HEALTH EDUCATION IN PRACTICE

JOURNAL OF RESEARCH FOR PROFESSIONAL LEARNING

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From the Editor

David Schmidt[1]
Journal Manager

Welcome to the second issue of Volume 2 of *Health Education in Practice: Journal of Research for Professional Learning* (HEPJ).

This issue spans many facets of health education, from workplace-based skill development to explorations of education in the tertiary education sector at the undergraduate and doctorate levels.

Assisting people with chronic conditions to self-manage remains a priority for those working in community and outpatient settings. Our first paper by Doyle explores the development of generic skills that can enhance self-management skills. Conducted in the United Kingdom using paediatric diabetes as a backdrop, this study openly discussed the struggles of workplace-based learning and the supportive structures required to scaffold this learning. This thought-provoking study challenges our assumptions about the development of generic skills in the workplace.

Our second paper by Dunne et al discusses the development of reflective practice in speech pathology students. Critical reflection is a cornerstone of lifelong learning and this project used both face-to-face and email facilitation to support both the development and maintenance of this valuable skill. This study demonstrated that the development of reflection as a skill does not follow a consistent pattern but varies from individual to individual.

Exploring the differences and value between professional doctorates and traditional PhD curricula, Larmer et al bring forward their experiences of designing and delivering a professional doctorate program with a specific focus on creating workplace change and leadership. This focus on tailoring learning for the workplace allows the professional doctorate to become a vehicle for practice change.

The readership and reach of the journal continues to grow, with latest metrics demonstrating readership from every continent barring Antarctica. The international flavour of this issue is testament to the journal's reach and it is hoped that this will be a trend that continues.

I am delighted to announce that Professor Kichu Nair has been appointed the journal's new Editor-In-Chief. Professor Nair brings significant experience of medical education to the editorial position through his roles as District Medical Director for the Health Education and Training Institute, Director of the Centre for Medical Professional Development, Hunter New England Health Service and Professor of Medicine and Associate Dean with the School of Medicine and Public Health at the University of

Newcastle. We look forward to continued growth and development under Professor Nair's editorial guidance. The journal has also bid farewell to our editorial assistant Jamaica Eisner and I wish to thank her for the development of guidelines and procedures vital to bringing this issue to publication.

Lastly, journal staff would like to extend a heartfelt thanks to all the academics, clinicians and educators who volunteered their time to be reviewers for the journal in 2019. We are always looking for reviewers, so if you have an interest in health education you are very welcome to contact journal staff and register your interest.

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Professional Learning for Self-Management Support: the Problem of Generic Skills Development

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ABSTRACT

Supporting people to self-manage long-term conditions, such as diabetes and heart disease, is a concern for health-care providers globally. Despite continued attention being paid to the production of educational resources for workforce development nationally and internationally, reports have highlighted that we do not yet know how to best help health-care professionals learn to undertake this work. This article employs sociomaterial workplace learning perspectives to show that many educational resources focus unhelpfully on generic skills and give insufficient consideration to the complicated and complex nature of this work. Using data from a wider study, which explored how health-care professionals in the United Kingdom learn to support children and their parents to self-manage type 1 diabetes, this article examines the informal learning that unfolds in the actions and conversations at work as professionals encounter, consider, explore and (temporarily) resolve specific challenges. This article provides novel insights into this area and suggests alternative ways of understanding, investigating and enabling professional knowledge.

KEYWORDS: informal learning, sociomaterial, professional knowledge.

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INTRODUCTION

Health-care workforces globally continue to face a series of seismic transformations, including those related to the radical redistribution of hospital and community health services, increases in the integration of health and social care services and the growing adoption of digital technologies in the organisation and delivery of health care. Entwined in these transformations is the promotion of people's capacity to self-manage long-term conditions, such as diabetes and heart disease. As the number of people living with long-term conditions continues to increase and unprecedented pressures continue to be placed on available resources, the promotion of self-management is expected to lead to a number of benefits, including those related to a reduced reliance on health services (Department of Health 2010; de Longh et al. 2015). However, such benefits require what was described in a report of the World Health Organisation as a fundamental shift in the relations between professionals and those receiving care (Wallerstein 2006), such that patients are repositioned as experts and personal responsibility for health is prioritised.

Considerable effort has been expended to develop and produce national and international resources to facilitate the required shift. Such resources aim to help health-care professionals develop and use the requisite knowledge and skills to support self-management and include practical guides (de Longh et al. 2015), strategic frameworks (Health Service Executive 2017; Mills et al. 2016) and toolkits (Health Navigator New Zealand 2014; Institute for Healthcare Improvement, n.d.). However, reports highlight that we remain unsure as to how best to help health-care professionals learn to support long-term conditions (Fagan et al. 2017; Health Foundation 2011). As policy initiatives make repeated attempts to guide the work of practitioners, accounts of progress make frustrated reference to the 'gap between policy and implementation' (Alliance Scotland 2017) and the 'chasm between evidence and practice' (COMPAR-EU 2019). One of the difficulties that arises in talk of chasms and bridging gaps is that such discussions rely too much on problematic assumptions about implementing policies in everyday clinical practice and treat professional knowledge as an object that can be acquired and transferred across diverse contexts. As Hager (2004) has argued, this conceptualisation of knowledge often has the effect of separating learning products from learning process, such that generic skills are prioritised in the publication of educational resources while local, context-specific learning in and for work practice remains invisible and unaddressed.

In this article, I adopt an alternative framing of professional knowledge that recognises that learning products and processes are inextricably entangled with one another and with clinical work practices in the production of knowledgeable care provision. If we pause and look more closely at what professionals do in their work to support

self-management, we might begin to better identify and understand the interplay among specific practice, knowledge and learning in this context. We might also begin to explore what Markauskaite and Goodyear (2017, p. 120) have described as the 'heart of learning for knowledgeable action'. This 'heart of learning' comprises the messy, contingent and entangled ways of knowing and doing that characterise the accomplishment of professional work. An understanding that professional knowledge is situated, collective, embedded and embodied in particular contexts, arrangements and practices of and for work (Gherardi 2006; Hager et al. 2012) highlights the serious problems that arise because of the continued emphasis placed on generic skills.

This article draws on findings from a larger study of professionals who were learning to support self-management in a children's diabetes clinic in a busy urban teaching hospital in the United Kingdom (UK). The article focuses on what Fenwick (2008) refers to as 'learning struggles'; that is, the informal learning that unfolds as professionals encounter, consider, explore and (temporarily) resolve particular challenges. Showing that many current resources dedicated to workplace learning give insufficient consideration to the specific practices that are the intended focus of learning, this article provides novel insights into this issue by exploring how the observation and investigation of these specific practices might lead to the development of educational interventions that are better aligned to the learning struggles. It also suggests alternative ways of understanding and enabling professional knowledge to support self-management.

STUDYING HOW HEALTH-CARE PROFESSIONALS COME TO KNOW

The sociomaterial understanding of learning that frames this article enabled the study of learning as enactment (Fenwick & Edwards 2010; Mulcahy 2012; Sørenson 2009), or to put it differently, the study of how learning materialises. Sociomaterial approaches direct equivalent attention to the social world, materiality and material affects, such that there is 'no social that is not also material and no material that is not also social' (Orlikowski 2007, p. 1437). This approach focuses on heterogeneous relations among people and things. Respecting these commitments is 'not simply a matter of adding objects to the account and stirring' (Mulcahy 2012, p. 135); rather, it is a carefully nuanced sensibility that considers the active participation of human and non-human forces and closely examines the effects produced. For example, knowledge is recognised as an effect of relations among individuals and entities, including but not limited to practitioners, buildings, tools, technologies and policies (Fenwick & Edwards 2010; Gherardi 2006).

For the purpose of this study, professional learning is defined as 'expanding human possibilities of flexible and

creative action in contexts of work' (Fenwick 2008, p. 19). Learning is investigated as a practical accomplishment. Adopting the approach of Gherardi (2006), knowledge is construed as something that people do rather than something people possess. Of central interest in this approach are the 'relations among the everyday interactions, routines and material arrangements in particular environments and forms of knowing generated from these' (Hager et al. 2012, p. 3). Thus, consideration is given to what professionals actually *do* in response to workplace problems.

The notion of learning struggles is a helpful heuristic that enables work problems to be framed as learning problems (Fenwick 2008). Consideration is given to the challenges and difficulties that professionals face, and the aim is to trace the moment-by-moment learning that unfolds. In a different but related conceptual move, Reich et al. (2017) broadened their focus on work problems to include aspects of work that might be considered unproblematic but are nonetheless pedagogically relevant. Introducing the term *sites of emergent learning*, defined as key learning intensive instances, Reich et al. (2017) suggest that empirical researchers might adopt this concept to help discern professional learning as it emerges in the workplace. These learning intensive instances are characterised by professionals negotiating, exploring and questioning practice and associated knowledge and offer a way of spotlighting aspects of work practices 'wherein questions of learning are brought into particularly sharp focus' (Reich et al. 2017, p. 568). These conceptual moves are important, as informal learning in workplaces is often not recognised as learning at all and tends to be viewed as being part of everyday work (Boud & Middleton 2003). Of course, not all work problems are learning problems. The important point is that certain work practices be recognised as learning practices and that there be opportunities to highlight and create potential learning spaces among such practices (Johnsson & Boud 2010).

RESEARCH SETTING AND METHODS

Childhood diabetes is an important case for this research for several reasons. Supporting the self-management of long-term conditions presents especially formidable challenges in children's services (Modi et al. 2012), not least because health-care professionals must find ways of balancing their obligations to parents and parental authority with their obligations to children, who are developing their own autonomy (Hawthorne et al. 2011; Silverman 1987). Care regimens are complex (Coffen & Dahlquist 2009) and place enormous demands on children (Hawthorne et al. 2011) and their parents (Rankin et al. 2015; Sullivan-Bolyai et al. 2003). Additionally, the stakes in childhood diabetes are particularly high, as children without access to a regular supply of insulin die quickly (International Diabetes Federation 2015).

Professionals supporting self-management must consider all of these issues in the course of their work.

This research was undertaken at a children's diabetes outpatient clinic in a large urban teaching hospital in the UK. Ethical approval was granted by the relevant institutional research ethics committee. The study participants comprised the regular core members of the clinic team: seven nurses, four doctors and two dietitians. All of the members of the team agreed to participate in the study and gave their written consent. Based on ethnographic traditions, the data were generated via fieldwork that comprised participant observation and semi-structured interviews. The study did not adopt a conventional ethnographic approach directed at understanding human culture and experiences; rather, it employed what Mol (2002 2008) has termed a praxiographic approach. Praxiography and ethnography share many similarities, including methods of observing and interviewing; however, praxiography has a clear focus on practices and the accomplishment and effects of such practices. As Mol stated (2002, p. 157), praxiography examines phenomena by introducing an axis of practice that 'encompasses molecules and money, cells and worries, bodies, knives and smiles, and talks about all of these in a single breath'. Praxiography does not privilege people's perspectives and experiences, as a praxiographer is interested in the practices that perform phenomena into existence. In this case, the phenomena in question are professional knowledge and learning.

