

Developing clinical expertise in musculoskeletal physiotherapy; Using
observed practice to create a valued practice-based collaborative
learning cycle

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Accepted 16 Oct 2020

Musculoskeletal Science and Practice

<https://doi.org/10.1016/j.msksp.2020.102278>

Key Words

- Clinical expertise
- Musculoskeletal
- Practice-based education
- Physiotherapy

INTRODUCTION

Understanding which educational approaches are successful in developing clinical expertise in the musculoskeletal (MSK) physiotherapy workforce has been identified as a professional research priority (Rushton and Moore 2010). This is supported by the Chartered Society of Physiotherapy in the UK, who identified a priority to understand which training approaches effectively develop physiotherapists' skills to meet patients' needs amongst the top 65 knowledge requirements for the profession (Chartered Society of Physiotherapy 2018).

A narrative review of postgraduate development in physiotherapy found that a wide range of educational approaches are used to advance individual expertise in the profession (French and Dowds 2008). It identified a limited understanding to the success these approaches had on improving clinical practice or healthcare outcomes for patients.

Although dated, no subsequent reviews to identify more contemporary approaches to postgraduate development in the advancement of clinical expertise have been published.

Evidence suggests that observed practice with feedback from a clinical mentor can be a successful approach to develop clinical expertise for MSK physiotherapists (Petty, Scholes, and Ellis 2011). In this study observed practice within a formal postgraduate education programme was acknowledged by MSc students as the primary trigger to improve their clinical practice. However, this knowledge is not transferrable to MSK physiotherapists developing outside of formal postgraduate programmes. Despite observed practice being suggested as a powerful and readily available method of practice-based education to

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support the development of expertise within the MSK physiotherapy workplace (Petty and Morley 2009), there is sparse literature to explore the views of MSK physiotherapists on how this approach can be successfully adopted in a practice setting.

The aim of this study was to explore how MSK physiotherapists exposed to regular observed clinical practice with formal graded feedback, considered this approach to support their development of clinical expertise. This research represents the first formal research completed by the lead researcher, completed as part of a Master's degree programme. The scope of inquiry was purposely focused to MSK physiotherapy to ensure successful completion within the degree timescale.

METHODOLOGY

Design

Due to limited existing knowledge on this subject, a qualitative, theory-seeking research design, aligned to the principles of constructivist grounded theory methodology, was selected for this study (Charmaz 2014). This approach also enabled the researcher's pre-existing professional relationship with participants and their previous experience of advocating observed practice in supporting the development of expertise in the field of MSK physiotherapy to be considered within the study. Ethical approval was obtained from the host university prior to commencement of the study (reference number: UoBSREGPMCarr080618).

Participants

Eleven practicing MSK physiotherapists from one UK physiotherapy organisation which used regular observed practice with formal graded feedback as an established approach to their practice-based education programme registered interest to partake in this study. The selected organisation was an independent healthcare provider with a large team of physiotherapists working across three community sites, predominantly delivering MSK physiotherapy to NHS patients. A single organisation was selected to ensure completion of the research within the time available for the programme of study. Participants were invited to partake in the study via a research poster placed in their workplaces and were formally consented by the lead researcher prior to initial research interviews. A purposive sampling

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approach informed phase one participant selection to ensure maximal variation of the following three pre-identified variables (summarised in appendix A – available online).

- Physiotherapists with a mentor role, a learner role and physiotherapists with both roles
- Physiotherapists who had worked exclusively at the recruiting organisation, with sole experience of the approach to practice-based education being explored and physiotherapists with experience of alternative approaches gained in previous employment elsewhere
- Physiotherapists with a variety of clinical roles to represent a wide range of clinical experience

Methods

Two phases of data generation were completed for this study, within the participant's workplace, both led by the lead researcher. The initial phase comprised of eight individual one hour interviews. Two patient forums and a pilot interview informed the development of an initial interview guide (available online – appendix B). An intensive interviewing style was adopted throughout all interviews to allow the researcher to conduct a broad exploration of the area of study and facilitate the researcher in focusing the interviews towards developing topics of interest (Braun and Clarke 2013). A process of concurrent data generation and analysis was completed following each interview to identify emerging codes and categories which required further exploration in subsequent interviews. This process supported the development of iterative interview guides to ensure questioning became more focused to prevalent and significant emerging codes to facilitate progressive development of conceptual categories (Birks and Mills 2015).

