Examining the impact of strength and conditioning internships on exercise and sport science undergraduate students

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The aim of this study was to evaluate undergraduate exercise and sport science students' learning experiences in a strength and conditioning internship. There was a special emphasis on the interns' personal development, the influence of supervision (academic supervisor functioning as a dual professional) and feedback on their development as a strength and conditioning professional. Seventeen exercise and sport science interns participated in a focus group discussion. Four themes were identified from analysis of the interns' perception of their internship experience: positive supervision relationship, student ownership, satisfaction and development of professional skills. The findings of this study provide both academic and workplace supervisors with practical methods in which they can successfully cultivate effective strength and conditioning professionals. While the research findings provide guidelines on an effective model for strength and conditioning internships based on interns lived experience, the key findings are applicable to a range of cooperative learning environments particularly in health science and wellness.

Keywords: Guidelines, personal development, relationship-based education, supervision

In the field of exercise and sports science, the transition from student to professional has well-documented difficulties (Dorgo, 2009; Murray, Zakrajsek, & Gearity, 2014). The student experience during tertiary education is often very different from what goes on in the life of a strength and conditioning coach. For this reason, the formal education and training of such students has been criticized, noting an imbalance in the students' knowledge, noted that students had a sound knowledge of muscle physiology and kinesiology, but fell short in program design and implementation and exercise technique (Elder, Pujol, & Marnes, 2003). Strength and conditioning coaches have been defined as professionals who primarily train athletes to improve performance through the application of their scientific knowledge (Dorgo, 2009). This performance is achieved through conducting sport-specific testing sessions. These include designing and implementing safe and effective strength-training and conditioning programs, and, providing guidance regarding nutrition and injury prevention. Thus far, strength and conditioning research has been conducted in the context of education, self-reflective practice and professional development (Chan & Mallett, 2011; Dorgo, 2009; Gilbert & Baldis, 2014; Jeffreys & Close, 2012; Kuklick & Gearity, 2015; Szedlak, Smith, Day, & Greenlees, 2015; Tod, Bond, & Lavallee, 2012). The characteristics and behavior of effective strength and conditioning professionals include possessing advanced knowledge, foundational and applied practical knowledge and inter- and intra-personal skills. It also involves possessing the social and higher order processes that accompany the social and cognitive process of being a teacher and mentor: emotional intelligence, relatedness, closeness, authenticity, sincerity and role modeling (Chan & Mallett, 2011; Gilbert & Baldis, 2014; Szedlak et al., 2015).

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High-quality work-integrated learning (WIL) opportunities are beneficial to students, because they bridge the gap between students' theoretical knowledge and their work experience. Work-integrated learning in the strength and conditioning field exposes students to the intimate details of what the job entails. Students are often oblivious of the innumerable hours spent planning, networking and coordinating with coaches, administration staff and athletes (Murray et al., 2014). Students participating in WIL opportunities are provided with a chance to acquire a broad understanding supported by practice. Strength and conditioning work-integrated learning offers the opportunity to shape professional growth through reflective practice, and a mentoring relationship between practitioner and student (Gilbert & Trudel, 2001). Theoretical models of effective strength and conditioning internships proposed in the research are based on interns getting their hands dirty - 'doing strength and conditioning', developing a team-like environment to enhance learning, challenging interns to fill the gaps in their learning and producing professionals who are autonomous and self-directed through self-reflection (Murray et al., 2014). However, there is limited data describing interns' experiences in a work-integrated learning based strength and conditioning internship. Furthermore, research describing an evidence-based strength and conditioning internship model is limited.

