SCHOOL LEADERSHIP & MANAGEMENT
2026, VOL. 46, NO. 2, 271–293
ISSN: 1363-2434 | E-SSN: 1364-2626

OPEN ACCESS

The impact of educational leadership on student learning practices: tracing the flow of influence

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ABSTRACT

This article examines the dynamic flow of influence from leading to student's learning practices in schools, reconceptualising leadership as a multifaceted complex of interrelated and ecologically integrated practices. Rather than privileging any single leadership role, it conceptualises leading as a coordinated social ensemble in which leaders work interdependently to shape the professional and educational conditions that support teaching and learning. Qualitative analysis of two in-depth ethnographic case studies conducted as part of a national Australian research focused on studying the influence of middle leadership aiming to show how leading practices reach learners in classrooms. It traces how practices travel from policy to principals to middle leaders to teachers, subsequently influencing student's practices. Drawing on practice theory, findings illustrate ways leading practices create practice architectures which influence teachers' and students' learning. By tracing the 'trail of evidence' concerning specific school development initiatives being implemented in school sites, results reorient debates about the efficacy of leading school-based change towards understanding how a composite of leading practices emerges relationally and temporally through shared language, activity and responsiveness to local contexts. Findings offer an ecological interpretation of educational leadership influence, illuminating how coordinated leading practices contribute to professional learning, teaching, and student learning practices.

ARTICLE HISTORY
Received 26 October 2025
Accepted 6 February 2026

KEYWORDS
Ecologies of practices; educational leading; middle leading; practice architectures; student learning practices; travelling practices

Introduction

It is well established that educational leadership has critical importance in accomplishing quality education in schools (Harris and Jones 2023; Leithwood, Sun, and

Schumacker 2019; Robinson and Gray 2019). The impact of educational leadership on instructional quality, teaching development and student learning continues to be a critical area of inquiry with both practical and theoretical significance for the ongoing development of schools and school systems (Cruickshank 2017; Kemethofer, Helm, and Warwas 2025; Nawab and Quraishi 2025). Over decades, key research, by, for example, Leithwood, Sun, and Pollock (2017), Lingard et al. (2003), and Robinson, Lloyd, and Rowe (2008), concludes that after classroom instruction, leadership is the most important school-based factor influencing students. However, as Leithwood, Sun, and Pollock (2017, 570) pointed out 'much less is known about how these aspirations are accomplished in the day-to-day 'flow of practice''. Robinson and Gray (2019) suggest identifying *how* leadership influences student learning has proved very complex, leaving an obvious gap in the research. The Australian study reported in this article goes some way to respond to the research void explicated in Leithwood, Sun, and Pollock (2017) comment and Robinson and Gray's (2019) observation by providing critical insights about *how*, and in what ways, educational leadership influences student learning practices by following the flow of practice from leading to student learning practices. The use of the term 'educational leadership' in this article deliberately accounts for what we consider to be the broad complex or multifaceted array of leading practices across a school (e.g. principals, senior leaders, middle leaders) necessary for driving the teaching and learning improvement agendas in schools (Grootenboer 2018).

Leadership is often viewed as the engine of any school improvement agenda, but its mechanisms of influence are complex, mostly indirect, and deeply contextual (Kemethofer, Helm, and Warwas 2025; Leithwood et al. 2004). Despite the complexity of schools and school systems, a growing body of international research recognises that even effective senior leadership is second only to classroom teaching in shaping student outcomes (Kareem 2016; Leithwood, Sun, and Pollock 2017). While being credited as an influential in-school factor affecting student learning and achievement, school leadership's influence is neither direct nor guaranteed (Harris and Jones 2023). Increasingly, the pivotal role of middle level leaders translating policy into the practical development work of teachers (Skerritt et al. 2023) is identified as a necessary part of a web of leadership practices in any school ecology (Edwards-Groves et al. 2025; Nehez, Sülau, and Olin 2022).

This article examines how practices *travel* or *flow* from leadership (policy, development initiatives and practices) to influence student's practices. Data are drawn from a large-scale four-year Australian empirical project investigating the practices of school middle leading conducted in 10 primary (#7) and secondary schools (#3). The focus was not on investigating the influence of leadership on student outcomes, but rather on their learning practices (such as regulating behaviour or using literacy across subjects). By tracing the evidence from district policy, the school principal and other senior leaders, through the practices of

middle leaders and teachers to reach learners, the article aims to show how influence happens, specifically *how* leading influences student learning practices. This is achieved by mapping the observable 'flow of evidence' related to school development initiatives that are being implemented to support teacher and student learning.

In the next section, literature reporting on the nature of the influence of educational leadership on teaching and learning is discussed briefly. Following this, a practice lens on leadership is described to elevate a practice perspective on leadership rather than a more hierarchical view of roles. This section is followed by a brief description of the theoretical resources and overview of the study. Then two in-depth representative case studies (from a possible 16) are presented; these cases provide a clear demonstration of the flow of evidence from leading to learning. Data illustrates that and how practices travel from school policy to leadership to professional learning initiatives (facilitated by middle leaders) to influence teaching change and student learning practices. Findings are discussed in terms of the theory of practice architectures (TPA) and contribute to conceptualising an ecological view of school leading practices. Implications and limitations are also presented. Conclusions provide an innovative way to interpret educational leadership and its influence on leading, professional learning, teaching and student learning practices in schools.

Understanding the influence of educational leadership on student practices

Adding to the long history of research investigating the influence and efficacy of educational leadership, recent research has shown the central and influential relationship between principal leadership and student learning and achievement (Bafadal et al. 2018; Day, Gu, and Sammons 2016; Grissom, Egalite, and Lindsay 2021; Kemethofer, Helm, and Warwas 2025). Research has also shown ways different leadership styles support the improvement of student outcomes (Cruickshank 2017), the influence of the principal on teaching and learning (Heck and Hallinger 2014), the reciprocal influence of teacher leadership on principal's leadership, teaching and student learning (Sebastian, Allensworth, and Huang 2016), and the impact of middle leaders on instruction and student outcomes (Day and Grice 2019; Nawab and Quraishi 2025). Wilkinson et al. (2019) researched the influence of district offices (policy and system-endorsed professional development practices) in bringing about educational change through instructional leadership practices in Australian Catholic secondary schools.

