

Examining SLP student perceptions of reflective practice. How do students compare on the reflective practice questionnaire?

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Abstract

Reflective practice (RP) activities are regularly employed as part of clinical education programs for Speech-Language Pathology (SLP). Studies examining SLP student perception of RP, suggest that in general, RP activities are valued and learning occurs (Dunne et al., 2019; Tillard et al., 2018). However, it is not known whether perceptions of RP activities change as clinical placement experience increases. The impact of RP activities on outcomes such as: confidence; communication; job satisfaction; stress; uncertainty; and desire for improvement also have not been examined. The aims of this study were: 1) to determine perceptions of reflective capacity and outcomes of engaging in RP in three groups of SLP students (following their second, fourth or sixth clinical placement experience) utilizing a validated and reliable instrument, and 2) to examine patterns of perceptions of reflective capacity and outcomes of engaging in RP across SLP students utilizing Hierarchical clustering (Manhattan distance). Seventy SLP students completed The Reflective Practice Questionnaire (RPQ) (Priddis & Rogers, 2018; Rogers et al., 2019). The majority of SLP students perceived they had high levels of reflective capacity. In general, as SLP student clinical placement experience increased so did perception of RP abilities and subscales associated with outcomes of engaging in RP. A significant positive effect for three subscales of the RPQ (communication confidence, confidence general and job satisfaction) was found as clinical placement experience increased. Three groupings were identified as a result of Hierarchical clustering. In conclusion, this study provided quantitative data to support the teaching and use of RP activities with students across clinical programs.

Keywords: *clinical education, reflective practice, student perspectives*

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Introduction

Engaging Speech-Language Pathology (SLP) students in reflective practice (RP) activities within clinical programs is thought to provide opportunities for students to demonstrate and develop their clinical reasoning and decision-making skills. RP activities also contribute to the development of professional autonomy and provide a means for connecting theory to clinical practice (Cook et al., 2019; Hill et al., 2012; Plack et al., 2005). Furthermore, RP is described as an essential skill and is included in minimum standards for graduates and practicing SLP clinicians by Speech Pathology Australia (SPA) (Speech Pathology Australia, 2020) and the Health and Care Professions Council in the United Kingdom (Health and Care Professions Council, 2014). Beyond this, the benefits of engaging in RP for both clinician and patient are well documented, and include: enhancing patient centred care; job satisfaction; supporting change and reducing burnout (Armstrong et al., 2017; Caty et al., 2016a, 2016b; Clouder, 2000; Mamede et al., 2008; Sherwood et al., 2018; Smith & Pilling, 2007; Thomas & Isobel, 2019; Walpola & Lucas, 2021; Ziebart & MacDermid, 2019). Knowing this, the challenge for educators then, is how to teach, engage and evaluate RP in clinical programs in an efficient way, and promote ongoing engagement in RP activities when students graduate and enter the workplace. Examining student experiences of RP activities is one way educators have looked to motivate students, inform teaching, and evaluate outcomes of engaging in RP activities (Barbagallo, 2021).

Student perspectives of RP in clinical programs

Students have described a number of benefits as a result of engaging in RP activities. The benefits include: valuing RP activities as a memory aid; a place to receive feedback; a form of self-care; and an opportunity for peer learning (Alsalamah et al., 2022; Barbagallo, 2021; Er et al., 2019; Lim & Low, 2008a, 2008b). Further benefits described RP activities as an avenue to develop and demonstrate critical thinking, reasoning, and evidence-based practice skills (Alsalamah et al., 2022; Barbagallo, 2021; Korucu Kis & Kartal, 2019; Langley & Brown, 2010; Lim & Low, 2008a, 2008b; Roche & Coote, 2008). Students have also identified development of personal and professional behaviours as a result of RP activities. Behaviours described were: confidence; the ability to identify barriers, enablers and emotions; and developing positive emotions, that were in turn, perceived to maximize the quality of care for patients (Alsalamah et al., 2022; Barbagallo, 2021; Brumfitt & Freeman, 2007; Er et al., 2019; Karimi et al., 2017; Korucu Kis & Kartal, 2019; Langley & Brown, 2010; Lim & Low, 2008a, 2008b; Roche & Coote, 2008).

Alternatively, allied health, education, and nursing students have reported a number of common concerns surrounding RP. Firstly, engaging in RP activities required a large amount of time. Secondly, students described a lack of knowledge of the “rules” for RP. Thirdly, good relationships were necessary for engaging in RP activities, given that sometimes vulnerability was required in order to be open and honest in reflective activities (Embo et al., 2014; Harris, 2005; Korucu Kis & Kartal, 2019; Langley & Brown, 2010; Lim & Low, 2008a, 2008b; Roche & Coote, 2008).