The aim of this study was two-fold:

a. to capture students' experiences in an strength and conditioning internship, with specific emphasis on what impact participation in the internship had on the interns':
    i. personal development,
    ii. self-reflective practice,
    iii. strength and conditioning specific practices and
    iv. development related to supervision and feedback received
b. use the student experience to develop a relationship-based model for strength and conditioning internships

Students' undertaking a Bachelor of Exercise and Sport Science degree at the Universal College of Learning (UCOL), New Zealand, are required to complete practicum hours as part of their paper outcomes and curriculum document. Seventeen participants (13 males and 4 females) with a mean age of 26.4 years (SD = 7.1 years) engaged in one of the four WIL opportunities presented to a combination of year two and three students: basketball (n=4), racket sports (n=9), speed, agility and quickness (n=2) and rugby (n=2). Advertisements for the WIL opportunity stated interns would have the chance to work alongside and learn from strength and conditioning professionals, while being under the supervision of academic staff. They would learn skills to develop and deliver strength and conditioning services such as exercise testing and prescription for high performance athletes across a range of age groups. The mean involvement for the year was, 33.2 weeks (SD = 19.4). The mean time commitment per week was 4.5 hours (SD = 5.84) for planning and 4.3 hours (SD = 5.04) for training athletes.

METHODS

Prior to commencement of the study, ethical approval was granted from the Universal College of Learning (UCOL) Ethics Committee. A semi-structured focus group method was selected to elicit the respondents' experiences during their participation in the internship and to gather a multiplicity of views and ascertain emotional processes within the group context. The interview focus group was divided into sections, namely personal development, the impact of supervision and feedback, self-reflective and strength and conditioning specific practice. It was developed based on previous research

focusing on effective behaviors and characteristics among strength and conditioning specialists (Gilbert & Baldis, 2014; Murray et al., 2014; Narayanan & Olk, 2010; Szedlak et al., 2015).

Group composition was determined by the number of different internships within the study: basketball, racket sports (tennis, squash, table tennis and badminton), speed, agility and quickness and rugby) therefore, allowing for four separate focus groups, one for each of the internship groups. Following the qualitative methodological guidelines for moderating a focus group outlined by Gill, Stewart, Treasure, and Chadwick, (2008), the researchers facilitated an in-depth discussion in which interaction between interns regarding their common experiences was encouraged (Gill, Stewart, Treasure, & Chadwick, 2008). Focus group sessions lasted 60-90min and were recorded onto a standard dictaphone before being transcribed, verbatim. Using the six steps outlined by Braun and Clarke (2006), focus group transcriptions were analyzed using inductive thematic analysis. Similar approaches have been utilized in strength and conditioning research (Pritchard, Tod, Barnes, Keogh, & McGuigan, 2016; Szedlak et al., 2015; Tod et al., 2012). The transcripts were read and re-read in their entirety to understand the scope of all the responses received from the focus-group discussions.

To ensure the research questions were answered, all the responses belonging to a particular area of impact (personal development, supervision, feedback, self-reflection and strength and conditioning specific practices) were grouped together. Manual data coding followed from the responses received within each of these areas.

Qualitative issues of credibility and dependability were addressed in three ways:

i) respondent validation by engaging participants to comment on the transcripts, the dimensions identified and to confirm the interpretation accurately described their internship experience,
ii) using a range of verbatim responses to the interview questions to support our findings and
iii) engaging an independent educational researcher to reduce research bias. Overall, four dimensions that summarized the internship experience were identified and labeled: relationship, satisfaction, ownership and professional specific skills.

FINDINGS

Supervisor Relationship

The first dimension identified was the positive supervisor relationship between the intern and the academic supervisor functioning as a duel professional. Responses revealed that interns valued a supervisor who provided a structural model of the internship and managed that structure. Interns expressed appreciation for a supervisor who struck the delicate balance of giving them the autonomy to make decisions (facilitating a sense of ownership) but provided the support interns needed when they encountered challenges. Incidences in which the supervisor modeled behavior specifically – interacting with and motivating athletes and their technique correction - were highlighted as significant learning moments. Intern E said "the way (the supervisor) does things is good to watch, even if it's just correcting movements and learning off that". Interns felt like they were able to have a voice in making the internship a valuable experience. Activities such as group brainstorming at meetings, being made to feel as an "equal to the supervisor", "honored", "respected" and "recognized" greatly contributed to a feeling of satisfaction during the internship. Within the different internship groups, the existence and impact of supervisor feedback was heavily dependent on the model of the internship. Supervisors