The second phase of data generation comprised of secondary one hour interviews with two participants who had completed initial interviews and a subsequent two hour focus group. Theoretical sampling informed selection of participants for this phase of data generation, sampling participants on their ability to generate data to saturate developing categories (Charmaz 2014). The two participants (P2 and P3) sampled for secondary interviews were selected to explore unsaturated developing categories they had discussed in their initial interviews. Three participants (P9, P10 and P11) who had not completed initial interviews were sampled in addition to all original participants to partake in the focus group to ensure additional insights could be captured. Three participants (P3, P7 and P8) were unable to

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attend the focus group due to work commitments. Due to time constraints, theoretical sampling for phase two generation remained within the single participant cohort. Data generation ceased at this point as the researcher and research supervisor considered sufficient data saturation had been achieved. Subsequent analysis of these data concluded that no new properties were added to the developing categories and that the identified properties provided adequate meaning for patterns within the data, representing the requirements for data saturation in grounded theory research (Glaser 1978, Charmaz 2014, 2006).

All episodes of data generation were digitally recorded and transcribed verbatim by the researcher. Transcripts were returned to participants to review for accuracy prior to analysis. A reflexive journal was maintained by the lead researcher throughout the data generation process to document the influence of their prior knowledge and opinions on the data generation process. Regular researcher memos were also documented to demonstrate how their interpretations of the emerging data affected the analysis processes and subsequent data generation.

[Analysis](#)

Data from each interview and focus group were iteratively analysed through a process of initial and focused coding shortly after the completion of each data generation exercise. Findings from each analysis were dynamically compared to previous findings to develop highly contextualised emerging categories (Birks and Mills 2015). These findings were subsequently analysed using a process of theoretical coding to develop substantive findings towards theoretical codes. This approach aligned to the constant-comparative approach of constructivist grounded theory studies (Charmaz 2014). An experienced research supervisor provided feedback to the lead researcher throughout all stages of analysis. A third researcher informed the theoretical coding phase. The three phases of data analysis used in this study are further explained below.

Initial coding:

All transcribed data from interviews and the focus group were initially analysed by the lead researcher using a process of line by line coding. Gerunds were used to code each line of data with representative actions. This approach ensured that implicit professional terms were not used to describe the data (Charmaz 2014). Qualitative data analysis software was used to support this phase of coding (Nvivo 2018).

Focused coding:

A process of focused coding was completed after each episode of initial coding. Focused codes were constructed by comparing each set of initial codes with previous initial codes, then comparing focused codes with previously established focused codes. This process

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facilitated organisation of data to determine which codes had greater analytical and theoretical power and enabled the lead researcher to define codes which provided greater importance for subsequent analysis (Charmaz 2014).

Theoretical coding:

A phase of theoretical coding was subsequently completed to transition the empirical data represented from initial and focused coding towards theoretical data (Charmaz 2014).

During this phase a secondary literature review was undertaken and findings were positioned within relevant existing literature. Although not considered an essential phase for grounded theory studies, this approach is recognised to add precision and clarity to the resultant findings by considering their relevance and fit to existing knowledge and theory (Charmaz 2014).

FINDINGS

The findings of this study proposed that MSK physiotherapists exposed to regular observed clinical practice with formal graded feedback, considered this approach to support their development of clinical expertise by enabling a three-stage, valued practice-based collaborative learning cycle. This cyclical approach to practice-based education was recognised to require essential processes and human behaviours to result in successful learning outcomes. Direct participant quotes are presented to support the findings which follow, using subscripts of M or L respectively to indicate whether the participant holds a mentor or learner role.

Stage 1 - Requirements prior to learning activity

Two precursory requirements were identified to achieve a valued practice-based collaborative learning cycle. Both focused on reflective exercises required of a mentor prior to engaging in a learning activity with their learner.

1a. Mentor anticipatory reflection

Mentors recognised a need to reflect on their own past experiences of practice-based education prior to engaging in an episode of observed practice with their learner. Mentors described how they drew on these experiences to identify what had been detrimental to their learning outcomes in similar learning situations. They also discussed how anticipatory reflection informed the approach they would take with their learner:

“I have had some awful experiences in the past with people just not being constructive, not being supportive, just giving negative comments so you don’t want other people to go through that” –

P10(M&L)

“when I was the learner I used to hate being watched...so I think having that feeling myself...makes me adopt that more supportive approach” – P11(M)

1b. Recognising a mentor’s moral professional virtue

Mentors identified an intuitive drive to be helpful and facilitative in their professional role. This was recognised when considering direct patient care and also when providing mentorship to support less experienced team members with their professional development. This professional responsibility to adopt a facilitative rather than a critical approach to their mentor role was identified as a consistent tacit understanding of all mentors.