Logically not all leadership practices in schools are equally impactful on student learning where stark contrasts in the roles and responsibilities of principals and middle leaders for improving teaching and learning in schools exist (Lingard et al. 2003). For example, Hallinger and Heck (2010) showed that

principal leadership impacts student learning through shaping school goals, strengthening professional communities, and influencing the quality of teaching practice. It has also been shown that by creating responsive site-based conditions, principals are in the position to influence student learning through middle leadership where the practices of middle leaders affect teacher's practices that aim to 'flow' to student learning and success (Day and Grice 2019; Grootenboer, Edwards-Groves, and Rönnerman 2020; Leithwood, Sun, and Pollock 2017).

Similarly, in researching the practices of middle leaders who both lead the learning of their colleagues and teach, Grootenboer, Edwards-Groves, and Rönnerman (2020) found that middle leaders (because of proximity to the classroom) form a critical part of the complex of leading practices in schools. First, their positioning 'in the middle' is ideal for creating niche conditions for teaching and learning change; and second, MLs sit at the intersection of policy and practice, where Skerritt et al. (2023) argues they are prime actors in the enactment of policy. Robinson, Lloyd, and Rowe (2008) found that 'the closer leaders are to the core business of teaching and learning, the more likely they are to make a difference to students' (664).

Although Grootenboer (2018; 2020) reports the influence of middle leading on teaching, the influence on students' practices largely remains implied. In an isolated study, Edwards-Groves and Hardy (2013) showed how designing, leading and participating in a school-based professional learning centred on improving oral language and substantive classroom dialogues led to observable changes in both teachers' and students' discussion practices. Specifically, the research revealed how the leading practices of facilitating collaborative, critical reflexive dialogues with teachers 'flowed through' to classroom discussions with students, contributing significantly to how students and teachers communicated in their discussions (127-130). With limited evidence about the nature of improvement, impact and influence of leading on student learning practices in the reported literature, this article turns to practice theory in an endeavour to further explain the nature of influence. The research reported in this paper addresses the obvious insufficiency of evidence in how leading influences student learning.

Traditional views of leadership are often conceptualised as skills, qualities, or authority that leaders *have*. Rather than viewing leadership as the actions of individual actors (like a principal) or the implementation of top-down strategies (like a designated programme), a practice lens foregrounds 'leading as practicing' (Grootenboer and Edwards-Groves 2023). Raelin's concept of leadership-as-practice (L-A-P) (2016) reframes leadership not as the property of individuals or roles, but as a socially constructed, collective activity that unfolds within the everyday practices. Similarly, Wilkinson and Kemmis (2014) consider leading as practice enacted through the interactions, negotiations, and shared sense-making of people engaged in a common endeavour. In this way, rather than

focusing on formal authority or predefined traits, leading as practice recognises the fluid, distributed, and relational nature of leadership as it is co-ordinated and enacted in specific contexts. By viewing leadership as practicing, we move beyond abstract models and characterisations as a path to begin to understand the lived realities of leading change. This is a view we consider essential for understanding the conditions for creating more effective, sustainable, and site-responsive educational reforms.

Theoretical framework: A practice theory view on leadership and influence

To understand leadership and its impact on student learning practices requires an understanding of the practices and the conditions that make the practices possible (Kemmis et al. 2014). This study was framed by the theory of practice architectures[1] (Grootenboer and Edwards-Groves 2024), a site-ontological conception that centres on the 'sociality' and 'happeningness' of practices. TPA asserts that practices are composed of people's sayings, doings, and relatings that 'hang together' in 'projects'.[2] TPA further suggests that practices are always influenced (enabled and constrained) by practice architectures or site-based conditions evident in cultural-discursive arrangements (displayed in language and discourses), material-economic arrangements (displayed in work and activities), and social-political arrangements (displayed in relationships and power). Practice architectures are ever-present (observable and recognisable) in a practice site and exist as conditions that make the accomplishment of practices possible.

TPA offers a powerful lens for understanding what leaders *do*, what they *say* and *how they relate* to others in practices, and *how* their practices shape – or influence – the social, material, and discursive 'happeningness' of practices as they unfold temporally in the time space of human activity (Schatzki 2010). A focus on happeningness is helpful for establishing the fine-grained details of *how* leading happens in sites and its consequences in real-time activity (Edwards-Groves & Rönnerman, 2013, 2021). Understanding happeningness is an important concept of TPA as researchers grapple with the temporality of leadership in terms of enacting sayings, doings and relatings. In studying practice and practicing, TPA helps to understand how one is influencing, shaping and changing the practices of and conditions for those involved (Grootenboer and Edwards-Groves 2023).

To examine educational leading practices and their relationship to teacher and student learning, TPA's site-based practice perspective was adopted to highlight the observable nature of practices as they are accounted for (in interviews or focus groups), represented (in policy) and as they happen (in actually) (Grootenboer and Edwards-Groves 2024). According to TPA, practices are not simply general or abstract; therefore, the focus was on identifying the chains of

educational practices (the observable interconnecting influences between leading, professional learning, teaching and student learning) as they unfold in time–space. Rather than investigating learning outcomes (as might be measured by testing or other external measures), the study sought to identify connections and relationships between leading practices and practices students 'learned' during lessons and tracing how these come about. This practice focus was necessary since it is difficult to ascertain what people know in the moment of practicing unless it is observable in practices where what can be established is what people do (demonstrated in their sayings, doings and relatings) at any given time.

Since practices do not exist in isolation, the theory of ecologies of practices (EoPs) was employed to understand ways practices are ecologically arranged (so are embedded, interdependent and dynamic) in 'practicescapes' (Edwards-Groves and Grootenboer 2024). Understanding practices as being part of ecologies of practices means, among other things, that considering how practices are always interconnected, influential, and mutually develop and change as they unfold ecologically and temporally in time and space. To illustrate, a teacher's teaching practices make conditions for students to learn certain practices, and in turn, the students developing practices shape (or influence) the teaching practices of the teacher. This ecological conceptualisation is particularly pertinent in the reported study given the concern about how leading practices impact student learning in different school sites.

Understanding practices as travelling in an ecology of practices

To examine how leading practices influence student learning practices, we also draw on Czarniawska-Joerges and Sevón's (2005) conception of how ideas, objects and ultimately practices 'travel' through and across practicescapes. They argue that travelling occurs not through some sort of diffusion process, but through understandings of translation in which ideas are carried over time and space, are interpreted, taken up, adopted and adapted in subsequent occasions of practicing, ultimately forming new ways of practicing responsive to site-based conditions. Language, activity and ways of relating contribute to this transference as new forms of language, activity and relationality 'flow into' and 'take shape' in new sites of practice (Czarniawska-Joerges and Sevón 2005). Furthermore, understanding practices as 'travelling' usefully orients us to the temporal happeningness of practices, providing insights into how the timespace of human activity evolves (Schatzki 2010). After Kemmis et al. (2014), this study aimed to show how the practices of senior leaders (principals and other senior leaders) create practice architectures that flow through to the practices of middle leaders and, through their facilitation of professional learning, influence teachers' practices. Through a continuous process of unfolding and evolving projects in different school sites, student learning practices are influenced. This has not been empirically established.