The outpatient clinics, which are held twice each week and last approximately four hours, are the key locus of routine care and self-management support. At the clinic, children commonly see two or even three members of staff together in small group consultations. Children normally attend the clinic, with their parents, once every three or four months; however, more frequent appointments are possible (as required). Over a period of five months, a total of 56 consultations were observed between different children, young people, their families and the health-care professionals supporting them. Two Journal Clubs (dedicated time set aside for staff teaching and discussion), a team meeting, a 'pump live day' (i.e., a day at which a small group of four children and their parents were given and shown how to use their first insulin pumps) and a staff teaching session for staff members new to working with diabetes were also observed. In between these specific events, time was spent in the communal areas of the clinic, observing and talking with team members as they worked. Handwritten field notes were recorded in a journal during these observations and transcribed the same day or the following day.

Eleven interviews were conducted with staff team members. Two different types of interviews were conducted. A preliminary set of six interviews was conducted with two nurses, three doctors and a dietician. These interviews occurred early in the research project and lasted between 45–120 minutes. The second set of five interviews took

place following conversations in which staff members began to explain and describe aspects of their work in great detail. On these occasions, it was impossible to write notes at a pace sufficiently fast to do justice to the commentary provided; thus, the conversation was paused and a request was made to audio-record the conversation as a research interview. These interviews lasted between 25–65 minutes and arose more naturally in the course of fieldwork. They are differentiated as 'work discussions'; however, the differences between the so-called naturally occurring data and the interviews instigated by the researcher should not be exaggerated (Perakyla & Ruusuvuori 2011). The researcher's hand is, inevitably, in all the research data generated. All 11 interviews were audio-recorded and transcribed.

Data analysis was informed by Barad's (2007) diffractive approach, which emphasises patterns of difference and describes diffractive reading as a way of reading data through rather than against selected theories or perspectives (Jackson & Mazzei 2012). Reading and rereading in this way provided an explicit means of immersion in the data and facilitated attention to the different ways in which professional knowledge emerged in the everyday work at the clinic. The empirical focus was refined to instances in which the professionals were grappling with some feature of self-management support and the ways in which these instances were resolved to allow care and self-management support to be provided. With this focus, the analysis proceeded via the generation of detailed logs in which data from the transcripts and field notes were gathered in simple Microsoft Word documents according to provisional themes.

The analysis of the data continued into and through the writing up of these findings, as each area was examined and developed in relation to selected theoretical resources. Three broad areas of interest were identified. First, the ways in which technologies make a difference, particularly to the unfolding of learning in and through professional work practices. Second, broader care regimens (e.g., the professional work practices of reviewing blood-glucose results and adjusting insulin doses), particularly in relation to knowledge work entailed in such practices (see Knorr-Cetina 2001, 2006, 2007). Third, drawing on Gherardi's (2001, 2010, 2012) concept of knowing-in-practice, the relations among health-care professionals, children and parents as support for self-management is produced. This article focuses on some of the learning struggles professionals face in their work as they seek to support children and their parents to self-manage type 1 diabetes and considers the implications for workplace learning.

INTRODUCING SELECTED WORK PROBLEMS AS KEY LEARNING STRUGGLES

In the following sections, a series of data extracts are considered that were selected because they exemplify key findings of the study and show how professional learning unfolds in the actions and conversations of work. As this inquiry focused on professional learning in and for health care, engagement with technical biomedical details was required even though this engagement is not necessarily the natural habitat of educational research. However, theoretical and methodological commitments to situated, embedded knowledge and to professional learning as a sociomaterial phenomenon accomplished through context-specific relations of people and things emphasise the significance of such technical biomedical details. Such details are often complex but the important points relate to the ways in which professionals grapple with complexity and the participation of human and non-human forces in knowledgeable care provision. The extracts are grouped together in three sections that focus on: 1) sets of disciplines for different care regimens; 2) establishing the nature of children's progress; and 3) adapting for disruptions. Each section illuminates particular learning struggles.

SETS OF DISCIPLINES FOR DIFFERENT CARE REGIMENS

It's quite difficult to teach people self-management in the first place, it's even harder if you have to say, 'Well, now you're on a different way of giving insulin we have to teach you some different rules'. So, mixed insulin demands a different set of disciplines from, if you like, the potential anarchy of basal bolus. And that gives us another problem, because you may have been dealing with someone whose life is totally chaotic and you're then trying to impose rigidity, because if you give them a mixed insulin at breakfast they've got to have a snack in the middle of the morning, they've got to have their lunch at the right time and if you're not sure of that, then that's another risk.

(P9, Interview, October 2012)

This quotation by a key informant describes several of the challenges faced by professionals who work to support self-management. Different ways of administering insulin entail particular sets of 'rules' and associated activities. These 'sets of disciplines' or care regimens,

are significant for children and their families in terms of planning food intake at particular times and in particular quantities. Implicit in this quotation are a number of corresponding implications for health-care professionals: knowledgeable care provision unfolds with careful attention to the mode of insulin administration, to the activities that are required to support particular modes of insulin administration, and to the presence, absence and management of risk factors.

> When I started [working in this diabetes clinic] most people were on two doses of insulin a day, morning and teatime and when I started, most people weren't testing their blood glucose four times a day. And then basal bolus came along and we were saying, not only do you have to do your blood sugar at lunch time, you have to have an insulin injection … and then insulin pumps came along and by this time next year we'll be talking about a quarter of patients at our clinic on pumps.

> (P3, Interview, October 2012)

P3 was referring to the range of ways in which diabetes can be managed. Due to ongoing advances in medical care, different types of insulin are available (e.g., rapid- and slow-acting forms) and digital insulin pumps have evolved as prominent new technologies in the field. Consequently, professionals must adapt the self-management support they provide. Not only are there different nuances associated with each care regimen, but these care regimens co-exist together in the range of possibilities for care. The variety of care regimens requires corresponding professional learning or what Nerland and Jensen (2014) refers to as 'knowledge work', in order that knowledgeable care provision is appropriately tailored to the local and specific needs of children and their parents. Knowledge work is the mobilisation and circulation of knowledge in everyday work (Knorr-Cetina 2001, 2006; Nerland & Jensen 2014) and includes, as the extracts show, the work of exploring, questioning, adapting, developing and translating.

ESTABLISHING THE NATURE OF CHILDREN'S PROGRESS

During clinic appointments, professionals gather and analyse the information they need to ascertain the nature of support each child and parent requires. On arrival, the children's blood is taken for a HbA1c blood test. As the blood is analysed on site at this clinic, each child's results become available during their appointment. The professional work involved in gathering, selecting, prioritising and understanding the information is

considerable. This work is a collaborative enterprise and relies on a range of actors, including the children, their parents and the professionals, who must consider different care regimens and codified biomedical knowledge (e.g., knowledge about the implications of poor blood-glucose control, medical risks and available treatments).

> HbA1c blood tests are done in the clinic. Blood is taken and it is analysed using a machine on the premises. There is a printout of the result, one for the clinic and one for the lab. Results are left out on the desk for the professionals to collect as they see the children. P12 comments [that] she can't imagine doing the clinic without the HbA1c result because it's the most reliable indicator of how well blood-glucose levels are being controlled.

> (Field Notes, October 2012)

P12's comments about the HbA1c test raise questions about how different information is privileged or held to be valid or invalid and to the ways in which professionals might select and attend to particular information. As it is considered the 'most reliable', the HbA1c test results are particularly influential. The test measures glycated haemoglobin, which in lay terms can be understood as the level of 'sugary-ness' of the blood cells. The test results give an indication of average blood-glucose levels in the previous three months and the test is repeated at each appointment.

P12's comments also allude to an important dimension of professional work; that is, trying to discern how well children and their parents are managing to control blood-glucose levels. To establish the nature of a child's progress, a variety of information must be gathered and considered. Additionally, a combination of electronic patient notes on hospital computers, paper case files and handwritten diaries (or the software printouts of digital insulin pumps) completed by the child and/or their parents must generally be reviewed. Conversations with children and their parents also yield information about current insulin doses and day-to-day management of diabetes care (see the extract below).

> P1 asks questions to get the child to talk through the daily routine—what do you do when you get up, how many carbohydrate units do you have for breakfast, how much insulin would you take for that? She works through the whole day. P11 comments afterwards that she learns a lot from the way P1 finds out what is happening but also

checks the family's understanding of what they do. The blood-glucose diary is used to review the daily results recorded in there and the HbA1c result guides professional understanding of overall control. The professionals comment that the diet sounds good and advice is given about not varying carbohydrate amounts at mealtimes because of the mixed insulin regimen.

(Field Notes, November 2012)

The work is not simply about checking compliance with a fixed care regimen; rather, it requires a continual need for carefully informed adjustment. Knowledgeable care provision entails synthesising daily blood-glucose recordings, the HbA1c blood test results and insulin amounts. The measurements and numbers are then considered in light of further information about, for example, food intake and exercise levels. As others have commented (see, for example, Moser & Law 2006; Mort & Smith 2009), the information that contributes to the emergence of professional knowledge is always an imperfect mash-up, both complete and incomplete, and only fleetingly stable.

I can only imagine what it must be like to be 12, 13, 14. It's hard enough being in puberty, let alone with a life-threatening condition that everyone's, you know, telling you that you need to do better all the time. My heart really goes out to these kids. […] And there's a mum, her child with diabetes, you know, metaphorically I just want to hug a lot of the parents here. And the young people, because I just think, you know, you, I know that coming to clinic is like an interrogation. But we have 15 to 20 minutes, three times a year to try and find out what's going on.

(P8, Work discussion, January 2013)

This sensitive understanding of the daunting collection of tasks delegated to children and their parents is another important consideration in examining the accomplishment of self-management support. P8 recognised that children and parents might have mixed feelings about engaging in multiple complicated self-care tasks (Coffen & Dahlquist 2009) and noted that the relentless nature of these self-care tasks might affect their wellbeing (Sullivan-Bolyai et al. 2003). What is also embedded in this narrative is a sense of urgency and anxiety about the time available to establish a professional understanding. The clinic

consultations are viewed as time limited and the use of the word 'interrogated' is a powerful expression of the relationship dynamics between professionals and families.

ADAPTING FOR DISRUPTIONS

The above data extracts show some of the key practices and arrangements for supporting self-management, including the current health status of individual children (e.g., blood test results etc.), insulin doses, accounts of daily lifestyle and codified biomedical knowledge. The following extract illustrates how disruptions to the usual arrangements can create difficulties.

> The next patient arrives with no monitor and no diary. There is no HbA1c result either because the machine is not working. The health-care professionals ask the patient about insulin doses and further discussion suggests blood-glucose control was not good at the last clinic appointment. There is a long chat about the lack of information making it impossible to make adjustments to insulin doses. The staff members convey their concerns about serious medical consequences and a plan is made for mum to phone each day for the next week with blood-glucose readings so that at least the patient is kept safe.
>
> (Field Notes, December 2012)

Without the HbA1c test results, the professionals lose the anchor of reliability that normally guides their practice. There is no possibility of reviewing the blood-glucose results and the absence of detailed information shifts attention away from adjusting the insulin dose or lifestyle choices. Codified biomedical knowledge about serious medical consequences actively participates in the care provided and redirects the focus to immediate safety. A partial resolution is reached when the parent is asked to provide the clinic with some missing information on a daily basis. A similar situation arose on another occasion (see extract below); however, the difficulty in the following instance was less related to an absence of information and more related to the need to establish the veracity of the information.

