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Experiences and Perceptions of a Process for Interprofessional Clinical Education of Allied Health Students in Metropolitan Aboriginal and Torres Strait Islander Preschool Programs

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Abstract

Health, social and environmental factors may influence outcomes in the early years for Aboriginal and Torres Strait Islander children. Otitis media (OM) is a health condition experienced earlier, more frequently and more severely by these children, potentially impacting developmental and educational outcomes. Access to allied health (AH) services is recommended to mitigate this. Service models that respond to unique attributes of child, family and community in preschool settings may allow AH professionals, educators and families to work collaboratively for improved outcomes. However, key features of clinical placements that assist students to learn how to deliver accessible services require further research.

An action-research framework in three cycles and primarily qualitative methods were utilised to investigate an interprofessional AH clinical education placement in Aboriginal and Torres Strait Islander preschool settings. Speech pathology and occupational therapy students (n=11) completed pre and post-placement surveys and post-placement individual interviews, and clinical educators (n=5) participated in post-placement focus groups. Descriptive qualitative analysis revealed placement processes, incorporating comprehensive orientation, interprofessional learning, and active reflection, were perceived to transform understanding and increase capacity to deliver child/family/community-centred services using a responsive therapeutic approach. Findings suggest interprofessional placements, delivered in partnership with communities, may support effective service delivery to Aboriginal and Torres Strait Islander children.

I BACKGROUND

Closing the gap on Aboriginal and Torres Strait Islander health is a priority for Australian governments (FaHCSIA, 2009). Despite progress made in recent years, the Australian Early Development Census (AEDC) indicated that Aboriginal and Torres Strait Islander children are still twice as vulnerable as non-Indigenous Australian children to poorer health and education outcomes (Australian Government, 2016). A range of complex factors may influence these, including cultural, family, socio-political and health issues (Webb & Williams, 2018). Otitis media (OM) is a health condition experienced earlier, more frequently and more severely by Aboriginal and Torres Strait Islander children than non-Indigenous Australian children (Couzos, Metcalf, & Murray, 2001). This condition, and associated conductive hearing loss (CHL), may influence social (Howard & Hampton, 2006), developmental and educational outcomes for these children (Australian Government, 2010; Timms, Williams, Stokes, & Kane, 2014). Access to allied health (AH) services is recommended to support families to mitigate these impacts at the earliest opportunity (Australian Government, 2010).

Research indicates that some families may be less likely to access mainstream AH services, such as occupational therapy (OT) or speech pathology (SP) (Nelson, Allison, & Copley, 2007; Graham & Byrne, 2017). A growing body of research suggests factors that may support access to services. These include collaborative, integrated and flexible service delivery (McCalman et al., 2017; Nelson, McLaren, Lewis, & Iwama, 2017), directly responding to expressed needs (DiGiacomo et al., 2013) and building trusting relationships (e.g. Jennings, Bond, & Hill, 2018). It is imperative that alternative models of AH service delivery are considered to support health service accessibility for Aboriginal and Torres Strait Islander families (Nelson et al., 2017). Service models should also respond to the unique attributes of each child, family and community (Indigenous Allied Health Australia [IAHA], 2015). Locating AH services in preschool settings has been suggested to allow AH professionals, educators and families to work collaboratively for improved educational outcomes and successful transitions to school (DiGiacomo et al., 2013).

Creating a workforce that is responsive to individual, family and community needs requires effective partnerships between health services and universities (Thomson, 2005). Adequate preparation of students to work in Aboriginal and Torres Strait Islander settings is a priority of both educators and healthcare providers (IAHA, 2015; Universities Australia, 2011). However, there is considerable variability in this preparation across health professional program curricula (Nelson, Shannon, & Carson, 2013). Health professional education programs typically include several placements to allow students to develop relevant professional skills in real clinical settings (Howells, Barton, & Westerveld, 2016). If AH students have successful and satisfying clinical placements in Aboriginal and Torres Strait Islander contexts, they are more likely to report interest in seeking work in similar contexts once graduated (Whitford, Taylor, & Thomas, 2013). However, limited research has investigated how clinical placements can best prepare students to work in these settings (Hill, Nelson, Copley, Quinlan, & White, 2017; Thackrah, Hall, Fitzgerald, & Thompson, 2017).

Given the prevalence of OM, adequate preparation for students must include building their knowledge of OM and managing its impacts on child development outcomes, most specifically auditory processing skills, attention, behaviour, speech and language (Williams & Jacobs, 2009). Other important knowledge and skills include: interprofessional practice (Nelson et al., 2017; Thackrah et al., 2017); child/family/community-centred practice utilising culturally responsive therapeutic approaches (IAHA, 2015); and implementing a range of (flexible) service delivery options (McCalman et al., 2017; Nelson et al., 2017), including within preschool settings (DiGiacomo et al., 2013).

To the authors' knowledge, there is no existing literature available regarding AH student clinical placements conducted in Aboriginal and Torres Strait Islander preschool settings, nor related to teaching AH students about OM and CHL and associated developmental impacts as part of such placements. Davidson, Hill and Nelson (2013) and Hill et al. (2017) surveyed and interviewed students and clinical educators (CEs) who had provided an interprofessional OT and SP service

in an Aboriginal and Torres Strait Islander school. The findings suggested strategies that support student success and appropriate service provision in these settings, including prioritising time to build relationships over an extended period of engagement with the service. In addition, working closely in well-integrated interprofessional teams was found to be critical for students to remain client-centred and develop a holistic perspective of the client and community (Davidson et al., 2013; Hill et al., 2017). Other strategies recommended in the literature to support student learning in placements in Aboriginal and Torres Strait Islander services or settings include a structured and comprehensive orientation and pre-placement cultural training (Nelson et al., 2013; Thackrah et al., 2017), allocated time for adaptation, support and reflection (Clin Ed Australia, 2014), and access to a cultural mentor (Thackrah et al., 2017).