The study

The study was a four-year, multiphase multisite study investigating educational middle leading practices in schools addressing the research question, *how do middle leader's practices impact teaching and student learning practices*? Phases included a survey (n = 199), semi-structured interviews (n = 30), in-depth case studies (n = 16), and shadowing (n = 8). In the case study phase (the focus of this article), 16 ethnographic case studies were conducted in five different education systems in rural, regional and urban schools in two Australian states and one territory. Schools varied in geographical location and size; for example, 170–572 students in primary schools, 729–870 students in secondary schools, and 1250–2028 students in combined Reception-Year 12 schools. All schools enrolled Language Backgrounds Other than English (LBOTE) (between 10-31%) and Indigenous students (between 8-37%) (see also Appendix, Table 1: Summary of Case Study Participants).

The key question for the case study phase was not a generalised notion of 'has learning improved?', but rather, 'how do the practices of educational leaders impact teaching and student learning practices?' The research design comprised a range of data collection methods, including gathering relevant system/school policy documents, audio-recorded and transcribed interviews and focus groups with participants (senior leaders, middle leaders, teachers, and students), fieldnotes of observations of (i) professional development sessions focused on an Education Development Initiative (EDI) led by middle leaders being implemented in the school, and (ii) lessons reflecting the EDI, and document analysis. Student focus groups were guided by purposeful semi-structured questioning aimed to encourage students to discuss their personal experiences of the EDI as observed in the lesson. These data were collated in 'tables of invention' (Grootenboer and Edwards-Groves 2024), forming comprehensive case studies that were subsequently analysed to determine if and understand *how* practices inherent to the EDI 'travelled' from policy to educational leaders to the students in classrooms.

The study followed university and local system ethics approval processes before recruiting volunteers through Australian leadership organisations and networks. Case study participants were purposively selected from interview respondents based on access, availability, and fieldwork feasibility. Cases refer to individual middle leaders, noting that in tracing the flow of influence each case necessarily involves other leaders, teachers and students. Informed consent and confidentiality protocols were maintained. Due to post-pandemic restrictions limiting access to government schools, cases were drawn from Catholic and Independent school contexts. To preserve confidentiality, data are deidentified with pseudonyms for policy, participant, and school/system names.

Analysis

Since the study was focused on tracing the flow of influence of leading on student learning, the initial analysis was framed by delineating the initiative (the EDI), including identifying any relevant policies and/or school leadership decisions, the practices evident in implementing the EDI, and the evidence of 'uptake' demonstrated in the practices of (i) teachers and how they accounted for it, and (ii) students and how they accounted for it. Multiple passes through the data involved identifying the practices (sayings, doings and relatings) and practice architectures (the cultural-discursive, material-economic and social-political arrangements) and their subsequent influence on what is being practiced. As described by Grootenboer and Edwards-Groves (2024), the researchers began by systematically asking specific practice-focused questions of the data in terms of the *observed* practices (what is actually happening there and then in real time–space activity) and *reported* practices (what happened in the past as described, repeated, exemplified or paraphrased in participant accounts). In an iterative confirmatory consensus-oriented process conducted independently and collaboratively by the researchers (authors), data were categorised, critiqued, reviewed, and recoded to establish and confirm themes relating to the development practices and related practice architectures enacted and described by case study participants. Findings are presented next.

Findings

This section presents two detailed case studies identifying evidence of the flow of influence from leadership to student learning practices. Two selected cases are presented in preference to shorter out-of-context cursory accounts so that a deeper, more comprehensive description of flow can be established. Data are drawn from material gathered in two case studies in one school (Maryland Secondary School, a large secondary school) in an education system (Northern Valley School District in rural Australia). Selecting two case studies within a single school enabled analytic depth by holding contextual conditions constant, allowing the cases to stand on their own, but at the same time point to differences as interpretive variations in practices. Two system policies are referred to: (i) the *Learning for Life* policy (LfL), and (ii) the *Leading from the Middle* framework (LfM). All policy, school system, school and participant names are pseudonyms.

The cases are organised in two sections concerning the flow of influence, impact and change. The first focuses on orientations to influence as these flow from policy to the perspectives of participants, where the middle leader (ML) was responsible for implementing the Calm Classroom (CC) EDI. The second illustrates the influence of leading on learning by tracing practices and practice architectures influencing students, where the ML was responsible for implementing the Literacy Across the Curriculum (LAC) EDI.

Case 1 – Orientations to influence, impact and change: connecting practices across the system and school

Tracing influence from policy to school leadership practices

In this example, the system policy (LfM) guided the leadership work of the Northern Valley School District schools, stating, 'As a small system, we have an opportunity to have a larger-than-typical system *influence* on school *improvement*' (p.5), where 'Identifying areas of greatest positive *influence*, leadership challenges (usually desired *improved* conditions), and similar before formulating '*improvement* goals', places a deserved greater emphasis on site conditions and considerations' (6). The LfM policy stresses that schools develop a 'Shared understanding of the complexity of middle leading, particularly how middle leader practices directly *impact* on other education practices of the school, including student learning practices, teaching practices, professional learning practices, leading practices, and researching and evaluation practices' (p.11), and by outlining for them a number of ''promising practices' for supporting high-*impact* site-developed middle leading' (p.11). The LfM policy coupled with the system's *Learning for Life* (LfL) policy, requires that the 'classroom is welcoming, safe and calm', that students and teachers 'have voice, *influence*, choice, and opportunities to work together' (7). These policies were developed as the CC EDI through the practices of middle leaders at Maryland's Secondary School. Alignments were found across the comments from principals, middle leaders, teachers and students about how these policies were interpreted and experienced in practices.