> A girl I saw in clinic last week. It took 50 minutes for her to tell me what she was eating the day before she came into hospital. I asked her what she'd had for lunch for example. 'Tuna sandwich'. 'Okay. Anything else?' 'No'. 'What did you drink?' 'Water'. 'You have any

fruit?' 'Yes, two tangerines or something'. So, [my
colleague] sees her the next day. And her sister, the
girl's sister happened to be there. So out comes the tuna
fish sandwich story, [and the sister said] 'No, you
don't, you go to the chip van every day. You always have
chips and curry sauce and maybe a fritter or two'. So,
she had 10 very high blood-glucose results in the last
seven days before admission. She was said to have been
taking 40—*four zero*—units of Novorapid at lunchtime. And
I gave her six the day she came in and it was too much.
So if I'd given her 40, I would have killed her.

(P8, Interview, January 2013)

Relying on the accounts of children and parents requires
the staff to not only attend to the details but to also
consider and understand those details in light of and
alongside other knowledges. P8 describes juggling between
different knowledges, recognising inconsistencies and
remaining open to different possibilities. In their
research examining the accomplishment of safe anaesthesia
practices, Mort et al. (2005) emphasised the importance of
not prematurely relying on particular knowledge or
information, but sustaining 'agnosticism' when balancing
priorities and trying to make sense of the information and
knowledge. P8's engagement with heterogeneous flows of
information and knowledge enabled adaptations to be made
that met the specificities of the situation. Such instances
represent Knorr-Cetina's (2001) moments of exploration and
closure that require local knowledge work of balancing
conflicting and competing interests, selecting and
prioritising, questioning and discounting. As the proposed
40 units was deemed to be an unusually large dose at this
particular juncture, a much smaller dose was given to the
patient. P8's final comment is sobering and highlights the
significance of this knowledge work in self-management
support.

ALIGNING WORKPLACE LEARNING INITIATIVES WITH LEARNING STRUGGLES

Of particular interest to this study were the practices and
challenges that emerged in the work of supporting self-
management and the related issues and learning processes
that unfolded. Workplace learning must begin with an
accurate understanding of the specific practice that is the
intended focus of the learning. This is particularly
important because if the nature of the work is misunderstood
or misconstrued, then the focus of any workplace learning
intervention is likely to be misaligned. This article

showed that: 1) current workplace learning initiatives are unhelpfully misaligned when examined alongside the learning struggles made visible here; and 2) identifying key learning struggles could help to better inform workplace learning initiatives for health-care professionals.

SUPPORTING SELF-MANAGEMENT: THE MISALIGNMENT OF WORKPLACE LEARNING RESOURCES

Current strategic frameworks, toolkits and practical guides (that are intended to be used as workplace learning resources) suggest a broad range of areas on which to focus. Health-care professionals are encouraged to develop skills in goal setting, teamwork, health risk factor assessments, cultural awareness and collaborative problem definition (Battersby et al. 2008). They are also encouraged to develop their communication skills, health promotion skills, behaviour change capabilities (e.g., problem-solving skills) and organisational/systems capabilities (e.g., interprofessional practices) (Flinders Human Behaviour & Health Research Unit 2009). Additionally, others have noted the need for skills related to care and support planning, collaborative agenda setting, recognising and exploring ambivalence and goal setting, action planning and follow up (de Longh et al. 2015; Health Service Executive 2017). In yet another example, five key elements of self-management support were identified explained: the assessment of self-management, the collaborative definition of problems, targeting, goal setting and planning, self-management training and support services and active and sustained follow up (Health Navigator New Zealand 2014). As these broad focus areas share a number of similarities, there appears to be some consensus about a number of important professional skills; however, key difficulties persist.

One significant limitation of the focus areas of these resources is that they are highly generic and thus tend to exaggerate similarities and underestimate differences across diverse contexts (Hager 2013). For example, while a capacity for collaborative problem definition might indeed be useful, there is little nuanced guidance about how professionals might accomplish collaborative problem definition with older adults with diabetes or young adults with heart disease or children with asthma. Further, there is no recognition of the influence of specific biomedical knowledge, the material effects of particular medicines (e.g., insulin) or variations within and between care regimens, each of which shape learning in and for knowledgeable care provision and the self-management support required. In short, when considered with the data generated by this study, the strategic frameworks, toolkits and practical guides do not correspond well with the work of these professionals or the associated learning struggles they encounter.

A second key limitation of the focus areas of these resources is that much of the literature on how

professionals can be assisted to support self-management has emerged from studies on the experiences of people receiving self-management support. Consequently, the advice tends to recommend that professionals acquire a better understanding of what life is like for people living with long-term conditions. For example, Pickard and Rogers (2012) explored the nature of lay expertise in self-care. In doing so, they considered the role played by health-care professionals and biomedical care regimens; however, both these considerations were examined through individual patients' embodied experiences of professional support. Thus, the conclusions drawn about health-care practice were formulated solely in terms of individual patients' practice and experience of self-care and recommended that detached biomedical intellectualism should not be preferred to lay expertise. Similarly, Lawton et al. (2015) examined the challenges parents encounter in managing their children's diabetes and explored parents' experiences of professional support. The authors' recommendations included that professionals should be trained to better understand the realities associated with parenting a child with diabetes.

However, the challenges facing professionals cannot always be explained in terms of needing to know more about or pay more attention to lived experience. A key difficulty in supporting self-management is that professionals struggle to reconcile the biomedically structured context in which they work with the contemporary policy emphasis on shared decision making (Anderson & Funnell 2010; Scambler et al. 2014). Efforts to improve clinical outcomes may sometimes conflict with attempts to ensure that individual patients' preferences guide the care provided. Consequently, professionals may find it difficult to strike a balance. Negotiating this balance is especially challenging when particular choices are associated with particular risks (Morden et al. 2012).

Without undermining the importance of lived experiences or calls to better understand or respect such experiences, it should be acknowledged that this focus might not be the best or only way to respond to the challenges faced by professionals. Further, as has been argued, there is a need for clearer understandings of what those specific challenges are, how professionals can learn to address these challenges and what kinds of workplace learning might be most helpful. The observation and examination of work practices could lead to educational interventions in the form of workplace learning resources that are better aligned to the work being undertaken.

IMPLICATIONS: REFOCUSING EDUCATIONAL INTERVENTIONS FOR WORKPLACE LEARNING

By drawing attention to learning struggles, it may be possible to shift the focus of educational interventions from the development of generic skills to a recognition that professional knowledge is situated, embedded, embodied

and collective. Rather than pursuing decontextualised and disembodied approaches that may fail to account for the challenges associated with work practices (Fenwick & Nerland 2014), pedagogy should be understood as being uncertain and contingent (Fenwick & Landri 2012) and the emergent nature of informal learning should be respected. Although conceptualising knowledge and learning as emergent could create difficulties in structuring educational interventions (Johnsson & Boud 2010), the important point is to find ways of holding in tension the opportunities that arise from informal learning as it unfolds in moments of everyday activities with the scope for intentional resourcing of such learning (Aberton 2012).

At the diabetes clinic, observations and examinations of work practices showed that professionals grapple with particular challenges relating to care regimens (e.g., selecting one of multiple options, understanding newly added options and specifying detailed requirements of different options), gathering information (e.g., selecting and prioritising different sources), establishing a view of current progress (e.g., interpreting, appraising and sometimes discounting information) and juggling different forms of knowledge (e.g., recognising inconsistencies and remaining open to different possibilities). Notably, these learning struggles are most accurately understood as being situated and embedded in the context and specificities of support related to diabetes self-management. Accordingly, the insulin, blood tests, injections, digital technologies, diaries, carbohydrate units and diabetes-specific biomedical risks actively participate to influence self-management support, as do the capacities of each child and family member and the interpersonal relationships that ebb and flow in the course of care provision. These learning struggles need to be recognised, understood and addressed.

The particular interventions employed need not be especially novel in and of themselves. Collective energies have already produced a myriad of frameworks, toolkits and practical guides intended for workforce development. This study simply suggests an approach that complements (rather than replaces) these resources. As this article suggests, explicit attention must be paid to the specific learning struggles in play. Merely articulating the profound challenges at stake in these practices of supporting self-management is likely to help. Learning spaces and resources that enable a detailed exploration of all the interacting features (social, material, biomedical, lay or otherwise) could help professionals to develop a language for the particular challenges they encounter, create a space to discuss these challenges and encourage the open sharing of the strategies they negotiate together. Otherwise, health-care services, teams and individual professionals will, as Fenwick (2008) argued, be compelled to struggle and reinvent strategies for learning and may even duplicate past efforts or repeat the mistakes of others.

The study focused on professional work at a children's diabetes clinic; however, the practice-oriented

observations, with their sociomaterially-framed attention to learning struggles, have a wider resonance. A pedagogically informed exploration of what professionals do as they accomplish knowledgeable care provision among the particular conditions, constraints and affordances of everyday work could be a valuable method for understanding and informing workplace learning in other settings in which health-care professionals are similarly poorly served by generic lists of skills. This approach could also be used to support the development of workplace learning in settings in which knowledge in and for work is changing (e.g., where new models of care are introduced or services are reorganised) to ensure that pedagogical efforts are sufficiently well aligned with and can be used to address the specific challenges faced by professionals.

CONCLUSION

Supporting people to self-manage long-term conditions is a concern for health-care services globally; however, many unanswered questions remain as to how health-care professionals can best be helped to learn to undertake this work. This article drew on sociomaterial workplace learning perspectives to problematise the persistent emphasis on generic skills development and showed that many current toolkits, practical guides and frameworks for workplace learning give insufficient consideration to the specific practices that are the intended focus of learning. Consequently, many workplace learning resources are poorly aligned with the specific challenges professionals face. By examining what professionals actually do in their work to support self-management, this study provided novel insights into alternative ways of understanding, investigating and enabling professional knowledge in this area.

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Facilitating the development and maintenance of reflection with speech pathology students

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Abstract

Speech pathology students can develop and demonstrate critical reflection over time, although their engagement in reflection as a lifelong learning strategy remains sub-optimal. Educators play an integral role in the facilitation of students' development and sustained engagement in reflective activities. This is a challenging task due to the nature of the development of reflection, factors that influence student facilitation and methods to measure reflection with tertiary healthcare students. This paper reports on a mixed methods single-case study with embedded units, which was used to determine the development, maintenance and facilitation of reflection with six speech pathology students. The study spanned 10 weeks and two professional placements, during which students received a combination of face-to-face and email facilitation to support their reflection development. Quantitative results identified three novel trajectories: 1) steady growth from introspection to reflection and critical reflection; 2) no clear change in depth of reflection over time; and 3) gradual decline in depth of reflection. Qualitative results situated these trajectories with factors that influenced students' experiences, including the internalisation of reflection, understanding the value of reflection, the influence of time and the mode of facilitation. Outcomes from this study may be used by educators to support the facilitation, development and maintenance of reflection in speech pathology students.

