those who had undertaken Massey's Exercise Prescription Practicum in 2018. Huberman's (1994) well-established principles of qualitative data analysis, data reduction, data display, and conclusion drawing and verification, enabled the researchers to effectively identify themes of agreement. The students reflections (captured in Microsoft Word documents) all followed a similar structure, which included sections relating to learning outcomes and overall experience reflections. The documents were not part of any course assessment but were initially collated to provide detail of practicum placements and learning outcomes for future students to reference. Client feedback was collected via a post exercise feedback form. This was a preliminary study of client feedback and a noted limitation is the small sample size.

The project was approved and deemed to be low risk against the university research ethics criteria (ethics notification number: 4000020549). To address potential limitations of researcher bias, an independent coder provided an objective view of the data and minimised any potential for coding bias by the lead author who was closely associated with the program. This process enhanced the credibility and dependability of the thematic analysis.

FINDINGS

Client Case Studies: Making a Difference, One Step at a Time

Locomotive exercise therapy enables Exercise Prescription Practicum students to make a big impact on the lives of clients with compromised health conditions. Hence, the following two case study examples provide an indication of what may be achievable through locomotive exercise therapy and illustrate the benefits for clients of their exercise program within the Exercise Prescription Clinic. Throughout the findings section, example quotes are provided below using the following client (C) and student (S) coding.

Client 1: A young female with paralysis (18 years old). In December 2013, the client received paralysis as a result of diving into a pool. Her paralysis is from damage to C7 on the spinal cord. Client 1 began exercise training in July 2015. During the ABLE-T sessions there would be 4 people required to help (one to help drive the movement of each leg, one to keep the hips in alignment and another to help start

and stop the treadmill). Students were trained in locomotive exercise treadmill training and were able to put this training into practice with this client. The client would complete 3 bouts of walking, starting with a speed of 1.5 km/hr during bout 1, increasing this to 2.0 km/hr for bout 2, alternating the speed between 1.5 and 2.0 kph for bout 3 and then finishing on 1.6 km/hr for the final bout. The client completed 2 sessions per week of locomotive bodyweight supported treadmill training, along with usual physiotherapy appointments and the completion of a number of sessions using the functional electrical stimulation bike. During the year, she also attended a clinic overseas, for intensive exercise therapy. Exercise results have demonstrated significant improvements on the neuro-recovery scale moving from a 1C to a 2A during the initial first year of training. Then for this first ABLE-T client, the training continued into the next year with another group of students supporting this training. “These sessions were laborious and tiring, but of great benefit to the client” (S16).

In April 2017, the client was able to complete 2 minutes and 10 seconds of walking on the treadmill with harness support by herself (without any help moving her legs), “which was a very big achievement” (S16). She continued with locomotive exercise training and by 2018 she was able to complete more than 20 minutes of treadmill walking with the harness system. In October 2019, she completed the 6 minute walk test and managed to walk 100m within 6 minutes using only a pair of crutches as support. The student highlighted the client’s exponential physical progress, as noted below:

Her ability in walking, balance and strength is now at a point where she’s improving exponentially and quickly. It’s up to me to keep pushing the boundaries with her training, and to keep breaking through these limitations. If we keep pushing the limits, and she keeps improving at the pace she is, I’m confident that she’ll be completely independent in terms of self-mobility in the next 2-3 years (S16).

Over the past five years, the students have been able to access training and then apply this in the real world and the client has been able to achieve some amazing goals too. The results could only be made possible with the Exercise Prescription Clinic and WIL program. This program helps cut down the associated cost of locomotive exercise treatment and also enables the students to develop valuable skills within this area. A 12 week training program was not enough for this client and it was good to be able to complete ongoing exercise training. This client took part in our exercise program for 4 years, alongside going to other specialist clinics around the world for intensive exercise therapy. Initially this client was not able to complete the 6 minute walk test. Following 2 years of the ABLE-T program she was able to complete 29m in the 6 minute walk test, with her walker. Since then she has progressed even more and is now able to climb a series of stairs, as well as being able to complete 100m in 6 minutes with the use of crutches. The client pointed out her significant progress and the invaluable support of the student:

I experienced some significant physical improvement, specifically increased muscle mass and control along with a temporary decrease in spasticity. The support from students was invaluable, since I had very limited muscle control and needed multiple people to take me through the walking motion. The students had good knowledge of anatomy and kinematics and how to use the cues to get a better response from my legs. It felt great to be upright and moving and I always felt safe and well looked after (C16A).