Tracing influence of policy to school leadership

About influence, the school principal said, 'our biggest *lever* for school *improvement* is our middle leaders. So, I'd be that explicit, forget about me and the [senior] leadership team, it's those people closest to the classroom.' In speaking about their role, one of the middle leaders raised the idea of influence in her reflections, saying, 'you have *influence* and I guess that's what a middle leader is, they have *influence* … we are in the position to lead *change*, … *change* things for the kids so they *change* and grow.' To add to that point, another middle leader said, 'As a middle leader you can really *impact* the way things are getting done, not just in your own classroom but beyond … our job is to *change* the kids that are in our rooms and *change* their options and their experiences.' Across these principal and middle leader's comments, orientations to impact, improvement, shaping, influence, leverage, change and positionality, provide direct and more indirect examples of the ways the language from the LfM and LfL policies forms cultural-discursive arrangements that have *travelled* through the language used to foreground the work and influence of middle leaders in this school. Here, evidence that system policies influence practices, specifically the 'sayings' used by practitioners (here the MLs) in the schools creates conditions for implementing the practices and for

changing other facets of practice like the implementation of the 'calm classroom' EDI, and how these practices travel through to the way the MLs work with the teachers in their teaching teams. These ideas are illustrated as the description of the case continues next.

Tracing influence from middle leading to professional learning

To develop the CC EDI, a group of ten MLs from the school met as a team to co-design guidelines for implementing the EDI with their teaching teams. One ML said, 'the focus was on creating calm classrooms and making sure your students were in a productive calm focused learning environment'; another said, 'so you know as a ML it was part of my work to identify and support the classes, where that wasn't happening. And follow through with this, … supporting the teachers in the classes that needed support and working with the students in replacing some unproductive behaviours.' Another ML clarified this by stating that this meant supporting students to 'be a better learner.' To implement this EDI, targeted fortnightly sessions with English teachers were led by Belinda Heath (ML), who promoted the calm classroom initiative in terms of facilitating effective English teaching. In an observed professional learning 'English team' meeting, along with providing professional readings to teachers, Belinda modelled a range of English writing strategies (e.g. think alouds, joint construction of texts which move from descriptive writing to analytical writing) that she ascribed would work in tandem with the CC EDI.

Tracing influence from professional learning to teaching

After a teaching observation of an English lesson focused on supporting the implementation of the CC initiative through enhanced literacy pedagogies, a teacher said, 'one of the things she [the ML] is stressing in our team is modelling the coherence, that's where that leader of learning is really important in terms of trying to have students in coalition with a teacher … and it means still building that concept of teams'. Here, notions of being in coalition, being coherent and building teams orient to the relational practices required to improve, and so change, the conditions for learning through the 'calm classroom' focus. The teacher continued saying, 'It's a case of noticing the *improvement* we are seeing, getting that *change* … coming from *consistent messaging* from Will [the principal] about calm classrooms and from the middle leadership to everyone across the school … a big *change* is getting that *coherence* across-the-board.' In considering this teacher's perspectives, there is evidence that the EDI and the leading practices of the school link to, and are influenced by, the system policies set down in the LfL and LfM documents, the commitment of the principal, and the practices facilitated by MLs. Here it seems the shared discourses are translated into actions and activity expressed as continuous present verbs to represent what they are doing (e.g.

phrasing like, *noticing* improvement and *getting* change), and that this teacher identifies as influential in '*leading* to the calm.'

Tracing influence from teaching to student learning

After an observed lesson, ideas about change were noticed as being spoken about by Year 8 students (aged 13–14 years) in focus groups discussing their learning in relation to the school's CC EDI. For instance, one student explained, '*Before*, we'd get into the lesson, someone would do something. Okay. So, we had a full-on conversation about why we shouldn't do that. And the learning in the end was pushed aside. Everything was focused on the bad behaviour, up until this year … it's a real *change*.' To add to that point, another student said, '*now* we all recognise what to do to make our learning the priority in a way that is calmer, more productive for us.' Direct notions of change were raised in this comment from another student, 'There's been *so many changes*, so say some kid's acting up and instead of disrupting the lesson and stuff, teachers give them one chance to replace their behaviour. We all know and been working on it. And if they keep being silly, they get sent out so the other kids just can keep learning. So, learning's not disrupted, lessons are *calm*. I now think about it, my responsibility to helping my, our learning.'

Different practices (in the form of language, activity and interpersonal relationships) in the school were intricately connected to and influenced changed sayings, doings and relatings. For instance, the consistent messaging by leaders and teachers and their use of the language around 'punishment' shifting to 'second chances' to 'establish coherence across the school' was recognised by students as 'a real change' from the focus 'on bad behaviour' leading to 'a focus on learning'. It was clear to the students that the calm classroom EDI provided conditions that made learning 'productive' and 'fun', making improvements in 'group work and discussions'. According to the students, since students had a second chance to rethink their decisions and to replace unproductive behaviour, shifts in how they related to the teacher and to each other in, for example, how they worked in groups were evident. What is highlighted is how the notion of 'teams' and 'students being in coalition with a teacher' reinforced how particular relational conceptions laid out in policy travelled across the practices (sayings, doings and relatings) in the ways they are being understood and practiced by leaders, teachers and students in this school.

Case 2 – Changing practices requires changing practice architectures: tracing enabling and constraining conditions for improving scientific literacy

In this second case, teachers and leaders from Maryland's Secondary School had been engaging in a school-wide reform response to lower-than-desired

NAPLAN[3] writing scores. The LAC EDI initiative emerged from an analysis of Yr 7 NAPLAN trend data conducted by a team of MLs and a school-based literacy coach. Their analysis identified that, 'students whose written texts are driven by verbs tended to do better … and grammar and punctuation knowledge seems limited' (Annie Neill, literacy coach/ML). Their findings became the impetus for the development of the improving writing proposal 'pitched' to the principal and subsequently formalised as the LAC initiative endorsed and authorised by the principal and supported by other senior school leaders. The principal had set up professional learning and development processes based on what they described as 'strong teams' to be led by MLs who were responsible for curriculum development. Along with the responsibility to build strong, productive professional learning teams, this case involves MLs intentionally including the LAC initiative in Year 9 science classes. Vin Jasper, ML and Head of Science, clarified that, 'strong teams [of which he was part] were teachers who worked well together and understood the common goals'.

From senior leadership to middle leading practices

First, the EDI was initiated at the senior leadership level after feedback from teachers and middle leaders expressing concerns about overall literacy across the school. This meant the principal's leading practices made conditions (i.e. practice architectures) that enabled and constrained MLs to take it up with their team. Specifically, the principal supported the EDI by creating:

- cultural-discursive arrangements by bringing in the ideas and language of LAC into the school;
- material-economic arrangements that included timetabling space for 'team' meetings, and provision of the literacy coach. Additional teaching and assessment resources were provided, along with a student progress board showing individual student growth against literacy criterion erected in the staffroom; and,
- social-political arrangements where there is overt support for the EDI and ML's freedom (agency) to select and build socially compatible 'strong teams' with the common goal to enhancing literacy in science.