Keywords: reflection, professional practice, speech pathology, students, healthcare

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INTRODUCTION

The development of reflection is not innate (Driessen, Tartwijk & Dornan 2008); it requires facilitation (Deslandes et al. 2018; Ip et al. 2012; Plack et al. 2008). Reflection provides tertiary healthcare students with a means of furthering their skills and knowledge development within the context of lifelong learning (Donovan 2007; Mamede & Schmidt 2004; Paget 2001; Roche & Coote 2008; Stark et al. 2006). Australian speech pathology programs embed reflection activities in four-year undergraduate and two-year graduate entry masters professional placements as a strategy to promote the integration of theory and practice (McAllister & Lincoln 2004; Speech Pathology Australia 2017). Educators in on-campus learning settings and professional placements facilitate reflection activities to assist students to develop affective, cognitive and metacognitive skills associated with the process of reflection. Reflective teaching strategies—such as guiding comments or questions used within an activity to stimulate cognitive processes—are widely used by educators to enhance this facilitation (Dunne et al. 2016).

For the purpose of this study, reflection is defined as 'intellectual [i.e., cognitive and metacognitive] and affective activities in which individuals engage to explore their experiences in order to [gain] a new understanding and appreciation' (Boud, Keogh & Walker 1985, p. 19). This definition is common in the health professions (e.g., Mann, Gordon & MacLeod 2009; Uygur et al. 2019) because it incorporates affective and cognitive processes in recognition of the influence of the affective on the cognitive. Movement through the affective and cognitive processes of reflection can be measured along a reflection development continuum, which describes and situates where reflection sits across various stages of reflection (Kember et al. 2000). Wald et al. (2012) built on the work of Kember et al. (2008) and Mezirow (1991) in their description of the stages associated with this continuum—starting from habitual practice, in which a superficial description of events is displayed, through to critical reflection, in which frames of reference are transformed or confirmed with new learning (see Appendix 1). The facilitation of student progression through these reflection stages can be conducted using a reflective cycle (e.g., Gibbs 1988), which breaks down the cognitive and affective components. However, the literature has not identified a superior cycle or process due to minimal comparative data and the variety of measurement and methodological practices used in research (Mann, Gordon & MacLeod 2009).

The development of reflection skills and knowledge following facilitated reflective teaching offers tertiary students a lifelong learning strategy. Despite this, only three empirical studies in the past ten years have investigated speech pathology students' experiences of reflection development as a result of reflective teaching strategies (e.g., Cook et al. 2017; Hill, Davidson &

Theodoros 2012; Tillard et al. 2018). Hill et al. (2012) conducted a study into reflective strategies used by students in a simulation context, Cook et al. (2017) studied student reflection outcomes in workplace contexts and Tillard et al. (2018) explored the use of peer groups to support students' reflection during workplace placements. These investigations demonstrated that novice and intermediate speech pathology students could develop and demonstrate critical reflection over a professional placement, with each study building on learnings from the previous.

Cook et al. (2017) developed the work of Hill et al. (2012) by using formative feedback with reflections generated from students' participation in the workplace. Subsequently, Tillard et al. (2018) explored speech pathology students' perception of reflection facilitation in the workplace context through reflective practice groups. They generated variable findings regarding how students perceived their reflective development. Outcomes from the three studies illustrated variability in speech pathology students' development and demonstration of critical reflection. There is an opportunity for research to further explore factors that influence students' development of reflective capabilities. By identifying factors that positively influence students who have difficulty developing their capabilities, it may provide educators with knowledge to support students as they transition along the reflective continuum.

The knowledge and skills of facilitators in prompting, guiding and supporting the affective and cognitive processes involved in the development of student reflection is valuable, especially in its translation to individual workplace contexts (Brockbank & McGill 2007; Dunn & Musolino 2011). The evidence from the healthcare education literature regarding which skills and facilitation strategies support the development of students' reflection is inconsistent with studies from nursing (e.g., Jensen & Joy 2005; Lillyman, Gutteridge & Berridge 2011; Walker et al. 2013) and physiotherapy (e.g., Constantinou & Kuys 2013; Donaghy & Morss 2007), which makes comparison and advancements difficult. Lucas, Gibson and Buckingham Shum (2018) developed novel approaches to address growing student numbers and changes to professional placement formats in pharmacy. Their use of academic writing analytic software and a rubric based on the work of Boud, Keogh and Walker (1985), Mezirow (1991) and Tsingolas (2014) to support students' self-critique and formative feedback demonstrated positive results for the facilitation of reflection. In speech pathology, the facilitation of reflection has been undertaken via a process approach (Hill, Davidson & Theodoros 2012), which gradually develops reflectees' affective, cognitive and metacognitive understanding through ongoing reflection. Repeated exposure to written and verbal facilitation supports exploration and familiarity in the use of reflective teaching strategies, which gradually move reflectees along a continuum towards

being critically reflective. It is unclear whether the process facilitation approach can develop speech pathology students' reflection to critical levels during professional placements. To address this evidence gap, this study sought to examine the proposition that speech pathology students' reflection can be facilitated over time by a facilitator, which is described in the methodology.

There has been no systematic exploration in the speech pathology literature of how a reflective teaching strategy is facilitated across consecutive professional placements with the same group of students and the same reflective teaching strategy. Prior studies have focused on the development of students' reflection in one placement or with different student cohorts. Recent research in physiotherapy (e.g., Greenfield et al. 2017) and pharmacy (e.g., Deslandes et al. 2018) has provided evidence of student reflection outcomes across longer durations. For example, Greenfield et al. (2017) compared an historical databank of student reflective narratives written without the support of a framework or specific teaching strategy to those generated from a pilot study that used the Gibbs model of reflection to support reflection narratives. The comparison of these two datasets found improved demonstration of reflection in the cohort that used the Gibbs (1988) model of reflection.

In addition, Deslandes et al. (2018) used action research spanning three years to develop and refine reflective supports for novice pharmacy students during professional placements. This research developed flexible strategies that spanned the reflection continuum and provided students with a fit-for-purpose reflective structure, which depended on their learning stage (e.g., novices were provided with more structure). These studies demonstrated that changes in student reflection development can be demonstrated across the duration of professional placements. However, awareness of how these changes in reflection occur across placements with the same student cohort, including how this change can be measured, remains underexplored. This study addressed this gap by responding to the proposition that speech pathology students can develop the ability to critically reflect while they are on professional placement.

Evidence-based measurements of student development in reflective thinking can guide facilitator and student use of reflective teaching strategies, such as the Gibbs (1988) reflective cycle. However, conflicting evidence regarding how educators can measure students' reflection to determine their transition through the reflective continuum is challenging. Educators are required to choose from profession-specific (Walker et al. 2013) or generic reflection rubrics (Wright & Lundy 2012), which illustrate a quality spectrum that ranges from novel (Aronson et al. 2012), ill-defined (Harrison & Fopma-Loy 2010) or evidenced-based criteria (Hill, Davidson & Theodoros 2012; Lucas, Gibson & Buckingham Shum 2018), which is used to judge the performance of student reflection. Subsequent to

this challenge to develop appropriate rating rubrics, educators are faced with time-consuming content analysis of reflections, which require significant theoretical and practical knowledge of reflection (Miller-Kuhlmann, O'Sullivan & Aronson 2016). These practices generate significant barriers to widespread application of measurement practices by educators in the workplace.

Validated measurement tools such as the REFLECT rubric (Wald et al. 2012) and the Groningen Reflection Ability Scale (Andersen et al. 2014) may assist educators by supporting their formative assessment and application of reflective teaching strategies. These tools consider the limited time that facilitators have to measure and provide constructive feedback on reflection content and reflectee movement along the reflective continuum. Additionally, the use of a validated reflective measurement tool fosters consistent and accurate measurement of reflection. However, studies that utilised a validated tool did so within a single professional placement (e.g., Chretien, Goldman & Faselis 2008; Ip et al. 2012). The sustained use of reflection across consecutive placements by students and measured with a validated tool is yet to be examined despite being identified as an important gap in the literature (e.g., Mann, Gordon & MacLeod 2009; Schön 2001; Tsingos, Bosnic-Anticevich & Smith 2014). This evidence gap highlights an opportunity to further educators' understanding of facilitating reflection as a lifelong learning strategy. To address this evidence gap, this study explored the proposition that reflection in speech pathology students can be sustained throughout a second professional placement using email facilitation.

METHODOLOGY

A mixed methods single-case study design with embedded 'units' (Yin 2013) was used to test the theoretical propositions developed from the literature review, which are presented in Table 1 (Mann, Gordon & MacLeod 2009). Yin (2013) described propositions as useful for focusing data collection and analysis, with multiple embedded units of analysis incorporated to increase data credibility and methodological rigour.

Table 1. Study propositions

Proposition	Analysis data source	Analysis technique
1. Reflection in speech pathology students can be developed while they are on professional placement.	● Reflective narratives	● m-REFLECT

Proposition	Analysis data source	Analysis technique
2. Reflection in speech pathology students can be maintained throughout a second professional placement using email facilitation.	• Reflective narratives • Focus group	• m-REFLECT • Framework analysis
3. Reflection in speech pathology students can be facilitated over time by a facilitator.	• Reflective narratives • Focus group	• m-REFLECT • Framework analysis

This study occurred within the context of the professional placement curriculum component of a university speech pathology bachelor degree, which supports the broader speech pathology curriculum by allowing students to connect theory to practice as they transition through novice, intermediate and entry-level stages of competence according to the COMPASS (McAllister, Ferguson & McAllister 2013). Placements typically occur in common workplace settings for speech pathology students, such as private practice, hospitals, community centres and not-for-profit organisations. Owing to time and resource limitations, two professional placements situated in the middle of the professional placement curriculum were used for this study and represented the common single-case (see Figure 1). This timing enabled students to adjust to stressors associated with commencing placement and the completion requirements for the final placement. The common single-case context of two professional placements was used to capture circumstances and conditions related to the propositions. The replication of conditions across multiple embedded units (i.e., students) enhanced analyses insights and opportunities to increase trust in the findings, which were used to support or refute the stated propositions. This study was approved by the Western Sydney Local Health District Human Research and Ethics Committee.
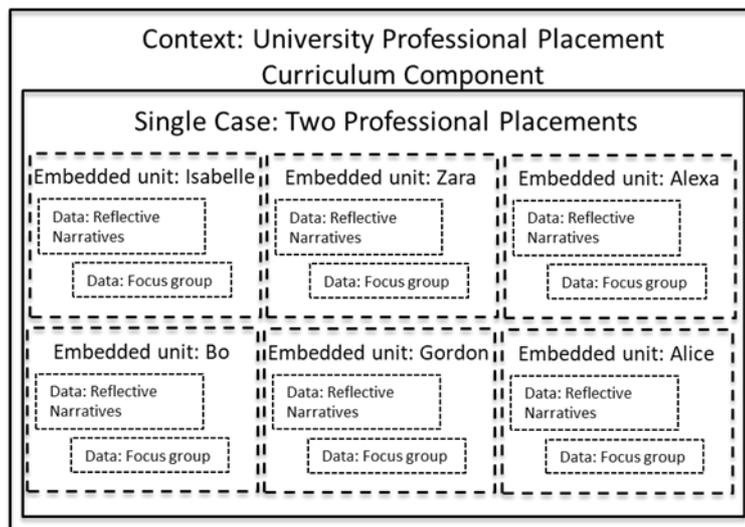
Figure 1. Single-case design with embedded units

PARTICIPANTS AND CONTEXT

Students in this study were undertaking their intermediate adult community placement and their intermediate to entry-level adult placement, which consisted of 16 days over four weeks and 24 days over six weeks, respectively. Using a convenience sample of 12 students allocated from a single university to the approved site, 11 student participants consented. Two of the 11 students withdrew from the study during the first professional placement; one for personal reasons and the other withdrew from the degree. A further three students were excluded from analysis when no response was received after they commenced the second placement. One student, Zara, only submitted narratives from the first placement, but participated in the concluding focus group. All students were female and used self-selected pseudonyms for data collection and identification in line with ethics approval. All professional placements occurred in community settings, including hospitals, community centres and disability services. Allocation to these settings was independently made by the university using standard practices that aligned student capabilities with required degree experiences to assist their connection of theory to practice. The lead researcher—with ten years' experience as a speech pathology educator, published author of reflection teaching strategies and reflection facilitator for students across both clinical and tertiary sectors— acted as the independent facilitator for students. This role reinforced safety in reflection and support because the lead researcher had no role in the students' summative assessment.

