

Advice for Aspiring School Mathematics Leaders

Kerryn Driscoll
Deakin University

kerryn.driscoll@deakin.edu.au

Jill Cheeseman
Monash University

jill.cheeseman@monash.edu

Ten primary School Mathematics Leaders responded to a survey asking them to give advice at the beginning of the 2026 school year to teachers who were about to take on the responsibilities of leading the teaching and learning of mathematics. Leaders emphasised the importance of a clear purpose, building professional knowledge and fostering research informed pedagogy. They highlighted the value of professional learning communities grounded in trust, collaboration and resilience. The findings offer practical guidance for aspiring mathematics leaders and highlight the personal qualities essential for effective leadership.

The mathematics leadership role has long been recognised as being complex in nature, having many demands, and involving tensions (Cheeseman & Clarke, 2005). More recently with changes in emphasis and direction in some aspects of mathematics education this complexity has increased, and some school mathematics leaders find themselves conflicted. Many of these changes have created clashes between what school mathematics leaders' value and believe to be effective practice and what has been advocated or even mandated. There is no doubt that school mathematics leaders continue to play a critical role in supporting teachers' professional development and that their work is integral to the success of mathematics learning in schools (Driscoll, 2021).

While many aspects of mathematics leadership practice have previously been reported, few studies have reported the advice experienced school mathematics leaders who are presently leading mathematics in primary schools would provide to others. We believed it was timely to get a sense of mathematics leadership from those who have an 'ear to the ground' and those who are currently leading mathematics in schools. By exploring in detail, the work of these highly effective mathematics leaders, we believe the information they share can inform us about the nature of the work they do and support future mathematics leaders.

In this paper we report the perspectives and insights of ten experienced school mathematics leaders who responded to a survey. The research question we sought to answer was: *What advice would you give to teachers who are just about to take on the responsibilities of leading the teaching and learning of mathematics?*

Research literature

Ultimately, the objective for primary school mathematics leaders is to create conditions that support improved learning of mathematics by students through continuous professional learning of teachers resulting in improved classroom practice. It is through the actions of school mathematics leaders that "positive practical and sustainable change" (Grootenboer et al., 2015, p. 277) can occur. The key to improvement is developing teachers' mathematical knowledge for teaching (Ball et al., 2008). While mathematics leaders recognise the importance of teacher knowledge, they also understand the importance of looking at the bigger picture to develop a shared vision for school improvement, defined as "a set of images of ideal classroom practice for which teachers' strive" (Hammerness, 2001, p. 143)

Research suggests that developing a shared purpose of high-quality teaching can influence teachers improved practice and guide professional learning (Cobb, 2019). Cobb (2019) proposed a theory of action for improving mathematics teaching which included a sophisticated vision of high-quality instruction that specified several instructional practices to support the achievement of learning goals. Similarly, Vale and colleagues (2010) found that school

(2026). In N. Berger, M. Thompson, J. Ley & C. Wilsmore (Eds.), *Beyond boundaries: Strengthening futures in mathematics education. Proceedings of the 48th annual conference of the Mathematics Education Research Group of Australasia*, Sydney (pp. 114–121). MERGA.

mathematics leaders who “had a clear vision of school and classroom practice and set directions for improved student learning,” together with “clearly stated goals and targets” played a vital role in affecting change that led to improved student learning (Vale et al., 2023, p. 242). Connected to a shared vision, mathematics leaders frequently establish measurable goals focused on student achievement and teacher practice. A recent study that focused on mathematics leaders’ goals found that while the leaders held a range of goals related to the improvement of mathematics teaching and learning, they often relied on teachers’ willingness to change to achieve these goals (Downton et al., 2022).