who were present at the training sessions were appreciated as they provided feedback to the interns on exercise-technique correction; provided clarity on program prescription and design, and provided advice on challenges the interns were facing. However, the absence of the supervisor at training sessions and lack of real-time feedback was linked to a level of intern disengagement. Subsequently, interns who received formalized feedback on their performance had a positive response when asked about their belief in themselves to make a difference as a strength and conditioning professional. A quote which was representative of the group was summarized by an Intern E's response: "(the supervisor) believed in me and said I could do it and that was more than I believed in myself. I think I've grown in confidence and as a person throughout this internship." Additional forms of feedback from athletes, parents of athletes, coaches and peers were identified as valuable sources of feedback from Intern E: "(parents of athletes) said that (our training) had made a real impact on the athletes' performance." Feedback received from pre-test and post-test analysis contributed to their self-efficacy and satisfaction expressed by Intern G: "Looking at the testing videos you saw huge improvements in athletes, not only in their skill but their muscle definition, you end up feeling proud of yourself."

Student Ownership

The second dimension discussed was the level of 'ownership' and its contributing factors in the internship. As the interns spoke about the value of ownership, they spoke of how the supervisor had facilitated this within their internship experience. This was achieved by voicing high expectations in the form of job descriptions for the interns. Interns were collectively responsible for planning and implementing strength and conditioning exercise sessions and contacting athletes and coaches to co-ordinate these sessions. Intern H described the experience as "A bridge between education and the (strength and conditioning) industry because in the industry you're going to be responsible for everything, so it's just good to have a go at that responsibility now".

The interns referred to these moments as "being outside their comfort-zone". Individual roles within the group such as "head intern" provided opportunities for interns to hone their leadership skills. This clarified the role of individuals and the tasks for which they were responsible. Functioning as a team with individual roles made interns feel more accountable (to each other) for the tasks they were responsible for fulfilling. Through reflective practice interns endeavored to find the best solution for planning and implementation of strength and conditioning. Intern P attested to participating in problem solving on a continuous basis as their training sessions seldom went to plan and the interns were required to engage in additional planning and preparation.

Student Satisfaction

The third dimension interns discussed was the significant amount of satisfaction derived from their participation in the internship. The sources of satisfaction were varied but consistent with the strength and conditioning profession. The responsibilities of the internship displaced them from their comfort zones, encouraged them to think on their feet and get on with the business of being strength and conditioning professionals. Intern E said: "Having responsibility for a group of athletes, teaches you how to form relationships with people who are different ages".

The success obtained from these moments, combined with positive feedback, awarded a sense of achievement and accomplishment that was not previously experienced (pre-internship). Intern G said "I enjoyed watching the athletes develop both in confidence as well as their movement competency", while Intern M said: "It made me want to be a teacher".

The emotional intelligence involved in successfully managing a group of athletes in a strength and conditioning session; understanding human behavior and beliefs, interpreting emotions and moods and responding to them was reported as another valuable process that made a unique contribution to their development as professionals. Intern Q said: "This (internship) opened my mind further to the diverse nature of peoples thinking and understanding of aspects in sport and society". The satisfaction derived from the internship experience linked to interns' future plans for postgraduate study. Twelve interns (63.2%) planned to pursue postgraduate qualifications in either strength and conditioning, clinical exercise physiology or teaching.

Development of Specific Professional Skills

The researchers identified being data driven, intentional, purposeful and reflective in strength and conditioning practice, with the addition of possessing professional - specific skills as the elements that make an effective strength and conditioning professional. The fourth dimension identified was "profession specific skills". Only one out of the four intern group's reported to know the impact their training was having on their athletes. This internship was modeled from industry and involved pre- and post-performance testing. Intern L said:

> I know exactly where the athlete is, where they need to be and how I'm going to get them there. I'm always looking for where I can have an impact – spotting in-competencies and identifying what needs to be done to remedy that.

As a result these interns were able to be more intentional and purposeful in their approach: they were involved in planning training sessions, goal setting, progressions and ensuring athletes were continuously motivated to achieve training goals. Despite this, all interns reported that the internship encouraged them to become reflective. Interns reported reflecting on their profession - specific competencies (exercise techniques, program design, teaching correct form and techniques and athlete management) and the level of ownership they had and what they saw as their role within the internship. Through such reflective practice the interns reported to strive for a level of perfection in delivering the strength and conditioning programs to the athletes Intern G expressed this by saying "I'm always considering the possibilities of what could've been better or what could've been done differently and the ways of improving".