Research has begun to investigate the key features of clinical placements that assist AH students to practise in child/family/community-centred ways in Aboriginal and Torres Strait Islander settings. However, further studies are required to investigate the implementation of these key features in a range of health and community settings, such as preschool settings that target developmental outcomes arising from OM and CHL. In addition, the experiences of CEs in implementing these placements are important to investigate in more depth than has occurred to date, as CE practices are a key influence on the sustainability and growth of student training opportunities into the future (Rodger, Fitzgerald, Davila, Millar & Allison, 2011).

II AIMS

The aims of the current study were to:

- Develop a placement process that builds the capacity of AH students to provide child/family/community-centred developmental services for Aboriginal and Torres Strait Islander children with/at risk of OM and associated developmental impacts in a preschool setting.
- Describe the perceptions and experiences of students and CEs during these placements.

III METHOD

A Ethics Approval

Ethical clearance to undertake this study was obtained from the ethics review committee of Children's Health Queensland, The University of Queensland and Griffith University (clearance numbers: HREC/15/QRCH/31; HREC 2015-031; AHS/39/15/HREC).

B Research Methodology

An action research framework (Stringer, 2007) and primarily qualitative methods, including interviews and focus groups, were utilised in this study. Action research is used when the main purpose of the research is to change practice through applying new learning that is generated with the people who are involved in the research (Stringer, 2007). Action research was considered appropriate to this study because it allowed the process for student placements to be critically reviewed based on CE and student perceptions, then continually modified and improved to better address the needs of all participants. Primarily qualitative methods were employed in this first study of the process for interprofessional clinical education of allied health students in metropolitan Aboriginal and Torres Strait Islander preschool programs to explore experiences and perceptions of those involved in its initial implementation. This investigation was conducted over three placement cycles, with Likert scale surveys and in-depth interviews being undertaken with students at the end of each cycle, and focus groups carried out with clinical educator participants.

C Study Context

The study was undertaken within an Aboriginal and Torres Strait Islander ear and hearing health service, referred to as the 'hearing health service'. The service provided support for children with/at risk of OM and CHL and associated developmental impacts such as difficulties with auditory processing, attention, behaviour, speech and language skills (Williams & Jacobs, 2009), and was delivered by OTs and SPs to two preschools within a greater metropolitan area. One of the preschools was an identified Aboriginal and Torres Strait Islander service. The other preschool was located within an area that has a high population of Aboriginal and Torres Strait Islander families. The hearing health service had been providing pre-entry-level OT and SP student placements, both interprofessionally and single discipline, in the preschools for two years prior to the study.

1 Features of the Placement

Student placements were usually ten weeks in duration, with students being placed with the service for one to two days per week. Student teams consisted of either one OT and one SP student, or two SP students.

The service was developed in line with research indicating features of accessible, child/family/community-centred AH service provision for Aboriginal and Torres Strait Islander children and families (Nelson et al., 2017), and incorporated clinical education elements relevant to these settings (Hill et al., 2017). The placement utilised population-health approaches, including whole class, contextualised programs to promote school readiness (Cohen et al 2014), health promotion (Shahzad et al, 2019) activities such as nose blowing and handwashing routines, and working in partnership (Cohen et al 2014), with the focus of the service being informed by the preschool educators. Some services for individual children were also provided by SP students. OT and SP students worked interprofessionally through joint holistic observation, collaborative goal-setting with the preschool educators and joint development and implementation of whole class programs within the preschool.

The placement process was developed prior to the study and used in the first cycle. It involved:

1. A comprehensive orientation for all students, with topics including identification and management of OM and CHL, child/family/community-centred practice, and contextualised assessment and intervention in this setting. The latter included information about dynamic and flexible approaches, implemented within the whole class program and play environments. Resources regarding Aboriginal and Torres Strait Islander culture were also included.
2. An in-placement tutorial program delivered by the CEs which was adapted throughout the placement to meet the learning priorities of the students. These tutorials were often delivered by other professionals (e.g., audiologist).
3. Service delivery that featured comprehensive observation of children in the preschool setting and ongoing consultation with the preschool educators throughout the placement.
4. Whole-of-class approaches to intervention, focusing on the areas of need identified by the preschool educators, including managing the impacts of OM and CHL. Examples of these included supporting development of listening and attention, oral language and phonological awareness skills.
5. Weekly supervision and supported reflection with students. This included team check-in following implementation of whole class activities; team reflection after the preschool visit; individual reflection during supervision sessions; and structured written (journal) reflections.
6. Fortnightly CE team meetings.

D Participants

Participants included SP and OT CEs and students. Five CEs were included in the study, all with more than five years clinical experience. The same OT CE participated in all three cycles of the study. Four different SP CEs participated in the study across the three cycles, as indicated in Table 1. Three OT and eight SP students from two universities participated in the study (four in each of Cycles 1 and 2, and three in Cycle 3, with each placement including one OT student and two or three SP students). All were completing a part-time placement as part of their entry-level degree, with eight of the students in the second year of their graduate entry degrees, and three in the third or fourth year of their undergraduate degree. Ten of the students had completed a clinical placement at another facility prior to their placement in the hearing health service.

Table 1
CE participants involved across the three cycles - pseudonyms used for all participants

CE	Discipline	Cycle Number
Julie	Speech pathology	1
Callie	Occupational therapy	1, 2, 3
Jocelyn	Speech Pathology	1, 2
Kylie	Speech pathology	2, 3
Faye	Speech pathology	3

E Data Collection

Three cycles of student placements were included in the study. Data collected during and after each cycle informed the planning and delivery of the next cycle of student placement. Students completed a custom-built 5-point Likert scale survey (see Appendix 1) before and after their placement, to report on perceived levels of experience, knowledge and confidence, rated on a scale from 'low' (1) to 'high' (5). The students also participated in an in-depth interview (see Appendix 2 for interview guide) at the end of the placement, conducted by a university academic research team member from the other profession (OT students were interviewed by a SP academic and vice versa). This occurred to limit the impact of academic supervisory relationships between the interviewer and the interviewees. Both the survey and interviews included questions about the students' learning during the placement in relation to: working with children with OM; delivering services to Aboriginal and Torres Strait Islander children/families/communities; working interprofessionally; and delivering services at a community level, rather than an individual level.

