Everyday classroom teaching practices for self-regulated learning

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This study investigated everyday classroom teaching that provides opportunities for young adolescent students to self-regulate their learning. Evidence drawn from literature in the field of self-regulated learning (SRL) underpins this investigation that was focused on the transition years from primary school to secondary school. Research was conducted in Australia as dual case studies, with data collected through semi-structured interviews and classroom observations from eight teacher participants. The data were analysed through the lens of a conceptual framework that aligns the findings with the fundamentals for SRL. The four themes generated are best understood as teaching approaches that describe how teachers within social learning environments connect the goal orientated learning with purposeful engagement, facilitate the activation of thinking strategies through instructional support, and diversify learning opportunities that enable an expectation of success. The findings are illustrated by classroom examples of the core practices that influence students' self-regulatory capacity. An outcome of this research is the SRL model that offers a vision for pedagogy to support teacher professional dialogue and learning, and a practical decision-making tool intended to guide teachers to reflect, analyse and tailor practices for their everyday classroom teaching. The paper concludes with some suggestions that provide scope for future research.

Introduction

Self-regulated learning (SRL) refers to the active and constructive processes that are driven by thoughts, feelings and actions toward reaching one's personal goals (Zimmerman, 2013). The value of SRL has been associated extensively in the research with academic performance and social competence, leading to agreement that a central aim of education is for individuals to think and feel as active participants in their own learning processes (Zimmerman, 2013). Dignath and Büttner (2018) recommended that future studies explore SRL through collaborations between researchers and teachers investigating effective pedagogical practices. Consequently, there seems to be a gradually increasing interest from researchers in providing real-life classroom examples of SRL in action (Cleary, 2018).

This paper presents the findings of research that was conducted as dual case studies within a primary school and a secondary school, Years 5 to 9, in Australia. Research supports the importance of SRL for students during these years of schooling, as this represents a critical stage of development in young adolescents' lives for effective lifetime learning (Schloemer & Brenan, 2006). During this phase of schooling, the students aged from 11 to 15 years are experiencing multiple layers of change as they transition to adulthood and are moving within generally two systemically different school environments. Predictably, these middle years of schooling offer an opportune time for students' social, emotional and academic growth, yet can present challenges for both the students and teachers (Hanewald, 2013). To succeed in this changing environment, young

adolescent students must assume greater responsibility for managing everyday challenges. Accordingly, teachers have the basic obligation of supporting young adolescent students to be personally responsible (Alderman & MacDonald, 2015).

Attention in this study is directed towards the significant roles that teachers play in shaping their students' behaviours, emotional responses and metacognitive thinking. The research question was designed to address how primary and secondary school teachers talked about their everyday classroom teaching that intended to provide opportunities for young adolescent students to be actively involved in their learning. In response, this research initiates the SRL model that offers a vision for pedagogy to support teacher professional dialogue and learning. To practically apply the model, a decision-making tool was designed with the intent of guiding teachers' reflections. It proposes conceptualised practices for self-assessment to tailor teaching and provides a common language with which to engage in diagnostic evaluations and professional conversations.

Literature review

Evolving definitions, theories and associated models of SRL vary depending on their conceptualisation from different theoretical traditions. Differences are demonstrated through the perceived significance of influence on learning of cognition, metacognition, motivation and the environment (Puustinen & Pulkkinen, 2001). However, the theoretical traditions are united in their view of depicting self-regulated learners, who are positioned in specific contexts as exercising strategic control of their self-generated thoughts, feelings and actions (Schunk & Usher, 2013). An essential issue confronting all theories of SRL is to understand how SRL capabilities are optimised and adapted to changing situations. Potentially, all students hold capacities to manage cognitions, control emotions and direct behaviours. Degrees of SRL are dependent on how metacognitively, motivationally and behaviourally active the participants are in the cyclical learning processes (Zimmerman, 2013).

Consistently, SRL has been presented theoretically as process models that use a cyclical structure. From this social cognitive perspective, the strategies of SRL are defined in phases of *before*, *during* and *after* learning. For example, Barry Zimmerman (2013), one of the foremost researchers on SRL, defined the phases of SRL as *forethought*, *performance* and *self-reflection*. To perpetuate the self-regulatory cycle, self-efficacy judgements stem from the students' belief that they have the ability to achieve the desired outcome in relation to the specific learning conditions. Therefore, regeneration of the self-regulatory cycle relies on the interactional influences of environmental, behavioural and personal determinants (Bandura, 1986).

Research has established that SRL capabilities are developed within social learning systems (Järvenoja, Järvelä & Malmberg, 2015; Volet, Vauras & Salonen, 2009). From this sociocultural perspective, developing distinctive social processes that interact reciprocally with SRL processes involves the teachers and the students managing their classroom proactively as a collaborative community. Therefore, SRL is situation specific and highly context dependent.

To broaden the ways to conceptualise the SRL phases in the context of the classroom, an original synthesis is presented in this paper, based on an integration of social cognitive (Zimmerman, 2013) and sociocultural (Järvenoja et al., 2015; Volet et al., 2009) perspectives. The method of theoretical analysis that was applied to construct the conceptual framework for the study included a review, analysis and synthesis of the literature. Consequently, the conceptualisation recognises SRL as processes of constructing and rationalising goals, and then accepting responsibility for monitoring cognition, motivation and behaviour to realise capabilities within social learning environments (Peel, 2019). The integration of these perspectives represents a synthesis of reliable research that focuses attention on four fundamentals for SRL that include: (1) the rationale for learning; (2) the responsibility for learning; (3) the capability for and from learning and (4) the collaboration for learning. The four fundamentals are explained in detail below to establish their links with existing theoretical models and relevant theoretical constructs.

