

# Supporting Beginning Teachers: A Web-based Collegial Enterprise

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**Abstract:** This paper describes the design, development and evaluation of a website designed to ameliorate many of the problems encountered by beginning teachers. The site allows new teachers, and preservice teachers on school practice, to communicate with each other through a discussion board, and provides access to a range of resources including lesson plans, videos of exemplary teaching, annotated lists of useful websites and frequently asked questions. Such access may help to lessen the feelings of isolation and lack of support felt by many beginning teachers, and provide a link between the practical realities and constraints of the classroom and the more innovative, research-based methods and strategies teachers learn while at university.

## Introduction

The beginning teacher experience can be as daunting in Australia as it can be in the rest of the world. One new teacher recounts the experience of her first teaching appointment in an outback high school:

I had an idea of what it was going to be like ... I just prepared for the worst. I had in the back of my mind 'Well, OK it's not a very attractive place'. When I did fly over, I looked out and all I could see was the mud flats. I got off the plane and it was hot and it was red pindan, just red dirt, and you could see for miles. I just thought, 'Oh this is awful'. I didn't like it. I thought 'There ut no, there weren't any beaches. And there were signs everywhere that said 'Beware of the Crocodiles'.

The school? The first day. It was pretty tough. It was sort of 'Oh, I can't stand this'. I almost chucked it in. I found the students had a lot of behaviour problems. Their first impression was that I was a student teacher. They didn't see me as a qualified teacher. They were very testy a lot of the times and I suppose being my first job, it was tough. I found that I didn't get too much support from the staff either. I was totally left in the dark. I didn't really have much support.

When I came here there was just nothing. I didn't have any resources. All the stuff that they did have at the school that was anything to do with maths, the stuff from the Ark. It was ancient yellow stuff, cobwebs and things, from the 60s and 70s that they had been using. I didn't know where to start. I didn't know what to do. As far as budgeting and costs and knowing what to buy, and no one else had any idea. It was up to me to decide. 'Well, you're the maths teacher, you need to decide what you need for your classes. What do you think the kids need?' So I was making phone calls down to Perth ... I needed some help ...

*(Interview with Louise, first year teacher appointed to a remote outback school in Western Australia.)*

The sense of geographical isolation and professional isolation illustrated in this excerpt, are common phenomena for beginning teachers in Australian schools. Added to this is the paramount issue that all beginning teachers face—managing their classrooms. The anxiety can only increase when faced with the other issues of lesson preparation, motivation, assessment, social relationships with students, teachers and parents, pedagogical and content knowledge (Kent, 2000) and the current demands with the use of technology in teaching (Strudler, McKinney, & Jones, 1999).

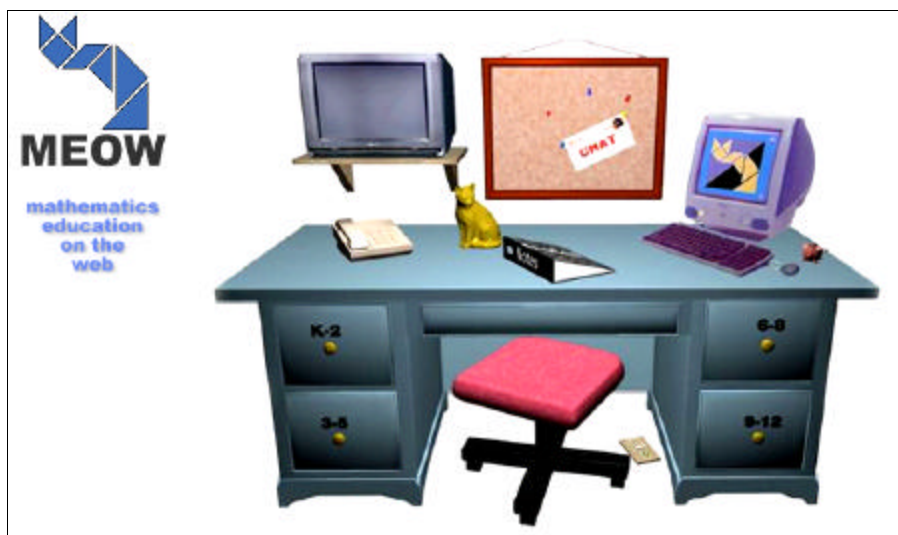
Generally, on the completion of their teacher education courses, neophyte teachers display the modern beliefs and practices that those courses aim to achieve. But it is not surprising that the complex and difficult issues that beginning teachers are faced with cause many of them to retreat to the safe beliefs and practices that reflect traditional approaches (Raymond, 1997; Simmons, Emory, & Carter, 1999).

