Building Capacity for Quality Teaching in Australian Schools

Queensland Pilot Study

Final Report

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Executive summary

This project, *Building Capacity for Quality Teaching in Australian Schools: Queensland Pilot Study*, examined the translatability of Quality Teaching Rounds (QTR) in a new jurisdiction. More specifically, the study examined the implementation of QTR in Queensland government schools where, unlike in New South Wales, there has been no direct prior engagement with the Quality Teaching Model or the Quality Teaching Rounds process.

Ten government schools from Queensland were recruited to participate in QTR, with insights from teachers and principals gleaned through a mixed-methods research design consisting of surveys, focus groups and interviews.

Although a relatively small-scale study, the results presented in this report establish the potential translatability of QTR, with high fidelity, in an educational jurisdiction outside of New South Wales. Such translatability is critical if QTR is to be implemented at scale across and beyond Australia.

Major findings of the project were:

- Teachers saw the QTR workshop as a valuable professional learning experience which prepared them for implementing QTR in their school.

- Early impressions of QTR (after one or two Rounds) were extremely positive, with teachers identifying that QTR provided a tool for analysis and feedback, a conduit for professional dialogue, a mechanism for collaboration, and a platform for continuous improvement.

- At the completion of Rounds, teachers reported that QTR was a powerful form of professional development, their teaching practice had changed as a result of QTR, and their students benefited from their participation in QTR.

- While not directly attributable to QTR (given the study design), comparison of baseline and post-intervention survey data showed an increase in morale among participants, slightly greater efficacy in relation to their teaching, a decrease in work-related stress, a noticeable increase in their sense of coping, and a slight increase in emotional engagement in teaching.

- Teachers identified clear alignment between QTR and both school-level and state-level initiatives. Participants commented that QTR fits alongside a number of key focus areas (including workforce capability, well-being, student outcomes, and school improvement) and that QTR could enrich existing structures and plans.

- Implementation fidelity was high when conducting QTR, with a similar fidelity score recorded for both researcher-observed and self-reported measures.

- Participants reported that they were highly likely to recommend QTR to their colleagues and most expressed a strong level of interest in the ongoing implementation of QTR in their schools. However, some had reservations about the ongoing uptake of QTR, largely due to financial and resource constraints. Notably,

some schools had already overcome these concerns with firm plans to embed QTR as a regular form of professional development; others had considered possible adaptations to facilitate its continued uptake.

These positive findings provide a solid foundation for the large-scale randomised controlled trial of QTR in Queensland government schools in 2021. This larger study will focus on the effect of QTR on student outcomes.

Introduction

Internationally, teacher professional development (PD) is considered crucial to, even inseparable from, systemic efforts to strengthen outcomes for students, teachers, and schools. Across the OECD, 94% of teachers, on average, engage in at least some form of ongoing PD (OECD, 2019). In Australia, this figure is even higher, with approximately 99% of teachers reporting that they had participated in PD in 2018 (OECD, 2019).

With education systems around the world investing heavily in PD programs, 'effective' forms of PD are generally understood to be those that lead to positive changes in teacher knowledge and practice and, by extension, student outcomes. However, because PD is often locally developed and research tends to be small-scale (Borko, 2004; Hill, 2009; Kennedy, 2016; Wayne et al., 2008), little is known about delivering impactful forms of PD successfully at scale. Indeed, even when studies have shown an effect on student outcomes (Yoon et al., 2007), they frequently gloss over the fact that such 'local success' might not translate into effectiveness in other contexts. Borko (2004) describes this kind of research as establishing an 'existence proof'; that is, providing evidence of 'what works' in a single context but often failing to go further by showing how a PD program can be enacted in different settings, with consideration of fidelity and adaptation.

Addressing the translation of PD to new contexts is a crucial component of ensuring that scaling initiatives are effective (Morel et al., 2019). Translation refers to the uptake of research and its transfer to practice (Morel et al., 2019). In terms of scaling teacher PD, it is known that the PD on offer must be high-quality (Borko, 2004) and that productive consultation between stakeholders is essential (Smolin & Lawless, 2011). PD programs must remain relevant to participants when delivered across diverse settings (Hoyles et al., 2013; Seely Flint et al., 2018) and take into account the nature of different education systems within countries or regions (Goos et al., 2018; Ovenden-Hope & la Velle, 2015).

Against this backdrop, our pilot study of Quality Teaching Rounds (QTR) in Queensland provides an important opportunity to understand the translation of high-impact PD across education systems in Australia. More specifically, the study examines the implementation of QTR in Queensland government schools where, unlike in New South Wales, there has been no direct prior engagement with the Quality Teaching Model or the Quality Teaching Rounds process. The pilot study presented in this report will be followed by a large-scale randomised controlled trial (RCT) of QTR in Queensland government schools in 2021 to rigorously investigate the effects of QTR on student outcomes.

Quality Teaching Rounds

Quality Teaching Rounds (QTR) is a collaborative form of teacher professional development that involves four teachers working in a professional learning community (PLC) to observe, analyse and refine their teaching practice across a set of 'Rounds'. A 'Round' is comprised of four components over a single day, as shown in Figure 1.
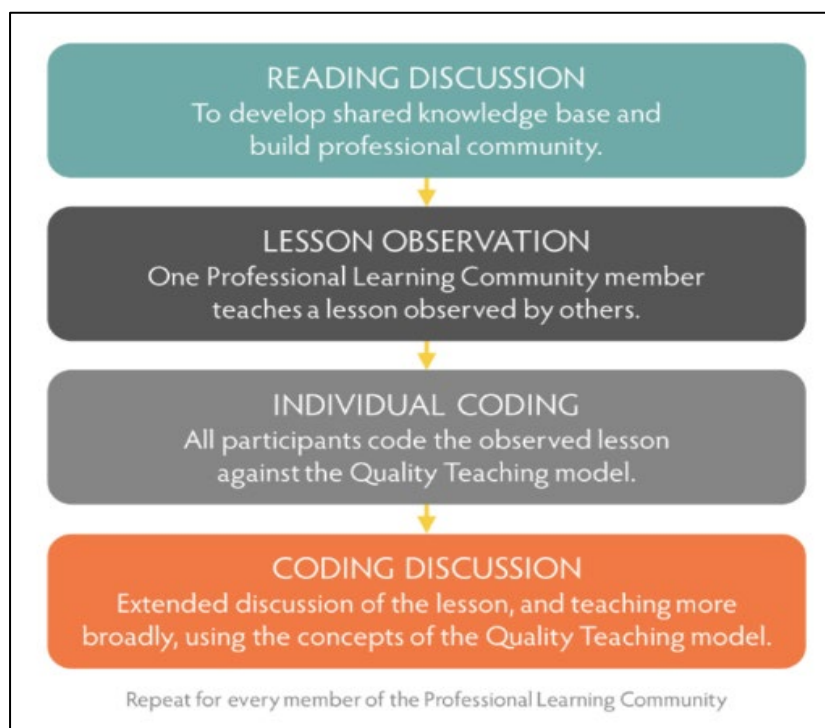
Figure 1. QTR process

The Quality Teaching Model, which provides the substantive framework for conducting QTR, highlights three key dimensions of pedagogy: Intellectual Quality, Quality Learning Environment and Significance. Teaching that aligns with this model has consistently been linked to improved outcomes for teachers and students (see, for example, Gore, 2014; Gore et al., 2017; Gore et al., forthcoming; Ladwig and King, 2003; Newmann, 1996). The model offers a coherent vision of pedagogy relevant to all educational contexts, subject areas and year levels. It honours the complexity of teaching and respects what educators already know and do.

Participation in QTR begins with two teachers from each school completing a two-day workshop designed to prepare them to implement QTR without additional external input. Upon returning to their schools, the teachers in a PLC then participate in QTR, typically undertaken over four single days across a four-week period.

Methodology

The purpose of the pilot study was to investigate the translatability of QTR in a new jurisdiction. To achieve this aim, ten government schools from Queensland were recruited to participate in QTR, with insights from teachers and principals gleaned through a mixed-methods research design consisting of surveys, focus groups and interviews. An overview of the research design is provided in Table 1 and Figure 2.