The rationale for learning fundamental

SRL involves individuals experiencing an interest in their learning and setting learning goals to maintain their purposeful engagement. This is conceptualised as the *rationale for learning fundamental*, where interest is determined to be a powerful motivator for attention and concentration during learning interactions (Renninger & Hidi, 2016). The rationale for learning fundamental relates to the motivational component of SRL. This fundamental aligns with this forethought phase in Zimmerman's (2013) SRL cyclical model, where students and teachers work to proactively set the stage for learning. Knowing how to set appropriate goals increases motivation to SRL (Schloemer & Brenan, 2006) and self-motivational beliefs are integral to the forethought phase. Therefore, clearly articulated goals act as external triggers that influence learners' internal interest to engage purposefully in a task (Renninger & Hidi, 2016).

The responsibility for learning fundamental

Shouldering the responsibility for learning is fundamental for SRL. This involves individuals gaining influence over their learning and experiencing a sense of agency where they feel they are in control of their actions and of the events involved in the learning (Haggard & Tsakiris, 2009). The *responsibility for learning fundamental* relates to the cognitive and metacognitive components of SRL and aligns with the performance phase in Zimmerman's (2013) SRL cyclical model, where the task strategies are initiated and metacognitively monitored through self-observation. During this phase, learners think about and understand what they are doing and why they have chosen particular cognitive strategies. Being metacognitively aware empowers learners to control their efforts, to understand themselves as learners and to apply and monitor strategies for given purposes (Haggard & Tsakiris, 2009). A repertoire of cognitive strategies (Zimmerman & Martinez-Pons, 1990) includes: planning goals; seeking, organising and transforming information; monitoring progress; and self-evaluating to adjust strategy selection for future learning. Therefore, SRL capabilities are developed by learners choosing and practising strategies that suit the situation.

The capability for and from learning fundamental

The *capability for and from learning fundamental* for SRL involves learners experiencing an expectation of success by anticipating the possibility that they will master a task. The ways in which individuals approach and respond to learning situations form cumulative cycles that can contribute positively or negatively to their expectations for future learning. The capability for and from learning fundamental is represented as the self-reflection phase in Zimmerman's (2013) SRL cyclical model. The focus of this phase is on learners' self-judgement for personal improvement and future goal mastery. Adaptive rather than defensive inferences guide the learner to a more effective self-regulatory performance during subsequent efforts. By reflecting constructively on their performance and attributing causes to changeable conditions that are under their volitional control (Weiner, 2005), learners adopt a growth mindset that enables them to view challenges and even failures as opportunities to learn (Dweck & Master, 2009). Self-reflection influences self-efficacy beliefs as they are personal perceptions of one's capability to perform a specific task for a successful outcome (Bandura, 1997). Therefore, learners with a growth mindset are more likely to make informed adjustments that sustain their self-efficacy beliefs for future learning. Furthermore, encouragement or praise from others increases a student's self-efficacy (Dweck & Master). For example, the manner in which teachers and peers acknowledge success and commend effort for embracing challenges strengthens learners' self-efficacy.

The collaboration for learning fundamental

The *collaboration for learning fundamental* for SRL involves individuals interacting within a community of learners through sharing the management of their classroom and building conducive relationships to construct knowledge. Within a community of learners, it is inevitable that SRL includes co-regulation, where learners interact with their teachers and their peers who model the expectations and support their learning (Volet et al., 2009), and socially shared regulation, where mutual goals and standards are co-constructed (Hadwin, Järvelä, & Miller, 2011). Therefore, in SRL theory, the self does not imply learning in a vacuum but instead it is to be interpreted as the empowered learners operating within a social environment where they interact and collaborate with others. Within a "culturally responsive teaching learning community" (Brown, 2004, p. 266), teachers create a safe place for their students to learn and an emotional climate where students can take risks, laugh and trust one another and their teacher. Embedded in the social learning system of classroom environments are social interactions that develop conducive relationships for learning (Perry, Brenner & MacPherson, 2015).

Collectively, the four fundamentals for SRL offer a multidimensional conceptual framework that is representative of the cyclical models of SRL within the social learning environment. This framework, as presented in Figure 1, draws from the extensive literature to highlight the fundamental enablers that position learners to take strategic control of their thoughts, feelings and actions.