REFLECTION FACILITATION APPROACH

Students submitted weekly written reflections to the lead researcher. The submission of weekly reflections for the

duration of a professional placement alongside supervisor feedback was recommended as part of standard university practices to support the connection of theory to practice during professional placements.

Part one of the study was conducted using two groups of students to accommodate standard placement allocation practices and to ensure sufficient recruitment (see Figure 2). The lead researcher randomly assigned students in each placement group into one of two facilitation sub-groups, which were founded on the university's recommendation for the practice of student reflection during placement. These practices were face-to-face in addition to email facilitation for the duration of the first professional placement and only email facilitation for the study period. The sub-group that received face-to-face and email facilitation had 15–20 minutes of weekly face-to-face reflection facilitation, followed by email facilitation by the lead researcher. Conversely, the email facilitation sub-group received weekly facilitation only by email.
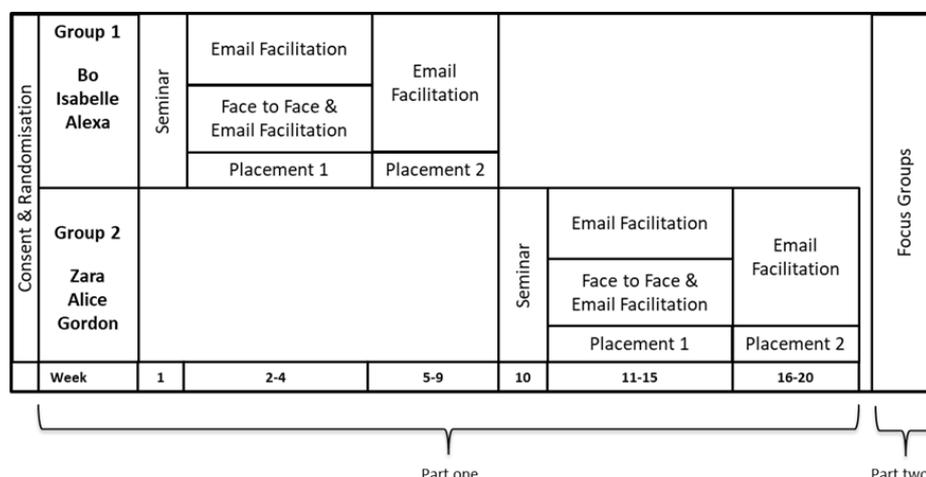
Figure 2. Facilitation type per group over time

At the commencement of the first placement, students participated in a small group 30-minute tutorial on reflection to support their understanding (Chuan-Yuan et al. 2013). The tutorial used the Gibbs (1988) reflective cycle to identify salient stages and characteristics of reflective thinking using examples of surface and critical reflective narratives. Prompts and feedback examples were drawn from Gibbs (1988), Donaghy and Morss (2000), Mann (2011) and Chamberland et al. (2015) to establish a common, concrete foundation of reflection and reflective strategies. The Gibbs (1988) cycle was chosen based on its current use within allied health professions in New South Wales Health (Health Education and Training Institute 2012) and the inclusion of both affective and cognitive processes that were reported to be of benefit (e.g., Mann, Gordon & MacLeod 2009). Students' reflections were responded to through email or face-to-face facilitation during the

study. This facilitation used a formative feedback approach to encourage critical reflection (Dekker et al. 2013). Typically, this feedback consisted of scaffolding prompts and rhetorical questions, which followed the Gibbs (1988) reflection cycle to foster a metacognitive thinking process. Written facilitation included feedback that recognised the time students invested in the task (see Table 2). Students received only email facilitation for the duration of the second placement to determine whether standard recommendations maintained their use of reflection activities for that placement period.

Table 2. Email feedback and facilitation structure

Structure	Example	Use
Statement regarding purpose of feedback and acknowledgement to the time it takes to complete.	'Thanks for dedicating time to complete this week's reflection. This process of reflecting aims to encourage your thinking skills as you develop unique understandings and learnings from your experiences'. 'I'll provide some feedback to help you think about your reflection. This may take the form of prompts, different perspectives or questions to think about'.	Consistent
Positive reinforcement with reference to specific section of the written reflection.	'It's really good to see how you've identified strategies that helped you manage your nerves during a difficult situation'.	Consistent
Acknowledgement of evaluation demonstrated, with further scaffolding to support additional evaluation (i.e., positive aspects to the event and aspects to try differently next time).	'In your reflection you spoke about how both you and your CE acted during a tricky prosthesis change. How do you think the Pt and his wife interpreted your calm appearance?'	Optional, pending inclusion and depth of reflection
Prompting questions designed to encourage further analysis of the event (e.g., influences, assumptions and alternative perspectives). Focus of prompt dependent on stage of reflection cycle that facilitator considered appropriate.	'Was there a reason you were feeling particularly nervous going into the session? Why do you think the strategy you used helped your confidence?'	Consistent
Prompt in the form of a questions to consider application of learnings (i.e., planning to use reflection learnings).	'Can you apply the same strategy to other tricky situations? If so, which ones and would you change anything?'	Consistent

DATA COLLECTION AND ANALYSIS

Weekly reflective narratives were collected throughout both placements via email to support the measurement of the study's three propositions. Researchers initially rated narratives using Wald et al.'s (2012) five-point REFLECT rubric, which is a commonly used reflective narrative measurement tool in medical education to provide a shared understanding of reflection depth between students and educators (e.g., Miller-Kuhlmann, O'Sullivan & Aronson 2016; Ottenberg et al. 2016). Two researchers independently analysed a 15 per cent sample of students' narratives and achieved an interrater reliability score of 57 per cent, which was too low to be considered reliable (Guest, MacQueen & Namey 2012). Discussions between the researchers identified variability in the understanding and application of quality terms (i.e., 'attempt', 'partially' and 'fully') that were referenced within the rubric. A consensus approach was used to support modification to these terms, which resulted in the 'm-REFLECT' rubric (see Appendix 1). A repeat rating of a different 15 per cent sample of student narratives subsequently achieved an interrater reliability rating of 79 per cent across all four researchers, which is consistent with that achieved by Miller-Kuhlmann, O'Sullivan and Aronson's (2016) use of the rubric and was recommended by Guest, MacQueen and Namey (2012) to demonstrate reasonable reliability. Narratives were rated using the quantitative 'm-REFLECT' rubric, with scores applied as a unit of data for research purposes. No student was informed of their quantitative narrative rating because the purpose of the rubric was to inform formative assessment and support the crafting of feedback (Wald et al. 2012).

Semi-structured focus groups were conducted in part two of the study to support the exploration and analysis of quantitative data. Focus groups were used to obtain students' perspectives on facilitation strategies, maintenance during the second placement and development of reflection across the study duration. Focus groups were recorded and transcribed verbatim by a commercial transcription organisation, facilitated by a member of the research team who had no role in student administration or education. Transcripts were coded and categorised by the lead researcher. A member of the research team independently coded and categorised one focus group transcript (1 of 5 transcripts) before generating preliminary themes with the lead researcher. Following consensus of theme definitions, a second research team member independently coded a new focus group transcript using these themes to determine their consistent application. Upon research team consensus of theme definitions and their application, the lead researcher re-coded and themed transcripts with queries identified for consensus by the research team. Focus group transcripts were analysed using the framework method for analysis of qualitative data (Gale et al. 2013), which generated a framework using inductively generated codes on the X axis to participants (i.e., units) on the Y axis. This ensured

a systematic process of data interrogation through comparison between units and the overarching case for theme formulation.

RESULTS

Analysis of students' written narrative reflections identified three trajectories: 1) steady growth from introspection to reflection and to critical reflection during the study (see Figure 3); 2) no clear change in depth over time (see Figure 4); and 3) a gradual decline in depth of reflection (see Figure 5). Zara, the student who chose to not submit written narratives in placement two, still participated in a follow-up focus group. As the reason for this was unverified, data and the corresponding graph was categorised as steady growth in depth, then incomplete (see Figure 6).
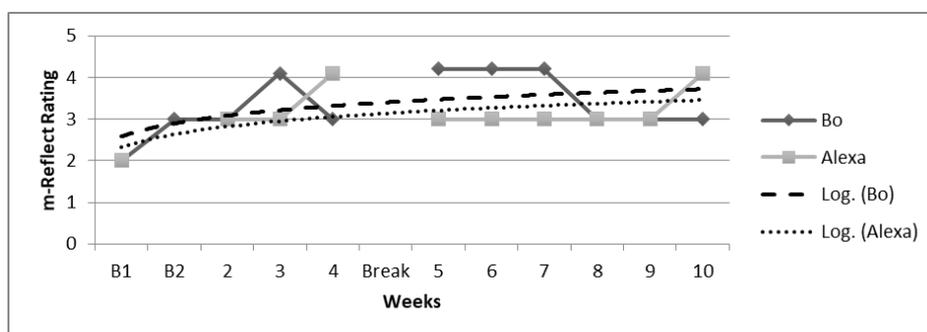

Figure 3. Trajectory—Steady growth from introspection to reflection and to critical reflection
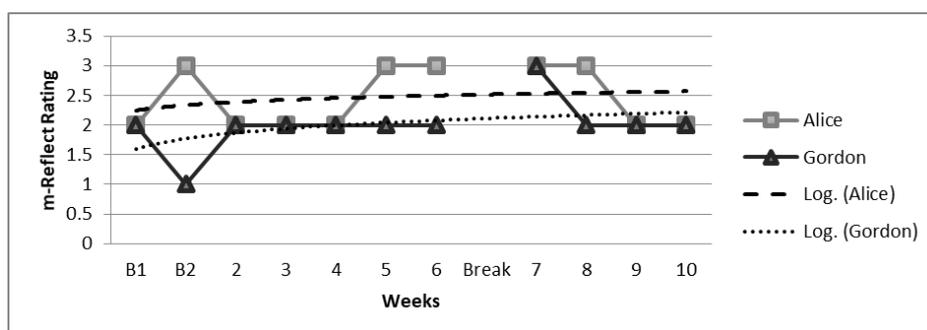