The profession - specific skills acquired by the interns can be classified as hard and soft skills. Using Dorgo's (2009) classifications of foundational and applied practical knowledge, the components highlighted in Figure 1 and 2 illustrate the skills acquired during the internship. The interns summarized not having achieved the following skills during the internship: networking skills, evidence-based practice, research skills, periodization, exercise cues and Olympic lifting training techniques. In essence, the product of the internship was an intern who intimately understood what the behaviors of an effective strength and conditioning professional were, interns who were skilled at reflecting on their own practice and therefore an intern who knew what further professional development was required to progress.

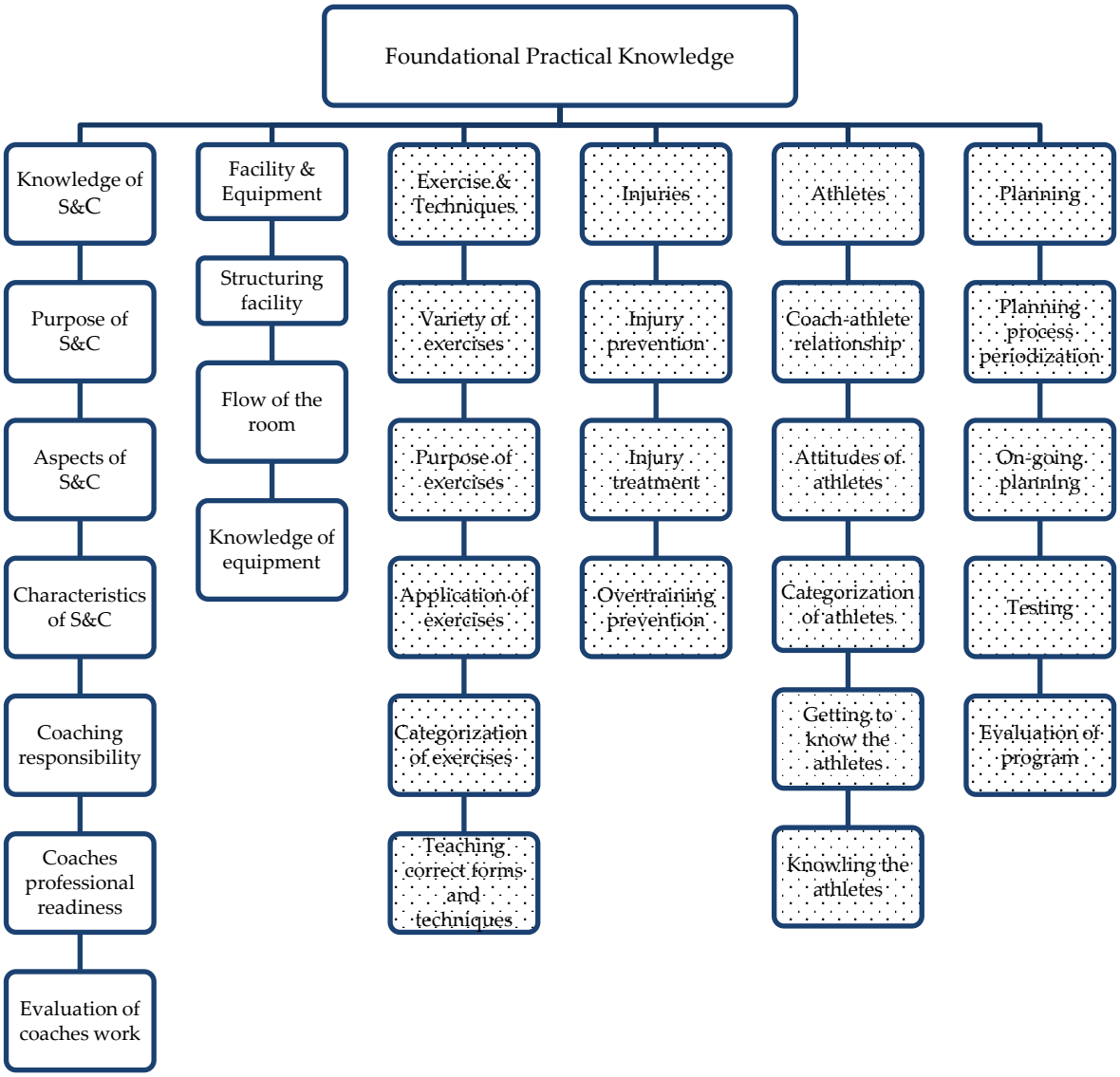

FIGURE 1: Outline of foundational practical knowledge of an expert strength and conditioning professional. Note: patterned boxes indicate the skills interns reported to have developed during their WIL placement.

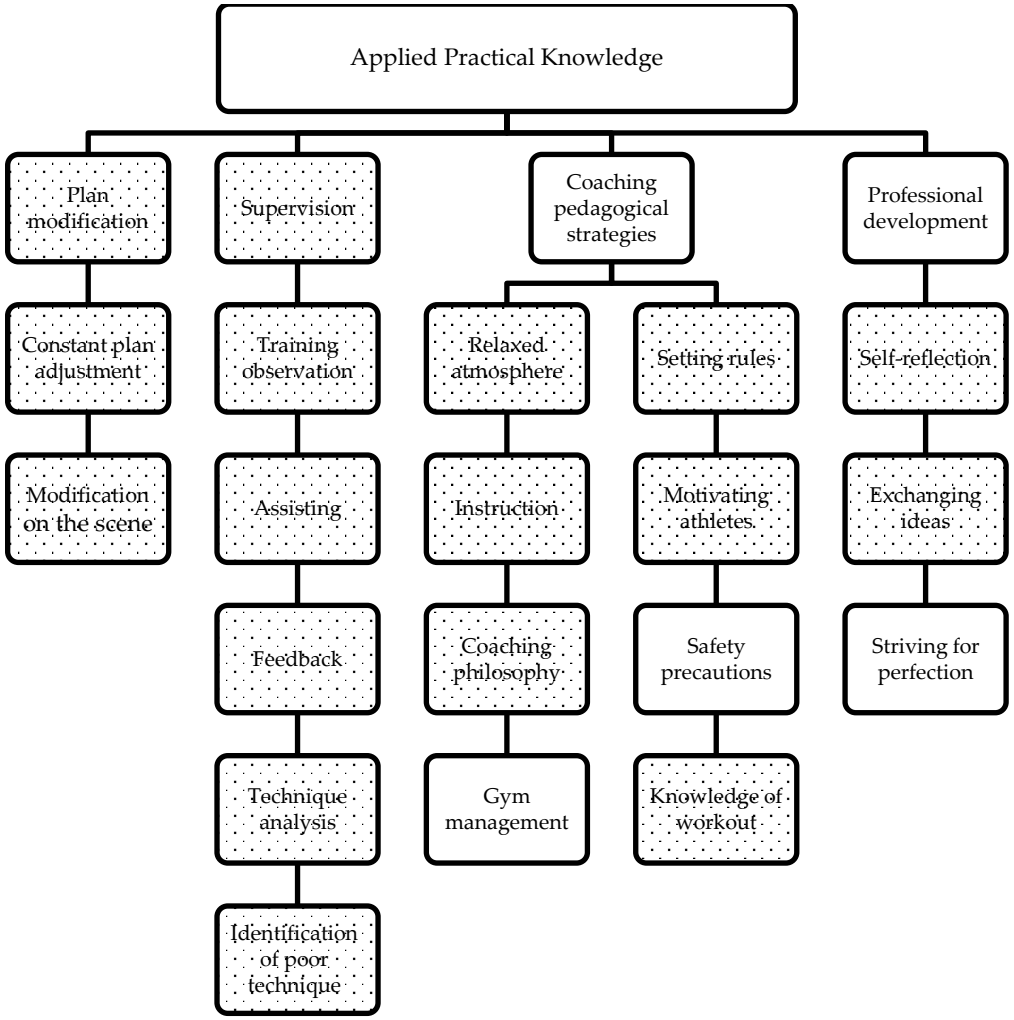

FIGURE 2: Outline of applied practical knowledge of an expert strength and conditioning professional. Note: Patterned boxes indicate the skills interns reported to have developed during their WIL placement.