These practice architectures afforded Vin the time and space to elevate literacy consciousness, knowledge and pedagogical activity in science education (even though literacy expertise was not part of his designation).

From middle leading to professional learning practices

In an observed LAC EDI meeting, the teaching team and the literacy coach participated in discussions driven by critiquing student data (results of previous

literacy activities conducted in science classes projected on a large screen). Their joint critique reflected the importance of responding to the site-based needs of students. These data created cultural-discursive conditions for the subsequent professional learning dialogues (both in substance and language) and those conducted in lessons, and generated firm grounds for developing a shared sense of meaning-making, responsibility, solidarity and agency among the team. As a result, leading practices formed the social-political impetus for establishing, nurturing and sustaining the 'strong team' of science teachers needed for pedagogical reform about literacy.

During the meeting, the teachers (as specialist science teachers) expressed some anxiety and feelings of inadequacy about teaching 'literacy'. In response, Vin (also a specialist science teacher) responded by creating social-political conditions where he promoted the initiative by engaging in the same pedagogical changes with his own class. Outside the 'planned' meetings, other examples reported included, Vin prioritising daily check-ins with the teachers in his team, arranging inter-class visits, modelling lessons, making himself available to co-teach, co-plan and debrief. Additionally, he created material-economic arrangements for the teacher's professional development by arranging and organising the space and time for meetings, additional 1–1 meetings between teachers and the literacy coach, and some extra time for planning and preparation for the new pedagogy. Consequently, the ideas and language inherent in the LAC initiative became cultural-discursive resources that enabled the teachers to develop new understandings and discourses about the practice of literacy within the context of science (largely brought into the meeting and lesson language practices by the literacy coach). Together, the teachers' pedagogical development largely was wrought through the leading practices of the ML and literacy coach.

From leading professional learning to teaching practices

Following the meeting, there were observations of classes where two teachers (Leonie and May) tried embedding LAC EDI in their *science* lessons with their Year 9 classes. Notably, while the two lessons were consistent with the agreed pedagogical features related to scientific literacy, they were also different, illustrating that teachers had agency to develop their teaching in response to their particular students. In other words, their teaching practices were enabled and constrained by existing practice architectures, and those were brought into each classroom, including those created through the preceding meeting(s). To explain, in observations of Leonie's teaching, the language and ideas were directly drawn from the EDI, where the task was overtly about learning literacy in the context of a scientific topic, here through discussion, text analysis and writing about electricity. She created conditions that allowed the students to explore the particular language of the topic, including

giving them specific cues, linguistic and conceptual tools (creating cultural-discursive arrangements), partitioned time in the lesson and providing physical resources (word lists, templates, glossaries of terms, and 'cheat sheets') for supporting the EDI with the students (creating material-economic arrangements), and some freedoms to explore scientific literacies in group work(creating social-political arrangements). Together, these resources and approaches provided the practice architectures for changing students' learning practices vis-à-vis language and literacy practices in science.

Comparatively in the next science lesson, May was less overt about explicitly teaching *the* 'language across the [science] curriculum' (in the form of explicit 'literacy' activities). Rather, she included 'science literacy education' more incidentally in appropriate 'just-in-time' junctures across the lesson. For example, her doings changed as she took time to use and highlight the scientific terms relevant to the lesson (e.g. conductor and insulator), then ensured that their meanings (sayings) were broadly understood as students undertook the practical tasks.

In this case, evidence that the LAC EDI had 'travelled' from the senior leadership through the middle leader to impact the teacher's science teaching and student learning practices was clear. This was demonstrated not only in the changed teachers' activities, but also in how they talked about science teaching and science education in interviews after their observed lessons. Leonie said, 'we are teaching skills for learning, and content is just a vehicle if you like, but we are trying to give you things that will help you no matter what', but added that there 'was also an inherent benefit for science learning because the students needed to be able to express their findings and communicate their ideas as a fundamental science practice'. She also saw the value of students developing their 'scientific literacy' because it 'gave them a shared and common language of science that enabled access and participation in the broader science community of practice', and that transcended literacy practices across the school regardless of who their science teacher may be.

From teaching to student learning practices in lessons

In her post-observation interview, Leonie noted that some students had been somewhat resistant to the EDI, but that the teacher's persistence had led to a change in student perspectives (assumably because of the consistency of messaging). In one of the observed lessons, one student was overheard saying, 'this sucks, don't we do enough of this in English?' Of course, this comment, while not necessarily favourable, does indicate that the literacy practices implemented in the EDI have indeed reached the students.

After the lesson, a group of six students was asked about the EDI in a focus group. It was evident that the teaching practices of their science teachers had shaped their science learning (including how they spoke about science literacy

or *sayings*, what they did about and with literacy in class or *doings*, and how they related differently to the content, the teacher and each other as they go about their lessons or *relatings*). These ideas are reflected in the comments below.

> It's pretty much to help us learn how to write properly and with proper grammar, proper punctuation, and getting key ideas from one text and putting it into our own words and putting it into another text. (Harriet)

> I think it's disruptive 'cause I'd rather do hands-on work than writing. That's just my opinion. … I think that they need to focus more on the actual science itself rather than teaching us how to write. (Ben)

> We've learnt about – I've gotten a lot better in punctuation and grammar and my spelling's always been good, but punctuation has gotten a lot better, and I've learned about things like commas, spaces and how to use the semicolons and things like that. It's definitely made me a better writer. (Jacob)

Although the general consensus from the students was that the EDI had helped their literacy, it had not helped them with science. Indeed, it seemed that they saw them as two different and separate things – science and literacy, and that these were not related. This view reflects traces of their past experiences with science and English as separate subjects, their past participation in science and/or English lessons, and their misunderstandings about the connections between literacy (as a general capability) and English (as a subject). Thus, while the EDI practices were faithfully employed in the science classrooms, it appeared that the practice architectures in the sites enabled students to learn scientific literacy in particular ways, although not entirely preferred by all students. According to the students, the practices did not align with their perceptions of science and its learning . This mismatch (of cultural-discursive, material-economic and social-political arrangements) raises implications for the EDI in terms of how new responsive practice architectures are needed by leaders, teachers and the students moving forward.