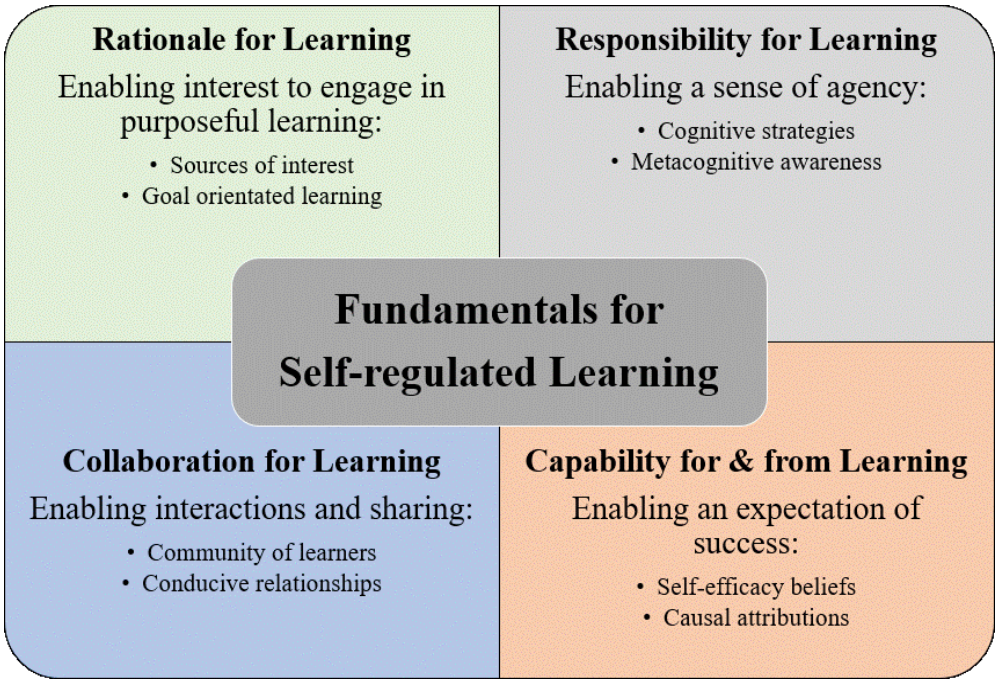

Figure 1: The SRL fundamentals

Well established in the literature is that students' SRL capabilities can be developed and that teachers play pivotal roles in managing environments that support or impinge on this self-regulatory capacity (Perry et al., 2015). Therefore, research that focuses on teachers' everyday classroom teaching is critical for gaining knowledge about the external influences that provide opportunities for students' SRL. The issue of investigation into how schools and teachers could contribute to fostering SRL capabilities for lifetime learning has been identified as a topic of significant relevance in Australian and international educational policy and debate (Cleary, 2018; Pendergast et al., 2005).

A meta-analysis on self-regulation training programs (Dignath, Buttner & Langfeldt, 2008) advocated more research focus should be on the learning environments and specifically on the significant roles of teachers in the promotion of students' SRL. Harrison and Prain (2009) reported key factors that influenced Year 8 students' perceptions of SRL in English classes. Their research suggested that many teachers struggle to provide learning experiences that enable self-regulatory capacity in students. Dignath and Büttner (2018) studied primary and secondary school mathematics teachers' direct and indirect promotion of SRL. The teachers acknowledged the importance of SRL but were not explicit in how they promoted SRL opportunities in their classrooms. Considerable research into SRL has been conducted in the context of schools, yet there is still much to learn.

There is an obvious gap in the literature around how teachers can empower students to effectively manage their thoughts, feelings, and actions through their everyday classroom

teaching. To be clear, there are many studies that report what enables students' SRL and how they apply cognitive strategies to enhance learning outcomes. This evidence is very useful for identifying practices that inform and support teachers in how to do so. Moreover, investigating how teachers do this in regular classrooms during the primary–secondary schooling transition years has value, although it has been reported to have received narrow research attention in the past (McCaslin et al., 2006).

Methodology

Case study, as an approach to research, is supported in the literature as being a valuable method to gain new information about SRL and investigate complex, dynamic processes within authentic settings (Butler, 2011). The research approach employed for this study aligns with the social constructivist paradigm as it was designed to construct meanings from the participants' experiences through their interactions within the context of the research. The qualitative orientation included four key features: (1) the researcher's intention to construct meanings by foregrounding the teacher participants' experiences; (2) the researcher as the interviewer and the observer for the data collection and analysis; (3) the rich descriptions that emanate from the data extracts; and (4) the setting of the study situated within the contemporary classroom contexts (Creswell, 2013; Merriam, 2009).

Research design

The research question underpinning this study addressed how teachers working in primary–secondary schooling transition years provided opportunities that promote SRL capacity through their everyday classroom teaching. Informing the interpretations of this study were the participants' broad explanations of their practices intended to engage students in tasks and to achieve outcomes. An ethical framework was generated to support the thoughtful conduct of the research and the credibility of the findings. The Human Research Ethics Committee at the University of Southern Queensland (USQ) and Lutheran Education Queensland (LEQ) endorsed the study with full ethics approval and permissions.

Contexts

The chosen sites for the study were two Australian regional schools, selected specifically because of their student transitional relationship. At the time of the study, in the state of Queensland, students in Preschool to Year 7 were in the primary school, and students in Years 8 to 12 were in the secondary school. Interestingly, the secondary school and the feeder primary school identified with a values-based approach to lifelong learning and specifically to developing "self-directed, insightful investigators and learners" (LEA, 2013, p. 8).

Participants

Four teachers from the primary school and four teachers from the secondary school were involved in the study (n=8). The participants, who were represented with pseudonyms,

had varied personal experiences, ages, years of experience in the teaching profession, teaching proficiencies and professional backgrounds.

In Case One, Bec and Julie had established a strong collaborative teaching partnership at the time of the study's data collection, frequently operating the two classes as one larger class group of Years 5 and 6 students. Peter and Nicky worked together, both teaching Year 7 classes collegially and co-operatively to varying degrees during the different timetabled events of the school day.

In Case two, Greg was observed teaching science to Years 8 and 9 students, and Rachael was observed teaching Year 8 students mathematics. Brian, who had been a primary school teacher before working with secondary students, was observed teaching Year 8 Christian studies and Year 9 mathematics classes. Sarah, an early career teacher, was observed teaching Year 9 students in history lessons. Table 1 identifies the participants in Case One and in Case Two to clarify their teaching experience and their teaching contexts at the centre of this study.