DISCUSSION

Several studies have outlined the behaviors of effective strength and conditioning professionals, national strength and conditioning associations outline professional standards, and athletes themselves have expressed characteristics of effective strength and conditioning professionals (Chan & Mallett, 2011; Dorgo, 2009; Gilbert & Baldis, 2014; Szedlak et al., 2015). The findings of this current study are novel as it not only describes the interns' experience in a strength and conditioning internship but forms the foundations of a relationship-based model for strength and conditioning internships. The model of internship the researchers propose has four main elements: relationship, ownership, satisfaction and profession-specific skills.

Supervisor Relationship

The findings indicate that the relationship between supervisor (dual professional) and intern was beneficial for the following reasons: the supervisor provided leadership, modeled effective strength and conditioning behaviors and dispensed feedback on intern performance. These aspects of supervision correlated with a significant level of satisfaction among the interns. Supervisors who created the opportunity for interns to take the lead and engage in the practice of strength and conditioning coaching was crucial to the experiential learning process. However, interns required supervisors to be available in the background if the session did not go to plan. This indicates passive participation during the training sessions was preferred. However, when learning opportunities presented themselves, the supervisor would be there to teach, either by modeling or facilitation. Receiving feedback that was personalized on their performance was essential in fostering the relationship between the supervisor and intern. The results of this study correlate to previous research on developing effective internships using a "community of practice" approach (Murray et al., 2014). This experience laid the foundation for critical reflective practice. Internships should create opportunities for interns to critically reflect on their coaching because, according to Kolb and Kolb (2005), this process deepens the learning from the experience. In the context of strength and conditioning internships reflective practice can be achieved through self-reflection, group reflection and reflection based on athletes pre- and post-performance testing results. The experiential learning cycle facilitates abstract conceptualization (Kolb & Kolb, 2005). The challenge for internship models is to formalize feedback and performance management of the interns. An allocation of suitable time for supervision and feedback is crucial in ensuring a quality learning experience for the interns (Jeffreys & Close, 2012). This may occur through feedback given to interns by athletes (either performance testing or anecdotal), sport - specific coach and/or internship supervisors. Irrespective of the source, feedback on interns' performance during an internship should be systematic and formalized.

Student Ownership

The psychological ownership theory has been applied to various educational and vocational settings. It has been described as being the product of student involvement, perceived control, identification and a sense of belonging (Asatryan, Slevitch, Larzelere, Morosan, & Kwun, 2013). The findings of this current study contribute to the literature in the form of establishing an intimate association between the profession of strength and conditioning and educational research. Strength and conditioning internships often require interns to commit for a prolonged period of time (several weeks): spending hours planning, implementing training sessions and carrying out the responsibilities in Figure 1 and 2. Interns in this study placed a high level of value on having the opportunity to shape their internship experience by being included in the decision-making process and being given responsibilities that are similar to that of a strength and conditioning professional.

Student Satisfaction

Previously published research on internships confirmed that the awareness of expected experiential learning outcomes result in elevated student satisfaction with the educational experience and a sustained commitment to a particular professional (Asatryan et al., 2013). In the current study, internship advertisements publicized several benefits of participation in the internship. These were categorized as experiential learning outcomes specific to the strength and conditioning profession.

Using feedback from supervisors and upon reflection of the skills developed during the internship, the interns reported achieving skills in all these areas:

- confidence to work alongside strength and conditioning professionals and sport coaches;
- skills to develop and deliver strength and conditioning workshops;
- skills associated with planning for seasonal fitness developments that complement the competitive season;
- implementation of exercise strategies;
- working effectively with regional, national and international athletes across a range of age groups.

In addition, knowing the level of achievement obtained in said activities contributed to a greater sense of satisfaction with interns reporting increases in level of self-confidence, motivation and self-efficacy.