Table 1. Research design

Activity	Timeframe
Baseline Data Collection • Teacher survey	August –September
QTR Workshop • 2 teachers from each school attend the QTR workshop • Post-workshop survey	September
QTR Implementation • 4 teachers from each school participate in QTR • Implementation fidelity check by a member of the research team (observed fidelity) • PLC focus group • 1 teacher per school completes an implementation fidelity check for each Round (self-reported fidelity)	October – November
Post-Intervention Data Collection • Teacher survey • Interview – 1 teacher per school • Interview – Principal or nominated contact per school • Interview – Department representative	November – December
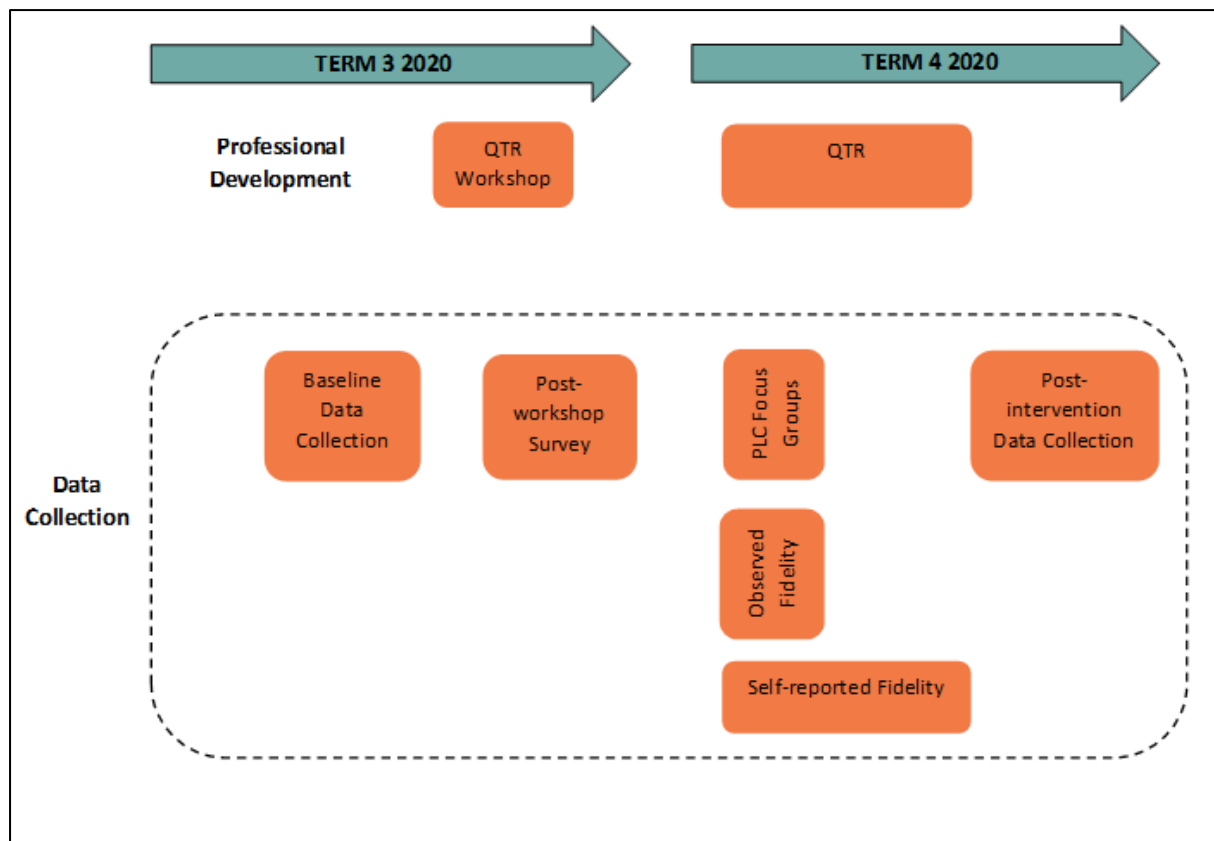
Figure 2. Research design

Pilot study sample

The Queensland Department of Education consists of seven service delivery regions. Schools in the pilot study were located in two of these regions: Metropolitan and North Coast (refer to Table 2). The location of the schools is illustrated in Figure 3 below.

Table 2. Sample by Region

Region	*n*
Metropolitan	7
North Coast	3
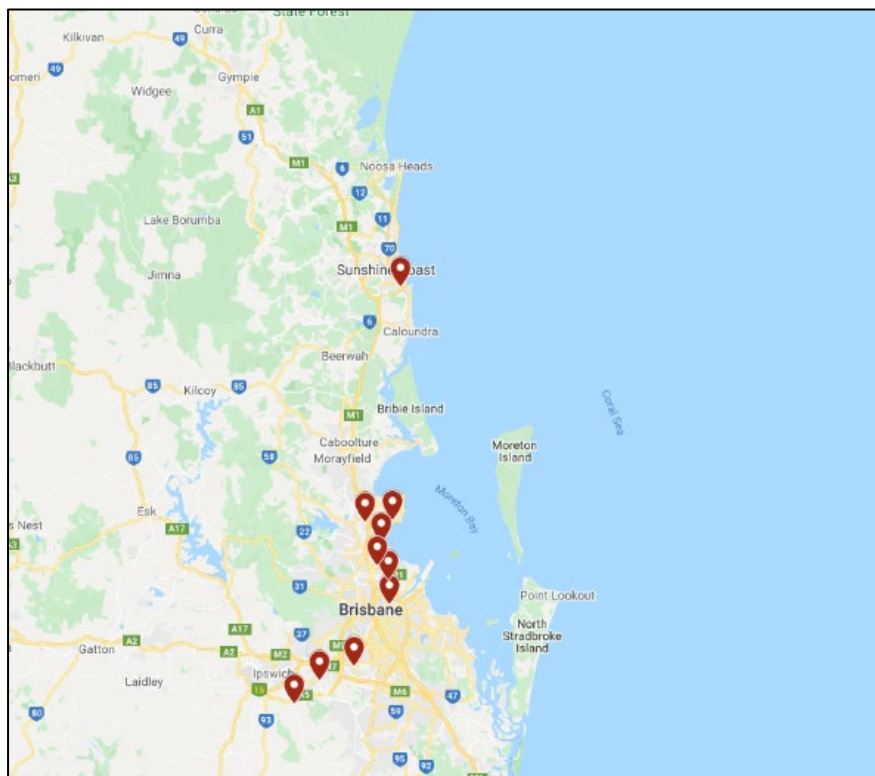
Figure 3. School locations

Of the ten participating schools, seven were primary schools. Three schools were secondary, with 7-10 enrolments (*n* = 2) or 7-12 enrolments (*n* = 1).

Table 3. Sample by school type

School Type	*n*
Primary: Prep–Year 6	7
Secondary: Year 7–10	1
Secondary: Year 7–12	2

Quality Teaching Rounds workshop

Due to COVID-19 and related travel restrictions, the QTR workshop was delivered using an online format. The workshop was led by Laureate Professor Jenny Gore, held via Zoom over two days, 9–10 September, 2020, with two teachers from each school being invited to participate. The format of the workshop was modelled on the usual face-to-face workshops. An overview of the program is provided below.