SLP student perspectives of RP over time

Two important studies examining SLP student perspective of RP activities, and perceived learning and development have been completed. The first study examined SLP student (n = 24) perception of learning as a result of engaging in a novel or a standard RP group format (Tillard et al., 2018). Regardless of group format, SLP students identified that RP groups were a positive addition to their learning, critical thinking, and clinical practice. Students perceived that the RP group format provided a peer learning opportunity and was not time consuming. No significant differences were found between groups and perceptions remained stable over the six-week period. The lack of perceived growth of RP skill by students may have been as a result of the short six-week time period, a lack of experience evaluating their own skill development, or the specificity and sensitivity of the questionnaire (Tillard et al., 2018).

The second study by Dunne et al. (2019) indicated SLP students needed to understand the value of RP and internalize RP in order to perceive benefit and learning from RP activities, with a focus on written RP. In contrast to Tillard et al. (2018), these SLP students perceived their engagement was influenced by the mode of RP and time to engage in RP (Dunne et al., 2019). The methods of data collection for this

study also differed from that of Tillard et al. (2018), examining both SLP student written reflections and conducting focus group interviews (n = 6 SLP students).

Both studies investigating SLP student perception of RP found that most students perceive that they gain some benefit from RP activities. Variable responses concerning barriers of time and modality of RP were identified (Dunne et al., 2019; Tillard et al., 2018). Both studies focused on a single cohort of students over a brief period of time (6-10weeks), restricted students to one modality of RP (group or written), had limited participants or utilized a fit-for-purpose questionnaire, and focused largely on the value of and perception of learning as a result of engaging of RP activities (Dunne et al., 2019; Tillard et al., 2018). Examination of SLP student perspectives of RP and how students utilise RP in interactions with clients at differing time points in the clinical program and without imposing a restriction of RP activity, may contribute to further understanding of the development of RP skill across SLP degree programs. In turn, this may better support educators and the tailoring of RP activities. Furthermore, this examination may identify SLP students who are struggling or may perceive their RP skills are not supporting their clinical skill development (Hager & Hodkinson, 2009; Roca et al., 2020).

Methods employed to examine student perceptions of RP

A review of the research methods surrounding examination and assessment of student perceptions of RP in the allied health, nursing, and medical fields indicated that four data collection methods are regularly utilised: questionnaires; written reflection analysis; focus groups; and interviews (Barbagallo, 2021; Er et al., 2019; Harris, 2005; Heidari & Galvin, 2003; Lim & Low, 2008a, 2008b; Ng et al., 2012; Roche & Coote, 2008; Tillard et al., 2018). Common RP models have also served as foundations for RP questionnaires. Ooi et al. (2021) reported that questionnaires were typically based on an identified RP model such as Mezirow's reflective thinking framework (Mezirow, 1991), Schön's Model of Reflective practice (Schön, 1983, 1987), or Kolb's experiential learning cycle (1984).

For this study with SLP students, The Reflective Practice Questionnaire (RPQ) (Priddis & Rogers, 2018) was selected. The RPQ has acceptable validity and reliability measures and allows comparison of RP perspectives of medical and nursing students and mental health professionals (Gustafsson et al., 2021; Priddis & Rogers, 2018; Rogers et al., 2019). The RPQ is unique in that it moves beyond simply seeking student perspectives of RP, and examines reflective capacity. Reflective capacity is defined as "... the ability, desire, and tendency of students to engage in reflective thought during their academic studies and clinical practices." (Rogers et al., 2019). In its entirety, the RPQ aims to examine student perception of their reflective capacity in situations where interactions with clients occur. The statements utilized in the RPQ place a focus on how students perceive RP can impact their clinical interactions. Additionally, the RPQ allows for associations between reflective capacity and six subscales (confidence, communication, uncertainty, stress, desire for improvement, and job satisfaction). The subscales examine areas that RP activities are thought to impact in a positive way (Rogers et al., 2019). Outcomes from recent studies suggested that the combination of reflective capacity subscale, and the six sub-scales, result in an ability to identify and support students by addressing areas such as resilience, anxiety, over confidence, or dissatisfaction during their university career (Priddis & Rogers, 2018; Rogers et al., 2019). Such areas may also be relevant to SLP programs.