Table 1: The participants in Case One and in Case Two

Case	Teacher participants	Teaching experience	Teaching contexts
Case One: Primary school setting	Bec	8 years	Years 5 and 6
	Julie	12 years	Years 5 and 6
	Peter	9 years	Year 7
	Nicky	12 years	Year 7
Case Two: Secondary school setting	Rachael	12 years	Year 8 mathematics
	Greg	8 years	Year 8 science and Year 9 aquaponics
	Brian	22 years	Year 8 Christian studies and Year 9 maths
	Sarah	5 years	Year 9 history

Data collection

Threefold data collection was employed as semi-structured interviews with teacher participants, classroom observations, and subsequent follow-up interviews for clarification. The initial one-hour interviews were guided by interpretative questions that assisted in focusing the discussion to recount what they did when working with the students in their classrooms and their perceptions of what characterises effective learners. The data collection was completed in two phases. Case One formed the first phase of the research, and data were collected from the participants (n=4) within the primary school setting. The second research phase, Case Two, involved the participants (n=4) within the secondary school setting.

The follow-up interviews were not all conducted in the same way, as the different contexts and the participants' teaching situations indicated the most appropriate ways of interviewing post-observations. In Case One, because Bec and Julie worked closely together and were aligned in their systemic operations of the classroom, the one-hour follow-up interview with them was conducted jointly and this presented a valuable group

discussion. Peter and Nicky requested that they adopt the same situation for their follow-up interview. In Case Two, the teacher participants taught with different timetables and no teaching collaboration, so the one-hour follow-up interviews were conducted separately.

The classroom observations were intended to offer insight into everyday teaching during regular lessons within the school settings. These relatively unstructured observations were valuable for representing broadly the scenarios within the context as well as the specific details about the interactions, sequences of actions, events as they occurred, patterns of behaviour, relationships and actual dialogue as quotes. Consequently, the researcher saw things first-hand and recorded the observation notes in a research journal. Multiple observational situations were made available spanning the six-week data collection period for each case and they varied in time, as guided by the school sessions, from between 40 to 90-minutes in duration. The researcher made decisions about where to focus attention for the observations and the research question guided these decisions. It was important to record systematically specific notes of the teachers in action. These were discussed, along with other identified areas of clarification, in the follow-up interviews.

Data analysis

During the two data collection phases of this study, the thematic data analysis operated iteratively as "a flexible and useful research tool, to provide potentially a rich and detailed, yet complex, account of data" (Braun & Clarke, 2006, p. 4). The basic function of the data analysis was to organise and simplify the complexity of the data into meaningful and manageable codes and themes. In a non-linear process of meaning-making, the analysis involved consolidating, reducing and interpreting data (Creswell, 2013).

The analysis entailed coding the transcribed interview and observation data to identify extracts of significance. A *data extract* is described as being a potentially meaningful segment of data, revealing information possibly relevant to the research questions (Braun & Clarke, 2006; Merriam, 2009). As such, the extracts were coded to give meanings that emanated from the data rather than from a developed *a priori* template of codes (Fereday & Muir-Cochrane, 2006). During the creation of this extensive list of expanding codes, it was essential to consider suitable code labels and to write comprehensive descriptions to represent the codes so that the connotations associated with each of the codes were made clear. For example, Nicky in Case One expressed how pleased she was that a group of students in her class exhibited the confidence to ask questions during mathematics lessons:

> I was a bit surprised … three boys that are low academic achievers in maths, they actually ask the most questions. I was really impressed with them …. They're not afraid and they just want to learn how to do it. (Nicky, interview 2)

This data extract was coded as safe to question and the code label was described as being when teachers value students feeling non-threatened and comfortable in the classroom environment.

During the iterative coding process, related codes were grouped together to form the final codebook. The next stage of the data analysis process involved the aggregation of the 96 codes to generate code-categories. Common categories that emerged were collapsed together to represent how the teachers designed meaningful learning, managed, scaffolded, adjusted, and built relationships with students for learning and expanded their professional knowledge. Finally, to generate themes the code-categories were analysed through the theoretical lens of the four fundamentals for SRL. The themes laid the foundations for the findings presented in this paper.

Findings

Four themes were generated and aligned with theoretical constructs to represent four approaches that were embedded in the everyday classroom teaching to promote the fundamentals for SRL as summarised in Figure 2.

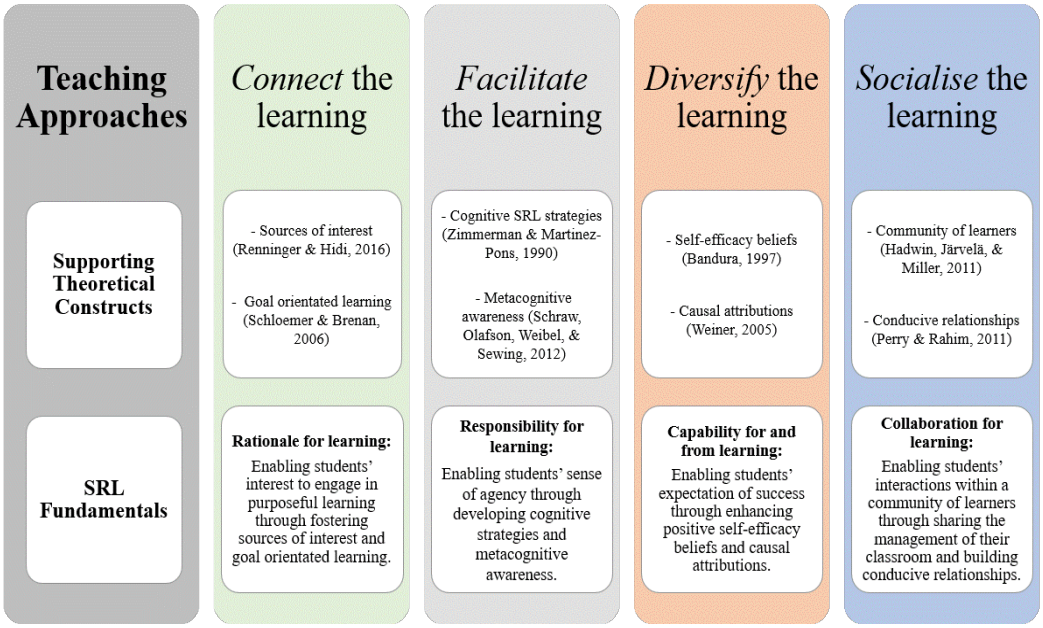

Figure 2: Four themes representing the teaching approaches
(for easier reading, use the "zoom in" function in a PDF reader)

The following sections describe the four teaching approaches for SRL: 1) connect the learning; 2) facilitate the learning; 3) diversify the learning; and 4) socialise the learning.