It is well recognised that teacher change can be slow and difficult (e.g., Fullan, 2001). When making changes to practice, teachers need to feel supported in an environment that offers both trust and challenge (Eden, 2018; Timperley et al., 2020). Relational trust is critical and underpins the work of school mathematics leaders as they demonstrate interpersonal skills, such as interpersonal respect, personal regard for others, role competence and personal integrity (Bryk & Schneider, 2003). This point is reinforced with the recent addition to the suite of Australian Professional Standards of the *Australian Professional Standards for Middle Leaders*. Under the banner of ‘Enabling knowledge and skills’ one of the focus areas - Standard 2c is ‘Building relational trust’ which is described as “The ability to build and sustain a culture of trust in which teaching and learning improvement is shared, well supported and competently led” (Australian Institute for Teaching and School Leadership [AITSL], 2025, p. 17). Although these standards are not specific to mathematics, they are intended to be inclusive of all middle leader roles, of which mathematics leadership is one. The standards reinforce the point that developing constructive relationships and trust with colleagues is critical to leading mathematics successfully in schools (Driscoll, 2021).

While “relationships make the difference” (Fullan, 2001, p. 51) and effective leaders constantly work on building relationships, creating opportunities for teacher learning through knowledge creation and sharing is also an important element of effective leadership (Fullan, 2001). This is achieved through consistency, coherence and an appreciation of effective pedagogical approaches, collaborative planning, and shared assessment practices with a focus on coherence-making, capacity building, and sustained professional learning rather than fragmented initiatives (Fullan, 2016). The way that the components of leadership come together was theorised by Michael Fullan as a Framework for Leadership (Fullan, 2001). A diagram of this framework is shown in Figure 1. This framework provided a theoretical underpinning of this research and a structure for our analysis and discussion of the open-ended qualitative data offered by mathematics leaders. We connected our coding of the data to Fullan’s components: moral purpose, understanding change, coherence building, knowledge creation, and relationship building. We also considered what Fullan called “the core mind and action sets” (2003, p. 92) of energy, enthusiasm and hope.

Method

An email was sent to the school email addresses of fourteen experienced school mathematics leaders. We introduced ourselves in the email and provided background information related to our research. Data were collected via a one-page pro-forma survey with one open question asking each school mathematics leader, what advice they would give to teachers who were about to take on the responsibilities of leading the teaching and learning of mathematics in their school. The leaders were asked to write spontaneously in answer to the question and elaborate on this advice then return the pro-forma to the first author by email.

The purpose of the survey was to collect leaders’ impromptu thoughts at the start of a school year when they would likely be thinking ahead about the nature of their role. The format was chosen to be quick to complete and brief. In this way we intended the “top of the head” responses to be priority advice. From the data we wanted to build a picture of what leaders

believed was important for a novice school mathematics leader to think about when beginning their leadership role. Ten leaders responded.

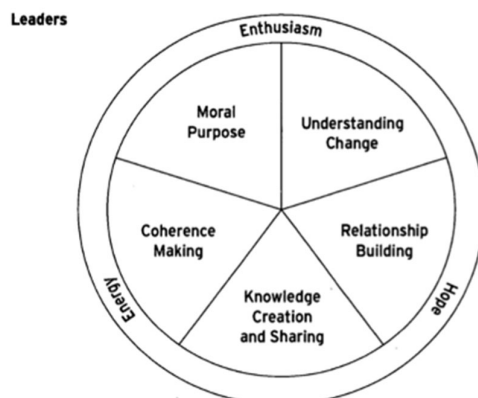


Figure 1. A Framework for Leadership (Fullan, 2001, p. 4)

The data were analysed as follows: each survey was read carefully by each of the researchers as they were received. Independently each author identified each idea a leader offered and noted how the advice was reflective of a finding in the literature. For example, Emily (pseudonym) wrote “Start with relationships – spend time building connections and trust.” While this was only part of the sentence Emily wrote, it was noted initially in the Black Book as two separate codes: relationship building I (Fullan) and trust building I (Bryk & Schneider, 2003). Each idea was recorded and added to a list that expressed leaders’ responses as a first pass of the data. Categories of response were refined as surveys were returned. Clusters of categories were created to search for patterns and an overview of the responses. The results of coding independently were compared, and a sample of responses were checked for inter-rater reliability.

Broadly our analysis methods could be described as coding thematically using an open-ended approach (Creswell, 2014) to identify themes that emerged from the data. Themes became the categories listed in the tables that follow. Upon further examination of the data sub-categories were evident. An illustrative quote that matched each sub-category was included and corresponding boxes were shaded to indicate a response that matched.