In summary, student perception of RP and perceived capacity for RP is important for engagement in tailoring support for students, learning, course improvements, evidenced-based practice and validation of the student voice (Dunne et al., 2019; Hager & Hodkinson, 2009; Roca et al., 2020; Rogers et al., 2019; Tillard et al., 2018; Wilson, 2012). Engagement in RP activities as part of clinical education programs aims to support students to enhance their RP skills, and transfer these skills to the workplace where the benefits of ongoing RP have been documented for both the clinician and the patient (Armstrong et al., 2017; Caty et al., 2016a, 2016b; Clouder, 2000; Mamede et al., 2008; Sherwood et al., 2018; Smith & Pilling, 2007; Thomas & Isobel, 2019; Walpolo & Lucas, 2021; Ziebart & MacDermid, 2019). Finally, engagement in RP activities are a common and core component of SLP training programs and graduate outcomes. Therefore, investigation of student perspectives of RP using a consistent and validated tool, such as the RPQ, with its unique focus on RP in clinical interactions, would allow for comparisons across SLP student groups at different points in time of the clinical program, benchmarking across clinical programs, and comparisons to other health professional and teaching clinical programs. The addition of

such examination aims to complement assessment of RP in clinical programs and investigations into clinical competency while offering another tool to identify and support struggling or at-risk students (Hager & Hodkinson, 2009; Roca et al., 2020; Sheepway et al., 2014).

Therefore, this study aimed to:

1. Determine perceptions of reflective capacity and outcomes of engaging in RP in three groups of SLP students (following their second, fourth or sixth clinical placement), utilizing a validated and reliable instrument;
2. Examine patterns of perceptions of reflective capacity and outcomes of engaging in RP across SLP students utilizing Hierarchical clustering (Manhattan distance).

Methods

This study received ethical approval from the Educational Research Human Ethics Committee of the University.

Context of the study

This study was conducted as part of a well-established clinical program for SLP students. This program included a focus on RP (See [Appendix A](#), for description of the clinical education program of learning for RP). The study included students in both the Bachelor and Master's SLP degree programs¹. All clinical placements were categorised as either "Early" "Middle" or "Late" placements according to the COMPASS® technical manual and the clinical program's assessment documentation ([McAllister et al., 2013](#)).

Research design

A questionnaire study design was chosen for the ability to provide insights into SLP student perception and attitudes related to RP and outcomes of engaging in RP at three stages of the SLP clinical program ([Schiavetti & Metz, 2002](#)). This allowed for the examination of perception of SLP reflective capacity and related subscales at three points in time across the clinical programs ([Priddis et al., 2018](#); [Rogers et al., 2019](#)). Furthermore, the three timepoints chosen allowed for preliminary exploration as to how the RPQ could be utilized based on differing amounts of clinical placement experience.

Participants

Seventy students enrolled in clinical courses as part of the Bachelor of Speech-Language Pathology honours program or the Master of Speech-Language Pathology program participated in the study. At time of data collection, the students had recently completed their second, fourth or sixth clinical placement experience (of six across the course of either degree), described hereafter as a "novice placement group", "intermediate placement group", or "entry level placement group" respectively according to COMPASS® behavioural descriptors and the clinical program's assessment documentation ([McAllister et al., 2013](#)). Following completion of clinical course six, students had completed their clinical requirements and were eligible to graduate and enter the SLP profession, consequently they are labelled "entry level".

Instrument

The Reflective Practice Questionnaire (RPQ) is a validated and reliable instrument containing seven subscales and a total of 40 questions. This instrument was selected as it enabled comparison of findings of SLP students with medical and nursing students and mental health professionals ([Gustafsson et al., 2021](#);

¹ Inclusion of both Bachelor and Master's level SLP students in this manner has been reported in a number of publications ([Hill et al., 2021](#); [Penman et al., 2021](#); [Tillard et al., 2018](#)).

[Priddis & Rogers, 2018](#); [Rogers et al., 2019](#)). The RPQ provided an opportunity to examine student perceptions of RP and student perceptions of clinical and professional skill development as a result of engagement in RP. ([Priddis & Rogers, 2018](#); [Rogers et al., 2019](#)). The first subscale for reflective capacity aimed to “assess core aspects of a reflective practitioner” and is in keeping with the work of Schön (1983, 1987) ([Priddis and Rogers, 2018](#), p. 93; [Rogers et al., 2019](#)). The reflective capacity subscale was made up of four parts that examined commonly discussed components of RP (Reflective-in-action, Reflective-on-action, Reflective with others and Self-appraisal). The reflective capacity subscale comprised of 16 items, with four items per component. The RPQ included six additional subscales (four items per subscale) attributed to the outcomes of engaging in RP including: development (subscale: Desire for improvement), the potential benefits of reflective supervision (subscales: Confidence (general), Confidence (communication) and Job satisfaction) and the potential outcomes associated with low quality reflective supervision (subscales: Uncertainty and Stress interacting with clients) ([Priddis & Rogers, 2018](#); [Rogers et al., 2019](#)). For each item, a six-point response scale was used: 1) Not at all, 2) Slightly, 3) Somewhat, 4) Moderately, 5) Very much, 6) Extremely. For further reading on the development, validation, statistical properties, and the full questionnaire, see [Priddis and Rogers, \(2018\)](#) and [Rogers et al., \(2019\)](#).