Table 4. QTR workshop: Day 1 program

| Day 1	
8:45 – 10:05	Introduction to the project and The Quality Teaching Model *Dimensions and elements of the model*
10:05 – 10:45	From Quality Teaching to Quality Teaching Rounds *Research narrative/foundations*
10:45 – 11:05	Morning Tea
11:05 – 12:25	Diagnosing Classroom Practice 1 *Practising the observation, coding and discussion processes of Quality Teaching Rounds*
12:25 – 12:55	Lunch
12:55 – 1:55	Diagnosing Classroom Practice 1 continued *Practising the observation, coding and discussion processes of Quality Teaching Rounds*
1:55 – 3:00	Introducing Quality Teaching Rounds *Essential features of Quality Teaching Rounds, negotiating professional learning community norms; impact on teachers and teaching*

Table 5. QTR workshop: Day 2 program

Day 2	
8:45 – 9:15	Key reflections from Day 1
9:15 –10:00	Analysing practice *Reflecting on current practice*
10:00 –10:50	Diagnosing Classroom Practice 2 *Lesson observation and individual coding*
10:50 – 11:10	Morning Tea
11:10 – 12:40	Diagnosing Classroom Practice 2 *Practising Quality Teaching Rounds*
12:40 – 1:10	Lunch
1:10 – 3:00	Diagnosing Classroom Practice 2 continued *Coding plenary* Implementing Quality Teaching Rounds *Planning for school-based implementation*

Perceptions of QTR workshop

Post-workshop survey

At the conclusion of the online QTR workshop, participants (*n* = 20) completed a short online survey. As shown in Figure 4, all participants either 'strongly agreed' or 'agreed' that the workshop was a valuable professional learning experience. Similarly, the vast majority of participants either 'strongly agreed' or 'agreed' that: the workshop prepared them for implementing QTR in their school; the resources in the workshop were useful and well designed; the presentation emphasised the importance of establishing PLC norms; the presentation of the essential features of QTR was clear and comprehensive; and, the presentation of the QT model was clear and comprehensive.
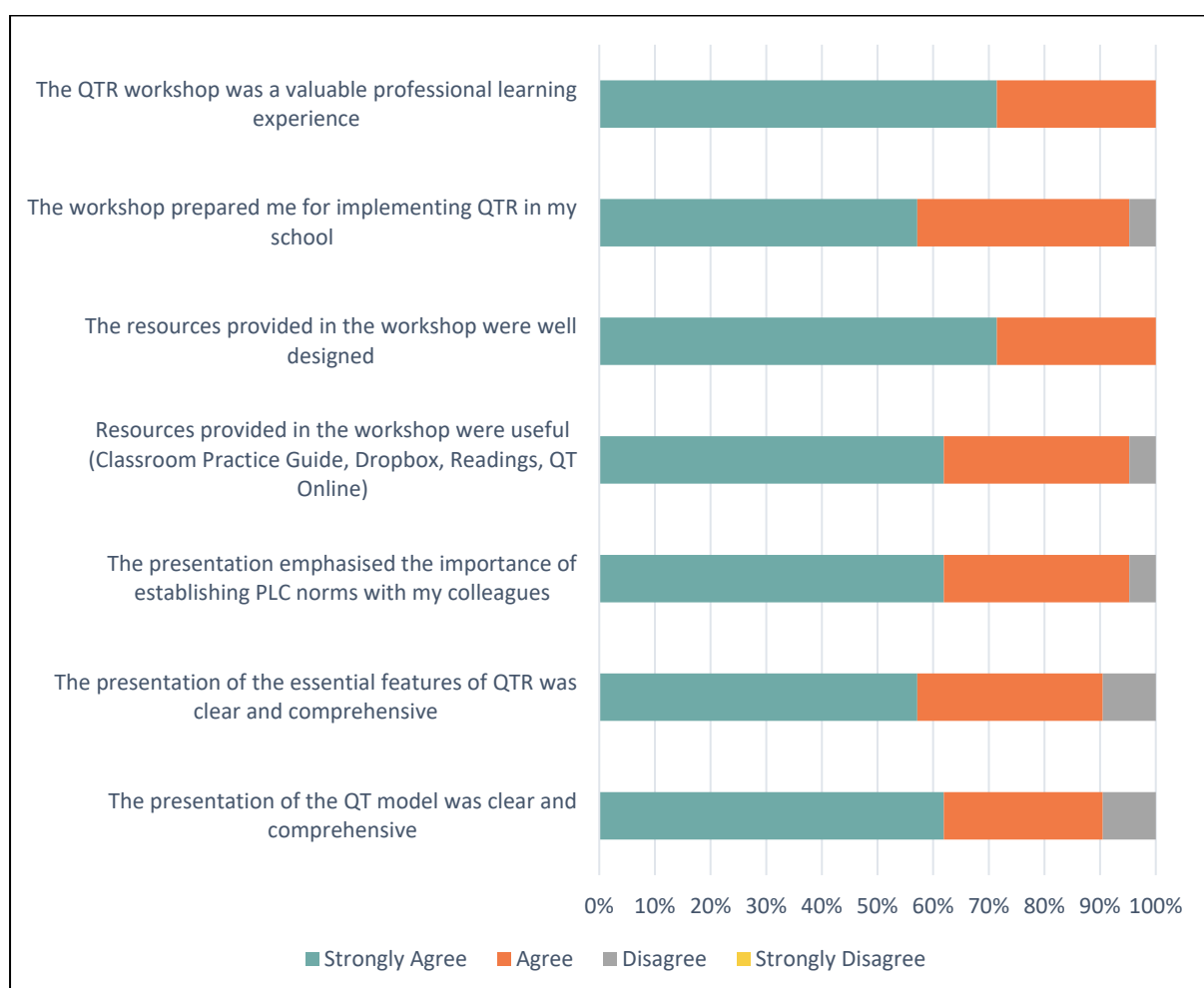

Figure 4. Post-workshop survey results

Upon returning to their schools, the two teachers who attended the workshop formed PLCs with two other teachers at their school (NB. two schools formed PLCs comprising five teachers). Participants could be working across any Year level/s or specialisation/s.

PLC focus groups

Teachers who attended the QTR workshop were also asked to share their opinions of the workshop during the focus groups which occurred during the first or second QT Round. Where quotes are provided below, and throughout the remainder of the report, pseudonyms are used to protect the anonymity of participants and schools.

Overall, the workshop was received positively, with participants enjoying the structured mix of activities which helped them to develop a sound understanding of QTR:

> *I really enjoyed the workshop, like obviously it was online delivery but it was run really well and the breakout rooms worked really well for when we watched the video, went away and then came back. The turn taking works quite well even when online – like there was potential that it would be a bit all over the place but it really worked quite well. (Miles, Teacher, Wallowa State Secondary College)*

> *I liked it, I thought it was good too that they did think about when we went into our breakout rooms – like we basically replicated the process today, but in a really short time with a filmed section of the lesson. And so Ingrid and I were with two other Queensland high school teachers and yeah we almost got through the observation evidence sheet and talking about the coding and stuff. And that part of it was the best part of the whole thing I reckon. (Phil, Teacher, Elkhorn State High School)*

While the workshop is usually delivered in a face-to-face format, the impact of COVID-19 necessitated a shift to an online format. A small number of participants commented on the disadvantages of online workshops, particularly in relation to the amount of screen time required. However, these shortcomings appeared to be alleviated during the second day of the workshop which was more hands-on and interactive:

> *Day one was a struggle for me because I find it really hard to sit there and look at a screen all day because obviously we're not used to doing that. So by the end of the day, I had a headache and I was annoyed and, "What is this about?" But then the next day where there's more interaction and you're actually interacting with the different groups and all that sort of stuff, yeah, it was so beneficial and to discuss like we did today, you know, we've got a different score but, you know, just to hear other people's, "Oh, do you remember they said this?" or "Do you remember she went around and did…?" They're the things you don't really think of. But the second day for that reason was great because it just sort of cleared everything up. (Melanie, Teacher, Wynyabbie State School)*

Ultimately, the teachers who attended the workshop felt prepared to implement QTR in

their schools and confident that they could share the information from the training with the other members of their PLC:

> *Yes, I felt that I had all the information that I needed to be able to come back and talk to everyone about what we would need to do and to feel confident, being the first one to have an observation. So the really valuable part was the practise discussions with the other teachers in the group. It was really clearly explained how the purpose of it really wasn't the code, the number. The purpose was the discussion and that was really clear through the activities that we did, so that was very good. (Neve, Teacher, Wallowa State Secondary College)*

In this light, one teacher noted the value of the workshop in only being the 'first step' in implementing QTR, in contrast to other programs where the workshop *is* the professional development:

> *Unlike a lot of other [professional development workshops] we've done, I knew exactly how it was going to be followed up. I knew we would have to meet up, feed back to the group and then each of us would have this day as part of the rounds. Whereas on other ones, there's no next thing. (Phil, Teacher, Elkhorn State High School)*

Early perceptions of QTR

During the PLC focus groups that occurred in either Round 1 or Round 2, teachers were asked to speak about their initial impressions of QTR. Four major themes were identified from the analysis of the focus group data: QTR as a tool for analysis and feedback; QTR as a conduit for professional dialogue; QTR as a mechanism for collaboration; and QTR as a platform for continuous improvement. Each of these themes are discussed in detail below.