Changing practices means changing practice architectures

Notwithstanding a reported dispreference, changed practices travelled through changed scientific language used by students, changed lesson activities employed by teachers, changed types of resources used in science lessons, and changing relationships with others and scientific world. There was an obvious fidelity and alignment between the leader's and teacher's intentions and changed student practices in relation to the EDI. For example, cultural-discursive arrangements influencing the lessons included changed language related to the EDI changed teaching practices (e.g. scientific discourses, writing conventions). However, there were also tensions expressed concerning prevailing student expectations and understandings that were shaped by past pedagogical practices about what science is and how it is learned, how English

is learned as a separate 'subject', and how literacy is a more generic skill required in all curriculum areas. Here, particular material-economic conditions were reciprocally enabled and constrained (influenced) by how students viewed the allocation of time in the lessons, expressed by Ben, who indicated there was more time spent on 'writing rather than on practical hands-on work'; or where particular social-political arrangements were impacted by the student's relationship and expectations of their teacher as a 'science teacher' rather than a 'literacy teacher'. The complexities and tensions of changing scientific literacy are expressed by Year 9 student, Maddie.

> … they're trying to get us to highlight the key points and the different dot points, and so they're trying to get us to soak in all this information, but when you're so focused on proper grammar, proper punctuation, which is what they're pushing so hard, it just goes in one ear out the other. We've learned about punctuation but didn't learn much about the actual topic [electricity] … Yes, we've become better writers, but we're not really taking in the science content of what we're writing about.

These comments demonstrate that practices simultaneously enable (some things) *and* constrain (other things), and that past experiences (of how things are understood) and new discourses and activities associated with the LAC EDI *flow into* the language, the classroom activities, and the interpersonal relationships present in the activity of science lessons. In this case, the comments by the leaders, teachers and students make clear that the student's developing scientific literacy practices were influenced by the EDI that *travelled* from the leaders to the classroom.

Discussion

At the outset, there was an assumption that systemic and senior school leadership set the conditions and arrangements for middle leading practice, which in turn influences professional learning that has flow-on effects for teaching , and expectedly, more direct flows to influence student learning (e.g. recent research Bafadal et al. 2018; Kemethofer, Helm, and Warwas 2025). Establishing evidence of this flow required developing empirically derived chains of evidence. Findings across these two cases further validate established findings indicating that senior leaders are in the position to create practice architectures for influencing student learning (e.g. Kemmis et al. 2014; Leithwood, Sun, and Pollock 2017; Leithwood et al. 2004; Harris and Jones 2023). But as the examples illustrate, their impact is largely indirect (Lingard et al. 2003). Analysis of the case studies substantiates ways middle leaders have a more observably direct influence on the practices that travel through the language, activity and relationships translated, even customised, in the professional learning, teaching and ultimately student learning practices in schools, as previously reported by Grootenboer, Edwards-Groves, and Rönnerman (2020) largely due to their proximity to the classroom.

However, the findings further show *how* policy is translated into practices that 'travel' from leading to professional learning to teaching to student learning practices, *that* and *how* practices flow from one to another is demonstrated, supporting recent research by Skerritt et al. (2023) who consider middle leaders as policy translators. In the examples presented, nfluence across education practices (policy to practice) was evidenced. For example, there were remnants of policy discourses emerging in participant orientations to change, influence and impact on teaching and learning in relation to particular EDI initiatives. These were clearly traceable from the policy, in the form of the LfL and the LfM in the first instance, and the subsequent practices (sayings, doings and relatings) of school leaders, teachers and students. To exemplify, in sayings and thought, traces of the words of the LfL policy document are found in the language, the activity and different ways of relating between the principal, the middle leaders, teachers and students. Students spoke about change and improvement, where their accounts reflected changed sayings and thought, signalled by recounts and comparisons to past experiences, how things are done 'now', what they think 'now', or descriptions of what they were like 'before'.

The examples presented respond to directly to Leithwood, Sun, and Pollock (2017) call for further research that demonstrates *how* leading accomplishes learning in the day-to-day 'flow of practice' by illustrating ways leading as influence happens. Tracing the practices of leading that 'travel' as chains of evidence through the local customised language, activities and relationships that people (leaders, teachers and students) encounter and reproduce *as* they go about their daily activity in schools provides greater clarity about how change happens. Specifically, the analysis of these cases provides evidence of the influence of leadership on student learning in five distinctly observable ways:

consistency of messaging in, and about, the sayings, doings and relatings required to achieve practical coherence necessary for practice change (traced from policy to senior leading to middle leading to professional learning to teaching to student learning practices),

learning in and through social ensembles where coalitions of leaders, teachers and learners variously work interdependently towards the key goals of school development initiatives,

leading as influence is regarded in policy discourses, practices, and participant orientations, *fidelity and alignment* expressed in individual and collective orientations to the intent of an education development initiative, and

traces of the desired/expected language, activities, and relational practices flow through the happeningness of practices from senior leaders to middle leaders to professional learning to teaching and to student learning.

These findings have practical implications for schools' understandings and their collection of traceable evidence as they evaluate the impact and success

of a school development initiative. For example, rather than relying on quantitative measures (e.g. student test scores), which tend to overlook the question of 'how' leading practices influence learning as a temporal process, attention should be turned to gathering in situ information about how the forms of understanding, modes of action and ways of relating expected in an EDI are reproduced in the practices of others. That is to determine the extent to which change has happened, or is happening, and depending on the EDI, as the cases presented illustrate, different kinds of evidence (focused on the sayings, doings and relatings of practices) can be gathered at the school through focused observations (of leading, professional learning, and lessons), classroom walkthroughs, student and teacher interviews/focus groups, and/or in work samples (as exemplars of practices).

Findings have implications for theory, particularly in illustrating how practice theory is important for revealing the influence of leadership in projects of school change because it focuses on *how* practices evolve and so *what people actually do* in sites. Tracing practices over time through the different leading, professional learning, teaching and student learning practices highlights how practices travel to emerge differently but with consistency among ensembles of persons (Kemmis, Edwards-Groves, and Grootenboer 2025). For example, changing practices, such as classroom behaviour or supporting a cohesive treatment of literacy across the curriculum, requires changing the practice architectures of leading change in schools in the form of changed cultural-discursive, material-economic, and social-political conditions influencing the happeningness of practices. Policy implications for understanding change are evident in the results showing how chains of evidence can be traced from system policies to the practices of leaders, teachers and students in schools, which makes observable how leadership practices influence, and so transform, existing practices within schools. Results point to the value of future research seeking to create a more comprehensive understanding of the integrated and interdependent leadership practices of system leaders, principals, senior managers and middle leaders that contribute to school development. While the study presented went some way to show connectedness between the practices of leaders in what could be described as webs of leading (Nehez, Sülau, and Olin 2022) and between leaders and learners (Cruickshank 2017), there is still a need to establish their interdependencies. Such research would have the potential to develop greater awareness of what could be described as an 'ecology of leading' necessary for collectively creating conditions which positively influence student learning practices.