Procedure

The study was conducted in the context of usual practice for SLP students enrolled in a clinical course. Each course included a clinical placement component that was conducted under the guidance of a qualified SLP. Consistent with usual practice, students in clinical course two (novice placement grouping) and four (intermediate placement grouping) completed part time placements over a 12-week period. Students in clinical course six (entry level placement grouping) had recently completed both a part-time and a block placement over an 18-week period².

At the completion of clinical requirements for each clinical course, all students (from here on in known as participants) were emailed a secure URL link to invite them to complete the RPQ. The RPQ was presented in an online format using Qualtrics Survey Software, which allowed for standardization of the response scale, order randomization, and ability to access questionnaire via computer or mobile device ([Priddis & Rogers, 2018](#); [Rogers et al., 2019](#)). The RPQ was formatted to require responses from all questions in order to progress onto the following question, therefore participants were unable to submit the questionnaire without responding to all items. All participants were sent one reminder to participate in the study. This occurred two weeks after the initial invitation. The output of the RPQ was generated using Qualtrics software ([Qualtrics, 2021](#)). This allowed reverse scoring, means and statistical analysis to be carried out for individual participants ([Qualtrics, 2021](#)).

Statistical analysis

Descriptive statistics were used to report the average scores for the RPQ sub-scales. The data analysis was carried out in the statistical software environment R ([R Core Team, 2015](#)). To examine the effect of placement grouping on student perception of RP, a series of one-way ANOVAs were run to compare the RPQ sub-scales across groups. To examine patterns of perception of RP across participants, regardless of placement grouping, the distance between each participant's RPQ scores was explored by Hierarchical cluster analysis. This utilized the Manhattan distance ([Suzuki & Shimodaira, 2006](#)). In keeping with hierarchical cluster analysis process, examination of the dendrogram output was completed to identify the number of clusters or patterns ([Peng, 2020](#)). Once the patterns were identified, the participants were reorganised under the clusters and descriptive statistics were used to report the average scores for the RPQ sub-scales for each cluster.

² Part-time placement is completed in conjunction with academic teaching requirements, a block placement is a full-time placement (i.e., 40 hours per week) with no academic teaching requirements ([McAllister et al., 2013](#)).

Results

Seventy participants completed the questionnaire. [Table 1](#) describes participants who agreed to participate in the study by student placement grouping. The majority were female with an average age was 23 years. The Entry level grouping had the least number of participants (n =12).

Table 1:
Demographic details of SLP students by placement grouping

Student placement grouping	Placement number (of 6)	Number of participants	Average age (SD)	Age range	Male/ Female
Novice	2	32	24 (6.16)	19-49	2 Males/ 30 Females
Intermediate	4	26	22 (4.96)	20-25	2 Males/ 24 Females
Entry level	6	12	27 (8.67)	21-49	0 Males/ 12 Females
Total	N/A	70	23 (6.52)	19-49	4 Males/ 66 Females

Examination of student perceptions of RP and related characteristics across the clinical program

[Table 2](#) presents the mean scores of the RPQ for each of the subscales, organised by three placement groupings (Novice, Intermediate, Entry level placement), whereby the maximum score is 6. Students in

Table 2:
Mean RPQ subscale scores (averages of the subscale items) for SLP students by clinical placement grouping

Sub-scale	Novice level	Intermediate level	Entry level level
Reflective capacity (RC)	4.52 (0.47)	4.53 (1.10)	4.63 (0.40)
Desire for improvement (Dfi)	5.59 (0.49)	5.26 (0.58)	5.02 (0.68)
Confidence – general (CG)	2.46 (0.93)	3.06 (0.94)	3.71 (1.01)
Confidence – communication (CC)	4.20 (0.52)	4.43 (0.60)	4.81 (0.48)
Uncertainty (Unc)	3.97 (0.80)	3.49 (0.81)	3.46 (0.91)
Stress interacting with patients (SiP)	3.43 (0.81)	3.18 (0.72)	3.48 (1.17)
Job satisfaction (JS)	4.33 (0.29)	4.39 (0.37)	4.66 (0.47)

Standard deviations are provided in () brackets.

the novice placement grouping indicated the most desire to improve. In general, as clinical experience increased so did student perception of reflective capacity and related subscales, with the exception of desire for improvement which decreased as clinical experience increased. Regardless of clinical experience, students perceived similar levels of stress interacting with patients.