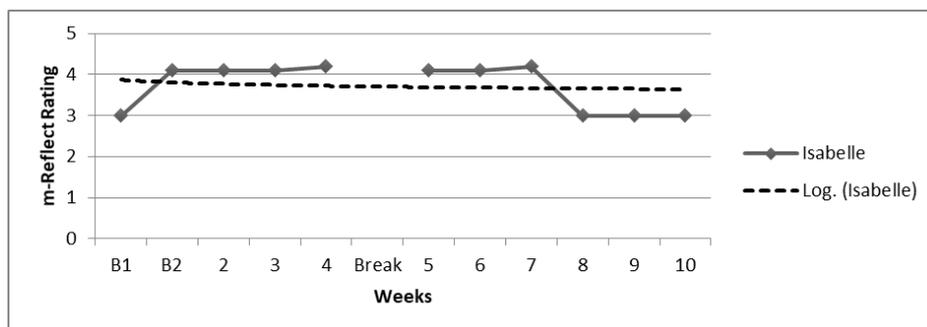Figure 4. Trajectory—No clear change in depth over time

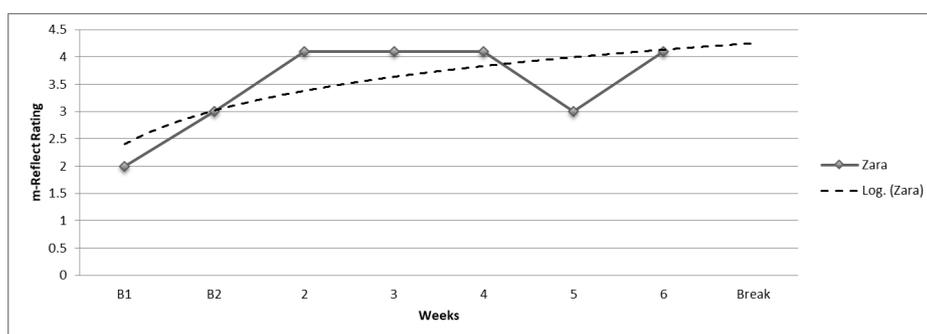Figure 5. Trajectory—Gradual decline in depth of reflection

Figure 6. Trajectory—Steady growth in depth, then incomplete

A logarithmic upward trend can be observed in Bo and Alexa's reflection narratives (see Figure 3). These two students were part of the face-to-face facilitation sub-group. Following the baseline period, their written narratives were rated as being reflective or higher (rating = <3). The upward trend suggested that reflection was maintained despite a drop in Bo's critical reflections at the end of the second placement. Alice, who was part of the face-to-face facilitation sub-group, and Gordon, who was part of the email facilitation sub-group, demonstrated a relatively flat trajectory throughout the two placements (see Figure 4). Despite this pattern, Alice achieved multiple 'reflection' ratings (rating = 3) at the end of the first and beginning of the second placement. However, Gordon consistently demonstrated thoughtful action or introspection (rating = 2) on her narratives. The 'Gradual Decline' trajectory of Isabelle (see Figure 5) demonstrated a similar pattern of critical reflections as Zara's in the first placement. However, this development was only maintained until halfway through the second placement. The 'Growth in Reflection then Incomplete' trajectory (see Figure 6) was characterised by a high incidence of transformative (rating = 4.1) narratives over the six-week period of the first placement. This occurrence illustrated Zara's ability to articulate changes in her thinking within

a short period. The lack of available data for the second placement prevented trajectory projection for the determination of development or maintenance over time.

Qualitative exploration of these trajectories identified several key factors that influenced individual students (i.e., units) and the overarching case, including the ability to internalise the reflective process, understanding the value of practising reflection, the influence of time and the mode of facilitation.

ABILITY TO INTERNALISE THE REFLECTIVE PROCESS

The 'Steady Growth' trajectory of Bo and Alexa demonstrated an internalisation of the reflection process. These participants spoke of satisfaction with, and ownership of, their ongoing use of reflection without direct facilitation.

> *I found that whilst each week he* [facilitator] *did have questions to prompt my thinking, there was less and less as time went on because I was covering everything* (Alexa).

> *I'm using it again now, just because it's much more… it's active reflection. It's actually accomplishing something. I don't mind writing reflections if they're like that* (Alexa).

> *I think more about the action part. Not so much with the recounting, what happened and how I felt at the time. But thinking what am I going to do next or how am I going to change this or how am I going to make this better* (Bo).

In contrast, students in the other trajectories did not demonstrate internalisation or report that they took ownership of their learning through reflection activities. Instead, the process of reflection, including initiation, stemmed from external sources, such as scheduled face-to-face facilitation sessions or the completion of university requirements. For Zara, this reliance on an external person to facilitate reflection may explain why no further reflections were submitted once the external facilitation ceased.

> *I sought of found it slightly helpful, but it was mostly I was trying to write what I knew was expected and what they wanted to see. It was almost like that sort of process* (Isabelle).

> *If you were thinking of how to put it into action in placements, it would definitely need to be supervisor driven* (Zara).

UNDERSTANDING OF THE VALUE OF PRACTISING REFLECTION

Understanding the purpose of reflection activities was demonstrated by Gordon and Alice, who displayed no clear change in depth of reflection across the study according to m-REFLECT findings. An exploration of their experiences identified the use of reflection activities to keep a record and as a descriptive account of events that occurred on placement.

> [Reflections] *had already become a habit and it's easier to just keep writing. It's also my own record and then for me to refer back to as well* (Gordon).

> *It was just like a descriptive. Because it had to be what I did this semester, so it becomes more like a narrative* (Alice).

This understanding of the purpose of reflection was not found in the other trajectories, including the Gradual Decline trajectory. However, tension in understanding was recognised by Isabelle (Gradual Decline trajectory), who reported an awareness of the difference between the study's critical analysis approach to reflection and her interpretation of a more descriptive strategy, which was usually sought in university course requirements.

> *I feel like it has helped my ability to reflect on my own skills and be able to continue to develop my own skills throughout… after I leave uni. I feel like it's a good long-term skill. But in terms of helping me with my uni work, I don't feel like it has* (Isabelle).

Students continued to identify value in reflection outcomes despite their level of ability to internalise the reflection process as part of an ongoing learning strategy. For example, Zara attached greater value to face-to-face facilitation as a result of being challenged with alternative perspectives and provided with feedback during the sessions.

> *I found it far more helpful to bounce off another person who was feeding back what I was saying and challenging what I was saying. Yeah, I found that my reflections were*

probably… there were more layers to them because what I was saying was being challenged and fed back to me (Zara).

Similarly, Isabelle's demonstrated ability to critically reflect during the first placement came with an acknowledgement that reflection enhanced her critical thinking skills despite continuing to use a descriptive narrative approach in her reflections.

It was helpful because it helped me think in different… it helped me think about future situations when I was reflecting on them in different lights (Isabelle).

INFLUENCE OF TIME

Students across all trajectories reported on the influence of time on their depth of reflection, perceived worth and time to complete written reflection activities. The time commitment to complete reflective activities and the timing of the facilitation influenced their experiences.

Not feeling pressured and feeling that I must give that verbal reflection immediately within five minutes because you're in an acute hospital. I understand why, but it's not helpful. If it's not helpful then I will say things that doesn't really make sense and then it'll be worse anyway (Gordon).

Like you sit down and you finish it and go … like I'm often surprised by how long it takes (Zara).

It weighs on my mind if I have to do a reflection, it's a different kind of work to everything else. I find it harder. I have to get in a proper mindset to sit down and write reflection (Isabelle).

This influence persisted across both the email and face-to-face facilitation sub-groups, except for those students in the Steady Growth trajectory, who reported increased efficiencies when completing their reflections during the second placement.

I still spent quite a lot of time on them [written reflections]*. I think I got a bit faster in the second one that wasn't facilitate face-to-face. I definitely got more efficient* (Bo).

MODE OF FACILITATION

Data analysis identified overarching and unit-level consistencies across the face-to-face and email facilitation sub-groups, which supported educator usage of a consistent reflection process (i.e., Gibbs reflection cycle). Further, it was found that regular formative feedback by an educator influenced students' facilitation preferences.

> *You would always get feedback on your written reflections with* [facilitator]*, whereas from other clinical educators mean that verbally reflecting is more useful because you kind of get feedback* (Alice).

The provision of consistent and regular written or verbal feedback supported students' to practice the process of reflecting for new outcomes and learnings, while also providing learnings and prompts that they could utilise in subsequent reflections.

> *It was interesting to get his feedback in terms of, that there's always more to go into, to reflect on* (Isabelle).

> *It's interesting to think about the next week and how I could look at it from another perspective'* (Alice).

> *I thought that thinking about the effect that my actions could have on them* [patients] *also help to generate a little bit more ideas of what to do in the future* (Gordon).

DISCUSSION

This study examined three propositions, that reflection in speech pathology students could be: 1) developed during a professional placement; 2) maintained throughout a second professional placement using standard university practices; and 3) facilitated by using face-to-face or email strategies. Overarching case-level results found mixed support for the development and maintenance propositions, whereas individual unit-level analysis provided insights regarding factors that supported the facilitation proposition, including the timing and consistency of facilitator feedback.

The development and maintenance of reflection in speech pathology students can be achieved when students internalise reflection as a learning strategy while they are on professional placement. Early internalisation appears to support engagement and development of reflection as an ongoing learning strategy, which is maintained during a subsequent placement. Conversely, our study found that

students who externalised reflection as a course requirement or the responsibility of the facilitator, did not demonstrate enhancement or maintenance of their depth of reflection by the end of the second placement. This difference may be explained by students' situational and individual interest in reflection as a self-regulated learning strategy. Those students who had a higher degree of internalisation valued the outcomes and goals of reflection—new understandings and efficiencies in thinking—which reinforced their interest and ongoing use of reflection as an autonomous self-regulated behaviour (Albert & Dahling 2016; Reeve 2012; Sorić & Palekčić 2009). This is consistent with the concept of autonomous self-regulation, in that 'students [who are] self-initiated and persistent with the task [i.e., reflection] because they perceive [it] as interesting and personally important' (Reeve 2012, p. 225).

Overarching and unit-level analysis indicated that there was no 'one size fits all' approach to the facilitation of reflection in speech pathology students over time. This finding was evidenced at the unit level by mixed m-REFLECT data in the face-to-face and email facilitation sub-groups. As well as being reinforced by our qualitative data, which identified no distinct differences in students' experiences of reflection facilitation between the face-to-face and email facilitation sub-groups. The lack of differentiation provided support for this study's use of real-life experiences to stimulate students' identification of events to reflect upon (Mann, Gordon & MacLeod 2009), the reference to an established reflection cycle (Gibbs 1988) and use of formative feedback, which targeted the content and process of reflection (Aronson et al. 2012; Cook et al. 2017). However, the consistency and timing of feedback, rather than the mode of facilitation, was found to influence students' experiences of reflection activities. Feedback is an important element of student learning, which builds confidence and motivation (American Speech-Language-Hearing Association 2012; Clynes & Raftery 2008). However, little is known about the effects of feedback on the reflective process in speech pathology. This gap is surprising, given the importance of feedback in determining strengths and suggestions for improvement when reflection is undertaken in a considered, evidence-based manner (O'Keefe et al. 2012).