So how can teacher education courses develop and sustain modern beliefs and practices that are robust enough to cope with the critical realities of classroom teaching? One approach is to refine the curriculum in teacher education courses in ways that better reflect the contexts in which new teachers will find themselves. For example, *Investigating Teaching Strategies in Mathematics Classrooms* (Herrington, Sparrow, Herrington, & Oliver, 1997) and *Learning about Teaching* (Mousley, Sullivan & Mousley, 1996) are CD-ROM resource designed to situate preservice mathematics teachers in contexts that reflect real life instructional and assessment issues for teachers in K-12 classrooms. Another approach, which is the focus of this paper, is to provide a technology-based support mechanism for beginning teachers that is characterised by collegiality and reflection on practice (Peterson & Williams, 1998).

Mentoring programs and web-based teacher networks have been suggested as approaches in which beginning teachers can be supported through these concerns, where together with other novice and experienced teachers, they can reflect on their own developing beliefs and practices, and view and share the experiences of others (Weasmer & Woods, 2000).

### **The MEOW (Mathematics Education on the Web) website**

MEOW (Mathematics Education on the Web) (<http://www-scsm.cowan.edu.au/MEOW>) is a web-based approach developed to support beginning and preservice teachers of mathematics. When fully functional, the website will provide support for different groups of preservice and practising teachers. In particular, new teachers will be able to access the site to keep in contact with their former classmates and instructors, to share ideas and lesson plans with others around the world, and to access valuable resources.



**Figure 1:** The main interface of the MEOW website

On the website, resources and communication elements are accessible from a central interface which represents a well-equipped office (Figure 1). Teachers quickly learn where resources are located and can intuitively select the appropriate location in much the same way they access resources in a real office (Hedberg, Harper, Wright, & Farr, 1996).

Clicking on various elements of the interface—such as the telephone, the television, or the computer—gives access to different resources. Specifically, the site provides the following elements:

**Discussion board:** When teachers click on the *notice board* in the office interface, they connect to a discussion board where they can talk with their colleagues about problems or issues they are faced with in their mathematics teaching. They can present a description of something which might be worrying them, ask for suggestions on how to deal with a problem, or simply share ideas and thoughts with other teachers. Such a resource reduces the isolation felt by many new teachers, and gives them an alternative avenue of support to their workplace colleagues. Such support might also help to alleviate the anxiety reported by new teachers when they are directed to teach in a manner at odds with the methods taught in their teacher training courses.

**Lesson plans:** Clicking on any of the *desk drawers* gives access to a variety of lesson plans classified by year levels, by content and by processes. Teachers can click on any lesson by title and be given a description of how to use the activity with their students. Each lesson plan has an introduction, a description of the activity together with a list of any materials that are needed (some of these, such as 1cm grid paper, can be downloaded and printed from the website). For example, Figure 2 shows part of a lesson plan within the strand of *pattern*, suitable for Years 3-5. Ideas for extension activities are also provided with the lesson plans.