To evaluate the effect of placement grouping on the perception of the subscales, a linear model was utilized and seven simultaneous ANOVA without any covariates were run, one for each subscale from the RPQ. [Table 3](#) presents the output of the final statistical model. There was a significant positive effect of placement group as clinical experience increased for: communication confidence (CC), confidence

general (CG), and job satisfaction (JS) (CC: $\beta = -0.61 (.18)$, $t = -3.40$, $p < .05$; CG: $\beta = -1.25 (.32)$, $t = -3.88$, $p < .001$; JS: $\beta = -0.34 (.12)$, $t = -2.81$, $p = .01$). There was a significant negative effect of placement group as clinical experience increased for desire for improvement (DFI) ($\beta = 0.57 (.19)$, $t = 3.00$, $p < 0.1$). Positive trends as clinical experience increased were seen for uncertainty and reflective capacity.

Table 3:

Coefficients of seven simultaneous tests for General Linear Hypothesis (ANOVA), one for each subscale from the RPQ.

Model	Fixed Effects	Estimate	Std. Error	t value	Pr (> t)	
Model 1: RC	Intermediate vs. Entry Level Students	-0.10	0.18	-0.56	1	
	Novice vs Entry Level Students	-0.11	0.17	-0.66	1.00	
	Novice vs Intermediate Level Students	-0.01	0.16	-0.08	1.00	
Model 2: DFL	Intermediate vs. Entry Level Students	0.24	0.19	1.23	0.95	
	Novice vs Entry Level Students	0.57	0.19	3.00	0.06	
	Novice vs Intermediate Level students	0.33	0.13	2.60	0.16	
Model 3: CG	Intermediate vs. Entry Level Students	-0.65	0.33	-1.96	0.51	
	Novice vs Entry Level Students	-1.25	0.32	-3.88	0.00	**
	Novice vs Intermediate Level students	-0.60	0.24	-2.47	0.21	
Model 4: CC	Intermediate vs. Entry Level Students	-0.38	0.18	-2.06	0.45	
	Novice vs Entry Level Students	-0.61	0.18	-3.40	0.02	*
	Novice vs Intermediate Level students	-0.23	0.15	-1.49	0.84	
Model 5: UNC	Intermediate vs. Entry Level Students	0.03	0.29	0.11	1.00	
	Novice vs Entry Level Students	0.51	0.28	1.83	0.61	
	Novice vs Intermediate Level students	0.48	0.20	2.34	0.27	

Model 6: SIP	Intermediate vs. Entry Level Students	-0.30	0.30	-1.00	0.99
	Novice vs Entry Level Students	-0.05	0.29	-0.17	1.00
	Novice vs Intermediate Level students	0.25	0.17	1.50	0.83
Model 7: JS	Intermediate vs. Entry Level Students	-0.27	0.12	-2.19	0.36
	Novice vs Entry Level Students	-0.34	0.12	-2.81	0.10
	Novice vs Intermediate Level students	-0.07	0.07	-0.89	1.00

Sub-scale: RC = Reflective capacity, Dfl = Desire for improvement, CG = Confidence - general, CC = Confidence - communication, UNC = Uncertainty, SIP = Stress interacting with patients, JS = Job satisfaction.

Significant codes: 0 '****' 0.001 '**' 0.01 '*' 0.05 '.' 0.1. (Adjusted p values reported -- single-step method).

Examination of patterns of perceptions of RP capacity and outcomes of engaging in RP

Hierarchical clustering (Manhattan distance) was used estimate the correlation between participant scores. This analysis was undertaken to examine patterns of student perceptions of RP across student groupings and regardless of clinical experience. As a result of the analysis, three distinct groupings were determined to be the best groupings for the data. The groupings were named following inspection of each participant's RPQ scores and represent the most prominent features. [Figure 1](#) illustrates the groupings (Group One = Reflective and confident group, Group Two = Non-reflective group, Group Three = Low confidence group). [Table 4](#) presents the mean scores of participants in the three groupings including experience level the groupings and number of participants per group. Group One had one novice level student and the least number of students (10%). Students in Group One (Reflective and confident group) were described due to on average presenting as the most reflective (and more reflective in comparison to the overall statistics reported in [Table 2](#)), most satisfied, most confident, yet also perceived the most stress when interacting with patients. Students in Group Two (30%) (Non-reflective group) were on average the least reflective (and least reflective in comparison to the overall statistics reported in [Table 2](#)), had the least desire to improve, yet perceived they were the most certain and perceived the least stress when interacting with patients. Group Three had the greatest number of students (60%), comprised of novice level students (n=25) and three entry level students. Students in Group Three (Low confidence group) perceived the greatest desire to improve their practice, however as a group they were most uncertain, least confident in general and when communicating with others.

Figure 1:

Hierarchical clustering (Manhattan distance) estimating participant the correlation between participant scores regardless of clinical placement (x axis numbering of 1-70 indicates one branch per student. The blue lines represent the best groupings of patterns for the data).