“because that’s just the way we are...we are helping people...I mean, physiotherapy itself is all about empowerment and that’s what essentially we are doing for (our learners)” - P8(M)

“as a physiotherapist, we tend to be...facilitative and help people..., whether it’s from injury or from a learning perspective” - P2(M)

Stage 2 – The learning activity

2a. Situated learning

This study explored one approach to continuous professional development situated in the workplace. Participants identified how engaging in situated learning supported successful learning outcomes by allowing the learner to gain timely feedback on their practice and reflect shortly after a real clinical experience.

“you’ve literally just done the assessment...if I can identify straight away from someone saying...you could have done this..bit better...I would probably be able to learn from that as opposed to someone giving you feedback 3 days after” – P5(M&L)

“it’s nice to go through things while you can...think why you did things and why you didn’t,...you can reflect on it quite quickly while you’ve still got all of your thoughts there” – P4(L)

Participants also placed value on the ability to use this cyclic form of situated learning to demonstrate to their mentor a development of their clinical expertise, applied to an authentic clinical situation.

“a month later and I can demonstrate...that I have worked on (the previous feedback) and I am better now...that’s the motivator for me” – P6(L)

2b. Observed Practice

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Participants identified how observed practice and mentor feedback enabled both mentor and learner to consider and reflect on various forms of knowledge that inform clinical reasoning and clinical expertise. Participants valued how this approach to practice-based education allowed the mentor to cite relevant epistemic knowledge in their feedback. Providing this feedback enabled participants to reflect on the epistemic knowledge cited, in the context of the clinical practice recently observed. This was a motivating factor for learners who were aware that they would be challenged to demonstrate application of this knowledge during future observed practice.

“It’s quite nice to have...articles or literature...linked to the feedback...you can develop quicker because you get to see your key learning points, practice it for a month...and your mentor can see the differences over a month” – P6(L)

Mentors identified that witnessing the learner during a real patient encounter allowed them to consider and evaluate a learner’s application of both professional craft and ethical knowledge. They explained how the observed practice element allowed them to evaluate their learner’s ability to consider the individualised practical issues associated with each episode of clinical care observed. In addition, mentors also identified how the observation of practice allowed them to witness whether their learner would recognise and consider each patient’s own personal values and consider these within their choice of treatment. Participants recognised how this approach to practice-based learning challenges the learner to demonstrate these forms of knowledge both at the time of observation and through the collaborative reflection and analysis that come after.

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“(the approach) works well when the focus is really on clinical reasoning and how you have made your decisions throughout the assessment and then facilitating an awareness of the different ways of doing that reasoning” – P11(M)

2c. Whole-team involvement

Participants described that involving the whole team in this cyclic approach to practice-based education encouraged all team members to continually question their practice, be open to evidencing their feedback if they were in a mentor role and question their feedback if in a learner role. Participants described how whole-team involvement facilitated an active learning environment and empowered the team to embrace a positive learning culture.

“I think having this in place...create(s) an environment where we are a team that wants to continue with learning and development,...people are more encouraged to naturally want to learn in between those watched assessments” – P2(M)

“I think (the approach)...empowers the team...because all of them have to go through it, they all know what it feels like to go through it...they are more likely to feedback and then...the learner will then help others to learn.” – P8(M)

The whole-team involvement in this approach to learning was also recognised to create a healthy sense of competition amongst mentors. Competition between mentors to provide facilitative feedback was considered a further factor that contributed to the positive learning culture created by this approach to practice-based learning.

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“you don’t want to be the one person that does it (feedback) badly,...you don’t want to be that one person that everyone goes ‘oh no I’ve got that person doing my watched assessment’” – P11(M)

[Stage 3 – Collaborative reflection and analysis in a ‘learning community of practice’](#)

A collaborative process of reflection and analysis between the mentor and learner following the episode of observed practice was recognised as a further requirement of a valued practice-based collaborative learning cycle. Findings supported that this reflection and analysis should occur synchronously and soon after the observed practice. The findings also identified that a valued practice-based collaborative learning cycle was only achieved when this collaborative reflection and analysis occurred within a community of practice which shared the following beliefs.