Findings

The main findings of the survey from the ten respondents are summarised and presented in three two-way tables showing six categories and linked sub-categories. The broad categories identified were Vision and purpose, Improvement of mathematics learning, Knowledge making and sharing, Consistency and coherence and Relationship building as well as Personal qualities. Each category will be presented in turn in the next section.

Vision and purpose and Improvement of mathematics learning

The categories of *Vision and purpose* and *Improvement of mathematics learning* are shown in Table 1. Further sub-categories are also included. A shaded box indicates that a School Mathematics Leaders (SML) response matched the category and sub-category.

Each SML (n=10) considered having a clear sense of purpose to be essential and acknowledged that student success in mathematics is their vision and that building students’ and teachers’ knowledge and confidence is fundamental to achieving that vision. The SMLs believed that success involves productive pedagogies which can lead to improvement in the

mathematical outcomes for their schools. Seven of the ten SMLs advised setting short-term and long-term goals as can be seen in Table 1.

Table 1

Categories of advice with illustrative quotes reported by individual respondents

Category	Illustrative quote	Initials representing the SMLs names									
Vision and purpose		L	A	H	E	J	S	A	E	J	M
Student success	A clear vision that all students can succeed	✓			✓		✓		✓		
Building knowledge	A commitment to building teacher confidence	✓				✓	✓	✓	✓	✓	✓
Strong Pedagogy	A commitment to building strong pedagogy	✓			✓	✓	✓	✓	✓	✓	✓
Improvement of mathematics learning		L	A	H	E	J	S	A	E	J	M
Short term outcomes	a laser sharp focus on just one (sometimes two) skill(s) for each Year level	✓	✓		✓	✓	✓		✓		✓
Long term goals	work towards instructional consistency across classrooms	✓	✓	✓	✓	✓	✓		✓		

Knowledge making and sharing and Consistency and coherence

The categories of *Knowledge making and sharing*, *Consistency and coherence* are shown in table 2 along with sub-categories.

Table 2

Categories of advice with illustrative quotes about knowledge creation and coherence

Knowledge (making and sharing)		L	A	H	E	J	S	A	E	J	M
Mathematical concepts	I recommend that leaders first and foremost upskill their mathematical content knowledge	✓		✓	✓		✓	✓	✓	✓	✓
Pedagogy (teaching practices)	focus on high-impact teaching practices rather than relying solely on programs	✓		✓	✓		✓	✓	✓	✓	✓
Co-teaching	If you need to enact change, the best way is co-teaching							✓			
Use of data	Ensure assessment and data analysis is consistent informing teaching and learning	✓	✓		✓		✓	✓		✓	✓
Prioritise concepts/focus	having a laser sharp focus on one skill, element or big idea for each year level	✓	✓	✓	✓		✓		✓		
Consistency/coherence making		L	A	H	E	J	S	A	E	J	M
Plan for improvement	It's just a dream without a plan. Planning helped to map out goals I wanted to achieve		✓			✓	✓				
Provide visible support	remain visible and supportive in practice	✓				✓		✓	✓		
Ensure time on task	Year 2 teachers took every opportunity to practice this with students in maths	✓	✓		✓		✓				
Cooperate when planning	collaboratively plan ... encourage teachers to come prepared with ideas and insights	✓		✓	✓	✓	✓	✓	✓		

Judging from these results it could be assumed that the advice for future leaders would be to focus on knowledge making and sharing as an important part of the role. There was a dual emphasis on mathematical concepts as a priority and effective teaching practices as their delivery. Knowledge of the students' understanding of concepts was advocated. Table 2 also indicates that ($n=3$) SMLs would advise new and future leaders to plan for improvement with their teachers, something achievable to start with and others ($n=7$) suggested to focus on collaborative planning.

Relationship building and Personal qualities.

The categories of *Relationship building and Personal qualities* are shown in Table 3 with sub-categories of collaboration, trust, shared purpose and many personal qualities.