Focus groups were conducted with the CEs after each cycle was complete. The OT and SP academics also conducted the CE focus groups, which included questions about their students' progress during the placement and barriers and enablers to student learning. Interview and focus group data were transcribed verbatim after each cycle. Pseudonyms were used for all participants and persons mentioned in comments to ensure anonymity. A collated and deidentified summary of key content, ideas and recommendations from transcripts was circulated to the research team, and student and CE participants as a form of member checking (Cresswell, 2014). The summary was then discussed at a meeting between the research team and the CEs. Changes for the next cycle were agreed upon and actioned by the CEs.

F Data Analysis

Data analysis occurred after all three cycles. Interview and focus group data were inductively analysed to produce a descriptive qualitative analysis (Stanley, 2015), by an independent

research consultant, a process ethically approved within the research protocol. In the first phase of analysis, data were analysed separately for students and CEs. The transcripts were read and coded, and then codes were organised so that answers to similar questions were grouped. In the second phase of analysis, the coded data for each participant group were combined and reduced by integrating codes into broader themes.

Ordinal data from the student surveys were tallied, the means calculated and then pre and post responses were compared for each question. The short open-ended responses to questions were read and inductively coded and then content analysis methods (Elo & Kyngäs, 2007) were used to count similarly-coded responses that were differentiated as pre or post-placement responses. The number of responses was graphed to illustrate changes.

IV RESULTS

A Changes Across the Cycles

The student placement process evolved across the three cycles of research, as informed by the interviews and focus groups. Due to the dynamic nature of the placement (with varying CEs and students), some changes needed more than one cycle to be implemented by all CEs. Overall changes that occurred across the three cycles are therefore reported rather than discrete changes after each cycle. Changes made across the cycles related to orientation processes, tutorials, supervision, placement structure, and contact with preschool educators and families.

Table 2
Changes to placement process across the three cycles

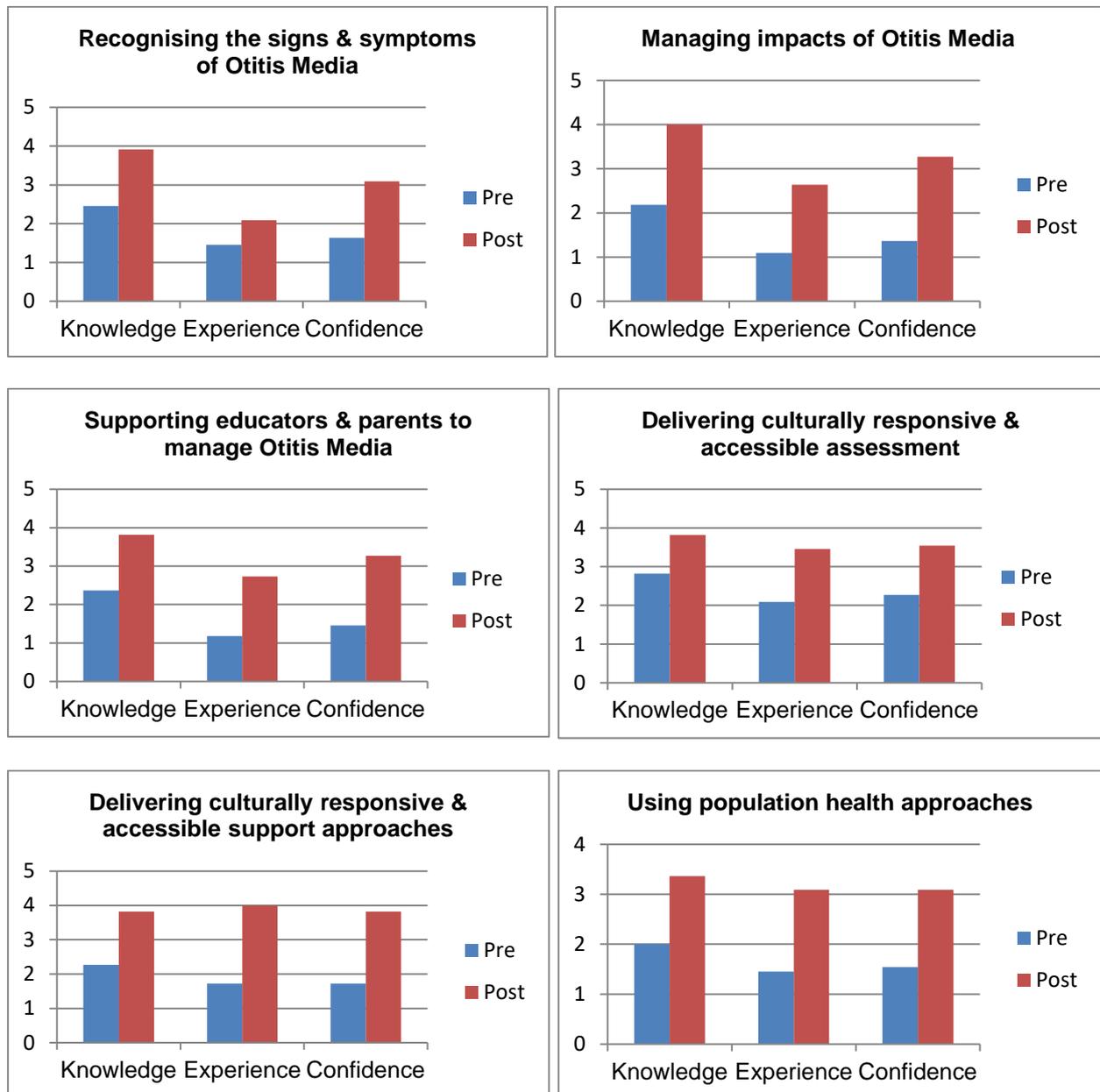
Placement Process	Changes across the Cycles
Orientation	<ul style="list-style-type: none"> • More explicit content provided regarding differences between placement process and other student placement experiences.
Tutorials	<ul style="list-style-type: none"> • Reordered – assessment and intervention practices and evidence-based practice frameworks provided earlier. • More information provided regarding OM (e.g., from audiologists).
Supervision	<ul style="list-style-type: none"> • More modelling provided early in the placement (e.g., how to implement whole-of-class approach). • Explicit teaching regarding the OT role. • Explicit teaching regarding population health principles.
Placement structure	<ul style="list-style-type: none"> • More opportunities to engage in community events and family education sessions. • OT students given opportunities to deliver individual services, such as collaborating with SP students on individual assessments and intervention programs.
Contact with preschool educators and families	<ul style="list-style-type: none"> • Attending the preschool bus run. • Engaging in online platforms used by the preschool to communicate with families. • Providing information sessions to families at the beginning of the placement.