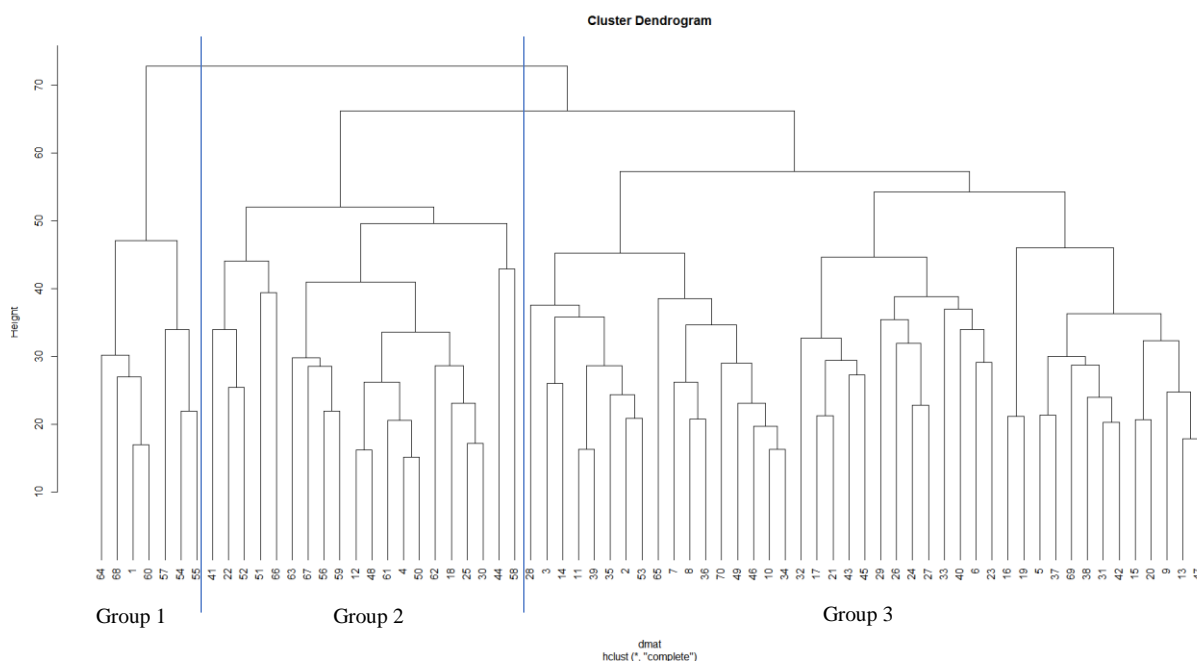


Table 4:

Mean RPQ scores and clinical placement experience of SLP students by hierarchical clustering grouping

Sub-scale	Group One Reflective and confident group (n=7)	Group Two Non-reflective group (n=20)	Group Three Low confidence group (n=43)
Reflective capacity (RC)	5.23 (0.40)	4.40 (0.51)	4.50 (0.42)
Desire for improvement (Dfi)	5.50 (0.46)	4.94 (0.61)	5.55 (0.49)
Confidence – general (CG)	4.39 (0.61)	3.51 (0.84)	2.37 (0.76)
Confidence – communication (CC)	5.32 (0.40)	4.46 (0.55)	4.21 (0.43)
Uncertainty (Unc)	3.75 (1.30)	3.33 (0.70)	3.97 (0.80)
Stress interacting with patients (SiP)	3.93 (1.05)	3.00 (0.75)	3.41 (0.81)
Job satisfaction (JS)	4.79 (0.39)	4.34 (0.32)	4.38 (0.36)
Clinical placement experience of SLP students			
Novice	1	6	25
Intermediate	3	8	15
Entry level	3	6	3

Standard deviations are provided in () brackets.

Discussion

This study examined SLP student perceptions of RP as measured on the RPQ (Priddis & Rogers, 2018; Rogers et al., 2019). The aims of the study were to: 1) determine perceptions of reflective capacity and outcomes of engaging in RP in three groups of SLP students, utilizing a validated and reliable instrument; and, 2) examine patterns of perceptions of reflective capacity and outcomes of engaging in RP across SLP students utilizing Hierarchical clustering (Manhattan distance). Comparisons between the novice, intermediate and entry level groupings revealed significant positive change as clinical experience increased for the subscales of confidence (general), confidence (communication), and job satisfaction. A significant negative change was observed as clinical experience increased for the desire for improvement subscale. Three patterns for SLP students were identified as a result of hierarchical clustering (reflective and confident group, non-reflective group and a low confident group). The findings are discussed, along with implications for clinical education, limitations, and future research suggestions.