Client 2: A young female with Multiple Sclerosis (22 years old). This client was very unsteady on her feet needing to use the walls around her as support and unable to walk any substantial distance. She had two student trainers across the year. The first student trainer, developed her motor skills as well

as focusing on increasing the strength of the body. The second student concentrated on using locomotive exercise therapy once a week to improve her walking ability as well as completing a further session on strength training. Each student trained Client 2 for 12 weeks. The client's goal was to walk 500 m, as she had been informed that unless she was able to walk 500m independently her access to medication would be restricted. On initial testing, this client was only able to walk for 250m. Following 8 sessions of locomotive exercise therapy and strength training, the client was able to complete 900m. Hence she was able to meet the requirements for her medication. The student details that working with this client brought about both challenges and rewards. One of the most challenging aspect was the communication boundary as Client 2 also suffered from Autism. The student felt it was difficult to explain to the client why they were completing the exercises, but they managed to communicate briefly about the exercises. The student found the experience of working with this client to be "highly rewarding seeing the improvements and gains through the locomotive exercise training" (S2).

Overall the student learned a lot about ways to train those who have major disabilities and gained a significant insight into the levels of motivation and willingness that those with potentially debilitating conditions have to participate in physical activity to better themselves and their future. Having the students to support her during therapy gave her self-confidence, as she trusted them. They were knowledgeable about her health needs, and were able to encourage her as her diagnosis changed. The students were able to increase her self-esteem as they were of a similar age, and had similar interests. The students acknowledged her personal beliefs by letting her set the pace, but by pushing out the boundaries at the same time. They were able to break through some of her social anxiety and social isolation.

Client Benefits

The following themes, identified through analysis of the data, are related to client benefits from their respective WIL experiences. The main themes for the clients were that the Exercise Prescription Clinic experience provided a supported, safe and social environment.

The focus on safety is reinforced by the following client's comment: "My trainer was flexible and reliable, and established a good rapport with me. He actively ensured my technique was correct and encouraged me to push hard" (C5A). Another client noted that "the exercise clinic provided an affordable, supervised and safe environment to exercise. My student trainer has been wonderful during this duration. She has been able to identify underlying causes of my back issues that the physiotherapists haven't picked up on" (C2A).

The clinic enabled social connections and a shared experience with others who also had compromised health conditions. One client pointed out that "the student trainer was easy to talk to, he was very pleasant, friendly and respectful, and had a very professional approach" (C7B). Another client noted that "by going to the exercise program it is easier to do things at home. The students are so great and very understanding. It is great mixing with people of all ages. It provides a good social platform" (C8A).

Clients were monitored by "a friendly, motivating and professional student trainer" (C8) who were instrumental in client's achieving their goals. One client highlighted that "my student trainer is extremely good at what she does and always finds an answer/solution for any issues that occur" (C2A). As this individualised specific program formed course work for the students, the clients were accountable for completing the program. Clients enjoyed that they could build a relationship with their trainer and could exercise and achieve their specific exercise goals within a safe and social environment.

Another client pointed out that “my student trainer made the time of 6am which suited me. He regularly encouraged me through the workouts and explained why he had chosen the exercises” (C17B). The following client reinforced that their fitness training with the student was fun and made them feel great:

I started training with my student trainer when I was 10 weeks pregnant. I am now 35 weeks pregnant. My student trainer has always been fun, adjustable, understanding and encouraging. Maintaining my level of fitness has made me feel great (C3A).

Student Learning Outcomes

The following themes, identified through analysis of the data, are related to the student learning outcomes from their respective WIL experiences. The main themes for the students from their Exercise Prescription Practicum experiences were: reinforced exercise prescription skills, career direction and enhanced self-awareness.