QTR as a tool for analysis and feedback

One of the immediate benefits identified by participants centred on the way QTR provided a sound structure for analysis and feedback. In particular, participants spoke about the depth provided by the QT model and associated coding scale which meant receiving feedback on their practice that went beyond simple 'yes/no' responses:

> *I believe that the best thing that I want to be able to take away from this is that it's a scale score and not just a 'yes, no, I was able to do that' because I think when you're left with 'yes, no', you can easily say, "Yeah, I do that." But to what degree are you doing it well? A little bit, kind of? (Imogene, Teacher, Wynyabbie State School)*

Indeed, it was felt that participating in QTR brought a level of specificity to the feedback process, such that lesson coding enriched both observations and discussions to support meaningful analysis of practice:

> *I think historically in Queensland, we are afraid to give teachers specific feedback. I think we've been encouraged to make observational statements that they can draw their own conclusions from, and I think whilst that's very useful for a highly reflective person who's got a wealth of knowledge that they can deploy and go, "Oh cool, so you think that, which means this, which means I have to do this to fix it," it's fine. But for the majority, I think it's a bit navel-gazing, and I think this is not that. By assigning a code it brings a richness to that discussion that really pinpoints, "Oh, so where did you see most? Why do you think 'some'? Was it substantive?" It gives that richness to it that then removes doubt. I think that's the strength of it. (Sylvia, Teacher, Hakea State Secondary College)*

This process of analysing practice was also positioned by participants as providing an important stimulus for re-focusing attention on teaching; a reminder of what constitutes quality teaching and what specific areas can be improved upon:

> *I think with everything else that goes on in a school, the one thing that I love to do, which is to teach, goes further and further and*

further down the ladder, while everything else gets done and I feel sometimes that I've forgotten about the things that I can do to be a better teacher and for my kids to be more engaged and enjoy it more. And so if nothing else, the self-reflection even today has reminded me… already I've got great ideas and reminders of things that I used to do that have just gone by the wayside. (Prue, Teacher, Wynyabbie State School)

Ultimately, many teachers compared their participation in QTR to other recent experiences of observation, contrasting the superficial nature of previous lesson feedback with the valuable feedback generated through QTR:

For instance, I got observed the other day in my IT lesson. And they came back and said, "A great lesson. Excellent lesson. Great lesson," there was nothing constructive there. It was just compliments, which – anyone will tell you – for me, that does nothing for me. Like it's cool and great, but there's other things I can do better. I want to know what those are and this [QTR] provides that for me. (Eric, Teacher, Callistemon State School)

QTR as a conduit for professional dialogue

In addition to using QTR protocols to structure analysis and feedback, many participants spoke about the value of the PLC discussion which occurs at the conclusion of each Round. Rather than merely extending upon or supplementing the observation, a number of participants saw the PLC discussion as a crucial conduit for learning in its own right:

It's not just about observing, it's actually – for me, I like observing people, but it's actually about the quality discussion you have, and how important that is, and how beneficial it can be. You know, don't focus on the people coming to watch me, oh my goodness, but focus on what you can learn. (Rosie, Teacher, Telopea State School)

More broadly, QTR afforded a space for professional dialogue about teaching via the PLC discussions, empowering participants to think differently about teaching:

I like that it opens up a different professional dialogue, in that it makes you think about teaching in a different way, whether that's your own teaching or someone else's. (Carrie, Teacher, Hakea State Secondary College)

The importance of being provided time for focused PLC discussions was a common theme within the focus groups. Many participants compared the time provided for QTR with previous approaches to observations they had engaged in, where discussion sessions were

either non-existent, undervalued or rushed. In the following excerpts, two teachers in the same PLC, Sirus and Neve, juxtapose their participation in QTR with prior experiences of observation:

> *I feel the amount of time that we have to talk about things is great as well because I know like a lot of other times when I've had observations it's just "I gave you a 3" and I'm like "okay I know what that means, but why?" Like "what did you notice?" I want to discuss this and [in QTR] we're getting the opportunity to do that and talk about what's going on in the classroom. (Sirus, Teacher, Wallowa State Secondary College)*

> *Yes or you sort of hurriedly schedule a lunchtime discussion with the person who observed you and you both rush through. (Neve, Teacher, Wallowa State Secondary College)*

QTR as a mechanism for collaboration

Because QTR is a collaborative form of professional development, many participants' initial impressions of QTR focused on the advantages of working with their colleagues. In particular, teachers emphasised the opportunity to work alongside peers, learning from and with each other:

> *For me I think it's a collaborative process of working with your peers and you're bouncing those ideas off each other. I think that's kind of the main benefit for me, it's that collaborative nature of it… I'm still a beginning teacher – I'm third year in and I'm still kind of learning. So I found this a great way of improving my pedagogy and by observing my peers, as they are slightly more experienced as well. (Miles, Teacher, Wallowa State Secondary College)*

Participants not only valued working with colleagues who possessed different levels of teaching experience, but they also relished the chance to work with colleagues from different levels and specialisations, thereby generating fresh perspectives on practice:

> *I like the fact that we're from different teaching experience and different year levels… You can only learn when you can justify why and not just saying - in Ivy's lesson we saw so many different things because we were looking at it from an early childhood perspective that the upper teachers hadn't. So I like the idea of mixing it up and I think also having different experience levels. This would be good to have experienced teachers with first years as well because you can always learn so much from first years because they're right on the cusp of all the new learning. (Bonnie, Teacher, Naringa State School)*

It was this fundamental process of working *with* peers that improved the lesson observation experience for a number of teachers. Through QTR, observation became a collective experience shared by a group coming to a 'consensus', in contrast to other forms of observation that were seen to be more individualistic and/or lacking in rigor:

> *I still get nervous with that [being observed], but I feel like having done it, displaying my teaching abilities in front of three, four more people makes me less nervous than if I was just having one person there for my classroom profiling. Depending on how that one person watches the lesson, the mood varying, it can affect – it's not meant to – but it can affect how it is and how the information comes back. There's three of you, at some point it's got to get averaged… We saw when we were doing the coding that we all noticed different things in the lesson and then came to a consensus... Rather than just one person's 20-minute snapshot of what's happening in the classroom. (Sirus, Teacher, Wallowa State Secondary College)*

Overall, teachers reported that the unique mixture of collegial collaboration together with the scaffold of the QT Model created powerful professional learning. In the following excerpt, Nola discusses the importance of these components in creating change:

> *From my perspective, in past experiences, being involved in an opportunity for collegial engagement and collegial collaboration, of learning around a teaching framework, actually allows teachers to learn from each other, which then actually makes significant change for the way that they do pedagogy within their classroom. So for me, being able to become involved in this project has meant that for our school, which has had very limited participation in this previously, that this gives a taste of an opportunity for the staff who are involved in this. And then their feedback will then allow, what could this look like in our school? And then they become the experts that can then share and discuss with the other staff members on site about what it's like. (Nola, Teacher, Coomallo State School)*

QTR as a platform for continuous improvement

In thinking beyond the pilot study, participants felt that QTR could provide a valuable platform to guide and structure continuous improvement in their schools. At the individual level, they saw QTR as a mechanism to aid in goal setting during the planning process, closely tied with the practice of self-reflection and analysis:

> *I think you can use it as an improvement agenda, so maybe some goals for yourself when you're creating your lessons and, you know,*

> *"perhaps I don't include that very often, how can I add that to my repertoire in my lessons?" (Florence, Teacher, Telopea State School)*

Similarly, QTR was seen as providing a link between individual and school-wide improvement agendas, such as in the case of Estelle's school where they used the pilot study to foreground improvements in guided reading:

> *I like the fact that you can use the data – the code, coding scale, and the results that you've got – you can use that to improve your teaching, and it's quite specific as well. So that's really good. You can say, "This is an area here that I need to work on." But also in knowing that you don't expect – in one lesson, you don't expect to have covered all those parts of those dimensions. But that's really good so that you can actually improve your teaching, and ours just happens to be in the area of guided reading, which makes it even more pertinent to us, I think. (Estelle, Teacher, Pandorea State School)*

Participants also thought that QTR could facilitate continuous improvement due to the reciprocal nature of the professional learning, helping to build a disposition that improvement is a natural and important part of the profession:

> *I think it's really dangerous, no matter what job you work in, to think that you've got everything down pat and you're the best you're ever going to be. So this is a really great way to know, share advice and share successes of yours but also to see what other people are doing and to see how you can improve. Even though you think you might be doing a really good job, there's always ways you can improve what you're doing. (Fred, Teacher, Wallowa State Secondary College)*

This attitude was also closely tied to how some participants viewed observation, believing that QTR can play a role in shifting teachers' mindset from observation as a form of judgement and assessment to observation as a form of continuous improvement:

> *I think the mindset needs to change, that if someone is coming in to watch you – people are coming to watch you – they're not there to judge you. They're just there to observe, and I'm actually looking forward to next Wednesday, because – like, I've been profiled before, so I guess I've been observed, but I'm actually looking forward to people actually being with me, being able to break down and reflect what happens, and seeing things from other people's point of view. It's about getting better, it's not about being judged or saying you're a horrible teacher. It's about how you can keep improving, and that's what teaching is all about. (Rosie, Teacher, Telopea State School)*

QTR evaluation

Overall evaluation of QTR

The post-intervention survey (*n* = 42) included a series of questions asking participants to evaluate QTR based on their overall experience. In particular, participants indicated their level of agreement with five statements about QTR, as shown in Figure 5 below.