Table 3

Categories of advice with illustrative quotes relationship building and personal qualities

Relationship building		L	A	H	E	J	S	A	E	J	M
Collaboration	Collaboration is one of the most important things you can do to ensure success	✓	✓	✓	✓	✓	✓	✓			
Trust	the key to successful leadership is often based on the relational trust	✓	✓		✓	✓	✓	✓		✓	✓
Shared purpose	Build relational trust, offering in classroom support, beginning informally then moving toward a co-constructed goal focus	✓	✓	✓		✓	✓		✓		
Personal qualities		L	A	H	E	J	S	A	E	J	M
Open Minded	having an open mind to what else is out there					✓	✓				✓
Critical	be critical of any resource and decide how you can make it fit your school context	✓	✓	✓		✓				✓	
A learner	I still position myself as a learner, I can't imagine that ever changing		✓	✓	✓	✓	✓	✓			✓
Enthusiastic	Let your passion be visible.		✓				✓	✓	✓		✓
Risk-taker	Take risks! Risks are what move your leadership practice forward, change doesn't happen in the comfortable		✓				✓	✓		✓	
Listener	Listen carefully to teachers					✓	✓	✓		✓	✓
Be authentic	Walk the walk - don't just talk	✓					✓	✓			
Vulnerable	It's ok to learn alongside your colleagues		✓				✓	✓			

Table 3 indicates that the SMLs believe that collaboration and particularly trust are important. Relationship building was present in the responses of every SML ($n=10$). Three essential aspects of mathematics leadership are mentioned: building a team of collaborators who have a shared purpose and trust each other. The personal characteristics listed by respondents were interesting and comprised an impressive list of qualities. Open minded, Critical, A learner, Enthusiastic/enjoy mathematics, Risk-taker, Listener, Reasonable, Be authentic, Vulnerable. These qualities resonate with the characteristics of enthusiasm, hope and energy suggested by Fullan (2001).

Four more themes emerging from the data will be discussed: Vision and purpose, Knowledge making and sharing, Relationship building, and Personal qualities.

Discussion

Begin with a vision and purpose

Each school mathematics leader surveyed, advised novice leaders to have a clear vision of high-quality classroom practice to improve student learning. This high priority echoes the findings of Vale and colleagues (2023). As stated by Lyn “leading the teaching and learning of mathematics begins with a clear vision that all students can succeed and a commitment to building teacher confidence alongside strong pedagogy.” A similar point was made by Jane who pointed out that you need to “make a plan of what you want to achieve and break it down year by year and then ... term by term” and think about “What is actually achievable?” and “What will make a difference?” In her words, Jane said that leaders need to “Dream big but start small.” Likewise, Julie suggested that new leaders need to “focus on the big picture.” To achieve the big picture, as was pointed out in the literature, mathematics leaders need to have clear visions and goals related to student achievement and teacher practice (Vale et al., 2023).

Sue was aware of the need to develop goals and made the point that it was necessary “to map out the goals that you want to achieve over the course of the whole year” and “prioritise what matters most,” otherwise, she revealed “it’s just a dream without a plan.” She described the steps involved, stating that it is necessary to “break them down in manageable chunks.” Abi also made the point that leaders need to be “realistic about the goals” they choose to work on. While another leader, Alex, suggested that teachers and leaders should work on developing co-constructed goals. These leaders were describing the importance of having a clear vision of the purpose of leadership. It is interesting to note that little was advised about the importance of aligning your colleagues and the other leaders in the school (such as the Principal) to leaders’ views which was an important finding by Downton et al. (2022).

Develop mathematical knowledge for teaching

While knowledge making and sharing and effective teaching practices were a focus of all but one school mathematics leader, seven leaders positioned themselves as learners in this survey. It is not unusual for school mathematics leaders to lack the confidence to lead when they do not possess the knowledge and skills they feel are important (Driscoll 2021). One leader, Amy, spoke about being “open to learning better ways of doing things” and suggested that “it is okay to learn alongside your colleagues”. She also pointed out that “you don’t need to be the fountain of all knowledge.” While Ann’s advice was to “be vulnerable to other teachers” and at the same time she suggested becoming involved in co-teaching. Alex made the point that he “would recommend that leaders first and foremost upskill their mathematical content knowledge to support teachers in using data to inform planning.”