Limitations of this study included the small number of participants and the use of a five-point rating rubric to measure change between students' habitual thinking [action] and reflection, which are features for future consideration. The ongoing need for educators to possess in-depth knowledge of reflection to effectively and efficiently facilitate reflection continues, given the role that this knowledge has in determining and providing formative feedback using measurement tools like rubrics. This level of knowledge recognises that facilitation of reflection is important and requires a critical understanding of reflection, despite the existing use of

structured feedback, a consistent theoretical position and a refined rating rubric. A six-point rating rubric may assist this facilitation by offering educators a more detailed measure of students' development.

Despite these limitations, the design strengths of this study enabled the in-depth investigation of individuals and the overarching reflective performance of students, including their reflection experiences during two professional placements. The study investigated the reflections of speech pathology students during two professional placements using a quantitative reflection measurement tool and qualitative analysis of reflection experiences. By taking this in-depth view over time, the study identified three novel trajectories that illustrated reflection as a valuable ongoing professional learning strategy.

CONCLUSION

This study enhanced understanding of how reflection as a lifelong learning strategy was developed, maintained and facilitated in speech pathology students during professional practice. This study identified three novel reflection development and maintenance trajectories that illustrated reflection as an ongoing learning strategy, rather than performance at one point in time (e.g., Cook et al. 2017; Hill, Davidson & Theodoros 2012). Factors that may influence these trajectories and students' experiences of reflection were also identified, including the internalisation of reflection as a learning strategy, time spent on reflection activities and the timing and consistency of facilitator feedback. The monitoring of these trajectories and factors may be used by facilitators to better guide and support reflectees in their critical learning journey through greater awareness of a past pathway or emerging trend.

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Appendix 1: m-REFLECT Reflection Rubric

Reflection level					Axis II for critical reflection	
Criterion	Habitual action (Non-reflective) (1)	Thoughtful action or introspection (2)	Reflection (3)	Critical reflection (4)	Transformative reflection and learning (4.1)	Confirmatory learning (4.2)
Writing spectrum	Superficial descriptive writing approach (fact reporting, vague impressions) without reflection or introspection.	Descriptive writing approach and elaboration on impressions without reflection.	Movement beyond reporting or descriptive writing to reflecting (i.e., attempting to understand, question, or analyse the event).	Exploration and critique of assumptions, values, beliefs and/or biases and the consequences of action (present and future).	Frames of reference or meaning structures are transformed. Requires critical reflection. Integration of new learning into one's identity, informing future perceptions, emotions, attitudes, insights, meanings and actions. Conveys a clear sense of a breakthrough.	Frames of reference or meaning structures are confirmed. Requires critical reflection.
Presence	No sense of the writer being present. Writer reporting as a passive participant.	Sense of the writer being partially engaged.	Sense of the writer being largely engaged.	Sense of writer being fully engaged.		
Description of conflict or disorienting dilemma *(Disorientation may also be interpreted from an emotional or cognitive perspective that includes positive/constructive event)*	No description of the disorienting dilemma, conflict, challenge, or issue of concern.	Unclear or superficial description of the disorienting dilemma, conflict, challenge, or issue of concern (i.e., description requiring the reader to fill in gaps or make assumptions).	Clear description of the disorienting dilemma, conflict, challenge, or issue of concern.	Full description of the disorienting dilemma, conflict, challenge or issue of concern that includes multiple perspectives, exploring alternative explanations and challenging assumptions.		
Attending to emotions	No recognition or	Recognition but no	Recognition,	Recognition,		

	attention to emotions.	exploration or attention to emotions.	exploration and attention to emotions.	exploration, attention to emotions and gain in emotional insight.		
Analysis and meaning making	No analysis or meaning making.	Little, unclear or superficial analysis or meaning making.	Analysis of the majority of elements from the dilemma, with meaning making linked.	Comprehensive, quality analysis and meaning making.		
Optional minor criterion: Attention to assignment (when relevant)	Poorly addresses the assignment question and does not provide a compelling rationale for choosing an alternative.	Partial or unclear addressing of assignment question and does not provide a compelling rationale for choosing an alternative.	Clearly answers the assignment question or, if relevant, provides a compelling rationale for choosing an alternative.	Clearly answers the assignment question or, if relevant, provides a compelling rationale for choosing an alternative.		

Adapted from Wald, HS, Borkan, JM, Taylor, JS, Anthony, D & Shmuel, PR 2012, 'Fostering and evaluating reflective capacity in medical education: Development of the REFLECT (Reflection Evaluation for Learners' Enhanced Competencies Tool) rubric for evaluating students' reflective writing', *Academic Medicine*, vol. 87, no. 1, pp. 41–50.

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Professional doctorates: grasping a new way

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Abstract

It is one thing to create the curriculum for a professional doctorate with a graduate profile that talks of practice change and leadership development. Our experience in initiating the Doctor of Health Science in 2002 at the Auckland University of Technology (AUT) was that it was all too easy to fall back on the PhD mindset. We took inspiration from the literature and pioneering candidates to show us how this program could be distinctively different from a PhD. We tell our story to reveal both the challenges and possibilities involved, and to recognise that all of our candidates are focused on bringing change to practice. Some do this through research 'on' practice, others by research 'in' practice, and then there are those caught up in the research-practice nexus. We believe a professional doctorate program has the potential to significantly develop these candidates into leaders of practice change.

Keywords: professional doctorates, practice-led research, changing practice.

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PROFESSIONAL DOCTORATES: GRASPING A NEW WAY

> 'To work *within* a tradition (to acquire such a style, or to copy an archaic, existing style) is relatively easy. To introduce a new style—in other words, a new way of seeing— is not.' (Fish 2009, p. 135)

In 2002, we had the privilege of leading the development of a professional doctorate at the Auckland University of Technology (AUT). Deemed the Doctor of Health Science (DHSc), the program first welcomed nine enrolments from students spanning multiple health disciplines. In 2018, there were 31 enrolments, a total cohort of 114, with a total of 38 graduates to date. Over the years, a new way of observing what constitutes a professional doctorate program has since emerged. Now, we seek to articulate our growing understanding of what we aim to achieve with our program, how we go about its process and how one can recognise the various challenges involved. The aim of this paper is to encourage others on their own journey of establishing a professional doctorate program. While the arguments presented are contextualised in health, the experience is likely to be similar for other practice-based disciplines.

UNDERSTANDING THE NATURE OF A PROFESSIONAL DOCTORATE

Six years into our DHSc program our external reviewer asked us, how is a DHSc thesis different from a PhD? The easy answer is study length—that is, three years for a PhD thesis and 3.5 years for the DHSc. This consists of a thesis equivalent to two years of full-time study, plus three preparatory papers over three semesters. We soon realised that apart from the time required for completion, there was little distinguishing difference in our thinking for each doctorate, other than one began with three papers. We still held a strong academic focus, turning the candidates' attention to the literature and philosophy, expecting a thesis two thirds the size of a PhD but otherwise similar in substance. That got us thinking, reading and exploring the possibilities of how a professional doctorate might be more relevant to the practitioners enrolling in the program.

Discovering the work of Rolfe and Davies (2009) became a key catalyst in differentiating the two. They described the PhD as 'mode one' knowledge, which arises from expectations of a given university, conforms to traditional research methods and makes a contribution to knowledge. In contrast, 'mode two' knowledge production is akin to a professional

doctorate and brings a research interest from practice. The research approach is likely to be collaborative with stakeholders, emergent and shaped by context. As such, candidates must be responsive and able to adapt to the dynamic and unfolding nature of practice, as the key contribution such theses make regards the direct application of knowledge to practice. Suddenly, it was clear that our taken-for-granted method of deliberating what constitutes a thesis and how it is conducted needed to change.

Reading about the differences and enacting them in practice are two different things. This process has been an ongoing experience hinged on thinking and rethinking, as well as building understanding from several directions. First, Professor Gary Rolfe spent a week with us in our program, offering invaluable guidance and critique. Peter (a co-author of this paper) attended two professional doctorate conferences in the United Kingdom (2014 and 2018) and returned both excited by the move to practice-led theses and concerned at the challenges of having such work 'understood' by examiners. We received ongoing feedback from stakeholders in practice that change was taking place. Concurrently, we had our own experience with bold candidates doing authentic practice-led theses, and noticed that their efforts seemed to be well supported by managers. We were encouraged and excited by the significant effect these research projects were having on practice through the thesis journey, as well as the impressive leadership growth of each candidate. However, examiners did not receive every thesis with insight as to the nature of Rolfe and Davies's (2009) 'mode two' knowledge production. Examiners came with the expectation that the thesis would privilege the contribution to knowledge, and tended to almost overlook the effect on practice and on the leadership development of candidates. Thus, we needed guidance from colleagues on similar quests in discerning the value and pitfalls of practice-led theses.

One key article that echoed our growing sense of 'what matters' focused on 'work-based' doctorates—a term with which we were unfamiliar. This definition resonated, causing us to emphasise the following keywords:

> 'At a practical level it will be concerned with working at and extending the _leading edge of a professional or organisational field_, with significant _impacts_ in both the candidate's _profession_ or _community of practice_ and in terms of his or her _personal professional development_.' (Costley & Lester 2012, p. 3, emphasis added)

It appeared that we knew what we wanted our DHSc to tackle. Rather than these authors telling us how a professional doctorate needed to work, in their definition we found similarities with our own thinking (Smythe & Spence 2012). Now, we were looking for other voices to validate

the view from our horizon. We particularly agreed on Jones's (2018, p. 823) notion that developing expert researchers with a narrow scope and 'limited contribution to practice' did not work with the PhD approach. He viewed the professional doctorate as comparatively better fitted to the needs of industry (in our case, the healthcare setting), enabling universities to be perceived as offering academic and practical relevance, and, thus, attracting a greater number of candidates. Meanwhile, Robinson's (2018, p. 96) contention also held true, in that candidates undertaking a professional doctorate are more likely to decide their own topic of exploration, with 'the potential to make a difference within their own institutional settings'. Lunt (2018) also drew attention to the researcher as the instrument, embarking on a deeply reflexive project embedded in practice. Burnard, Dragovi and Ottewell (2018, p. 42) put it this way: 'the researching professional is part of that which is being researched … co-constructing new relationships between theory and practice'.

We also found insight from Costely and Pizzolato (2018, p. 37), who stated that:

> 'in DProf programmes the practitioner undertaking the research is often the person who also then develops the outcome in the work setting, frequently along with other colleagues. Alternatively, the research project seeks to persuade others to make tangible changes.'