**Lesson ideas** age select | 3-5

**MEOW**  
mathematics education on the web

**Cross the River [3-5]**  
Children play the game "Cross the River" and develop strategies to win. These are reported to other interested players

**introduction**  
Show the children the game "Cross the River", explain the rules. Children play in two teams of two.

**Rules:**

- One team has the North Bank and one team the South Bank.
- Each team has to place its counters by a number or numbers. More than one counter may be placed by a number (for example, all of them could be placed on 6).
- Turns are taken to throw the two dice and add the scores. If a counter has been placed on that total then it is moved to safety across the river. Only one may be moved at a time from any total even though there may be more than one present.
- When all of a team's counters are safely across the river the game stops.

River

1 2 3 4 5 6 7 8 9 10 11 12

1 2 3 4 5 6 7 8 9 10 11 12

**lesson strand**  
[pattern](#)

**content**  
chance  
number patterns

**processes**  
[predicting](#)  
[representing](#)  
[communicating](#)

**materials**  
- a large game board  
- two normal dice  
- two sets of twelve counters  
- paper and pen for recording and writing

Figure 2: A sample lesson plan from the Years 3-5 drawer

**Contacts:** Clicking on the *telephone* on the desk enables teachers to access contact details of their former instructors if they wish to contact them direct to discuss any issues they may have in their mathematics classrooms.

**Web-based resources: Useful URLs:** Clicking on the *computer* on the desk gives teachers access to web resources beyond the MEOW site (Figure 3). There is a wealth of resources available for teachers on the web (such as lesson plans, mathematical resources, factual information, etc.) and students and teachers are encouraged to add recommended sites to the list. Each URL link is annotated by the contributor giving reasons for its recommendation, and this helps to prevent the page from becoming simply a list of hyperlinks.

**Useful URLs** select category | show all urls | add

**MEOW**  
mathematics education on the web

**URL:** <http://www.ec.ac.uk/cimt/puzzles/quick1.htm>  
Puzzle page from the Centre for Innovation in Mathematics Teaching.  
posted by Patrick Kraw | [juspat@highway1.com.au](mailto:juspat@highway1.com.au)

**URL:** <http://www.worksheetfactory.com>  
Teresa suggested this site. Looks like an interesting resource for lesson plans!  
posted by Jan Harrington | [j.harrington@ecu.edu.au](mailto:j.harrington@ecu.edu.au)

**URL:** <http://perso.easynet.fr/~philimar/graphopeng.htm>  
This site allows you to create and print your own graph paper at the touch of a button. You will need either a PC or Virtual PC to make it work.  
posted by Alison Cheetham | [a.cheetham@cowan.edu.au](mailto:a.cheetham@cowan.edu.au)

Figure 3: Teachers can access a wealth of resources on the web through the Useful URLs page

**Exemplary teaching:** If teachers click on the *television* in the interface they are given lists of teaching and assessment strategies from which to choose, such as group work, problem solving, investigations and portfolios. Selecting any of these strategies allows them access to a streamed video of an experienced teacher demonstrating the strategy in a real classroom. Teachers can also view short videos of the teacher discussing the strengths and weaknesses of the strategy and also a student's perspective. There is also a description of the strategy in text format. For example in Figure 4 below, a short video can be accessed to demonstrate the use of role play in the classroom, and teachers can also watch videos of an interview with the teacher and a student from the class. A description of role play as a teaching strategy is also provided.

The screenshot shows a web page for 'MEOW mathematics education on the web'. At the top, there is a navigation menu with 'Teaching Strategies | Discussion | Role play'. The main heading is 'Role play'. Below this is a video player titled 'The scenario' which shows a classroom scene with a teacher and students. Below the video player are links: '[the scenario | [the teacher](#) | [the student](#)]'. To the right of the video player is a text description: 'Teachers use role play as a vehicle to add as far as is possible some realism to the mathematics being learned. In a shop or cafe role play, typically students would adopt the roles of shopkeeper and customer or waiter and diner. Often there would be a dramatic episode requiring the players to use real (preferable) or token money which might involve the students in adding prices and giving change. This requires a very different way of working to the textbook money calculations. It is also a good situation for the teacher to observe and see how the students apply their knowledge of money to the 'real situation'. For older students, situations may require them to be a point on a graph and then to react accordingly as the values or equation changes.'