When offering advice to new and prospective mathematics leaders Sue reflected on her experiences after five years of being a mathematics leader and made the point that “you don’t have to be an ‘expert’ to be a great leader.” Initially in her role she pointed out that she “felt like an imposter” and explained that “as soon as I focused my decision making onto teacher practice and student learning, that’s when I started to feel less like an imposter and more like a leader.” Sue also shared this advice:

Often when taking on the responsibility of leading, you feel like you have to know everything about everything and the whole curriculum inside out. I think this was the biggest mistake I made in my first-year leading numeracy, and I just got so burnt out. My advice would be position yourself as a learner. It’s okay not to know everything right off the top of your head. Learning side-by-side with teachers is one of the best ways to build trust and rapport.

Sue also explained that positioning herself as a learner was her ticket into teachers' classrooms where she could see what was happening and learn how to best support teachers.

Build relational trust

Interestingly in the survey responses all ten mathematics leaders commented on the importance of building relationships with an emphasis on trust. While there are many ways to develop relational trust amongst teachers, the importance of these relationships cannot be over emphasised. Building constructive relationships is very much part of being an effective leader (Fullan, 2001). In fact, Ann believed that "building respectful relationships with ALL teachers is the foundation of a successful mathematics program." Emily suggested that you "start with relationships [and] spend time building connections and trust with staff." While building "relationships with staff, on a personal and professional level, (build trust before change)" was also emphasised by Julie. Amy reiterated this point with her comment that "teachers who respect you, listen to you in planning, ask for advice, take risks and try new things, and allow you into their classrooms can be vulnerable around you, which can lead to positive change." Feeling supported to make change in an environment where there is trust and a certain amount of risk is reflected in the work of Eden (2018) and Timperley et al., (2020).

Jane's initial advice was to build relationships suggesting that "the key to successful leadership is often based on the relational trust." She also stressed that it is important to:

Spend time with people, listen to their needs, value their input and show them that they matter. The more they see you, feel you are walking alongside them and think you understand what is happening in their day-to-day work lives, the more they are likely to support you as a leader. This support and trust is critical if you want to make changes.

Consider personal qualities

There was an emphasis on a variety of personal qualities throughout the survey responses. In her responses Mel highlighted many of the qualities that we also found common, such as being "open to different perspectives" and "listening carefully to other teachers and learning from their experiences and ideas." She suggested that it was important "to learn yourself, stay approachable and transparent, and create a safe space where teachers feel comfortable asking questions, trying new strategies, and reflecting together." Emily's response summed up the focus on personal qualities nicely in this quote, "Let your passion be visible. Your enthusiasm for mathematics is contagious. When teachers see that maths can be joyful, intellectually rich and meaningful, it shifts the culture of the school" and the students benefit in the long run. As emphasised by Fullan (2001) personal traits continue to be an important consideration when leading others and "the core mind and action sets" (2003, p. 92) of energy, enthusiasm and hope continue to be inherent qualities of effective mathematics leaders that others aspire to.

In summary, although our surveyed sample was small, these school mathematics leaders provided a comprehensive range of advice. Our research question was deliberately designed to be open as it was intended to gather responses that came quickly to mind or 'top-of-the-head ideas.' Had there been further prompts the leaders might have included more detail. This could be a focus for future research. However, this short survey could also be seen as an advantage, as these were the things that the leaders felt were most salient at the time. Our findings contribute to building a picture of what leaders believed was important for a novice school mathematics leader to think about when beginning their leadership role.