Overall, most participants felt positive about QTR. A high proportion of teachers (92.3%) agreed or strongly agreed that QTR is powerful professional development. Similarly, most participants either agreed or strongly agreed (87.2%) that their teaching practice changed as a result of QTR, and almost all participants felt that they had adequate time to participate in QTR (97.5% either agreed or strongly agreed).

In relation to their students, a high proportion of participants (92.3%) agreed or strongly agreed that their students had benefited from their participation in QTR. However, a wider range of responses were evident for the statement regarding student achievement; 30.8% of participants disagreed that student achievement increased following participation in QTR, although most teachers (69.2%) either agreed or strongly agreed with this statement. This result likely reflects the relatively short duration of the study period, such that potential impacts on student achievement were yet to be identified by participants.
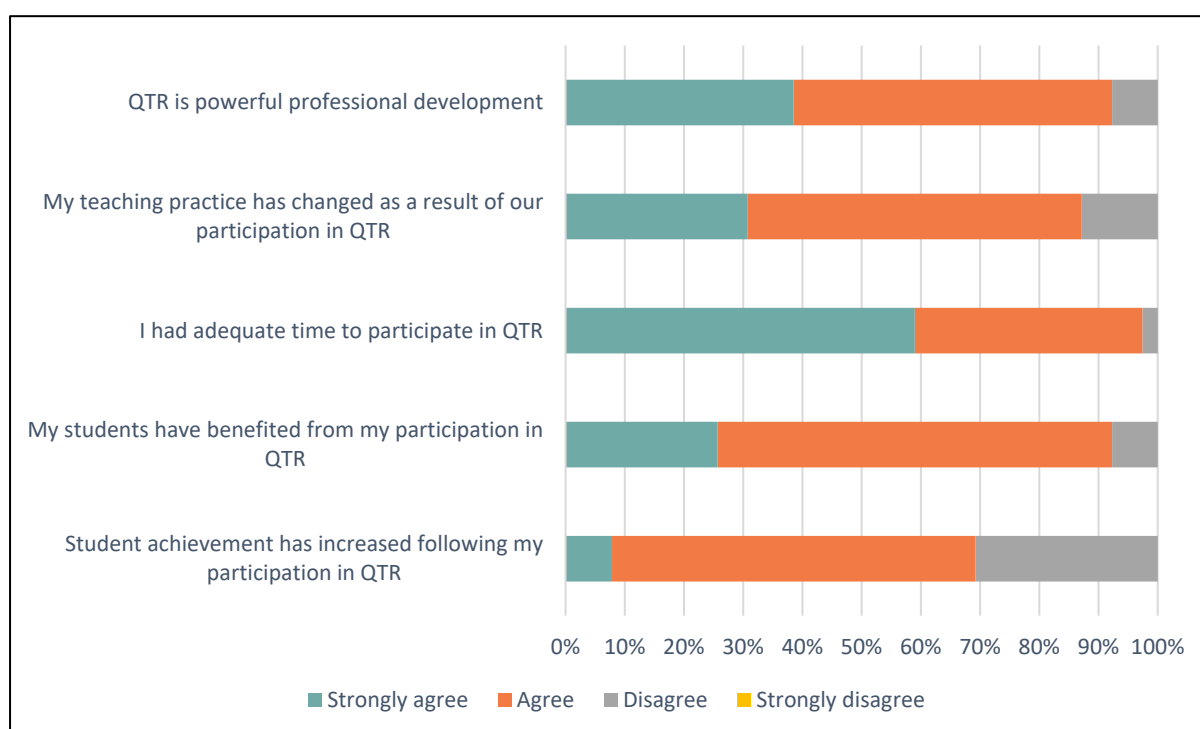

Figure 5. Overall evaluation

Participants were asked to report on how likely they would be to recommend QTR to their colleagues and whether QTR was likely to gain traction at their school. As shown in Figure 6,

participants were likely to recommend QTR to their colleagues (M = 7.69, SD = 1.75), but relatively unsure whether QTR would gain traction at their school (M = 5.51, SD = 2.05). This result is explained, in large part, by participants' views about the need for ongoing financial support and resourcing to implement QTR, which is detailed in the post-intervention interview analysis.
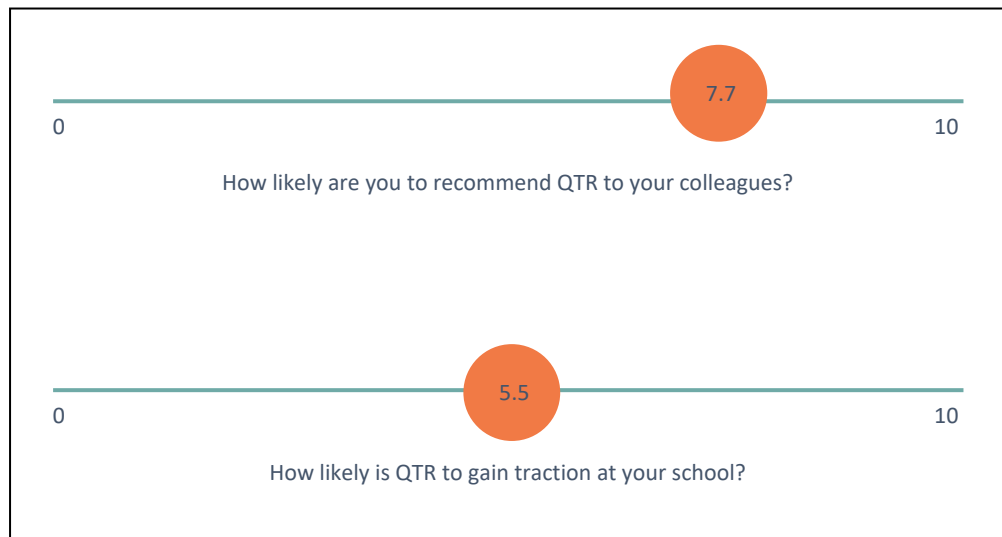
Figure 6. Endorsement and traction

Changes in morale, self-efficacy, stress, coping, and emotional engagement

Baseline and post-intervention surveys were designed to identify any changes in participants' sense of morale, self-efficacy, stress and coping, and emotional engagement. The response rate for the baseline survey was 100% (41/41), and almost all participants completed the post-intervention survey (93%; 39/42[1]).

The outcomes reported are for the whole sample because initial clustering of the results by school identified no outliers.

Morale

The survey asked participants to indicate the extent to which they agreed with five statements about morale at their school. Possible responses included: 1 = strongly disagree, 2 = slightly disagree, 3 = neutral, 4 = slightly agree, and 5 = strongly agree. As shown in Table 6, participants' sense of morale at their school increased between baseline (M = 4.09, SD = 0.7) and post-intervention (M = 4.24, SD = 0.6).

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[1] One school added an additional teacher to their PLC after baseline data collection.

Table 6. Morale

Morale	
Baseline, mean (SD)	4.09 (0.7)
Post-intervention, mean (SD)	4.24 (0.6)
Difference in means	0.15
Survey items	
There is good team spirit in this school	
The morale in this school is high	
Teachers go about their work with enthusiasm	
Teachers take pride in this school	
There is a lot of energy in this school	

Self-efficacy

Participants also responded to four statements about their teaching, as a subjective measure of self-efficacy. Possible responses included: 1 = almost never, 2 = sometimes, 3 = often, and 4 = almost always. As shown in Table 7, participants had a slightly greater sense of efficacy in relation to their teaching at the conclusion of the pilot study, with mean scores increasing from 3.19 (SD = 0.6) at baseline to 3.33 (SD = 0.5) post-intervention.