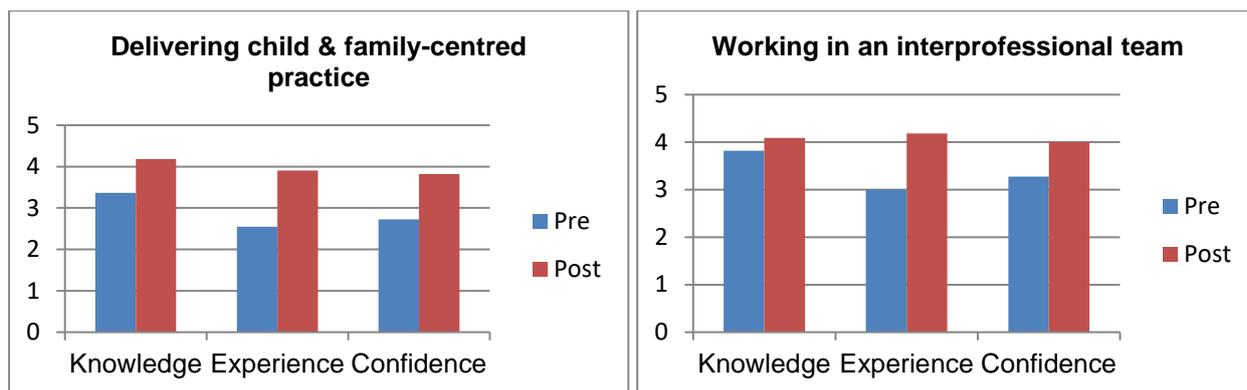
B Survey Data

Students perceived that they had increased knowledge, experience, and confidence in each of the service provision aspects covered (Figure 1). Knowledge and confidence in *managing impacts of otitis media* was the area that reflected most change, possibly due to students' lack of experience in this clinical area before the placement and the potentially more complex nature of the other aspects of service provision such as supporting educators and parents/carers. Indeed,

working in an interprofessional team was the area that reflected least change overall, possibly reflecting students' high pre-placement ratings with more limited allowance for change and their perceptions of the challenges of working with both CE and preschool teams in this placement.

Figure 1:
Students' survey responses – pre and post-placement





Note: rating of perceptions (on vertical scale) ranged from 1 (low) to 5 (high). Results reported are the mean for the student participant group pre and post placement.

C Interview and Focus Group Data

Two major themes emerged from the qualitative data: developing capacity to deliver child/family/community-centred services, and what worked well in the placement.

1 Theme 1: Developing students' capacity to deliver child/family/community-centred services.

The students reported that learning how to deliver child/family/community-centred services, and responsive therapeutic approaches and skills was emphasised throughout the placement. Both students and CEs discussed being child and family-centred by first understanding what family-centredness looked like, focussing on strengths rather than impairments, raising their awareness of their own approach, engaging respectfully and responsively to build relationships, and understanding how to implement whole-of-class approaches and individual therapy in a dynamic and flexible way.

(a) Understanding family-centredness

The students highlighted that they had discovered how central being family-centred, and even community-centred, was to meeting consumer needs. They saw the family's involvement as necessary for their engagement in the preschool to be successful.

You really need the whole family...or the community's involvement and...engagement.... If you want the children to benefit...from your OT service, then you kind of want their parents and their aunties and their uncles to understand and be excited about what you've got to offer in order for it to actually have an effect on their child. (CatherineOTSt_C1)

Being family-centred sometimes meant not making quick assumptions about the applicability of the usual clinical processes they had become used to following. Rita described that she had to learn "to get myself out of the way a lot more as a therapist" so that she could base her therapeutic approach "on [the family's] preferences and their context and what's important to them... rather than what I think the outcome should be" (RitaSPSt_C1).

The students acknowledged that family-centred practice was part of their university curriculum, but their practical experiences at this placement enabled them to enact family-centredness in a different way than they had previously interpreted it. "We are taught about it a lot at uni. It's always 'Do family-centred practice'...it's the way to go and everything ...but this was the first time I really felt that I was doing family-centred practice *properly*" (SueSPSt_C2). The students' experience in this placement led to a strong belief that family-centred practice was ultimately more sustainable than practice that focused more on therapist-led goals.

I think [this placement] was much more family and community-centred than some of those individual, clinical sessions were [at other placements]...It was good because I feel like what we were able to achieve would probably have a more lasting effect and wider and broader effect as opposed to having

a child coming for thirteen or twelve weeks and for an hour a week...With this placement I was able to have [a parent/carer] in a few times and show her what I was doing and get her to do it in front of me and talk about what she was doing so now I'm fairly sure that she is doing that at home and she is able to use those strategies that we were able to work on together. (FelicitySPSt_C1)

The CEs assisted the students to think more deeply about family-centred practice and how this could be achieved.

Initially my student came in and actually said to me "I know what family-centred practice is because I have a family" and so [she] came in thinking that that she had a really good grasp on what it all meant. But actually, evidence through the session planning was that goals were very speech pathology focused...and very much reliant on that default expert kind of model. And so a huge learning across the placement was about, well, what is family-centred practice and what is consultation and listening, like really actively listening and negotiating and working collaboratively? ... The learning across the placement was just enormous. (JulieCE_C1)

(b) Strengths-based focus

Another aspect of therapy that was different to students' previous placement experiences and university training was the need to highlight and foreground the children's strengths in their communications with parents/carers. This was perceived as important to enable and empower parents/carers to feel safe in sharing their concerns regarding their child's difficulties.