1. Connect the learning

The *connect the learning* approach was associated with the rationale for learning fundamental to capture how the teachers provided opportunities for their students to engage in purposeful goal orientated learning that enabled their interest.

Connect the learning core practices

Focus on real-world transferable skills

In Case One, Julie explained how she designed learning around real-world, transferable skills by teaching the Years 5 and 6 students how to create their own webpage:

> They are so into setting up these webpages that they will often just want to get them done. We'd often catch them doing web page work when they were supposed to be doing something else (Julie, interview 1).

In Case Two, Greg elaborated how he designed learning to at least approximate the experiences of scientists:

> Especially as a science teacher, I look at teaching the understanding of the world. A recent example of that is we went down to the dam and collected pond samples and looked under a microscope. Previously, to that we'd explained the difference between animal and plant cells, and we were able to find these single-celled animals, with perfect cell structure, in the slide …. Then you had this: "Quick Sir, get over here. Have a look at this one." … So, it is the link between the theory of seeing these things in diagrams and actually seeing something come out of a real-life environment. (Greg, interview 1)

Link prior learning with the purposeful learning goals

In Case Two, Greg taught an aquaponics subject where Year 9 students studied the scientific side of growing fish and plants. He attributed the popularity of the elective subject to the purposeful opportunities that it provided for the students to apply their prior knowledge. Greg explained how the learning goals for the subject were tailored for the students to create conceptual connections:

> You're tapping into something that they've already got a connection to. They like fishing and they know about fish, so you're expanding on that interest, and that's where you just find them absorbed. If the students want to do it and if you've set the scene for them to be engaged by explaining the purposeful goals, then that's most of the battle; giving the learning a purpose. (Greg, interview 1)

Greg connected the students' prior learning with purposeful learning goals that clarified for them the value of the learning experiences.

Contextualise the learning to topics that are of interest

In Case One, Nicky shared an example of how she contextualised the learning for one Year 7 student who was not keen to learn about the scientific theories of forces:

> When we were talking about and writing out the definitions associated with friction, one of my boys says: "Oh, this is boring."
>
> I said: "We need to get the information so that you have enough knowledge to see the different forces in action when we do the experiments." That turned him round. He is loving doing the experiments with friction, like dropping balls or cars down ramps. (Nicky, interview 1)

Nicky conveyed that she observed the student's attitude to the learning task change in anticipation of the future learning experiences. When he was provided with the purpose of the learning task, he connected the task with his interest in the topic.

Design understanding and skill goals
In Case Two, Rachael designed and implemented lessons with a commitment to the displayed understanding and skill goals to challenge the Year 8 students and to stimulate their interest in the mathematics concept:

> *Research journal:* The lesson begins with the goals written on the whiteboard. The goals for this lesson are to understand the different time zones in Australia and to be able to calculate across the Australian time zones. These goals have two parts: an understandings goal; and a skills goal. Rachel states how this connects with a previous lesson: "You are going to be looking at time zones in Australia. You will be able to call people living in different zones in Australia when you understand this." (Rachael, classroom observation)

Rachael referred to the goals at the beginning of, during, and at the end of the lesson. For the students to acquire further knowledge, she informed them that the goals connected their prior learning with future learning and discussed with the students how they could transfer the learning to other situations that they may encounter.

2. Facilitate the learning

The *facilitate the learning* approach was associated with the responsibility for learning fundamental and describes how the teachers provided opportunities for their students to activate cognitive strategies and monitor their learning progress that enabled a sense of agency.

Facilitate the learning core practices

Integrate expectations, procedures and a common class language
In the following observation snapshot from Case Two, Greg recommended teaching consistency so that the Years 8 and 9 students were informed of the procedural and behavioural expectations in preparation for learning readiness:

> I put across my expectations and routines: "You come into my room, you stand behind your chair quietly, without talking." Once they're seated the expectation is to be opening their book ready. Every day I repeat it. They have a clear understanding of what's going to occur in my room. (Greg, interview 1)

Greg emphasised the value of establishing, implementing and enforcing clear expectations and procedures that were specialised to his classroom environment. He recognised that the transitions from one classroom to another, and from one phase of a classroom activity to the next, can be problematic for optimising teaching and learning time.

Provide teacher-directed strategy instruction and practice time

In Case One, Nicky explained how she modelled the strategy of self-verbalising (Zimmerman, 2013) to think aloud and share how she performed the mental calculations in Year 7 mathematics lessons:

> I share with the students my own way—how I see it, how I do it—when we do our mental mathematics. When it's adding certain numbers, I get them to tell me what strategies they use. We were doing one last week, 17 plus 19. I said to them, "Well, 19 is near 20. So, add the 20 and take the one, instead of doing the hard calculations." I'm trying to give them as many tools and resources to learn [as possible]. (Nicky, interview 1)

Furthermore, Nicky encouraged the students to reflect on and identify their own thinking. She did not expect the students to use the same calculation strategies as she verbalised or as their peers used to find the answers but rather to appreciate the different ways that mathematical calculations could achieve the same answer.