Developing clinical and procedural skills, and technical proficiency was important, as noted in the following student’s comments. “I feel the whole process, which includes meeting with a client, health consultation, fitness testing, training program, reassessment and evaluation of myself, can significantly improve my skills and knowledge” (S7).

The WIL experience and case specific knowledge has reinforced students’ passion as health professionals, provided positive career direction and elevated their employability. One student noted that “being able to work with people and help them is a passion of mine and it only enhanced how much I enjoy it” (S6). Another student pointed out that “working with [the client] has been an enjoyable experience. I have learnt a lot about being able to understand people’s situations and goals in order to create a program best suited for them at that point in time” (S1). Overall the WIL experience provided an important personal learning experience, which has also enhanced professional development and potential graduate employability in the fitness industry:

Affirmed the direction in the sport and exercise industry that I want to take. Overall, I have learnt a lot about myself, the industry and the importance that myself as a trainer has on my clients and their rehabilitation (S2).

Through current WIL opportunities, students have developed increased self-awareness and confidence as exercise practitioners. The following comments reinforce these points. “[The experience] made me feel confident and competent about my ability to be a fitness trainer” (S7) and “I have also learnt a lot about myself and my ability to help individuals like [the client]” (S2). Another student noted they learnt “to manage my placement, my clients, my studies and other activities such as sporting commitments. In the initial stages it was somewhat difficult sorting out times and places to meet clients, which required patience and compromise” (S1). Students also developed their skills in client communication and connections and relationships with industry, “effectively communicating with people of a range of ages, and ethnic backgrounds” (S1) and “building relationships with people of all ages, from different walks of life and being able to help them in a positive, life-changing way” (S6).

The findings indicated that from the student’s perspective there has been learning from the clients in terms of their health challenges and life experiences, which has been motivational and rewarding. One student pointed out that “this experience has been invaluable, and is one which I will be able to draw back on to utilize the knowledge and skills that I have gained” (S1). Another student highlighted that

“seeing the huge improvements from the beginning of the 8 weeks compared to now was by far one of the most rewarding experiences I’ve had this year” (S2).

DISCUSSION

Clients: Supported Safe and Social Experiences

The findings of this preliminary study highlight the benefits of a supported, safe and social environment provided by the Exercise Prescription Clinic. The study reinforces the importance of considering the outcomes and impacts for the fourth WIL stakeholder, the client. The two case studies illustrate the benefits highlighted by clients of the Exercise Prescription Clinic. For Client 1 with a spinal cord injury, the long-term engagement with the different Exercise Prescription Practicum students over five years, has resulted in significant physical improvement. The students’ knowledge of anatomy and kinematics has enabled the client to be safely supported through the gait training to get better connections in the gait cycle. Placement supervision in such clinical settings is to ensure safe practice and competency based assessment, as highlighted by Sealey et al. (2015). Clients, who were often initially nervous about exercising, received an individualised specific program and met with the same student trainer over a period of 10 weeks. For Client 2 with MS, having the students to safely support her during therapy gave her self-confidence. Being knowledgeable about her health needs, allowed the students to challenge the client to achieve her physical goals in an environment that reduced her social anxiety and isolation.

Although to date, the benefits of such exercise prescription programs for clients have not been documented, current findings suggest that further research should be undertaken. Some of the Exercise Prescription Practicum clients have been attending the Exercise Prescription Clinic for between 10-15 years. It would be interesting to examine the long-term benefits and fitness impacts for these clients. Most intervention studies last just 8-12 weeks (Learmonth et al., 2012) with some longitudinal studies reporting information for up to 1-year (Mayo et al., 2020). However, this preliminary study has highlighted that there is currently a paucity of information about the benefits of exercise prescription in WIL programs for clients and further research is required, a point also made by Horstmanhof et al. (2016).