Not that I feel like I've ever not been a strengths-based person, but I noticed that I had to become even more strengths-based in my communication. So rather than saying things that I was used to saying at uni like, "I wonder if he might have like a global delay or something like that?" And even steering away from labels or steering away from any remotely negative language and just keeping it really strengths-based. So I thought at the beginning that was quite hard...but then I understood for the context it was appropriate because we were trying to build that capacity and we were trying to build positive relationships with the community and empower families to support their needs and not you know say "Oh your child's got a problem", try and just keep it all positive... That was tricky at the beginning, coming from quite an impairment-based approach at uni. (FelicitySPSt_C1)

(c) Becoming responsive: Raising awareness of one's own approach

Sue (SPSt_C2) perceived that her placement experience helped her to develop greater acceptance of values and ideas that were different to her own. As a result, she felt that her ongoing practice was likely to be much more acceptable to the families:

It was important as well to not be judgemental...about anything...not bring my own personal beliefs about...education or about healthcare into it and very much respect the families' decisions...In my first placement with Aboriginal and Torres Strait Islander populations I found it really difficult, especially in different views...and willingness to access services and that population being perhaps less willing to do that. And I found that very difficult to accept. ...I don't think it was until this placement that I realised that...historically how recent everything has happened and why that is still having an impact on relationships between Indigenous and non-Indigenous [people] and why that could affect willingness to access healthcare, to accept help from a non-Indigenous person... (SueSPSt_C2)

CEs found that they also needed to reflect on and explicitly model their own behaviours and client interactions with the students, and place these within the context of a broader practice framework.

So that challenged [the OT CE] and I to really practically think about, well, from [the student's] world and their lens, what are they needing to help do this and so that linked us into thinking about the IAHA [Indigenous Allied Health Australia] Culturally Responsive Practice Framework and really explicitly having [a] conversation...about communication and about supporting relationships and reading signs and things. Like indirect communication: that means a lot when you're yarning with Aboriginal and Torres Strait Islander people... And reading those relationships or those things that are really subtle that I think with less experience you totally miss...Knowing that context and that person, then we'd have a go modelling something and quite explicitly [saying to the students], I was thinking this when that happened and so this is what I tried - being clear with them about the mistakes that we make. (JulieCE_C1)

(d) Building relationships via respectful, responsive, reciprocal communication

Taking time to build relationships with the children and their families and the preschool educators was perceived by the students as important to show respect and allow them to become part of the preschool community. Although this was a different style of practice for the students in comparison to other placement experiences, once the students had made this cognitive shift to alter their previous views of practice, they perceived that this way of working yielded benefits, including developing a better understanding of their clients and potentially better outcomes.

I feel like the biggest thing that I've learnt...was just not coming in, guns blazing and being like 'I'm the OT student I've got all these skills to offer you'. But it was more just, fitting in and then you know developing rapport, with the educators, with the children, so that they could then see that I really...could have a positive kind of impact. So, I just felt like it was just a progressive thing...So it was more just a slow relationship building sort of thing. (CatherineOTSt_C1)

Students reflected that they had developed an understanding that if practice with Aboriginal and Torres Strait Islander people was to be effective then a relationship needed to be established and trust built before any assessment or therapy could begin. They perceived that, unlike other practice placement experiences, if a trusting relationship was not created, then the therapy may not be successful.

You can't just waltz in with your assessments and your treatment and you know "Here I am to fix all of your problems" because that development of rapport and relationship in that context is so much more important than it is in any other context that I've been in. You know, for example, you can be at the hospital and you might spend five minutes talking to a patient and your CE writes 'great rapport' on your feedback form, that's not the same here...[It is] necessary...to spend that time building the relationship if you want to achieve any good outcomes from what you're doing...you could go in and start trying to...do assessment or therapy but that's going to be completely invaluable and unsustainable if you haven't spent that time developing that relationship. (GracieSPSt_C2)

Although many of the children travelled to/from the preschools via bus, the students learned that having face-to-face contact with parents/carers was the most effective way of building their trust. Across the placement cycles, the CEs recognised the value of students going on the bus run that collected and returned children to and from the preschool.

Callie: I think it was good to for the families to see the students' faces...

Kylie: Yep. ... I think it's quite helpful for the targeted work, the bus runs...because the families see you and feel more comfortable... families that might be more shy might start to talk to the educators now that they've seen them twice. We had probably the best engagement of those targeted families [who were receiving individual SP support] that we've had... I think it really helped. (CE_C3)

[One of the support workers] suggested the best way to get to know all the parents is to physically go out and meet with them. And that was I think the best introduction we had...we were on the bus run, we met with all of those different families and I think them just seeing our faces...it just places you and...makes all those messages come from somebody, not some system. (JaydeOTSt_C2)

Students also perceived that it was invaluable to build relationships with the preschool educators. Initially, they struggled with the idea of spending time with staff just to get to know them, needing CEs to specifically encourage them to do so.

At the kindergarten [preschool] sometimes, some of the educators would have the same time lunch as we would, and we wouldn't talk about the kids, we'd talk about what's happening at home you know outside of the work. It gave you a bit more of that you know, I think Faye [SP supervisor] referred to it as 'professional loitering'...I think it helps build a bit better relationship and more rapport between professionals and it gives it a bit more of a personal touch, rather than coming "Hi I'm this person, here's my information" and leaving again. (LaineySPSt_C3)

We'd make specific plans [with the students] about well it's okay just to have a sit down and have a chat and a yarn with the educators, that's perfectly fine and actually really important for you to do. (JocelynCE_C1)

(e) *Adapting service delivery to the classroom context: Dynamic, flexible and contextually based:*

Whole-of-class approaches

The students perceived that meeting the children's needs in this environment meant that their practice needed to be very different from their previous placement experiences. Students were required to engage in whole-of-class approaches in response to the preschool educators' identified priorities for the class, whilst also providing support to children who were at risk of developmental impacts due to OM and CHL. Working with the children in groups and utilising a whole-of-class approach was initially a challenge for the students, but they discovered that working in this way had many advantages in the setting.