Scaffold to make the what and the how of learning visible

In Case Two, Greg scaffolded a strategy with his Year 8 science students by articulating the structure of the learning to make the processes explicit and visible (Lucas, Claxton, & Spencer, 2013). He modelled the strategy of information searching on the Internet and he utilised the interactive *Smartboard*, as a teaching tool, to make the learning strategy visible to the students:

> *Research journal:* Projected on the *Smartboard* is the text structure of the assignment, which is a comparative essay. Greg moves to the whiteboard to draw a diagram of the human brain. He emphasises that he wants the students to go deeper in the research process about the brain and models on the *Smartboard* some Internet search strategies. Greg explains: "You type 'cerebellum' rather than just 'brain' or type 'mandala oblongata'. Let's say that one together." Clearly, the students are impressed, as the searched information flashes on the screen and they echo the newly introduced term. Greg reminds the students that they are doing a biology study and that the words they use in their comparative essays need to reflect this scientific discipline. (Greg, classroom observation)

Embed questioning and assessment tools

In Case One, Bec and Julie used questioning to provide opportunities for the Years 5 and 6 students to clarify and demonstrate their understanding:

> *Research journal:* During the reading response activity, the students are asked to report on the topic about which they have chosen to read. Julie selects students to respond to her questions: "How did this book make you feel? How does this book inspire you?"
>
> One student responds: "Well, at first it didn't make sense, so I read it again and loved it."
>
> Bec joins in the conversation: "What made it make sense from the second reading?"
>
> The student answers: "I think the first time I read it, I rushed it and didn't think about what it meant." (Bec and Julie, classroom observation)

The teachers probed the students' knowledge to monitor their understanding by drawing on their ideas about the concepts of study and by asking them to share their own experiences with the other students in the class. As one of the students was prompted by the teachers' questioning, she talked through her thoughts and evaluated her own understanding.

In Case Two, Rachael embedded a feedback tool in her Year 8 mathematics lessons that provided opportunities for the students to clarify their understanding of a new concept and for Rachael to adjust her teaching:

> When there's a specific answer I'm looking for, we'll use whiteboard cards [A4 laminated sheets]. That means the students all get their whiteboards in front of them. I can see every single kid's card, with what they thought was the answer written on it, so I get immediate feedback. I can see automatically how many of them missed it or if there's that misconception out there and that's straight into a teaching moment. Also, I use the whiteboard card as a learning reflection tool before I start teaching to see where they are at. (Rachael, interview 1)

3. Diversify the learning

The *diversify the learning* approach was associated with the *capability for and from learning* fundamental and describes how the teachers provided opportunities for their students to reflect and sustain their self-efficacy beliefs that enabled an expectation of success.

Diversify the learning core practices

Adjust the product expectations and the learning processes

In Case Two, Greg discussed how he used his knowledge of his students, as learners, to provide them with support. During the interview, he was asked whether he thought all of the Year 9 aquaponics students, including the students with low literacy skills, would complete and present their science reports:

> I believe they will. A good half-a-dozen students in there who would struggle to write a single correct sentence, yet they're still willing to have a go. The goal for all the students is to write about the fish lifecycle and I'll model that. The students with low literacy skills write what they can, then they will talk to the class, rather than making it just a whole formal written presentation. It's probably all about achievable goals and setting them at a level for success that is higher than where they are but not out of reach. (Greg, interview 1)

Greg continued to explain how he endeavoured to motivate one of the students to feel efficacious about his learning by providing the opportunity for him to verbalise his learning and to meet personal learning challenges:

> We have one boy currently who struggles to write, but he'll engage verbally during the whole theory part of the lesson. If I go back and check his written work, he hasn't actually put anything down on paper. Therefore, he looks at someone else's writing to see how to do it then writes it down. That way he engages and challenges himself. (Greg, interview 1)

Greg provided challenges suitable for the students to maintain their self-efficacy beliefs for them to complete the task by adjusting the expectations to suit their capabilities.

Negotiate the nature of the learning tasks

In the following observation snapshot from Case Two, Brian described an example of how he used his knowledge of the learning capabilities and needs of one Year 8 student to negotiate the learning:

> There's a student who sits down the back of the classroom. He's actually listening and paying attention. He just doesn't give you that impression. But, if you don't have that background knowledge of him, it's very easy to point the finger and say: "Pay attention." He and I came to an understanding fairly early on, where he was drawing things in class. I said to him: "Mate, if you want to draw, I don't really have a problem with that, but I'd really like you to be drawing things that relate to what we're talking about." He went: "Oh, okay." (Brian, interview 2)

Brian was confident that the student was listening actively during the lesson. He consulted with the student, stating that he understood his need to be writing as he listened. Brian recognised and accepted this as a strength of this student's preference for learning and negotiated the learning with him, so he could work in his own way.

Offer resource access to support and monitor learning

In Case Two, Sarah expressed her frustration about the learning barriers confronting students with low literacy skills in her Year 9 history class: "The lower literacy kids were just so disengaged. They'd go: 'Ah, history. No, not doing it'" (Sarah, interview 2). Sarah described how she provided visual modes and texts as reading materials that were suited to the students' literacy capability:

> Using visuals and diverse reading resources suitable to their level was certainly a way to help the lower literacy students experience success. When it comes to an assignment, if they've had assistance with their literacy, they can demonstrate their higher-level thinking. (Sarah, interview 2)

Sarah offered the students access to resources that suited their individual needs so they could demonstrate their learning and feel the success of achievement.

Acknowledge successes and enjoyment from learning

In Case One, Peter emphasised the value of students personally reflecting on and experiencing achievement in their learning: "If they can do it a different way, it doesn't have to be better, but they at least can feel they can do it" (Peter, interview 1). Nicky supported Peter's view by stressing the longer-term impact of success on students' feelings of achievement: "Students have to have some successes in it because, if they don't have successes, well, they probably won't want to try it again" (Nicky, interview 1).