Conclusion

The mathematics leadership role seems to be as complex as ever. The experienced school mathematics leaders surveyed when considering teachers who are new to leadership responsibilities had two main areas of advice: to have a clear sense of direction and purpose and to think of leadership as knowledge-building. The importance of imagining a school where

every student learns mathematics enthusiastically and where research-informed pedagogy is in place was foremost. The school mathematics leaders acknowledged that to do so would require sharing knowledge and skills in a learning community built on trust, collaboration and resilience. Building personal professional knowledge and that of others through collaboration and shared experiences seems to be fundamental to being an effective school mathematics leader which leads us to understand some of the tensions created by educational authorities when prescribed mathematics content and teaching approaches are instituted. The advice of the experienced leaders also highlighted personal elements of the role. For example, to continue to learn, listen carefully to colleagues, embrace mistakes as opportunities for growth and sustain a passion for mathematics and its teaching. By capturing these insights, the study provides practical guidance for aspiring mathematics leaders and highlights the personal and relational qualities essential for effective leadership.

Acknowledgements

Ethics approval (ID 44539) was granted by Monash University, and participants gave informed consent.

References

- Australian Institute for Teaching and School Leadership (AITSL) (2025). *Australian Professional Standards for Middle Leaders*. <https://www.aitsl.edu.au/teach/standards>
- Ball, D. L., Thames, M. H., & Phelps, G. (2008). Content knowledge for teaching: What makes it special? *Journal for Teacher Education*, 59(5), 389-407. <https://doi.org/10.1177/0022487108324554>
- Bryk, A. S., & Schneider, B. (2003). Trust in schools: A core resource for school reform. *Educational Leadership*, 60(6), 40-45.
- Cheeseman, J., & Clarke, D. (2005). Early numeracy coordinators in Victorian primary schools: Components of the role, highlights and challenges. *Building connections: Theory, research and practice*, 225-232.
- Cobb, P. (2019). Investigating What It Takes to Improve the Quality of Mathematics Teaching and Learning on a Large Scale. In G. Hine, S. Blackley, & A. Cooke (Eds.). *Mathematics Education Research: Impacting Practice* (Proceedings of the 42nd annual conference of the Mathematics Education Research Group of Australasia) pp. 1-14. Perth: MERGA.
- Cresswell, J. W. (2014). *Research design: Qualitative, quantitative, and mixed methods approach* (4th ed.) Thousand Oaks, CA: Sage.
- Downton, A., Cheesman, J. & Roche, A. (2022). Goals and challenges of school mathematics leaders. *Mathematics Teacher Education and Development*, 24(1), 96115. <https://mted.merga.net.au/index.php/mted/article/view/678>
- Driscoll, K. (2021). *An investigation of the ways in which School Mathematics Leaders support primary teachers' professional learning*. Thesis, Monash University. Melbourne, Australia.
- Eden, R. (2018). Opening classroom practice to challenge: The role of trust in mathematics teachers' collaborative inquiry involving co-teaching. In Hunter, J., Perger, P., & Darragh, L. (Eds.). *Making waves, opening spaces* (Proceedings of the 41st annual conference of the Mathematics Education Research Group of Australasia) pp. 282-289. Auckland: MERGA.
- Fullan, M. (2001). *Leading in a culture of change*. Jossey-Bass.
- Fullan, M. (2016). *The New Meaning of Educational Change* (5th ed.). New York: Teachers College.
- Fullan, M. (2003). *The moral imperative of school leadership*. Thousand Oaks, CA: Corwin Press.
- Grootenboer, P., Edwards-Groves, C., & Rönnerman, K. (2015). The practice of 'middle leading' in mathematics education. In M. Marshman, V. Geiger, & A. Bennison (Eds.). *Mathematics education in the margins* (Proceedings of the 38th Annual Conference of the Mathematics Education Research Group of Australasia) pp. 277-284). Sunshine Coast: MERGA.
- Hammerness, K. (2001). Teachers' visions: the role of personal ideals in school reform. *Journal of Educational Change*, 2, 143-163.
- Timperley, H., Ell, F., Le Fevre, D. M., & Twyford, K. (2020). *Leading professional: Practical strategies for impact in schools*. Melbourne, Victoria: Australian Council for Educational Research.
- Vale, C., Roche, A., Cheeseman, J., Gervasoni, A., Livy, S., & Downton, A. (2023). The practices of middle leaders of mathematics: alignment of their goals and activities. *School Leadership & Management*, 43(3), 238-260. <https://doi.org/10.1080/13632434.2023.2179982>