You're not kind of picking one child out as different and isolating them and going 'let's work with you on your own'. And I think because we've kind of been working in that group format, children are a lot less frightened to kind of interact with you, you get a lot more out of them because they're in their natural environment and they're doing what all the other kids are doing. (JaydeOTSt_C2)

Individual approaches

For the SP students who were providing some children with individual support, standardised assessments were not routinely used, as most of these tools had not been standardised on an Aboriginal and Torres Strait Islander population. Consequently, information gathering processes needed to occur using more dynamic and flexible methods, within the play environment.

Traditionally it's you assess, you do this, you do that, and then you do intervention and that's what you do, it's the process. Whereas I've learnt, you know, you can't assess, there's not norms... You have to adapt. You have to be dynamic and change your plan to the child... don't stick to the plan, you know it won't go that way perfectly, to always be adaptable and to identify what the client's wants and needs are, not what me as a speech pathologist would think those main needs are. (GabbySPSt_C3)

2 Theme 2: What worked well in the process of the student placement

Students and CEs discussed their perceptions of the placement features that were most important to promote students' mastery in this context. They commented on aspects of the orientation, supervision and support provided to the students, including the need for CEs to be explicit in their teaching, practices that promoted interprofessional learning, and the critical role of reflection and peer support.

(a) *Orientation, supervision and support*

All students commented that they received high quality supervision and that this greatly enhanced their learning and their enjoyment of their placements. CEs had provided opportunities for education about how to deliver child/family/community-centred services that were responsive to the complex needs of the Aboriginal and Torres Strait Islander children with/at risk of OM in the preschools, which the students appreciated as they had not covered this in depth in their university programs. They perceived that this learning may assist them in future clinical roles as well as more generally.

There were lots of sort of seminars...to give more information about aspects of Aboriginal and Torres Strait Islander culture that we hadn't covered at uni... there's a six hour [self-directed learning] module you can do and they showed you videos of how...there can be communication breakdowns [with Aboriginal and Torres Strait Islander people] and why they come about...Seeing those videos and hearing accounts from other people...I feel like I've got more cultural understanding now and I can use that in my clinical practice but also in society...so I feel like it's helped me, as well, as an Australian. (FelicitySPSt_C1)

The CEs placed importance on the orientation provided at the beginning of placement to prepare students for delivering responsive services and provide them with clear expectations regarding how their day-to-day work might differ to their previous placement experiences.

I think we've got a strong orientation process at the beginning, in terms of spending the day with different people in the team and spending the day looking at the literature that supports our practice, and unpacking the culturally responsive practice framework. We probably set the expectation around our ways of working and that things will be a bit different from the beginning. And so maybe, like theoretically they're kind of tuned in to knowing that...this is going to be different and that relationships are going to be really important and certainly that's throughout our orientation manual for the students.... So I feel like we get them ready for the learning, through our orientation. (JulieCE_C1)

Across the three cycles, the CEs identified that understanding and mastering practice in this setting could be a complex task for students. They discussed the need to become more explicit with the students about the nature of child/family/community-centred service delivery and inter-professional practice in this context, and the therapeutic approaches that would assist them to develop appropriate skills. CEs achieved this in part by providing direct, targeted teaching, as well as by initiating explicit discussions about aspects of the service provision that may have been hidden to the students.

We had very explicit conversations about aspects of trans-disciplinary practice in terms of like this is what we're all working towards and...my piece of the puzzle is this bit and this is your piece of the puzzle and for us to do that together, maybe across two classes that are happening at the same time, there's going to be elements of role release that need to happen there or skill sharing and building, and that happened across OT, speech, and educator, and educator assistants and so, that was a really interesting and practical application of that. (JulieCE_C1)

(b) Interprofessional learning

The learning environment of the placement was enriched by students' access to multiple health disciplines.

Our session plans shifted a lot across the placement. And...the shift when the students really started planning and delivering better together...that also came from working with somebody else [another health professional student] I think, to help you. You know that learning collaboratively...learning from each other. Yeah so there was so much I think that even though our students had different experience clinically, they learnt so much from each other. (JulieCE_C1)

[I] probably had like four different speech pathology supervisors and Callie in OT and everyone else was quite generous with their time so it...provided more opportunity to learn, like everyone has different perspectives so you can kind of learn from different people. I thought that was really good. (RitaSPSt_C1)

The students also valued the preschool educators as a source of wisdom to guide their own actions when working with the children. They observed the preschool educators at work and learned to check their perceptions and plans with them before proceeding.

The first port of call was usually Tilly or Natalie [preschool educators] ...and just saying, "Would it be appropriate to do this?" And they could kind of say, "yep...this is the person to talk to within that family network or you need to talk to the grandmother but...I think there had been some kind of bereavement in the family so leave it a while". And so it was all... [about speaking to the preschool educators] who actually knew the family quite well. (JaydeOTSt_C2)

(c) Use of reflection and peer support

Reflection was used in several ways to enhance student learning. The CEs used structured reflection processes with the students as part of supervision, both individually and together as a student group.

Callie: They'd do their session plans and then we'd have reflection straight afterward using...the journal. And very specifically going through okay how did you do that, what did you do... How's that EBP4?... (CallieCE_C2)

Julie: And then each week affected the next week... So, it was very cyclical, and the learning continued... So the week before we reflected using the whole session reflection as a group of the four of us, and then at the end of that was how do I use this to apply my planning for next time?... So, there were actually lots of steps to getting there. And then we'd reflect on it again as a group... It worked really well, and it allowed us to really have a good insight into where they were at. (JulieCE_C1)

The CEs also met fortnightly as a group to reflect on the placements, to share stories and problem solve issues, and plan for future placements. They perceived that doing this as a team strongly allowed them to learn from their colleagues and supported their ability to provide high quality supervision to the students.