Limitations of the study

A main limitation of this article is the lack of presentation of broader examples across the multiple case studies. However, selecting two case studies within a

single school was a purposeful strategy to prioritise analytic depth over breadth. By holding broader system and school conditions constant, a single-site, multiple-case design enables differences between cases to be understood as variations in practice configurations rather than contextual artefacts. The two cases operate as separate analytic examples, but they make visible the internal complexity of practice ecologies, supporting analytic rather than statistical generalisation. We argue that this design strengthens explanatory power by foregrounding situated, relational, and materially mediated practices, addressing concerns about limited case numbers through depth, coherence, and theoretical clarity.

Conclusion

This article shows the nature of the flow of influence from leading to learning. Results reposition leading practices in schools as operating within a multifaceted complex of interrelated leadership roles and practices. At its core, this position leads to reconceptualising the influence of educational leadership in schools, and that it principally should be understood as a complex of ecologically integrated, interrelated and coordinated leading practices, where one facet of leading does not predominate in focus. This conceptualisation suggests that as *a social ensemble* (Kemmis, Edwards-Groves, and Grootenboer 2025) leaders work interdependently and in coordinated ways towards influencing the professional and educational conditions in which teaching and learning unfolds, highlighting what Kemmis et al. 2014 described as an ecology of educational practices. To that end, results shift the focus towards reconceptualising influence in schools, informing what can be concluded to be an ecological view of school leading practices. This shift provides an innovative way to interpret educational leadership and its influence on leading, professional learning, teaching and student learning practices in schools. Such insights draw closer attention to how change emerges temporally through shared language, activity and relationality responsive to the circumstances and needs of sites.

Notes

1. There is not space here to provide a fulsome explanation of TPA. For a more comprehensive account see Kemmis et al. (2014) or Grootenboer and Edwards-Groves (2024), or for brief summary see Edwards-Groves and Grootenboer (2024).
2. The project of a practice is its purpose, the common endeavour or what is trying to be achieved.
3. NAPLAN is an annual Australian assessment of reading, writing, spelling, grammar, punctuation, and numeracy.

Acknowledgment

Authors recognise and thank all research participants for their generosity and openness.

Disclosure statement

No potential conflict of interest was reported by the author(s).

Funding

Authors acknowledge the Australian Research Council which funded the research under grant [DP210102247].

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References

Bafadal, I., J. Juharyanto, A. Nurabadi, and I. Gunawan. 2018. Principal Leadership and Its Relationship with Student Learning Achievements: A Regression Analysis. In 3rd International Conference on *Educational Management and Administration* (CoEMA 2018) (pp. 156-158). Atlantis Press.

Cruickshank, V. 2017. "The Influence of School Leadership on Student Outcomes." *Open Journal of Social Sciences* 5 (9): 115–123.

Czarniawska-Joerges, B., and G. Sevón. 2005. *Global Ideas: How Ideas, Objects and Practices Travel in a Global Economy*. Frederiksberg, Denmark: Copenhagen Business School Press.

Day, C., and C. Grice. 2019. *Investigating the Influence and Impact of Leading from the Middle: A School-Based Strategy for Middle Leaders in Schools. A Research Report Commissioned by the Association of Independent Schools Leadership Centre New South Wales*. Sydney: University of Sydney.

Day, C., Q. Gu, and P. Sammons. 2016. "The Impact of Leadership on Student Outcomes: How Successful School Leaders use Transformational and Instructional Strategies to Make a Difference." *Educational Administration Quarterly* 52: 221–258. https://doi.org/10.1177/0013161X15616863.

Edwards-Groves, C., and P. Grootenboer. 2024. "Practice Architectures." In *Oxford Research Encyclopedia of Education*, edited by George Noblit. New York: Oxford University Press. https://oxfordre.com/education/view/10.1093acrefore/9780190264093.001.0001/acrefore-9780190264093-e-1827.

Edwards-Groves, C., P. Grootenboer, S. Tindall-Ford, and C. Attard. 2025. "Relational Coherence in Middle Leading for School-Based Professional Development." *Professional Development in Education*. https://doi.org/10.1080/19415257.2024.2445549.

Edwards-Groves, C., and I. Hardy. 2013. "Well, That Was an Intellectual Dialogue!": How a Whole-School Focus on Improvement Shifts the Substantive Nature of Classroom Talk." *English Teaching: Practice and Critique* 12 (2): 116–136.

Edwards-Groves, C., and K. Rönnerman. 2021. *Generative Leadership: Rescripting the Promise of Action Research*. Singapore: Springer.

Grissom, J., A. Egalite, and C. Lindsay. 2021. *How Principals Affect Students and Schools: A Systematic Synthesis of Two Decades of Research*. New York: The Wallace Foundation. http://www.wallacefoundation.org/ principalsynthesis.

Grootenboer, P. 2018. *The Practices of School Middle Leadership: Leading Professional Learning*. Singapore: Springer.

Grootenboer, P., and C. Edwards-Groves. 2023. "Leading Practices and Middle Leadership in Education." In *Elgar Handbook of Leadership in Education*, edited by P. Woods, A. Roberts, M. Tian, and H. Youngs. Elgar Publishing.

Grootenboer, P., and C. Edwards-Groves. 2024. *The Theory of Practice Architectures: Researching Practices*. Singapore: Springer.

Grootenboer, P., C. Edwards-Groves, and K. Rönnerman. 2020. *Middle Leadership in Schools*. Oxon: Routledge.

Hallinger, P., and R. Heck. 2010. "Leadership for Learning: Does Collaborative Leadership Make a Difference in School Improvement?" *Educational Management Administration and Leadership* 38:654–678.

Harris, A., and M. Jones. 2023. "The Importance of School Leadership? What We Know." *School Leadership & Management* 43 (5): 449–453.

Heck, R., and P. Hallinger. 2014. "Modelling the Longitudinal Effects of School Leadership on Teaching and Learning." *Journal of Educational Administration* 52: 653–681. tps://doi.org/10.1108JEA-08-2013-0097.

Kareem, J. 2016. "The Influence of Leadership in Building a Learning Organization." *IUP Journal of Organizational Behavior* 15 (1): 7–18.

Kemethofer, D., C. Helm, and J. Warwas. 2025. "Does Educational Leadership Enhance Instructional Quality and Student Achievement? The Case of Austrian Primary School Leaders." *International Journal of Leadership in Education* 28 (3): 461–485.

