

Advantages for supervising mathematics teachers and their classes

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The authors have been conducting research with early career secondary mathematics teachers in metropolitan Sydney, focusing particularly on the professional experiences of student teachers. As part of the research, twelve supervising teachers were visited at their schools. Seven of them were interviewed individually about their role in developing the knowledge and skills of student teachers during the professional experience. The remaining five teachers were unavailable for interview and responded to the core interview questions in a written survey. The teachers had a range of experience in the classroom (4–30 years) and in supervision (1–20 student teachers). They were asked why they had decided to take on their mentoring role and about the benefits they and their students gained from having a student teacher in the classroom. Here, their responses are summarised.

1. You learn about new ideas

Practicum students are enthusiastic. They start their practicum with a mixture of awe, angst, dread and excitement but most of all they will come to your school with fresh ideas and resources. They are eager to experiment and try out new ideas in a way that is also likely to reinvigorate your own teaching. In particular, most student teachers are confident and competent users of technology who are ready and willing to use it in the classroom. They are able to teach mathematics with technology in ways that engage students productively so you will learn a lot by watching your practicum student's technology classes and their lesson plans might even serve as a model for your own technology lessons.

The teachers interviewed believed they gained a great deal from mentoring student teachers so it was perhaps not surprising that most of them had been supervising for many years. They said that they benefitted from observing pre-service teachers' lessons where they could see new teaching strategies and resources put into practice. Teachers even reported that long after the practicum had finished they were still using some of the ideas, worksheets, games and activities they had learned from the student teacher.

Student teachers also are made aware of the latest educational theory in their university studies and the practicum is a great opportunity for them to share these ideas with you as a way of informing your own professional learning and development.

Moreover, these days many student teachers come to teaching after they have worked in professions such as engineering and computing where they apply mathematics in real-life contexts, so they will probably have a ready answer and numerous examples for students who want to know where the mathematics they are learning is used beyond the classroom.

2. You gain a new perspective on learning and teaching

Sitting at the back of the classroom and observing lessons rather than teaching them yourself allows you the opportunity to think more deeply about your classes and it provides you the chance to gain greater insight into how your students learn and behave. You will start to see your students in a different light and have more time to think about the problems they are having and their misconceptions, and you will often recognise how to help them learn more effectively too.

Two supervising teachers each made a point of describing how they had learned alternative approaches for dealing with one of their hard-to-manage students or classes by observing the practicum student. In each case, the students responded to the different style of teaching and the supervisor learned a new way of dealing with the class. When the practicum finished and the supervisor took over the class again it seemed that the time spent with the student teacher had a lasting effect on the students and the problems that occurred previously were not as hard to manage now.

3. You reaffirm your own teaching

Mentoring a student teacher reaffirms the strengths in your own teaching as you share your ideas and strategies with them. They want to learn from you because they recognise that you have the experience and the wisdom that comes from having taught classes and been through the practicum yourself. It is also very encouraging to have your student teacher tell you how much they learned from observing your lesson or watching how you handled a tricky situation in the classroom.

4. You have time to reflect on quality learning and teaching

Pre-service teachers are constantly developing their practice and they often learn a great deal from a lesson, which does not proceed entirely as planned. Supervising teachers also play an important role in helping the student teacher to identify what went wrong in the lesson and to consider possible reasons to explain why the lesson was not completely successful. One of the advantages for the supervisor in observing a student teacher and noting the mistakes they sometimes make during a lesson is that it can provide a timely reminder about traps to avoid when teaching.

Making the effort to watch your student teacher's lesson closely and then

taking the time to sit down with him or her after a successful or unsuccessful lesson also provides a great opportunity for you both to reflect on the key elements of quality teaching and to start to imagine alternative pedagogical practices. Naturally, as a supervising teacher, you will take the lead in these discussions and this will help you to clarify your own ideas about good teaching. Post lesson discussions allow both supervising teacher and practicum student to think deeply about the practice of teaching. It is unusual for teachers to have the luxury of discussions about their lessons, but having a student teacher provides an incentive to make time for professional dialogue and discussion that might not occur otherwise. These discussions allow you time to think about the processes of teaching, how it could be done differently and, more importantly, why it should be done differently. Reflecting on your own teaching practices is beneficial for your teaching, long after the practicum student has gone.

5. You are supported in the classroom

Having another teacher in the room can be beneficial for everyone. The teachers in the study said that they appreciated it when student teachers were on hand to take responsibility for administrative matters such as marking the roll or checking homework, and they could also be called on to work with individuals or small groups of students who required remedial or extension exercises.

A second teacher in the room also helps to monitor students' behaviour and keep everyone on-task so your own lessons proceed more smoothly. Many of the supervisors interviewed said that team-teaching with the practicum student was a good way to introduce the novice teacher to the classroom and to support the supervisor as well.