The thing that kind of I suppose helped me...was just that planning that we did prior to the placement kind of utilising the previous information from the educators and from the students themselves, just to be more targeted in those learning areas. (CallieCE_C2)

V DISCUSSION

This study explored the perceptions of students and CEs regarding a clinical education placement conducted in Aboriginal and Torres Strait Islander preschool settings. The placement model was dynamic, with action research informing modifications to the placement following each research cycle. Participant perceptions suggested that the placement experiences supported the students to build their capacity to deliver child/family/community-centred services for children with/at risk of OM and CHL and associated developmental impacts. Both students and CEs highlighted the importance of understanding family priorities, being strengths-based, undertaking self-reflection regarding their approaches, engaging respectfully and responsively to build relationships, and learning how to implement dynamic and flexible whole-of-class and individual assessment and support approaches. Qualitative findings were paralleled in the survey data, with all students reporting perceived increases in knowledge, experience, and confidence with recognising signs/symptoms and managing impacts of OM; delivering culturally responsive and accessible services; using population health approaches; delivering child and family-centred practice; and working in an interprofessional team.

Students' perceived increase in knowledge and confidence in managing the impacts of OM was not an area explored during interviews but reflected most change on the surveys. This was possibly due to students' lack of experience in this clinical area before the placement and their focus in interviews on the potentially more complex nature of the other aspects of service provision such as supporting educators and parents/carers and working interprofessionally. However, these findings may also indicate that, given the significant impacts of this health condition, more OM content as it relates to Aboriginal and Torres Strait Islander children could be covered in university curricula.

The findings related to student learning of the other aspects of child/family/community-centred services have some similarities to previous studies investigating perceptions of CEs and students providing interprofessional services in an Aboriginal and Torres Strait Islander school setting. Prioritising time to build relationships and working in well-integrated interprofessional teams were strategies reported to support student success and appropriate service provision in other studies conducted in school contexts (Davidson et al., 2013; Hill et al., 2017).

The current study's findings add to this literature by demonstrating the value and necessity of these strategies in Aboriginal and Torres Strait Islander preschool settings when working with children with/at risk of OM. They further provide a more in-depth account of students experiencing transformative learning (Mezirow, 1978) regarding concepts such as family-centred practice, strengths-based approaches and therapeutic rapport/relationship building in the Aboriginal and Torres Strait Islander children's service context, than has been documented to date. The students perceived that they had increased self-awareness of their own assumptions and enhanced understanding of the importance of respectful, reciprocal, responsive communication to enable them to build relationships and learn how to fit into the preschool context. This suggests that the placement enabled development of responsive therapeutic approaches and skills to support the

students to respond to the unique attributes of the children, families and community (IAHA, 2015). Learning to translate person and family-centred-care theory into practice has been challenging for AH clinicians (Espe-Sherwindt, 2008; Kuo et al., 2012). Despite exposure to these concepts in prior university and placement learning, this placement experience led to students voicing a new understanding of how to enact these approaches in this environment to underpin effective practice.

In terms of the student placement process, comprehensive orientation, high quality supervision, targeted teaching and explicit discussions were valued to prepare students to work responsively in this context. Teaching practices that promoted interprofessional learning, from both AH and preschool educator colleagues, and the critical role of reflection and peer support for both students and CEs, were also highlighted. Some of these findings are comparable to previous studies where the importance of including a comprehensive orientation have been emphasised (Nelson et al., 2013), along with interprofessional learning (Davidson et al., 2013; Hill et al., 2017) and allocating time for adaptation and reflection (Thackrah et al., 2017). However, the current study adds depth to previous literature by describing a particularly diligent reflection process, targeted teaching and explicit discussions regularly initiated with students, all of which assisted them to make sense of their experiences and actively apply their new understandings to their practice. The findings therefore add new insights regarding specific educational practices that may support effective student learning in the Aboriginal and Torres Strait Islander preschool context, or any context where a significant shift in students' thinking and behaviour is needed to address the community's needs.

VI LIMITATIONS AND FUTURE DIRECTIONS

Findings of this study were based on students' perceptions of increased capability and knowledge, confidence and experience only, rather than on observable changes in behaviour. This study was conducted in conjunction with two Aboriginal and Torres Strait Islander preschools in an urban area of Queensland, with a small number of participants. Additional research is required with larger samples to further investigate these perceived changes, and to look at the applicability of this placement process in other preschool contexts, and in regional, rural and remote areas.

The AH professionals in this study all had experience as CEs, and in providing developmental services for Aboriginal and Torres Strait Islander children and families. Hence their perceptions and experiences may not be representative of all AH professionals, and for conclusions about the effectiveness of the placement process to be generalised, research involving AH professionals with a range of experience would be required. Future research investigating the outcomes of this placement process is recommended, to examine how it may contribute to influencing future clinical practice, along with the likelihood that student participants may go on to work in Aboriginal and Torres Strait Islander health or education contexts. The resourcing and cost-effectiveness of the preschool based placement, compared to other (e.g., clinic-based) placements, also warrants further investigation.

Finally, it is imperative to understand parent/carer and preschool educators' perspectives, to determine whether the learning perceived by students and CEs was experienced by parents/carers and educators as accessible, child/family/community-centred services.

VII CONCLUSION

This study explored and described implementation of an interprofessional clinical education placement, delivered in Aboriginal and Torres Strait Islander preschool settings. The placement process, incorporating comprehensive orientation, supervision, targeted teaching and explicit discussions, interprofessional learning, and active reflection, was perceived by students and CEs to transform students' understanding and increase their capacity to deliver child/family/community-centred services using responsive therapeutic approaches and skills. This

study suggests that interprofessional student placements, delivered in partnership with preschool services, provide an opportunity for students to develop important skills for appropriate service delivery to Aboriginal and Torres Strait Islander children with/at risk of OM and CHL, helping to mitigate the impacts of this condition at the earliest opportunity and promote improved health and education outcomes.

Disclosure of interest

The authors report no conflict of interest.

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Appendix 1 Pre and post-placement student surveys

Student Placement Reflection

Pre-Placement

Date:

Placement: *Preschool A / Preschool B (please circle)*

Occupational Therapy / Speech Pathology *(please circle)*

The Participant Perception Indicator

The first part of this questionnaire has been designed to measure your perception of your knowledge, experience, and confidence on various items. With each statement are three indicators of your involvement. For each of the questions indicate how you feel about your knowledge, experience, and confidence.