The significance of this article is that without clients, the students would not develop the knowledge, expertise and skills within clinical exercise physiology, and similarly without the students the clients would not necessarily have enhanced their health and well-being whilst enjoying the social interaction and physical activity benefits of exercise training in a safe environment. The Exercise Prescription Clinic provides a catalyst to enhance both student learning and client benefits, and through the Exercise Prescription Practicum utilises the latest evidence-based practice guidelines to assist students to prescribe exercise programs for the clients, some of whom are impacted by neurological and/or muscular skeletal problems (for example chronic fatigue syndrome, multiple sclerosis or spinal cord injury).

Students: Reinforcing Career Direction and Enhanced Self-Awareness

Career development and employability outcomes have been highlighted for exercise science students through participation in WIL programs, as also noted by Redden (2015) and Reddan and Rauchie (2016). The current WIL opportunity provided future professional development for students from the different case studies, which required them to use principles of specificity and individuality due to the various health needs of clients. These challenges added to the student’s exercise prescription case

specific knowledge and application of different exercise prescription protocols, testing activities and training methods. The importance of developing these clinical and procedural skills, and technical proficiency, was also highlighted by Naumann et al. (2014).

Enhanced self-awareness has previously been highlighted as an outcome of WIL programs in exercise science by Reddan (2016; 2017). Through the current WIL opportunities, students have developed increased self-management, awareness and confidence. These authentic work experiences enhanced students' accountability, and challenged their ability to be adaptable and flexible, as well as enriching empathy, motivation and patience, which are important attributes of client care (Naumann et al., 2014).

Interestingly, there were no negative responses reported from the clients that completed the program nor from the students, although it should be noted that there are clients who drop out of the program and students who do not complete the Exercise Prescription Practicum. Hence their feedback could be sought in future research. It is acknowledged that a larger sample of client and student feedback related to clients would also enhance the credibility of further studies.

CONCLUSIONS AND IMPLICATIONS

The benefits of work-integrated learning (WIL) programs are well documented in terms of the tripartite outcomes for students, workplace organisations and universities. However, there has been limited research on a fourth important WIL stakeholder, the client. Whilst the aim of the article was to examine the benefits of the WIL program to clients, what also became evident was the transformative impact of the exercise prescription activity on their lives, through being part of the clinic. For the clients, the clinic provided an affordable, supported and safe environment to exercise, enabling social connections and a shared experience with others having compromised health conditions. From the student's perspective there has been learning from the clients in terms of their challenges and life experiences, which has been motivating and rewarding.

Overall the contribution of these findings is the importance of developing WIL experiences that enrich the benefits for the clients and enhance the learning outcomes for the students. Designing authentic industry WIL clinical experiences for future health professionals should provide students with an opportunity to engage with a range of clients. Such clinics should offer affordable, supervised and safe environments for clients to exercise, enabling social connections and a shared experience with others whom may have similar compromised health conditions.

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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 dealing with Work-Integrated Learning (WIL). IJWIL first published in 2000 under the name of Asia-Pacific Journal of Cooperative Education (APJCE). Since then the readership and authorship has become more international and terminology usage in the literature has favored the broader term of WIL, in 2018 the journal name was changed to the International Journal of Work-Integrated Learning.

In this Journal, WIL is defined as "*an educational approach that uses relevant work-based experiences to allow students to integrate theory with the meaningful practice of work as an intentional component of the curriculum. Defining elements of this educational approach requires that students engage in authentic and meaningful work-related task, and must involve three stakeholders; the student, the university, and the workplace*". 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, etc. WIL is related to, but not the same as, the fields of experiential learning, work-based learning, and vocational education and training.

The Journal's main aim is to enable specialists working in WIL to disseminate research findings and share knowledge to the benefit of institutions, students, co-op/WIL practitioners, and researchers. The Journal desires to encourage quality research and explorative critical discussion that leads to the advancement of effective practices, development of further understanding of WIL, and promote further research.

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Types of Manuscripts Sought by the Journal

Types of manuscripts sought by IJWIL is primarily of 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 best 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.

Best practice and program description papers. On occasions, the Journal also seeks manuscripts describing a practice of WIL as an example of best practice, however, only if it presents a particularly unique or innovative practice or 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.



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