SLP students' perceptions of RP capacity and outcomes of engaging in RP

Similar to Tillard et al. (2018), SLP students perceived that RP was useful to their clinical practice and reported that learning occurred. Extending from Tillard et al. (2018), this study provided reliable evidence that SLP student perceptions of learning from RP continues to remain positive as clinical experience increases. In general, all SLP student groupings demonstrated higher scores and a positive trend towards increasing reflective capacity as clinical experience increased (mean grouping scores: novice 4.52, intermediate 4.53, and entry level 4.63) compared to the results from medical students (mean score 4.16) (Rogers et al., 2019). This finding reinforces that purposeful teaching and engagement in RP pedagogy across the clinical program (as completed for this study) has a positive impact on student perception of learning, confidence, RP abilities, and reflective capacity (Rogers et al., 2019; Tillard et al., 2018).

Through examination of the six subscales described as outcomes associated with RP (desire for improvement, confidence (general), confidence (communication), uncertainty, stress interacting with clients and job satisfaction), student perception of practical learning outcomes that result from RP can be examined (Rogers et al., 2019). The current study extends findings from past studies by identifying three ways that practical learning outcomes change as clinical experience increases (Priddis & Rogers, 2018; Rogers et al., 2019). Firstly, as SLP students gained more clinical experience, their perception of general confidence, communication, and job satisfaction increased. This novel finding is useful information to share with students to highlight the positive impact that engaging in RP activities can have on confidence in clinical practice, and satisfaction for clinical placement activities across the clinical program (Rogers et al., 2019). This in turn, may motivate students to engage in RP activities (Barbagallo, 2021).

Secondly, the mean scores of SLP student subscales for uncertainty and stress interacting with clients were similar to that of medical student scores (3.42) and remained similar regardless of the amount of clinical experience (Rogers et al., 2019). This finding highlights that SLP students continue to perceive a level of stress when interacting with patients, families, and team members, and that uncertainty in decision making does not go away by the end of the clinical program. Similar to mental health professionals, this may be due to the variable nature of clinical experiences that SLP students engage in across their program (Priddis & Rogers, 2018). These findings may be additional factors to share with SLP students, noting that the use of RP activities and “reflection-in-action” promotes questioning oneself; it is a part of usual practice and is motivating for growth and development of clinical skills (Rogers et al., 2019). Educators in turn, can use the RPQ results to normalise the use of RP activities with SLP students as activities that support questioning oneself and managing stress. Educators should also discuss the potential risks associated with persistent feelings of stress and uncertainty which negatively impact one’s mental health, increase risk of “burn out” and reduce productivity and job satisfaction (Dawber, 2013; Dewa et al., 2014; O’Neill et al., 2019; Priddis & Rogers, 2018; Rogers et al., 2019; Shanafelt et al., 2016).

Thirdly, all groupings of SLP student mean scores for desire for improvement were on average higher than the medical and mental health students (Rogers et al., 2019). One suggestion for this finding is that this is a result of engaging in purposeful and regular RP activities. Therefore, SLP students may be well versed in identifying areas for change or improvement, and thus well-prepared to engage in lifelong

learning practices, which is promising for workplace practice requirements (Priddis & Rogers, 2018; [Speech Pathology Australia, 2020](#)). Unexpectedly, however, desire for improvement reduced as clinical experience increased. This finding may be due to both the timing of the RPQ at the end of the clinical experience, and the closing off of clinical placements. This highlights the importance of a conscious decision in determining when to administer the RPQ within clinical programs. One proposal is that using the RPQ in the first half of the clinical experience may offer an opportunity to use the results to support student development.

SLP student patterns of perceptions of RP capacity and outcomes of engaging in RP

The current study also replicated Rogers et al.'s (2019) hierarchical clustering to further examine the patterns within student perception of RP in an effort to better understand the findings and explore how the RPQ could be utilised in the clinical program. The findings revealed three distinct groupings for the SLP students regardless of clinical experience (Group One = Reflective and confident group, Group Two = Non-reflective group, Group Three = Low confidence group). In comparison to Rogers et al. (2019) groupings, only one group, Group Two (Non-reflective group) presented with similar mean scores to Rogers et al.'s "Over-confident group". Examining the RRQ findings in this manner has been suggested as a useful process to identify students (e.g., the Non-reflective group) who are at risk of poor or risky decision making, display ambivalence with patients and team members or show a general lack of awareness of possible deficits as a result of reduced engagement in RP (Gustafsson et al., 2021; [Rogers et al., 2019](#)). Using the hierarchical clustering technique alongside the RPQ to identify and organise students could also be useful a technique to tailor reflective teaching, activities, and topics to the group needs. For example, for Group Two (Non-reflective group), educators could use reflective activities such as RP groups and simulation to simulate and discuss the consequences of decision making in a safe setting for both the student and patient ([Hewat et al., 2020](#)).