3a. Supporting the concept of an ‘educational alliance’

The findings from this study recognised that the quality of the mentor-learner relationship must be positively perceived by the learner early on in the learning activity to result in a valued learning experience. This finding was further developed during theoretical coding in recognition of its alignment to the concept of an ‘educational alliance’ which has been presented to describe the attributes of a healthy mentor-learner relationship to support successful feedback in medical education (Telio, Ajjawi, and Regehr 2015). Learners described how they were more likely to value a mentor’s feedback if they considered the mentor to understand their individual learning needs and if the mentor portrayed an authentic facilitative relationship with the learner.

“(a good mentor is) someone who...you...have that...working relationship with,... someone who gives good constructive feedback...somebody that’s trying to help you” - P4(L)

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“the approach that we use builds a relationship up between the mentor and the learner which then backs up the fact that it’s a personal thing” - P6(L)

3b. Being vulnerable and sharing fallibilities

The findings of this study identified certain common shared values between participants in relation to vulnerability and the sharing of fallibilities. Mentors consistently recognised a need to share their fallibilities from past clinical experiences. Learners described how this open and honest approach from their mentors enhanced the value of the learning experience by allowing the learner to ‘see’ the personal side of the mentor. Mentors and learners both valued the sharing of these personal experiences to demonstrate how mentors had developed from challenges in their own clinical practice.

“I think it would be...short sighted to not use those experiences...to try and help other people and also demonstrate what can be learnt out of things that haven’t gone quite so well...it also makes you seem a bit more...human when you are sharing your vulnerabilities.” – P11(M)

I’m very happy to share past clinical experiences...it makes you seem more fallible...I don’t want to know that someone watching me...has never got anything wrong” – P9(M&L)

One participant however, did discuss a reluctance to share personal experiences if not supported with scientific evidence.

“I think we are a bit more nervous about doing that because there is a culture to back up everything you say with a piece of research” - P9(M&L)

3c. Adopting a developmental focus

Adopting a developmental rather than an assessment focus to this form of practice-based education was identified as a further shared value by all participants. This was despite the feedback aspect of the approach explored in this study including a summative grading element. Participants described the limited value they saw in a numerical score and the greater value seen in the facilitative developmental feedback provided:

“I’m not necessarily numbers driven, I’m probably more verbal constructive feedback, like this is what you can do better driven as opposed to you have got 7-8 out of 10” – P6(L)

“you have got to be constructive about it,...you have got to...give them feedback,...justify (your) reasoning...and...help them explore how they could have done it differently” – P8(M)

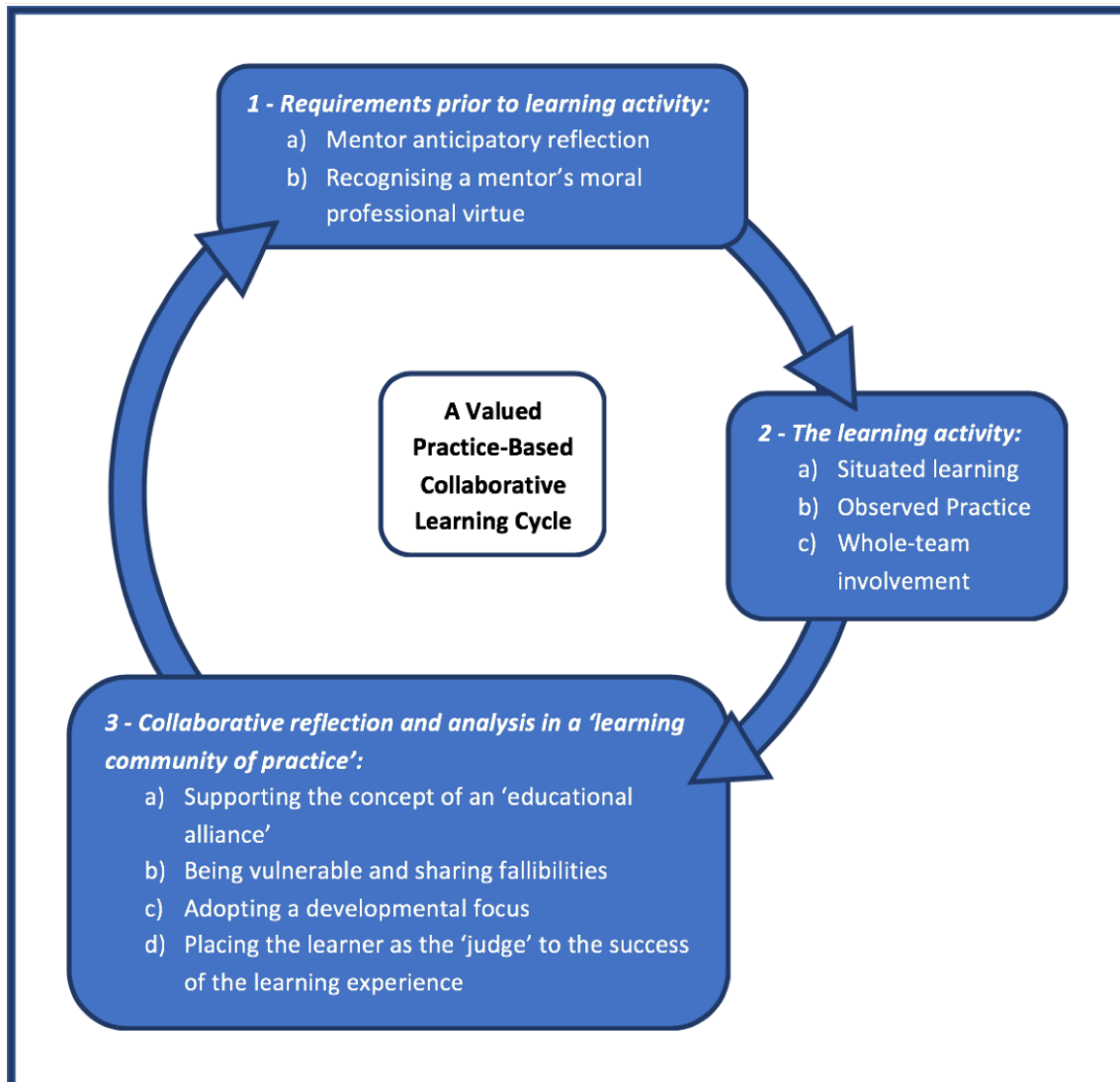
3d. Placing the learner as the ‘judge’ to the success of the learning experience