In Case Two, Brian discussed that the students in his Year 9 mathematics class have experiences of failures in previous learning situations that have restricted their behaviour for future learning:

> If a kid has had trouble with a subject in the past, particularly with maths, they start to look for problems. It's being able to get across to them that there are no tricks. That this is the formula. If you follow this formula and you put the numbers in the right places then you'll get it right. If you don't get it right, you can go back, and you can follow that formula as a roadmap to find out where you might have made the mistake. (Brian, interview 1)

Brian simplified the conceptual understanding by teaching the students to apply formulae to calculate the mathematical problems. The step-by-step "road-maps" offered the students systematic directions for calculating the answer and for retracing their steps when their answers were wrong. Brian described how he taught the students to use the "road-map" to find out the correct answer or to find out where they may have made the mistake.

4. Socialise the learning

The *socialise the learning* approach was associated with the *collaboration for learning* fundamental and describes how the teachers provided opportunities for their students to create caring communities where they share joint responsibility for the learning and develop relationships through respectful communication.

Socialise the learning core practices

Create caring communities
In Case Two, Greg emphasised the importance of showing his young adolescent students that he cared about them by getting to know them: "You've got to build those relationships and have an understanding of them, because when you do that you get their respect" (Greg, interview 1). He described his role as the teacher in developing these relationships: "There's this pastoral side to teaching. That is big for me and is reflected in empathy and compassion. You've got to know your students. You've got to know what goes on in their lives" (Greg, interview 1).

Share joint responsibility for learning
The teachers shared joint responsibility for the learning during the lessons in different ways and to varying extents. In Case One, Nicky set up stations around the classroom where the task expectations for the hands-on experiments were displayed. These included the step-by-step instructions and a list of resources that the students were to use. Participation in these small group experiments involved collaboration with peers and the clear expectations empowered the students to take responsibility for their learning.

Respectful communication
The teachers communicated with the students and their parents and caregivers to establish interpersonal relationships. In Case Two, Brian explained how he worked to strengthen relationships quickly with the Year 8 students through extra-curricular activities and he explained how he formed productive communication links with their parents. He described educating students as being a partnership between the teachers and the parents:

> We can't be in isolation to the family. It's a partnership. I think it comes back to the fact that when I find an opportunity and a time to ring the parents, I don't just ring them for bad news; I ring them for good news as well. (Brian, interview 1)

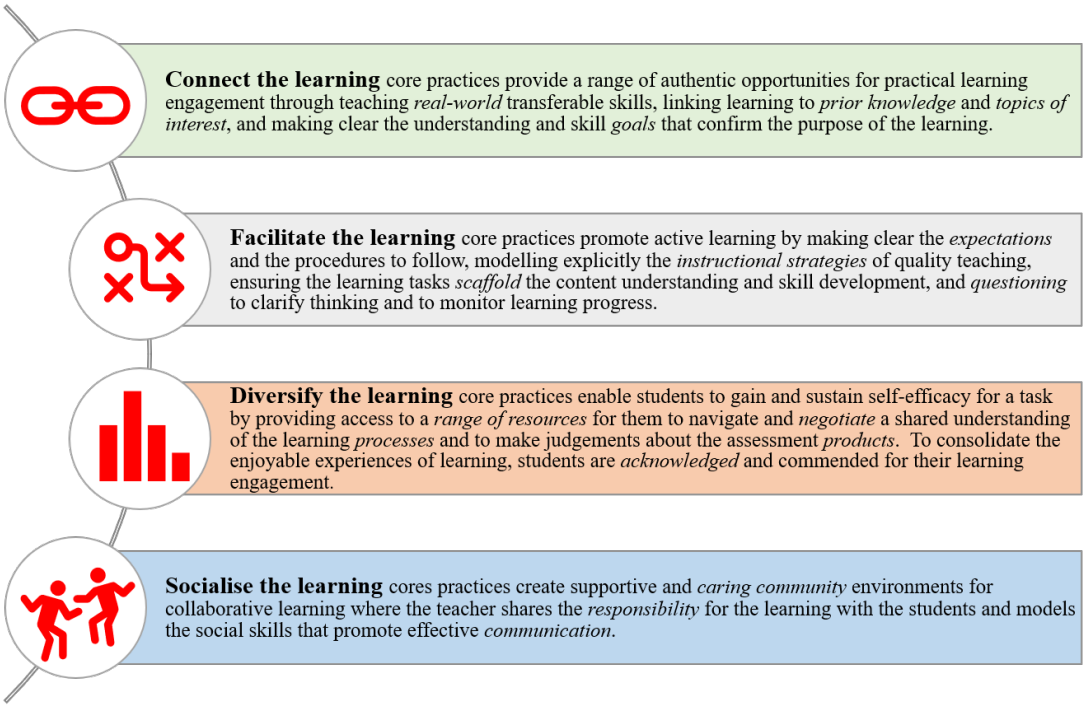

Figure 3: Four teaching approaches and evidence-based core practices for SRL

The findings of this study show how the teacher participants designed, instructed and managed teaching and learning in different ways to suit their pedagogical styles, the contextualised conditions and the learning needs of the young adolescent students in their classes. The four teaching approaches and evidence-based core practices are presented in Figure 3.

Discussion

It is contended in this paper that SRL has important implications for students and teachers during the primary–secondary schooling transition years. As such, it should not be taken for granted that teachers will share the responsibility for and control of learning with the students. The implementation of everyday classroom teaching that strengthens young adolescent students' self-regulatory capacity may require a pedagogical shift by teachers who perceive they are in control of all the learning that occurs in the classroom. Additionally, how teachers apply their collective understandings to this field of research was identified as an under-explored area in the theory of SRL (McCaslin et al., 2006).