Table 7. Self-efficacy

Self-efficacy	
Baseline, mean (SD)	3.19 (0.6)
Post-intervention, mean (SD)	3.33 (0.5)
Difference in means	0.14
Survey items	
I am a successful teacher	
I am good at helping students learn new things	
I have accomplished a lot as a teacher	
I feel like my teaching is effective and helpful	

Stress and coping

Participants were also asked to provide an indication of their level of work-related stress ('How stressful is your job?') and to make a judgement about how they are coping with their work ('How well are you coping with your job right now?'). For both questions, participants responded using a scale ranging from 0 (not at all stressful/not at all coping) to 10 (extremely stressful/coping extremely well). The results (Table 8) showed that while

participants' work-related stress decreased only slightly between baseline (M = 7.12, SD = 2.3) and post-intervention (M = 6.79, SD = 2.6) there was a noticeable increase in their sense of coping between baseline (M = 5.95, SD = 2.5) and post-intervention (M = 6.54, SD = 2.2).

Table 8. Stress and coping

Stress and coping	
Stress	
Baseline, mean (SD)	7.12 (2.3)
Post-intervention, mean (SD)	6.79 (2.6)
Difference in means	0.33
Coping	
Baseline, mean (SD)	5.95 (2.5)
Post-intervention, mean (SD)	6.54 (2.2)
Difference in means	0.59

Emotional engagement

Participants were also asked about their emotional engagement in teaching. Possible responses included: 1 = never, 2 = rarely, 3 = on occasion, 4 = sometimes, 5 = often, 6 = frequently, and 7 = always. As shown in Table 9, participants' emotional engagement in teaching only increased slightly between baseline (M = 5.96, SD = 0.8) and post-intervention (M = 6.07, SD = 0.8). This small increase likely reflects the fact that participants' levels of emotional engagement were relatively high at baseline.

Table 9. Emotional engagement

Emotional engagement	
Baseline, mean (SD)	5.96 (0.8)
Post-intervention, mean (SD)	6.07 (0.8)
Difference in means	0.11
Survey items	
I am excited about teaching	
I feel happy while teaching	
I love teaching	
I find teaching fun	

Experiences and impact of QTR

Post-intervention interviews were conducted with each school principal and one volunteer teacher from each school's PLC. One interview was also conducted with a representative from the Queensland Department of Education. The interviews, conducted via phone by researchers from the Teachers and Teaching Research Centre, asked participants to discuss their overall experiences of QTR, including its implementation during the pilot study and alignment with school-level and state priorities.

Three major themes were identified from the analysis: QTR positively impacts teachers' practice; QTR provides powerful professional development; and QTR aligns with school and state initiatives. Each of these themes is discussed in detail below. Participants also spoke about the ongoing implementation of QTR outside of the research environment, which is discussed in the final sub-section in terms of strategies for implementation, possible adaptations, and constraints.

QTR positively impacts teachers' practice

Having completed QTR, participating teachers perceived many direct impacts to their professional lives, most notably in terms of their classroom practice. Melanie, for example, explains how QTR prompted her to rethink how she extends her students in their learning, providing a powerful platform for analysis *during* – rather than *after* – teaching:

> *I find myself now re-questioning [my students] or you know, pushing*
> *them for further answers that will sort of push their learning a bit*
> *further rather than just going, "yeah, that is brilliant. Love your idea"*
> *or "love your question" You know? QTR has made me stop and reflect*
> *as I'm teaching. (Melanie, Teacher, Wynyabbie State School)*

The impact of QTR on teachers' practice was largely facilitated by the unique combination of the full lesson observation, guided analysis, and collaborative post-lesson discussion. Importantly, a number of teachers felt that engagement in this process led to meaningful changes in a relatively short period of time:

> *We were able to directly implement things that we talked about in*
> *one week into the lesson the next week… So we had a lot of real*
> *quality discussions about different elements and how we can code*
> *higher or whether we can. And then we would actually implement*
> *those strategies and put it in the next lesson, which was excellent to*
> *see that kind of immediate implementation of feedback – immediately*
> *into the lesson – and being able to reflect on it in the next week. So*
> *that was probably one of the benefits of that I think, was seeing*
> *immediate impact of what we were learning in our discussions and*
> *what we were talking about and being able to see it and see the*
> *difference. (Miles, Teacher, Wallowa State Secondary College)*

Such changes were also manifest in the perspectives of Principals, many of whom noticed an increased level of collegiality among QTR participants, largely underpinned by the sense of openness, trust and recognition brought about by their engagement in Rounds:

> *For the four of them to come together and certainly bringing Pascale into the mix as a beginning teacher, I think [it] was really, really valuable for her to connect with that group now. So I think it's been really beneficial for them to develop, as a PLC, and to have some of those really in-depth conversations, and just to have that vulnerability with each other. (Trudy, Principal, Saltbush State School)*

> *I think number one it's allowed them to have a voice. It's allowed them to show what they can do, share with their colleagues - that's been very, very important. I think having their colleagues acknowledge them that's been extremely valuable. (Pavla, Principal, Callistemon State School)*

Principals also commented that QTR helped to yield fresh perspectives among teachers, with the Rounds process often acting as a source of rejuvenation, clarity and empowerment among their staff:

> *I think the teachers were feeling refreshed. I think even one of the teachers who hasn't been teaching that long, she was kind of saying things like "oh, I get it now, I really understand what I haven't been doing" and I thought well that's great to hear because, I mean, she's already quite a high performing teacher, but she's looking deeper into her own pedagogy. (Melita, Principal, Wynyabbie State School)*

> *That's the area where I'd say they've got a bit excited and they've taken on extra work that I hadn't set for them or anything. They just went off on their own bat and came up with some great ideas of how we can progress this forward and what it could look like, and how that can feed into other areas of work that we're doing at the school, all off their own bat. And that's just because they had time to sit down and talk and it wasn't the end of the [school] day. They felt those [professional] conversations were given value because we put money to it, I think. (Valerie, Principal, Telopea State School)*

Such impacts were not just confined to those in teaching roles, however. Participants in non-teaching roles also commented on the positive benefits of QTR, signalling the wide-ranging impact of QTR for teachers and schools:

> *I mean I am obviously not working in the classroom, so it's difficult for me to say how it has changed my teaching. But if I look at it from, like a Head of Curriculum point of view, it's definitely changed how I'm*

*going to work with teachers in our next round of planning. My
planning starts on Monday again, so I have pulled things out of the
Quality Teaching guide and have got ideas and language and things
from the PLC readings that I want to change and put into our whole
school curriculum plans and into our term planners. So QTR has
definitely changed that side of my practice for me. It's probably
changed, to a degree, some of the metalanguage [sic] that I use as
well because I do use things like connectedness now. I do talk about
narrative now, as well with a totally different meaning as to what
narrative might have been for me before. So it's certainly changed
that side of it for me. (Sandra, Head of Curriculum, Coomallo State
School)*

QTR provides powerful professional development for teachers

QTR was also considered powerful professional development by participants, a finding
which aligns with the survey results and the initial impressions of QTR from the focus
groups. In particular, many teachers identified personal and professional learning gains that
they felt will continue to shape their classroom practice, with the Quality Teaching model
now at the forefront of their thinking:

*Quality Teaching Rounds is very powerful, it's a very powerful thing.
It's a wonderful tool… I'm thinking about it all the time when I'm
preparing my lessons now, so "have I included that [element], is there
a narrative running through my lesson?" It's all those elements, you
know, they are really important and sometimes, even as an
experienced teacher, you don't think about. QTR brings [the elements]
to the forefront of your teaching when you're using the Quality
Teaching model regularly and when you're referencing it regularly.
(Bonnie, Teacher, Naringa State School)*

Participants generally attributed their positive experiences of QTR to the structure of
Rounds, and the validity and relevance of the Quality Teaching Model. In describing how
Rounds occurred at her school, Flavia, for example, emphasises how QTR was an immensely
valuable form of professional development because of these underlying reasons, even using
the phrase 'exhilarating' to describe her overall experience:

*The first two sessions were just devoted to, you know, to thinking
about your practice in [terms of] the professional reading and then
observing someone's practice within the structure [of the Quality
Teaching model] and thinking about your own practice while you're
watching that, and then the deep discussions afterwards. It was
exhausting but great exhausting, quite exhilarating too. We're all, we
actually bonded, it was great, it's the most cohesive our teaching*

group has been… It was nice, it was really nice. Very nice to do.
(Flavia, Teacher, Callistemon State School)

The structure of Rounds also helped to create a supportive professional learning environment. For many teachers, the time allocated to conduct QTR was key, as it provided a rare and productive 'circuit breaker' in their regular routine:

> *I think all of us enjoyed not being on class. That was a really nice sort of – a circuit breaker. Working together, it was – I think everyone enjoyed seeing other people work, and we do a little bit of that, and we've started that a bit more in our school. But having that dedicated time to actually, for a whole hour, go in and just observe a teacher at work, and particularly observing the children, because I know things that the girls picked up in my lesson, I didn't even see. Particularly when it came to student engagement. I know that there is some ignoring you do but, at the same time, there were other things that I went, "oh, I didn't even see that, that's great that you've pointed that out". I think the enjoyable aspect was also just getting to know the girls I work with a little bit better, and there was a lot of laughing and a lot of – you know, as we tried to knuckle our way through things like problematic knowledge, which we're still not 100 percent sure on, just having that time to talk and share those codes, but doing it in a way that you never felt like you were putting anyone down, or telling them it wasn't a good lesson. (Kyla, Teacher, Saltbush State School)*

As powerful professional development built around a rigorous framework, QTR generated a high degree of enthusiasm for teaching among participants, even for those who might at times have been disengaged from their work:

> *A couple of the teachers who were in QTR were not the sort who normally are enthusiastic about lesson observations, etc. And I think your programme gave them such a framework that they now have a deeper understanding of what they're looking for. Yeah, it kind of blew me away, especially one particular person… it basically gave her a bit of a new lease on life I think, which was great. (Melita, Principal, Wynyabbie State School)*

QTR aligns with school and state initiatives

Of particular importance to the pilot study, participants perceived that QTR aligns with school-level priorities as well as the Queensland Department of Education's strategic plans. Ivy, for example, spoke candidly about how QTR fits alongside three main focus areas among Queensland schools:

QTR definitely fits in because they talk about a capable and ready workforce. There's a big push in Queensland around making sure that... we're going to have a shortage of leaders very soon, as all the baby boomers start to exit. So one thing that retains teachers – which is one of the bigger issues, attracting and retaining quality teachers – is job satisfaction. And another thing is when people are learning new things, they stay engaged in a field. They stay encouraged, enriched or excited about it. When you're doing something without any new learning, you become bored very quickly. So QTR fits in with that strategic plan.

I think QTR also fits in with the well-being part of the strategic plan of the state. That's a big one now, and by building that collegiality and that trust – I don't care whether the teaching builds or not – just building collegiality and trust helps mental health. So that fits in beautifully with that as well.

Then of course, it's about improving the outcomes for kids. Well, that's a no-brainer. If you improve the teacher's teaching, you're going to improve the outcomes for kids. So QTR fits in with that really well, I think. (Ivy, Teacher, Naringa State School)

These views were echoed by the representative of the Queensland Department of Education who, in the excerpt below, highlights how QTR supports the Department's focus on school improvement:

I think the concept of a group of teachers having a conversation about what does effective teaching look like, and then an implementation, a reflection and then try something out, "Let's build it together, let's go and try it out," I think that approach can make a difference in teacher practice. (Tammy, representative, Queensland Department of Education)

In a similar vein, teachers believed that QTR, including the Quality Teaching model, could be used to enrich existing school-based structures for teacher professional development. At Saltbush State School, QTR was seen as opening up a path for formalising and strengthening observation and feedback processes:

The [observation] trios would really benefit from this process [of QTR]. The trios have been great – we've been able to see each other teaching different year levels and receive constructive feedback. However, it has been a bit informal and the feedback that is provided is freeform. QTR is very specific and you receive much more timely and specific feedback that you can instantly use to improve your teaching. (Trudy, Principal, Saltbush State School)

Overall, many participants envisioned that QTR could become a school-wide initiative to better support all teachers in their understanding of quality teaching. At Naringa State School, it was clear that QTR was perceived as not only meeting the professional needs of experienced teachers, but also of those starting their career:

> *I have really enjoyed the study. I've been teaching for close to 30 years and I really think that what I found was it brought to light some of the things that really need recognition. It really opened your eyes and looked at your own practice to improve your own teaching. I also work with beginning teachers and I also work with prac students as well. I think this is also a really good framework for them to be able to make sure that their lessons are really identifying those areas that may not come to light when you're just looking at a lesson straight away. I think that it's really important and I can see really good practical uses of it in our school, especially because we have quite a few beginning and early years teachers. I think that it might be something that will improve their practice and also help with a discussion about quality teaching in our school. (Bonnie, Teacher, Naringa State School)*

Ongoing implementation of QTR

As part of the interviews, Principals and teachers were also asked to consider whether QTR might be implemented beyond the current pilot study. Most participants expressed a strong level of interest in the ongoing implementation of QTR, largely due to their positive and rewarding experiences, as described throughout this report. At some schools, plans were already underway to embed QTR as a regular form of professional development, with consideration given to the logistics of implementation:

> *I don't think it's going to be difficult. Originally, I wanted the entire school to be involved at one time. That won't work, but we've thought about it logically and if the five of us can do it for a term, then there's no reason why three people can't do it and we can almost do three and three. We could almost do two a term, one in the first few weeks, one in the second. There's 10 weeks in a term. If there's three PLCs, we could fit up to three PLCs in one term if we really wanted to… But by only taking three off at a time, it's not going to be a killer. (Ivy, Teacher, Naringa State School)*

Similarly, at Coomallo State School, there were plans to embed QTR by adopting more of a 'self-sustaining' approach:

> *I've already been able to build QTR into the way we've got our budgets set up and the way that my leadership team is involved to be able to resource it. I know one of my colleagues who is participating in QTR said, "Well how are we going to afford this?" Well actually, as a*

team. There's five of us in my leadership team. Some of us will take classes to allow teachers to come offline, so I'm looking at that, and there'll be some funds that will then be connected to that that may be required if someone's away or whatever, to maybe bring in some TRS [Teacher Relief Scheme] or whatever to be able to allow it to happen. But I'm looking at QTR being a self-sustainable practice within staff, using my current staffing to be able to give teachers that option. (Nola, Principal, Coomallo State School)

At some schools, consideration had also been given to creating a 'ripple effect' of QTR among teachers, supporting more of a gradual rollout:

So what we're looking at doing is we've got our two people who originally trained in QTR, and then they have now shared that knowledge with two other people, and what we're anticipating next year is that each one of those four take on an extra person. They're all on different year levels next year, and we only have two classes generally per year level. So we only have 15 classes next year, so we will have over half the school that are actively participating in using the QTR processes. As you can see from that, we then roll it out, that next step the following year, so within three years, the whole school has a good understanding of the protocols around it. (Valerie, Principal, Telopea State School)

While it was clear that a number of schools planned to implement QTR again in the near future outside of the research environment, participants at some schools conveyed that their school was not yet in a position to do so. Abby-Rose, for example, explains the importance of achieving certain conditions before implementing QTR:

I'd have to have a pretty big TRS [Teacher Relief Scheme] budget to release teachers for the length of time. I'd have to have an 80% buy-in or ownership of it from a majority of teachers. It'd have to be a school priority for us, which feedback is. So it's not saying it's not achievable [to implement QTR in the future], but that would be my three ticks in the boxes – so funding, how do we pay for it? How do we implement it? And how are we going to measure its impact? (Abby-Rose, Principal, Elkhorn State High School)

In this light, some participants expressed concerns that a lack of financial support could hinder the ongoing implementation QTR, particularly due to QTR necessitating teacher release in many instances. As a result, a number of participants discussed potentially adapting QTR to ensure their continued engagement, such as shortening the full-days to half-days or recording lessons instead of conducting face-to-face observations:

We were saying, you know, if we were going to scale this in our school, we're looking at teams of four people out for four entire days over a four week block, and you know, is there any way to make these half days, could we squeeze them somehow? Do we have to do the literature circle at the beginning of the day for example, but then we all got so much value out of the literature circle. Although, you know, you don't come back to that at any phase – it's obviously designed to sort of focus you on the day or come together as a group. But we all found that so beneficial for the process. (Sylvia, Teacher, Hakea State Secondary College)

Rather than doing an intensive in one day, would the value be still there if you did it in an hour across a full week say… whether its recording those lessons, we've got like an observation room where teachers can go and record their lessons. It could be that each of those teachers recorded their lesson and then instead of having a staff meeting, we gave them the time where they could sit and do that reflection. Again, it's not giving them that day of clear headspace, but it could be something that we look differently around student free days or our PD times, yes things like that. (Lucia, Principal, Wallowa State Secondary College)

In a similar vein, some participants conveyed that the ongoing implementation of QTR might be overshadowed by the demands of teaching, particularly when financial and other resources are tight. The excerpt below from Flavia, the Principal at Callistemon State School, highlights how QTR might 'fall off the radar' when other obligations take priority but, at the same time, illustrates why QTR is so important when many of these obligations have become the main focus of teachers:

If we were having to do this with our current resources – like nothing – then the effort and time is going to come out of the teacher's time, as in the opportunity to meet would have to be in a break when none of us had duty, which, it doesn't happen, everyone has duty every day. So we're talking before and after school, commitment and time, to be released to observe – you'd be lucky to get one. You'd probably get somebody; the Principal maybe would watch your class for half an hour so you can watch somebody else and do a quick grading and then you can all talk about it afterwards… When you get too busy, things start falling off and even though I find it useful, I think it would start falling off when I have to, you know, there are absolute obligations that I need to fulfil. I need to test the kids, I need to prepare lessons for them and worksheets, you know, and mark things and record things and report on things, then I have to write a million behaviour reports at the end of the day, you know what I mean? So,

something will fall off and I feel that if there was not the time allocated that would fall off. (Flavia, Teacher, Callistemon State School)

In order to support the ongoing and successful implementation of QTR, participants felt that, at the very least, school-level commitment would therefore be required, aligning with the Department of Education's approach to professional development:

I think if [QTR is] an approach that a school is committed to and can see is going to be helpful, and I think if that's something that the teachers in that school are interested in and want to be a part of, then it is a valuable approach to take. (Tammy, representative, Queensland Department of Education)

Implementation fidelity

Implementation fidelity refers to the extent to which the teachers in each PLC adhered to the protocols for implementing QTR as described in the workshop. When implementing QTR in their schools, a nominated teacher from each PLC completed a survey to provide details about the activities they engaged in as part of each Round. The survey data, collected using Qualtrics, was then assessed using the fidelity checklist (Table 10).

In addition to this self-reported data, a research assistant visited each school in either Round 1 or Round 2 of QTR to observe all PLC activities. These researchers recorded the activities undertaken against the fidelity but did not provide any assistance.

Table 10. Implementation fidelity criteria

Implementation fidelity criteria
1. Was a professional reading session conducted?
2. Was a full lesson observed?
3. Were all PLC members in attendance throughout the lesson?
4. Did all PLC members individually code prior to discussion for this Round?
5. Did all PLC members provide their codes and justification (using lesson evidence) for each QT element?
6. Did PLC members take turns leading the discussion of elements during this Round?
7. Was the QT Classroom Practice Guide a consistent point of reference throughout the discussion?
8. Were PLC members (including the observed teacher) present throughout the discussion?
9. How long was the post lesson discussion? (> 60 minutes required for fidelity)

As can be seen in Table 11, the mean score was similar for both observed (M = 8.6, SD = 0.7) and self-reported (M = 8.5, SD = 0.8) fidelity, indicating high levels of implementation fidelity. Seven schools achieved 100% for the observed fidelity check (achieving 9/9).

The proportion of sessions coding 100% fidelity was moderately lower in the self-reported data, which takes into account the full set of Rounds. While participants are more likely to follow protocols when observed, the difference in observed and self-reported fidelity was largely due to staff absences and the post-lesson discussions occurring for 60 minutes or less.

Table 11. Fidelity of implementation

Outcome	QTR
Fidelity score	
Observed, mean (SD)	8.6 (0.7)
Self-reported, mean (SD)	8.5 (0.8)
Fidelity 9/9 (100% fidelity)	
Observed, %	70.0%
Self-reported, %	57.1%

Conclusion

The results of this pilot study establish the potential translatability of QTR, with high fidelity, to an education jurisdiction outside of New South Wales.

These positive findings provide a solid foundation for the large-scale randomised controlled trial of QTR in Queensland government schools to be conducted in 2021. This larger study focuses on the effects of teachers' participation in QTR on student outcomes.

References

Borko, H. (2004). Professional development and teacher learning: Mapping the terrain. *Educational Researcher*, *33,* 3–15. doi:10.3102/0013189x033008003

Hill, H.C. (2009). Fixing Teacher Professional Development. *Phi Delta Kappan*, *March,* 470–476. doi:10.1177/003172170909000705

Hoyles, C., Noss, R., Vahey, P., & Roschelle, J. (2013). Cornerstone Mathematics: Designing digital technology. *ZDM Mathematics Education, 45,* 1057–1070. doi:10.1007/s11858-013-0540-4

Goos, M., & Bennison, A. (2018). Sustaining and scaling up research-informed professional development for mathematics teachers. *Mathematics Teacher Education and Development, 20*, 133–150. Retrieved from https://eric.ed.gov

Gore, J. (2014). *Towards quality and equity: The case for Quality Teaching Rounds*. Proceedings of the Australian Council for Education Research (ACER) Conference. Melbourne, Australia: ACER.

Gore, J., Lloyd, A., Smith, M., Bowe, J., & Ellis, H. (2017). Effects of professional development on the quality of teaching: Results from a randomised controlled trial of Quality Teaching Rounds*. Teaching and Teacher Education, 68,* 99-113. doi:10.1016/j.tate.2017.08.007

Gore, J., Miller, A., Fray, L., Harris, J., & Prieto, E. (forthcoming). Improving student achievement through professional development: Results from a randomised controlled trial of Quality Teaching Rounds. *Teaching and Teacher Education.*

Kennedy, M. M. (2016). How does professional development improve teaching? *Review of Educational Research, 86,* 945-980. doi:10.3102/0034654315626800

Ladwig, J.G., & King, M.B. (2003). *Quality Teaching in NSW public Schools: An annotated bibliography.* Sydney, Australia: NSW Department of Education and Training.

Morel, R., Coburn, C., Koehler Catterson, A., & Higgs, J. (2019). The multiple meanings of scale: Implications for researchers and practitioners. Educational Researcher, 48, 369–377. doi:10.3102/0013189x19860531

Newmann, F.M. (1996). *Authentic achievement: Restructuring schools for intellectual quality.* New York, NY: Jossey-Bass.

OECD (2019). *TALIS 2018 results (volume 1): Teachers and school leaders as lifelong learners.* Paris, France: OECD Publishing.

Ovenden-Hope, T., & la Velle, L. (2015). Translational research in education for knowledge mobilisation: A study of use and teacher perception in primary schools in England, UK. Journal of Education for Teaching, 41, 574–585. doi:10.1080/02607476.2015.1105541

Seely Flint, A., Albers, P., & Mathews, M. (2018). Interrupting situated practices: Critical incidents in international partnerships. Teacher Development, 22, 281–302. doi:10.1080/13664530.2017.1363082

Smolin, L. & Lawless, K.A. (2011). Evaluation across contexts: Evaluating the impact of

technology integration professional development partnerships. *Journal of Digital Learning in Teacher Education, 27,* 92–98. doi:10.1080/21532974.2011.10784663

Wayne, A. J., Yoon, K. S., Zhu, P., Cronen, S., and Garet, M. S. (2008). Experimenting with teacher professional development: Motives and methods. *Educational Researcher*, 37, 469–479. doi:10.3102/0013189x08327154

Yoon, K. S., Duncan, T., Wen-Yu Lee, S., Scarloss, B., and Shapley, K. L (2007). *Reviewing the Evidence on How Teacher Professional Development Affects Student Achievement*. Washington D.C: Institute for Education Sciences, US Department of Education, Southwest Regional Laboratory at Edvance Research Inc.