Participants described how each collaborative review of feedback in this cyclical approach to practice-based education allowed the learner to seek the feedback they considered as meaningful. They described how this allowed them to evaluate this feedback with the mentor and then use this to guide their future development.

“that opportunity to have that time after the assessment in which you discuss it and you tap in to that person’s knowledge and they can guide you...that’s when the experience is the most valuable” –

P1(M&L)

Figure 1: Theoretical framework – A valued practice-based collaborative learning cycle



DISCUSSION

The aim of this study was to explore how MSK physiotherapists exposed to regular observed clinical practice with formal graded feedback, considered this approach to support their development of clinical expertise. A theoretical framework has been developed which describes how participants engaged in this approach considered it to support their development of clinical expertise by creating a valued practice-based collaborative learning cycle. This theoretical framework creates new knowledge to consider within practice-based learning, aligning to the intentions of constructivist grounded theory research (Charmaz 2014).

The theoretical framework describes three distinct sequential phases; 'requirements prior to learning activity, 'the learning activity' and 'collaborative reflection and analysis in a learning community of practice'. This framework builds on previous understanding of collaborative learning to describe a revised three-stage collaborative learning cycle (Cross et al. 2006).

The precursory requirements identified place a priority on the mentor to instigate this development process with an exercise of self-reflection. This offers an alternative view to existing models of collaborative practice-based learning where the learner and mentor have been described as equally involved from the commencement of such a learning activity (Cross et al. 2006, Brookfield 1998). The mentor is required to acknowledge their professional responsibility to support and facilitate less experienced colleagues. This finding

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resonates with existing interprofessional opinion which suggests a practice-based educator has moral responsibility to support the sustainability of the future healthcare workforce (King et al. 2009). The authors of this opinion piece suggest that the moral integrity of a health practitioner is primarily acquired through instruction and example, positioning the practice-educator as the most influential character in the development of a future moral workforce. The framework presented in this study recognises such a moral and developmental focus required of a mentor, both in their initial requirements of self-reflection and in the approach they adopt in the later reflection and analysis phase. This altruistic focus resonates with contemporary professional understanding that suggests physiotherapists are “drawn to their profession because...they like to motivate and help people” (Greenfield et al. 2015, p. 928).

Observed clinical practice situated in the workplace has been presented as an appropriate learning activity to facilitate the development of clinical expertise. The findings of this study have demonstrated how observed practice allows the learner to demonstrate, and the mentor to observe, a range of knowledge types required for clinical expertise. Epistemic or scientific knowledge is recognised as invariable knowledge that is “technical and rational” and traditionally grounded in positivistic inquiry (Greenfield et al. 2015 p. 926). This form of knowledge is recognised as an aspect of physiotherapy practice that we are professionally well developed in (Jensen 2011). This study recognised how regular workplace observed practice with mentor feedback allows the mentor to view the application of such knowledge by the learner within the observed clinical practice. The mentor is able to cite epistemic knowledge within their feedback, relevant to the clinical presentation observed, and the

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learner is able to show application of this knowledge in subsequent observed practice sessions.

