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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.

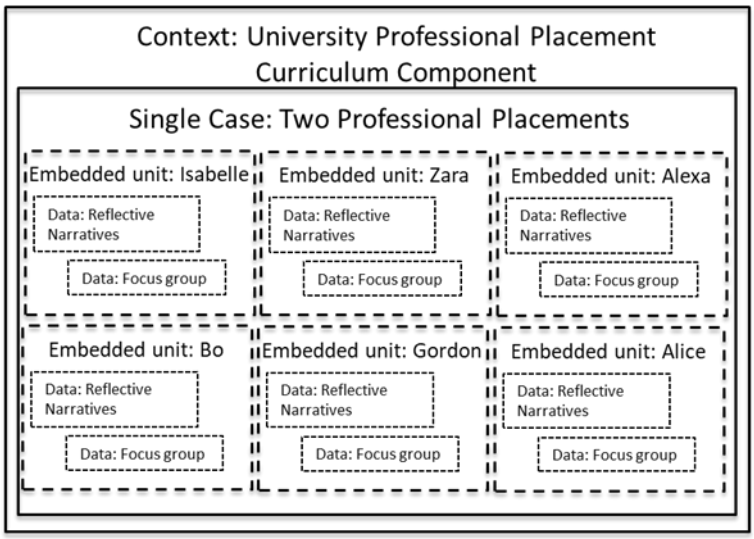

Figure 1. Single-case design with embedded units

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.

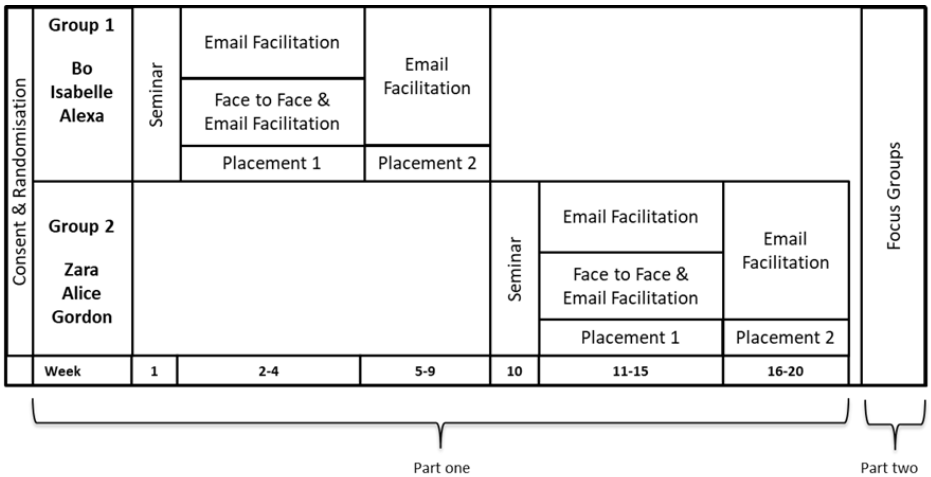

Figure 2. Facilitation type per group over time

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).

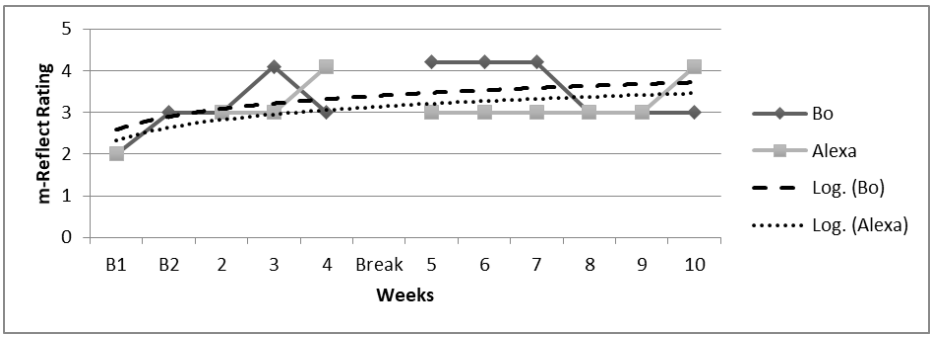

Figure 3. Trajectory—Steady growth from introspection to reflection and to critical reflection

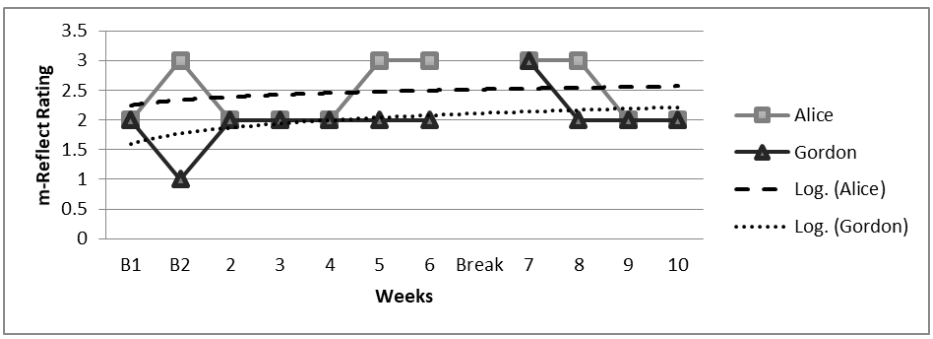

Figure 4. Trajectory—No clear change in depth over time

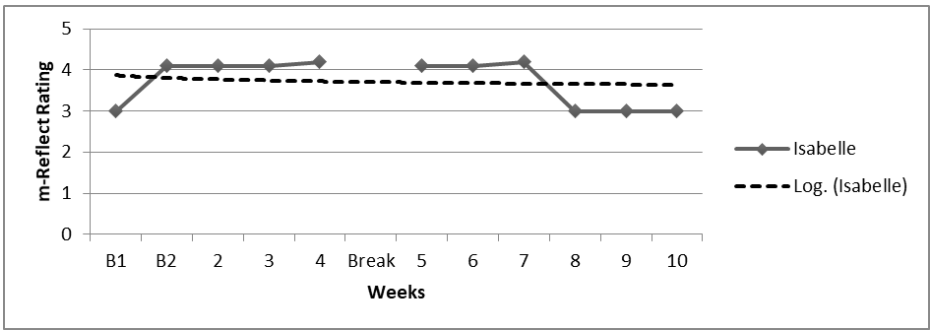

Figure 5. Trajectory—Gradual decline in depth of reflection

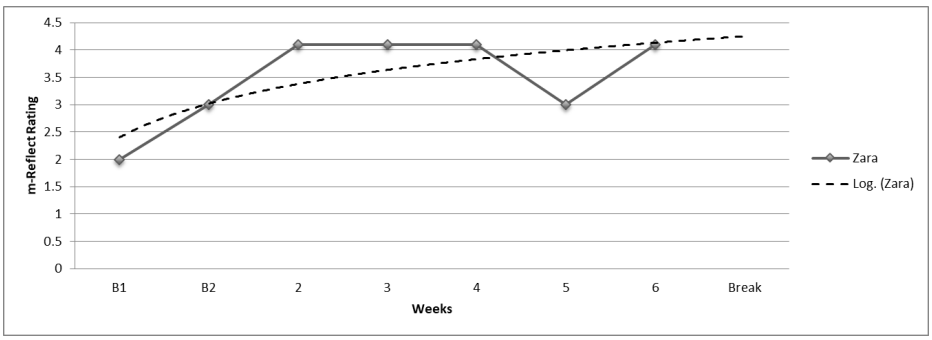

Figure 6. Trajectory—Steady growth in depth, then incomplete

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; SorićĆ & 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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