Development of Specific Professional Skills

When comparing the profession - specific skills acquired by the different internship groups, it became evident that the internship that simulated the strength and conditioning industry better prepared those interns for the strength and conditioning profession. Therefore, internship objectives should be clear, communicated to interns and aligned with developing the behaviors of effective strength and conditioning coaches outlined in the research (Gilbert & Baldis, 2014; Murray et al., 2014; Szedlak et al., 2015). Being data driven, intentional, purposeful and reflective in strength and conditioning practice, and in addition acquiring professional specific skills (hard and soft skills), are indispensable components of a strength and conditioning internship. The results of this study regarding the variety of hard and soft skills accumulated correspond with previous research that outlined behaviors of effective strength and conditioning professionals (Gilbert & Baldis, 2014; Murray et al., 2014; V. K. Narayanan, Olk, & Fukami, 2010). The mechanism through which the skills (figure 1 and 2) were developed during the internship were through the supervisor modeling, interns been given the opportunity to actually participate in strength and conditioning and interns reflecting on the effectiveness and efficiency with which the skills were carried out. Knowing the behaviors of an effective strength and conditioning professional built a model of success in the interns mind. The model of success combined with the reflection process produced a student who was able to self-determine what the next steps in their development were. This process enabled the content of professional development workshops with their supervisor to be generated by interns' self-reflection. Such a characteristic aligns with behaviors of effective strength and conditioning professionals and taking ownership of their continuous lifelong development (Tod et al., 2012).

Analysis of the intern focus group interviews have resulted in the development of a relationship-based model for strength and conditioning internships. Practical methods through which these components can be developed and implemented in the internship are summarized in Table 1. While these practical methods may overlap, the end product will be an intern who develops into an effective strength and conditioning professional.

TABLE 1: Practical methods for developing and implementing the relationship-based strength and conditioning internship model.

Relationship	▪ Foster a relationship with interns, ▪ Passive participation of supervisor during training sessions and ▪ Provide individualized feedback to interns
Ownership	Provide interns with opportunities to: ▪ Lead the internship, ▪ Mould their internship experience and ▪ Perform typical tasks of a strength and conditioning professional
Satisfaction	Supervisors can maximize intern satisfaction from the internship experience by: ▪ Allocating suitable time for supervision and feedback ▪ Offering systematic and formalized feedback ▪ Including interns in the decision-making process ▪ Communicating standards of success and benchmarking intern's level of achievement ▪ Clarifying internship objectives ▪ Providing opportunities for interns to self-reflect on their strength and conditioning performance
Professional specific skills	▪ Interns need to understand the behaviors of an effective strength and conditioning professional ▪ Those behaviors and skills are taught by supervisor either by modeling or through facilitation ▪ Create opportunities for interns to take on responsibilities that are similar to that of an strength and conditioning professional ▪ Creating opportunities for interns to be reflective, data driven, intentional and purposeful as an strength and conditioning professional

CONCLUSION

The importance of the current research is the resultant development of a relationship-based model for strength and conditioning internships which was informed by the interns' experience. The current model was primarily developed around strength and conditioning however, the relationship-based model and the four dimensions can be applied to a range of WIL contexts, particularly health science and wellness. Firstly, future research is required to examine if implementing the four elements of the internship model in a range of WIL contexts yields the same positive outcomes for students. Secondly, future research is required to measure and critically analyze specific WIL outcomes such as preparation for the workforce, securing employment and earning potential from a relationship-based internship model. Thirdly, quantitative and qualitative measurements of these outcomes will provide convincing evidence for the credibility of the relationship-based model.

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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 favoured the broader term of WIL. In response to these changes, the journal name was changed to the International Journal of Work-Integrated Learning in 2018.

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*". Examples of such practice includes work placements, work-terms, internships, practicum, cooperative education (Co-op), fieldwork, work-related projects/competitions, service learning, entrepreneurships, student-led enterprise, applied projects, simulations (including virtual WIL), etc. WIL shares similar aims and underpinning theories of learning as the fields of experiential learning, work-based learning, and vocational education and training, however, each of these fields are seen as separate fields.

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 IJWIL 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.

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