The more we read (Boud et al. 2018; Buss 2017; Hawkes & Yerrabati 2008; Pratt et al. 2014), the more understandings revealed common-held threads. One paper cited another, building evidence and creating a shared vision. The 'saying' (Kemmis 2009) of professional doctorate practice, while drawing on a variety of words and definitions, emerged as a distinctive discourse about creating a space where practitioners can engage in the sort of 'research' that has relevance to them and their stakeholders. When we are clear in what we articulate, we are more likely to translate that to how we go about doing things. The tension arises in the reality of practices being socially formed. Like others, we encountered discord in having theses misunderstood by those not familiar with the nature of a professional doctorate. Examiners brought a PhD mindset to the examination (Maxwell & Kupczyk-Romanczuk 2009; Rolfe & Davies 2009), and this heightened awareness of the need to identify those who were likely to share the horizon of understanding presented by a candidate. Unfortunately, these numbers are small in the health sector. Nonetheless, the literature informed our program, both by leading us forwards and by giving us the confidence to continue on ways that had already emerged. It confirmed the understanding we had developed through our own experience, and gave us the courage to continue to develop a more

practice-based approach. That said, the most powerful shapers of change were the candidates themselves.

DISTINGUISHING WHAT CANDIDATES WANT FROM A PROFESSIONAL DOCTORATE

The complex demands on candidates enrolling in the DHSc are often different from those of PhD candidates. Our DHSc candidates are all fully employed and typically face additional family pressures. They undertake the DHSc along with other responsibilities and demands on their own time. Many already hold significant leadership and management positions, so the program is often viewed as a pathway leading to promotion during the course of their study. Indeed, something draws them to want to enrol in our DHSc; we recall no one candidate who was sent to register. Making such a commitment in an already busy life reflects who they are, often with delight in the possibility of changing practice for the betterment of clients and staff, and community and profession. Essentially, these individuals have no appetite for doing research that is not directly relevant to their own domain of practice.

WHAT AND HOW WE TEACH

The candidates who come to the DHSc are colleagues from both practice and university. They bring with them many possible interests and concerns from practice, long before they have read the related literature: their mandate is to initiate and lead change. Three papers (modules) guide them to their thesis. 'Practice and Philosophies' reawakens them to the assumptions and methods of a wide variety of research methodologies; 'Health Systems Analysis' asks them to situate their issue of interest in the relevant social, political and cultural context; and the third paper, 'Research Practice and Methodology', supports them in writing their research proposal. Learning outcomes are designed to enable the candidate to work towards productive contributions to their journey, whether that involves publications or the beginnings of thesis chapters.

We have come to appreciate the importance of the leadership thread through these three papers. We do not 'teach' leadership; rather, we engage candidates in a process that encourages them to see how moments of being the 'leader' have emerged through their life story. These insights have ultimately proven to be transformational in building confidence and in recognising one's 'self'.

Our pedagogy stems from a place that acknowledges how these candidates are already experts and already leaders. This engenders a relationship of respect and recognition that they do not need to be taught, but rather drawn into thinking (Smythe, Rolfe & Larmer 2016). Candidates are brought together for a week to complete the first two papers and to expose them to the stories of a range of researchers and leaders. PowerPoint presentations are discouraged, as

conversation, questions and anything that encourages thinking is preferred (Heidegger 1968). The pedagogy that has emerged has been heavily influenced by Heideggerian hermeneutics, which suggests the role of the teacher is 'to learn to let them [the candidates] learn' (Heidegger 1968, p. 15). As Heidegger (1966, p. 52) further explains:

'it is one thing to have heard and read something, that is, merely to take notice; it is another thing to understand what we have heard and read, that is, to ponder.'

We too encourage pondering by inviting candidates to write (or draw) their thinking in a non-academic way for the purpose of letting their thinking emerge, free from the constraints of referencing. The formal writing follows, crafting insights that arise from pondering into a scholarly argument. By the third paper, the candidates are ready to write their thesis proposal. All through the other two papers we constantly signal the different ways in which research can bring about change.

MODES OF PRACTICE-LED RESEARCH

Our emergent insights into the nature of a professional doctorate show us that while practice issues primarily drive theses, not all embrace research methodologies that are directed towards change. However, we have also witnessed that change can occur in every thesis experience. Table 1 differentiates the three modes of approach. As shown, the 'research **ON** practice' phase is where a researcher does not directly collect data from their own practice community. As the candidate is embedded in a related domain of practice, they themselves enact the recommendations. Conversely, 'research **IN** practice' takes on an action-research type approach for the specific purpose of bringing about change. Even though both transpire within a practice setting, individuals function in a researcher role. At the centre of our DHSc experience is research, which happens at the **'nexus'** of research and practice. This is where the candidate is both a paid employee with a mandate to lead change, and seeks to make said change the focus of their thesis. Tension arises when employees have little choice but to participate in the change process, making the informed consent of formal research and the likely power differentials challenging. The method used to make this work is to focus the research component on the reflective analysis of the change process. Of all the modes, this is perhaps the most transformational experience for the candidate, as they can critique their leadership skills and strategies.

RECOGNISING THE DISTINGUISHING CHARACTERISTICS BETWEEN A PHD AND A PROFESSIONAL DOCTORATE

Some of our DHSc candidates chose to do a mixed-methods research project because their goal was to gather evidence that will drive change. Conversely, others chose a methodology such as phenomenology because they wanted to first understand 'the experience'; indeed, such theses would be difficult to distinguish from a PhD. Some candidates embarked creatively on an action-research project, which, again, is equally appropriate to a PhD. Perhaps the key difference is found in those candidates who stand amid the tension between 'practice and research', and seek to find insights from the interplay. Hence, Table 2 draws on our understandings from the literature and expands it from our own experience. The arrows indicate the key areas of difference, recognising that every thesis has the potential to move either way. Essentially, it concludes that a professional doctorate:

- is always practice-led

- comes with a commitment towards change, whether in the process of or following change

- offers the candidate an interprofessional experience of learning together

- seeks to promote opportunities through which each candidate comes to flourish as the leader they are.

CONCLUSION

In offering this reflective analysis drawn from our own experience during the maturation of our DHSc program, we recognise that we have moved from discussing the ethos of a professional doctorate to living the experience. While we may have created the space to explore possibilities, it was our candidates who courageously took on the challenge to embed their research within their own practice domain. They challenged the status quo, took risks and proceeded with no clear guide to follow. For this, we salute their pioneering spirit: they have made the DHSc what it has become. This program is now marketed to stakeholders and candidates as a means of making tangible change in the real world of practice. As supervisors, we have encouraged them, been open to possibilities, walked alongside them into the unknown and trusted that the outcome would be successful. Evidently, the key success factors include having witnessed practice change as a direct result of a candidate's research, and observing individuals move into their leadership potential, winning prestigious scholarships and receiving promotions to high-level appointments. The purpose of sharing our story is to show others how altering one's mindset with a resultant change of practice is a progressive journey of understanding, as well as a valuable

challenge. Change, then, comes from the voices and actions of many, such as international colleagues through conferences and writing, team discussions, input from stakeholders, and, most of all, from the candidates themselves. It is they who know best what will most usefully serve their needs as leaders within the health sector. Thus, the responsibility lies with us, the educators, to rise up and play our part in effectively preparing the leaders of today and the future.

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Table 1: Modes of practice-led research

Modes of practice-led research	Description of how such research leads to change
Research **ON** practice	Candidates take on the researcher role removed from any work-related position. They make recommendations from findings, and personally enact these due to the relevance to their own practice setting.

Flood, B 2017, 'Toward a spirit of interprofessional practice: A hermeneutic phenomenological study', doctoral thesis, Auckland University of Technology, Auckland, http://hdl.handle.net/10292/10776.

Brenda interviewed practitioners about their experience working interprofessionally. The insights from her thesis have since deeply informed her leadership in initiating interprofessional learning activities at the School of Clinical Science at AUT. **The 'change' followed**.

	Candidates take on an action–research type approach and work directly with colleagues from practice. However, they do this in the role of 'researcher'. Change happens in practice through the action cycles, and often extends beyond thesis submission.
Research **IN** practice	

Austin, D 2017, 'Facilitating health professional wellbeing following critical incidents: An action research study', doctoral thesis, Auckland University of Technology, Auckland, http://hdl.handle.net/10292/10947.

Diana worked with stakeholders to discover a better way to support staff after a critical incident. With their input, she developed an ebook that became available to all staff before her thesis was submitted. '**Change' was a focus of the research**.

	Candidates hold the tension of being both researcher and employee. Clear distinction needs to be made in defining the 'research' component. Issues of informed consent may limit what counts as 'research'.
Research at the **nexus**	

Chadwick, M 2018, 'Leading health workforce change: Insights from experience', doctoral thesis, Auckland University of Technology, Auckland http://hdl.handle.net/10292/12033.

Martin was the manager of a large health service seeking to make change. He led action cycles as part of his employment. For his thesis, Martin described the change process he had initiated, sought evaluative interviews with some participants months after initiation, and wrote his thesis as a reflective analysis of his leadership. From this, he created a model of the different philosophical approaches needed at specific phases of the change process. **'Change' was in the partnerships established throughout the research process**.

Table 2: Distinctive characteristics between a PhD and professional doctorate

	PhD	Professional doctorate
Purpose	Candidate seeks a career in research at university. They want to become an expert researcher.	Candidate works as a practitioner in health or an educator of health students. They wish to do research that directly affects practice, and want to lead change.
Career focus	Candidate seeks to grow a research career, most likely at a university: research dominates.	Nurture candidates' leadership skills within their domain of practice and supervise others on similar quests: practice dominates.
Genesis of research topic	Candidates come with an interest (which may be from practice) and turn to the literature to discern the 'gap' that has not yet been researched. Their prime goal is to make a contribution to knowledge.	Candidates come with issues or possibilities arising from their practice. They are committed to research that will likely bring about change. Their primary goal is to make a contribution to practice.
Scope of focus	The initial research question determines the breadth of focus, guiding the literature review, informing the design and ensuring the findings are congruent with the research question. The scope of focus is predetermined in the research proposal.	The dynamic and emergent nature of practice means that a robust research proposal either may not be possible or changes throughout the course of the research. Other issues or possibilities may eventually take priority. The candidate reads and researches in response to what the context demands. The focus is open to change and responds as necessary to circumstances.
The thesis	The thesis is presented in a traditional format. The research question is supported by a focused literature review. The design is methodologically sound,	The thesis tells the story of the research. It describes the impetus and the original plan, and how that may have changed. The literature review indicates it has emerged over the course of the research, as

	PhD	Professional doctorate
	and the findings are congruent with the original research question. The contribution to knowledge is explicit.	priorities altered. The findings are directly relevant to practice and may have already been adopted. The contribution to knowledge is drawn from the practice focus.
Personal and professional development	The candidate recognises their growing expertise in conducting research and in the topic under investigation.	The candidate recognises their development as a leader and change agent. Through negotiation with stakeholders, working the participants, dwelling on the data and bringing the recommendations back to practice, they grow confidence in how their research can affect the 'real world'.
Learning experience	The experience is likely to be a solo journey, supported by supervisors	Candidates are part of a cohort from which support groups emerge. They learn from each other and build strong interprofessional networks. Candidates return as graduates to inspire current cohorts, becoming part of a community of leaders.