Professional craft knowledge is described as knowledge gained through reflection on professional practice experience (Higgs and Titchen 2001). It considers a clinician's level of phronetic knowledge by recognising their ability to integrate epistemic knowledge to the context of the care to be provided, considering how practical issues will affect this care (Greenfield et al. 2015). Ethical and personal knowledge relate to a requirement of a clinician to acknowledge their personal values and consciously consider how these affect treatment interactions with a patient (Higgs and Titchen 2001, Greenfield et al. 2015). Ethical knowledge also recognises the impact of patients' values to the choice of their treatment or care. Mentors in this study identified how observing clinical practice enables them to witness a learner's ability to dynamically consider and apply these forms of knowledge to individual episodes of care. Mentors also valued the ability to collaboratively review the application of such knowledge with the learner in the subsequent reflection and analysis phase. These findings resonate with existing professional opinion and practice-based learning theory, which considers how learning that is situated within the context in which it is created is most likely to result in knowledge acquisition (Cross et al. 2006, Lave and Wenger 1991, Kolb, 1984).

Mentors and learners identified four shared beliefs to describe a community of practice which facilitates effective learning from the collaborative exercise of synchronous reflection and analysis which occurs soon after each episode of observed practice. The quality of the mentor-learner relationship, with specific focus on this being positively perceived by the

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learner, aligns to the concept of an 'educational alliance' described in medical education as critical to enabling successful feedback in practice-based learning (Telio, Ajjawi, and Regehr 2015). A requirement for mentor and learner to embrace vulnerability and share fallibilities was identified as important to achieve valued learning outcomes. These findings resonate with contemporary literature describing vulnerability as a requirement for a positive learning relationship in health professions education (Molloy and Bearman 2019). The authors of this paper present the concept of 'intellectual candour' to describe a requirement to balance professional credibility against sharing vulnerability to produce a valued learning experience. Participants in this study recognised and valued such an approach.

Adopting a developmental focus to this practice-based learning and placing the learner as the judge of the success of the learning activity were also identified as essential to ensure a valued learning experience. These findings resonate with an educational commentary in which the authors present what is considered valued in the process of feedback in medical education (Molloy and Boud 2013). The authors describe how the value of feedback has shifted from a dated perspective of an expert deciding the value of the feedback they deliver to a more novice learner, to a place that situates the learner in the position to define the value. They discuss how the value of a feedback-interaction is defined by its ability to enable the learner to seek feedback that is helpful for their needs, enables the learner to judge and question this feedback, and then use this feedback to support their learning needs. Participants identified how this was achieved in this approach to practice-based learning through open and honest dialogical feedback between mentor and learner. These findings align to contemporary thinking on the salient relational aspects that need to be

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considered for effective feedback processes (Carless 2016). Learners in this study placed little value on summative feedback with greater value considered in developmental feedback. This finding warrants further enquiry, especially in a profession which commonly recognises expertise through the completion of summative formal post-graduate education.

The intention of constructivist grounded theory research is to generate new theory, developed from interpretation of participant data. The findings of this study represent one interpretation to how observed practice with mentor feedback supports the development of clinical expertise. This interpretation has been collaboratively constructed by one team of MSK physiotherapists, the lead researcher and research supervisors. Therefore the results of this research cannot be considered transferable to wider clinical settings but may offer useful inferences to consider within comparable situations (Flick 2013). Further research is recommended to establish the level of transferability of these findings to alternative physiotherapy and wider healthcare settings. Future research is also recommended to consider how the theoretical framework presented can be successfully implemented within the practice setting, with additional evaluation required of the impact of this to patient outcomes.

CONCLUSION

The findings of this study present a theoretical framework to describe how one approach to practice-based development involving observed practice can be 'valued' by those involved. It is proposed that this framework may provide useful inferences for clinical services looking to effectively support the development of clinical expertise within the workplace.

The findings demonstrate a three-stage cyclical process of practice-based development, involving a mentor and learner. The sequential nature of these three requirements provide practical context for others to consider when evaluating approaches to workplace development within their own clinical practice. This theoretical framework may be useful to inform clinical educators aiming to promote improved clinical expertise within the MSK physiotherapy workplace.

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