**Figure 4:** The exemplary teaching section includes short videos and interviews, with text descriptions

**Common problems:** The *folder* on the desk, when clicked, gives teachers access to many common problems faced by beginning and preservice teachers. This takes the form of a *Frequently Asked Questions (FAQ)* site, and the questions and suggested answers are taken from the discussion board and summarised for easy access.

### Reflective support

The benefits provided by this resource for beginning teachers are numerous: they have immediate access to required information; they are able to collaborate in a virtual community and be relieved of the sense of isolation so often experienced; they can contribute to the database by posting successful lesson plans and other materials of their own; and they can share the information passed in the chat sessions without having to formally participate.

While the MEOW site provides a great deal of 'just-in-time' support, it is also designed to support beginning teachers in a more reflective way. Boud, Keogh and Walker (1985) define reflection as: 'those intellectual and affective activities in which individuals engage to explore their experiences in order to lead to new understandings and appreciations' (p. 19). These authors stress that such reflection must not occur solely at the unconscious level: 'It is only when we bring our ideas to our consciousness that we can evaluate them and begin to make choices about what we will or will not do' (p. 19). The site enables reflective practice by providing a variety of resources from which to gain alternative perspectives on any teaching task, and by providing exemplary performance and the modelling of processes, enabling students to reflectively compare their own performance to that of experts. Communication technologies also allow students to establish communication in the language of the culture, and to share stories and anecdotes of their experiences.

## Preliminary evaluation

While the site has not yet been evaluated with beginning teachers, it has been evaluated formatively with a small group of eight target preservice teachers. The evaluation comprised observation of students using the site in small groups, a questionnaire and a focus group discussion. Students were asked to use the site and then to complete the questionnaire. At the conclusion of this session, all the students came together for a discussion of the issues.

The findings from the questionnaire were uniformly positive with students valuing as *Very helpful* or *Helpful*, the majority of support elements provided on the MEOW website. (Of the five respondents, only one response item fell outside these parameters.) In the focus group discussion, some problematic issues were raised, such as the uncertainty that schools would have reliable and ready access to the Internet. However, if such practical difficulties can be overcome, the students pointed out the value of cross-fertilisation of ideas between practising teachers, preservice teachers and university instructors. The students suggested that the video demonstrations of teaching and assessment strategies were particularly useful in providing practical demonstrations of the theory learned in their coursework during teacher training. Finally, the suggestion was also made that other discipline areas could use the site as a template and provide similar support (particularly useful for elementary school teachers).

It is proposed to conduct an interpretive, summative evaluation after the site has been fully developed and made available to beginning teachers. The investigation will focus on whether the site is used reflectively, the value of the lesson plans and other resources in strengthening teachers' mathematics pedagogy, and the value of the communication elements of the site in enhancing a sense of collegiality and reduction of isolation.

## Conclusion

Achieving successful induction for teachers may result in reducing the current high attrition rates of beginning teachers and as other successful programs have found, may provide a positive influence on the beliefs and practices of their more experienced school colleagues (David, 2000).

The beginning teaching experience can be daunting. Adopting traditional methods of teaching and assessment from their own classroom experiences and discarding the methods advocated in teacher training courses may provide a safe and comfortable environment that enables one to survive the demanding pressures of the first year experience. A web-based resource such as MEOW has the potential to provide a bridge between the practical realities and constraints of the classroom and the more innovative, research-based methods and strategies that teachers experience at university. The website can provide a dynamic and reflective set of resources for new teachers, and importantly, provide the support that helps to overcome what can be immense geographical and professional boundaries.

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