Kemmis, S., C. Edwards-Groves, and P. Grootenboer. 2025. *Reframing Learning: Changing Practices, Histories, Worlds, Lives*. London: Routledge.

Kemmis, S., J. Wilkinson, C. Edwards-Groves, I. Hardy, P. Grootenboer, and L. Bristol. 2014. *Changing Practices, Changing Education*. Singapore: Springer.

Leithwood, K., K. Seashore Louis, S. Anderson, and K. Wahlstrom. 2004. *Review of Research How Leadership Influences Student Learning*. New York: Center for Applied Research and Educational Improvement. https://wallacefoundation.org/sites/default/files/2023-07/How-Leadership-Influences-Student-Learning.pdf.

Leithwood, K., J. Sun, and K. Pollock. 2017. *How School Leaders Contribute to Student Success: The Four Paths Framework*. Singapore: Springer. https://doi.org/10.1007/978-3-319-50980-8.

Leithwood, K., J. Sun, and R. Schumacker. 2019. "How School Leadership Influences Student Learning: A Test of "The Four Paths Model"." *Educational Administration Quarterly* 56 (4): 570–599. https://doi.org/10.1177/0013161X19878772.

Lingard, B., D. Hayes, M. Mills, and P. Christie. 2003. *Leading Learning: Making Hope Practical in Schools*. Maidenhead, UK: McGraw-Hill Education.

Nawab, A., and M. Quraishi. 2025. "Teachers Value PD If Leaders Value PD': Role of School Leaders in Professional Development of Teachers in Rural Pakistan." *Leadership and Policy in Schools* 24 (4): 788–803. https://doi.org/10.1080/15700763.2024.2303688.

Nehez, J., V. Sülau, and A. Olin. 2022. "A web of Leading for Professional Learning." *J of Ed Admin & History* 55 (1): 23–38.

Robinson, V., and E. Gray. 2019. "What Difference Does School Leadership Make to Student Outcomes?" *Journal of the Royal Society of New Zealand* 49 (2): 171–187. https://doi.org/10.1080/03036758.2019.1582075.

Robinson, V., C. Lloyd, and K. Rowe. 2008. "The Impact of Leadership on Student Outcomes. An Analysis of the Differential Effects of Leadership Types." *Educational Administration Quarterly* 44 (5): 635–674. https://doi.org/10.1177/0013161X08321509.

Schatzki, T. R. 2010. *The Timespace of Human Activity*. Lanham, MD: Lexington Books.

Sebastian, J., E. Allensworth, and H. Huang. 2016. "The Role of Teacher Leadership in How Principals Influence Classroom Instruction and Student Learning." *American Journal of Education* 123 (1): 69–108.

Skerritt, C., G. McNamara, I. Quinn, J. O'Hara, and M. Brown. 2023. "Middle Leaders as Policy Translators: Prime Actors in the Enactment of Policy." *Journal of Education Policy* 38 (4): 567–585. https://doi.org/10.1080/02680939.2021.2006315.

Wilkinson, J., C. Edwards-Groves, P. Grootenboer, and S. Kemmis. 2019. "District Offices Fostering Educational Change through Instructional Leadership Practices in Australian Catholic Secondary Schools." *Journal of Educational Administration* 57 (5): 501–518. https://doi.org/10.1108/JEA-09-2018-0179.

Wilkinson, J., and S. Kemmis. 2014. "Practice Theory: Viewing Leadership as Leading." *Educational Philosophy and Theory* 47 (4): 342–358. https://doi.org/10.1080/00131857.2014.976928.

Appendix

Table 1. Case study summary.

Case (ML, Geographic and School details)	Education Development Initiative (EDI) led by the ML
1.Belinda - Regional, Secondary, Catholic, 870 students (Case 1, this article)	*Calm classroom* – aimed to improve student engagement and behaviour
2. Vin - Regional, Secondary, Catholic, 870 students (Case 2, this article)	*Literacy across the science curriculum* – aimed to enhance student transference of literacy (reading and writing) across subjects to improve NAPLAN results
3.Henrietta – Regional, Primary, Catholic, 572 students	*Improving early year's writing through assessment* – aimed to strengthen teachers assessment practices for teaching design
4.Frederick – Regional, Primary, Catholic, 572 students	*Writing pedagogy and feedback* – aimed to support the effective teaching of writing in primary classrooms
5.Grant – Regional, Secondary Catholic, 870 students	*Engaging maths pedagogy* is aimed at facilitating the teaching of maths in secondary education.
6.Leon – Regional, Primary, Catholic K-12, 1670 students	*Student wellbeing* – aimed to support teachers and students to recognise difficulties and respond safely to situations
7.Beverly – Regional, Primary, Catholic, 191 students	*Interactive writing* – aimed to support teachers to provide a range of supportive writing instruction practices
8.Grace - Urban, Secondary, Independent (K-12), 2028 students	*Technology and maths* – aimed to support teachers understand and use technology more effectively
9.Renee – Urban, Primary, Independent (K-12), 2028 students	*Language pedagogy* – aimed to support teachers developing more effective language instruction practices
10.Penny – Urban, Primary, Independent (K-12), 1250 students	*Improving maths pedagogy* – aimed to facilitate the development of teacher knowledge related to the new curriculum
11.Harriet - Regional, Primary, Catholic, 191 students	*Improving religion pedagogies* – aimed to support teachers to employ a range of difference pedagogies in the teaching of religion
12. Samantha – Regional, Secondary, Catholic, 729 students	*Enhancing writing across the curriculum* – aimed to support teachers to improve student's writing through action research processes
13. Krissie - Regional, Secondary, Catholic, 729 students	*Literacy across the History curriculum* – aimed for teachers to develop stronger literacy practices for the teaching of History
14. Darcy – Regional, Primary, Catholic, 388 students	*Improving reading pedagogy* – aimed for teachers to
15. Olivia – Rural, Primary, Catholic, 170 students	*Improving English pedagogy* – aimed for teachers to improve English teaching for enhanced NAPLAN scores
16. Wendy – Urban, Secondary, Independent (K-12), 1250 students	*Improving maths assessment practices* – aimed for teachers to develop improved mathematics assessment practices

Note: schools are categorised using Hillman et al.'s 2002 (p. 1) broad Australian area classification: urban/metropolitan – where students live in a city with 100,000 or more inhabitants; regional – populations between 1000 and 99,999 persons; rural/remote – those centres with less than 1000 persons.