6. You learn from their mistakes

Teachers always encourage students to analyse their mathematical errors and mistakes because much can be gained from doing so and it is the same with student teachers who are learning about the craft of teaching. Taking careful note of where your student teacher comes unstuck can help you both to focus your attention on aspects of teaching that have a low chance of success and make you think more deeply about what might have been done differently. So, next time a similar situation arises you will be better prepared to deal with it yourself. As you and your student teacher start to think about teaching in more profound ways, you will think more deeply about how to improve student learning outcomes.

7. You shape the next generation of teachers

Having a student teacher closely observing your lessons can be a little daunting at first, especially if you are unused to having a colleague in your classroom, but it can also provide a strong incentive for you to think more carefully about the kind of classroom practice you want to model for a beginning teacher. If you think back to your own practicum experiences there is likely to have been a supervising teacher whose wisdom and patience had a profound effect on shaping your approach to teaching and

now you have an opportunity to act in a similar mentoring role for your student teacher. This is your chance to give something back to the profession in a very practical and profound way.

You find a new enthusiasm for teaching

Many of the teachers in the study reported that the presence of a practicum student in their classroom provided them with a powerful reason to show-case some of their best resources and teaching strategies. In fact, teachers commonly reported that taking a student teacher helped to reinvigorate their own teaching because they were conscious that they wanted to give the student teacher the best example possible. A student teacher who is doing wonderful things in your classroom helps you to refocus your energies because working with a student teacher who is enthusiastic and wants to learn helps to bring out the best in supervising teachers too.

You might identify a new staff member for your school

There is a general awareness of an impending shortage of mathematics teachers and the growing difficulties that some schools are starting to experience as they look to find replacements for teachers who are retiring. The practicum gives you an extended time to observe your student teacher and get to know their strengths and weaknesses. You can see how well they respond to advice and monitor their progress so you will know when they are ready to work more independently and take the next step in their careers. In New South Wales, it is not uncommon for student teachers to be offered some casual teaching work after they have completed their practicum, even while they are still at university. It is also often the case that a supervising teacher will support a student teacher's application for a permanent position in the school by, for example, providing guidance on how to apply or acting as a referee.

10. Your students will benefit too

The advantages of having a student teacher in your school are not limited to you and your teaching colleagues—your students will benefit too. Student teachers can act as excellent role models for your most able mathematics students who might be wondering about how they can turn their positive experiences of mathematics into something more after they finish secondary school. A student teacher working in your classroom might encourage your students to start thinking about a career in teaching and the student teacher can offer relevant and practical advice on how to achieve this goal. The fact that student teachers are almost always enthusiastic and full of energy and many are not much older than your students helps to add a degree of authenticity to their claims about the benefits of a mathematics teaching position.

Your students will benefit from working with a student teacher by virtue of the fact that they will most likely be exposed to a different personality and a different style of teaching. This not only adds variety to their lessons but also helps your students experience alternative approaches to helping them

learn new concepts. There will no doubt be some students in your classes who respond favourably to the student teacher and this might even serve as a catalyst for helping them to improve in the long run. Even the most effective teachers will, from time to time, encounter a student with whom they find it difficult to connect and it may be that the student teacher is able to make a connection that will benefit everyone. As you observe the ways that the student teacher relates to your classes you may discover new and different ways to establish rapport with your students.

Even when the student teacher is struggling and their progress to being a fully competent classroom teacher is slower than we might hope for, there may still be some valuable lessons for your students. Your students will learn a lot from watching the ways in which you support and encourage the student teacher. They too will need to be patient and understanding and they will learn about accepting a beginning teacher who is doing his or her best to develop. And if the student teacher does struggle then your students will no doubt see you in a different light and value your classroom expertise even more.

Conclusion

Mentoring student teachers is recognised within the profession as an important characteristic of teaching excellence. The Standards for Excellence in Teaching Mathematics in Australian Schools (Australian Association of Mathematics Teachers, 2006) contains in Standard 2.2 professional attributes such as a willingness to engage in collegial interaction that actively explores and reflects on innovative teaching practices, and Standard 2.3 incorporates community responsibilities to engage and collaborate with colleagues by supporting, mentoring and providing feedback.

Supporting a student teacher therefore provides supervisors with a unique opportunity to influence the future of the teaching profession in a very practical way that ensures they have a significant role in improving the quality of new graduates. As an experienced teacher you will have developed a successful classroom practice of your own and you can impart your accumulated wisdom to a student teacher who is enthusiastic and eager to learn. In fact, it is surely part of each teacher's responsibility to nurture the next generation of the profession and develop excellent new teachers for the future.

Reference

Australian Association of Mathematics Teachers (2006). Standards for excellence in teaching mathematics in Australian schools. Adelaide: Australian Association of Mathematics Teachers.



Yes, we have to divide up our time like that, between our politics and our equations. But to me our equations are far more important, for politics are only a matter of present concern. A mathematical equation stands forever.

Albert Einstein (1879-1955, physicist