Example:

Circle one number in each of the three boxes.

	<i>knowledge</i>					<i>experience</i>					<i>confidence</i>				
	low		high			low		high			low		high		
Change a flat tire	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5

This would mean that I have a great deal of knowledge (response of 5) about changing a flat tire, I have an average amount of experience (response of 3) with changing a flat tire, but I am not confident (response of 1) in my ability to change a flat tire. **Now continue to fill in all boxes of all items below.**

	<i>knowledge</i>					<i>experience</i>					<i>confidence</i>				
	low		high			low		high			low		high		
1) Recognising the signs and symptoms of Otitis Media	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
2) Supporting educators and parents in the management of Otitis Media	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
3) Managing the impacts of Otitis Media (considering your role as a speech pathologist / occupational therapist)	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5

Why have you given yourself these ratings? (Are there particular experiences that have influenced your learning?)

	<i>knowledge</i>					<i>experience</i>					<i>confidence</i>				
	low		high			low		high			low		high		
4) Delivering culturally responsive and accessible assessment	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5

Why have you given yourself this rating? (Are there particular experiences that have influenced your learning?)

5) Delivering culturally responsive and accessible support approaches (e.g. therapy, whole class support)	<i>knowledge</i>					<i>experience</i>					<i>confidence</i>				
	low				high	low				high	low				high
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5

Why have you given yourself this rating? (Are there particular experiences that have influenced your learning?)

6) Using population health approaches in speech pathology/occupational therapy practice	<i>knowledge</i>					<i>experience</i>					<i>confidence</i>				
	low				high	low				high	low				high
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5

Why have you given yourself this rating? (Are there particular experiences that have influenced your learning?)

7) Delivering child and family centred practice	<i>knowledge</i>					<i>experience</i>					<i>confidence</i>				
	low				high	low				high	low				high
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5

Why have you given yourself this rating? (Are there particular experiences that have influenced your learning?)

8) Working within an interprofessional team	<i>knowledge</i>					<i>experience</i>					<i>confidence</i>				
	low				high	low				high	low				high
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5

Why have you given yourself this rating? (Are there particular experiences that have influenced your learning?)

Student Placement Reflection

Post Placement

Date:

Placement: *Preschool A / Preschool B (please circle)*

Occupational Therapy / Speech Pathology *(please circle)*

The Participant Perception Indicator

The first part of this questionnaire has been designed to measure your perception of your knowledge, experience, and confidence on various items. With each statement are three indicators of your involvement. For each of the questions indicate how you feel about your knowledge, experience, and confidence.

Example:

Circle one number in each of the three boxes.

	<i>knowledge</i>					<i>experience</i>					<i>confidence</i>				
	low		high			low		high			low		high		
Change a flat tire	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5

This would mean that I have a great deal of knowledge (response of 5) about changing a flat tire, I have an average amount of experience (response of 3) with changing a flat tire, but I am not confident (response of 1) in my ability to change a flat tire. **Now continue to fill in all boxes of all items below.**

	<i>knowledge</i>					<i>experience</i>					<i>confidence</i>				
	low		high			low		high			low		high		
1) Recognising the signs and symptoms of Otitis Media	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
2) Supporting educators and parents in the management of Otitis Media	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
3) Managing the impacts of Otitis Media (considering your role as a speech pathologist / occupational therapist)	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5

Why have you given yourself these ratings? (Are there particular experiences that have influenced your learning?)

	<i>knowledge</i>					<i>experience</i>					<i>confidence</i>				
	low		high			low		high			low		high		
4) Delivering culturally responsive and accessible assessment	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5

Why have you given yourself this rating? (Are there particular experiences that have influenced your learning?)

5) Delivering culturally responsive and accessible support approaches (e.g. therapy, whole class support)	<i>knowledge</i>					<i>experience</i>					<i>confidence</i>				
	low				high	low				high	low				high
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5

Why have you given yourself this rating? (Are there particular experiences that have influenced your learning?)

6) Using population health approaches in speech pathology/occupational therapy practice	<i>knowledge</i>					<i>experience</i>					<i>confidence</i>				
	low				high	low				high	low				high
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5

Why have you given yourself this rating? (Are there particular experiences that have influenced your learning?)

7) Delivering child and family centred practice	<i>knowledge</i>					<i>experience</i>					<i>confidence</i>				
	low				high	low				high	low				high
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5

Why have you given yourself this rating? (Are there particular experiences that have influenced your learning?)

8) Working within an interprofessional team	<i>knowledge</i>					<i>experience</i>					<i>confidence</i>				
	low				high	low				high	low				high
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5

Why have you given yourself this rating? (Are there particular experiences that have influenced your learning?)

Appendix 2 Student interview guide

Student interview guide

1. Tell me about your experience in this Hearing Health Service placement with ___ (CE name)
 - a. What was it like compared to other placements you have had?

2. What have you learnt about delivering services to Aboriginal and Torres Strait Islander clients/families/communities?
 - a. How do you think the way you deliver services to these clients/families/communities now has changed, compared to before the placement?

Prompt: can you comment on your understanding of child or family centred practice in this context?
 - b. How do you think you will use this knowledge in your future practice?

3. What have you learnt about working with others in a team?
 - a. What do you understand now about OT/SP that you didn't know before? How will you use that knowledge in your future practice?
 - b. What do you think are the best ways of working together?

4. What have you learnt about delivering services at a community level, rather than an individual level?
 - a. How is this different from what you have learned in your previous placements?
 - b. How do you think you will use this knowledge in your future practice?

5. Tell me about the supervision and education you received during this placement
 - a. What helped your learning?
 - b. What else might have been useful? What could you suggest for the supervision of future students in this placement?

6. What was the best thing about this placement?

7. What did you find most challenging about this placement?

Extra question if not covered – How did you find the practical aspects of the placement e.g. having multiple supervisors, office and community resources.