As a way forward, the SRL model proposed in this paper provides a structure for thinking about everyday classroom teaching that organises the finding of this study into four approaches: *connect* the goal orientated learning with purposeful engagement; *facilitate* the activation of thinking strategies; *diversify* learning opportunities that enable an expectation of success; and *socialise* the learning within created caring communities. These are elaborated through the 15 core practices of the model. The SRL model, and the image presented in Figure 4 offers a vision for pedagogy to support teacher professional dialogue and learning.

Figure 4: The model for SRL

Another challenge exists in the limitations of many curriculum and policy documents, including the Australian curriculum (ACARA, 2018), as their function is to outline what is to be taught rather than to provide pedagogical guidelines. Although these documents promote the ideals of SRL capabilities, they do not profile everyday classroom teaching

for SRL. As stated by Loughran (2016), "just setting a mandated curriculum does not necessarily lead to the desired learning outcomes" (p. 255). For example, the schools that provided the research settings for the case studies included in their vision and policy statements the ideal of fostering lifelong learning. For example, *A vision for learners and learning in Lutheran schools* (LEA, 2013), articulated core values that describe the lifelong qualities for learners. However, there is limited guidance available within the schools for teachers to reflect on their existing practices and ensure they are providing opportunities for students to develop these qualities. Alderman and MacDonald (2015) proposed that for students to achieve at school and to manage the encounters of lifetime learning, they require SRL competencies to activate, to control and to reflect on their learning.

If follows then that as strong correlations have been made between the qualities of lifelong learning and SRL (Pendergast et al., 2005; Winne, 2017), the SRL model has potential to be used to assist schools enacting the espoused vison and policy statements. Through the practical application of the SRL model, a decision-making tool (see Appendix) has been generated, as a self-assessment checklist, to inform teachers about everyday teaching that promotes students' lifelong learning capacity. The implementation of the decision-making tool for planning and reflection provides a starting point to support teachers' awareness and highlights to them the significance of their roles in providing opportunities for students' SRL.

Moreover, in reviewing the research on effective professional learning, it is clear that exercising inquiry into one's own teaching strengthens transformative practice (Gore et al., 2017). As a form of professional learning, teachers who are engaged in research gain confidence and motivation as they become more knowledgeable and committed to understanding classroom environments that empower students as learners. The research design of this study provided opportunities for researcher-teacher collaborations that scaffolded reflections and changed the potentially solitary process of reflective teaching into a social activity of professional learning (Trabona, Taylor, Klein, Munakata & Rahman, 2019).

It was not the intention of this study to measure the impact of the core practices on students' learning or to investigate what the students thought about their learning experiences. However, these two suggestions provide scope for future research considerations. For example, research could be designed to focus on specific core practices from the SRL model to examine the impact on students' learning in relation to one or more of the fundamentals of SRL. Students' perceptions of themselves as learners are a primary source of information (Määttä, Mykkänen & Järvelä, 2016) that could be employed to assist in understanding the impact that this study's findings have on students' SRL. This future research could contribute pedagogically to the advancement of the SRL model.

Conclusion

Fundamentally, educational aims must cohere with the pedagogy adopted to achieve those aims. Current educational policy in Australia and internationally supports pedagogical

practices aimed at the development of students' capabilities for SRL. In addition, the literature supports the significance of research that informs the reflective practices of teachers working with young adolescent students. What is presented in this paper is not a predetermined intervention or a formula for success. Instead the SRL model and decision-making tool articulate a guiding philosophy for pedagogical reflection and professional learning.

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Appendix: A decision-making tool for self-regulated learning (SRL)

SRL fundamentals	*SRL teaching approaches*	
	Core practices	Questions for reflection
Rationale for learning:		*Connect the learning:*
What is the purpose of the learning? What do we want to achieve?	*Real-world skills*	What real-world transferable skills are the students learning?
	Prior learning	How does the students' prior knowledge link and offer purpose for what they are learning?
	Topics of interest	What is of interest to the students about the topic and how is it made more interesting?
	Learning goals	Can the students identify an understanding goal and a skill goal?
Responsibility for learning:		*Facilitate the learning:*
What understanding and skills do we need to activate learning? How will we monitor our learning progress?	*Expectations*	Do the students know the expectations and the procedures to follow?
	Instructions	Have the strategies to perform the task been taught to the students and have they been provided with time for practice?
	Scaffolds	What assistance has been provided to the students to scaffold their learning of content and skills?
	Questions	What questions can be asked to find out what the students know, and to clarify their thinking?
Capability for and from learning:		*Diversify the learning:*
How will we ensure that we meet with success? How can we judge our learning outcomes?	*Product and process*	How have the product expectations and learning processes been adjusted for the individuals?
	Negotiations	Is the task suited to the whole class, group work or individual seat work? What input have the students had in these arrangements or other decisions about their learning?
	Resource access	What resource are available for the students to select that support and monitor their learning?
	Acknowledgement	How have the students' learning successes been celebrated? What part of the learning do the students find enjoyable?

Social environment for learning	*Socialise the learning:*	
How do we interact together and use what is available to internalise a desire and commitment for learning?	*Caring communities*	When were the students asked to collaborate with others to share their learning? How have the social skills for interacting with others been included in the task?
	Shared responsibilities	When are the students asked to take control and be responsible for their learning? How have the teachers demonstrated their shared learning responsibilities with the students?
	Communication	What do the students' parents and caregivers know about what is being taught and about the outcomes of the learning?

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