Group One (Reflective and confident group), and Group Three (Low confidence group) do not compare to the groupings described for medical students ([Rogers et al., 2019](#)). This finding may be due to the three levels of experience of SLP students in the study. In comparison, the medical students completed the RPQ two weeks before graduation ([Rogers et al., 2019](#)). SLP students in Group Three (Low confidence group) however, were largely made up of students in the novice placement grouping. As such, the high levels of desire to improve, uncertainty and low confidence, and communication confidence are likely due to this lower level of experience. In this instance, educators could use the groupings to examine the students in these groups in the context of their level of clinical experiences. For example, this grouping also included three students who had just concluded their final clinical placement. This finding could warrant individual discussions with students on their final clinical placement to discuss feelings of low confidence and uncertainty, and then provide tailored support to students during their final clinical placement.

Implications for clinical education

The findings have positive implications for understanding student perceptions of RP, clinical practice and learning, as well as how educators can aim to engage students in the learning process ([Barbagallo, 2021](#)). The RPQ is a valid and reliable tool that could be used to gain a snapshot of how useful students perceive their RP abilities are in supporting their engagement and learning as part of clinical practice. Educators can then evaluate the results and work with students to provide additional or different support in the relevant areas (e.g., discussion topics focused on embracing uncertainty in clinical practice, or embracing discomfort during reflective activities) ([Smith & Pilling, 2007](#); [Thomas & Isobel, 2019](#)). Educators should also aim to overtly discuss their own experiences of engaging in RP activities and the six areas highlighted in the RPQ that are associated with outcome of engaging in RP. This both lets the students see RP in action, and supports engagement in RP in the workplace ([Dunne et al., 2021](#); [Karimi et al., 2017](#)).

Limitations and future research

The study was limited by low numbers in the Entry level placement grouping (n=12). This may be due to the timing of data collection, at the end of each clinical placement. Entry level students had recently completed their clinical training and degree, so may have had less desire to participate in research.

Additionally, the questionnaire design allowed for comparison of the variable of student groups with different levels of clinical experience and the RPQ at the same points in time. Longitudinal design was considered, but ultimately rejected due to concerns surrounding participant attrition and time required for data collection. Next, the RC subscale may be less sensitive to students, such as the SLP students in the current study, who participate in regular and purposeful RP activities. This is suggested given the RC scores for all student groupings in the current study were higher than noted in previous studies with final year medical students and mental health professionals (Priddis & Rogers, 2018; Rogers et al., 2019). Alternatively, SLP students with reduced reflective abilities may have been unaware of their strengths and weaknesses, resulting in inflated RPQ scores (Gustafsson et al., 2021; Kruger & Dunning, 1999). To investigate both phenomena, utilizing the RPQ with practicing SLPs of varying years of experience is suggested for comparison.

Conclusion

This study demonstrated that, regardless of amount of clinical experience, the majority of SLP students perceived high levels of reflective capacity and, in general, their perception of their RP abilities and areas that are associated with outcomes of engaging in RP (communication, confidence, job satisfaction, desire for improvement, stress and uncertainty) increased as their clinical experience increased. The results provide quantitative data from the perspectives of SLP students to support the teaching of RP in clinical degrees. The RPQ is one such tool that can be used to examine SLP student perspectives of RP. The findings suggest that students who are purposely taught and exposed to RP activities, perceive RP to aid their learning and clinical practice. Finally, this study identified three separate groupings of SLP students which allow educators to both identify and support students at an individual level, with the aim of maximizing their confidence, competence, and desire for improvement.

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Appendix A:

Clinical education program of learning for reflective practice (RP) by clinical placement (X indicates type of RP activity completed)

Clinical Placement	One	Two	Three	Four	Five	Six
Placement grouping	Novice	Novice	Int*	Int	Int	Entry
RP education						
Full class teaching: group reflections (what went well, what was surprising, what would you do next time), dialogic teaching, Journal article discussion: topic RP	X	X	X		X	
Mentoring / Peer learning		Mentee				Mentor
Reflective discussions with Clinical Educator pre and/or post clinical interactions (small group or one-on-one)		X	X	X	X	X
Verbal RP group. 1 per week. 50 minute duration**				X	X	
Written RP. 1 per week. Formative feedback given ***		X	X	X	X	X
Written RP: Assessment. Summative feedback given.	X	X	X	X	X	X
*Int = Intermediate placement grouping						
** See Tillard et al. (2018) for structure of verbal reflective practice groups for SLP students						
*** See Cook et al. (2019) for structure of written reflective practice for SLP students						