

BOOK REVIEW

Learning About Teaching: An Interactive Tutorial Program to Facilitate the Study of Teaching

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Australian Association of Mathematics Teachers (Inc.), and Centre for Studies in Mathematics, Science and Environmental Education (Deakin University)
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"Learning about Teaching" is aptly named—the resource enables "participants" to study in depth the processes involved in the teaching/learning process. The resource is concerned with the development of good observation techniques for the identification of "quality" practice in the teaching/learning process. Although the resource's focus is clearly on primary school mathematics, it has wide application across the broader spectrum of education studies at both undergraduate and postgraduate levels of study, as well as in professional development programs. The resource consists of two components—a CD-ROM, and a tutorial book which can be used for either directed or independent study. Because of changes in contemporary higher education and professional development, the flexibility in delivery and course of study made possible through this format is much in demand.

The resource is based on a mathematics lesson which is an open-ended investigation of the problem "If you had 24 cubes, how many different box-

shaped constructions could be made?" It includes the complete video tape and transcript of the lesson; pre- and post-lesson interviews with the teacher; plans of the lesson and classroom; and interactive components in which the lesson is broken into sections. These are supplemented with focus questions designed to stimulate debate and discussion in a large group setting or as reflective tasks for individuals working through the program. These focus questions provide direction and stimulation for the examination, discussion, analysis, and critique of, as well as reflection on, teachers' work.

The original impetus for the resource arose from the authors' "debate" about undergraduate students' ability (or inability) to recognise good practice in teaching. This has spawned research which provides a strong empirical base for the resource.

The package itself comprises three main menus: General information, detailed study of one lesson, and six components of quality teaching. Unlike the linearity of a traditional text format, interactive multimedia permits participants to move from one section to another with relative ease so that linearity become obsolete. This format allows the participant to move from one section to another and then to another in a manner which is appropriate to their needs and interests. Different people may take completely different routes through the resource. The flexibility of this format is exploited well with a clear and concise menu and tools sections. Because of the clarity and common-sense approach taken by the authors and programmer, very little prerequisite knowledge of multimedia is necessary to enable a participant to work through the resource. This is certainly a strength of the package.

In introducing the resource, the authors are clear about the parameters within which such a package is located and what is feasible and what is not. They state from the outset that it is not a "recipe for quality teaching" but rather a flexible, interactive program which can be accessed in a very structured manner (as per the tutorial guide) or through individual processes as required or desired by the lecturer, teacher, professional development leader or student. This section is set out so that the neophyte computer user will gain ready access to the program. In order to set the scene for the program, the authors have included some preliminary readings to help orient the participants. Although these readings are more than adequate for mathematics education audiences, they are somewhat restrictive to a wider audience.

The second section involves the study of one lesson. This section is divided into eight subsections: lesson plan; pre-lesson interview; video of lesson; lesson transcript; phases of the lesson (this section includes the introduction, posing the problem, students working, reporting back, and the worksheet); post-lesson interview; individual students (this section involves a map of the classroom and the monitoring of interactions with individual students) and lesson data.

Having gained an overall impression of the lesson, the participant can deconstruct the lesson in numerous ways depending on what may be of interest or the focus of study. This section is constructed in a manner which enables the participant to "drop in and out" of the sections. This aspect of the medium is particularly relevant to the study of teaching since it allows participants to study in depth the structure of a lesson which is often implicit and hidden. The authors have made this aspect

of the teaching culture explicit and accessible. The phases which the authors have employed to describe the lesson give the participants access to more detail and are consistent with the purposes of the package. Perhaps the origins of these phases could have been acknowledged so that newcomers to education will realise that such categories are the constructions of writers and not unilateral categories. However, I do not regard this as a major criticism of the package.

The amount of detail available for participants to examine is a strength of the package. Not only can the participant examine the individual interactions of each student through a clearly presented class map, but the supplementary data also permit an analysis of the number of interactions, the times of interactions, and the number of questions asked by students. Such data provide a starting point for discussion on the qualitative nature of classroom interactions and questioning. This is an important feature of the program since it breaks away from the quantification of interactions and questions and leads to an important aspect of classroom talk—the quality of talk (and questions). The authors' work is strong in this area and leads appropriately into the third component of the program "Aspects of quality teaching."

The third major component of the program is quality teaching and the authors have used their research in this area to inform the construction of this section. They identify six components: building understanding, communicating, engaging, nurturing, organising for learning, and problem solving, and these are used to provide the framework for this section. From the outset, the authors acknowledge that such categories are their constructions and are not meant to constrain thinking of other

ways of defining "quality teaching." The authors are coming from a constructivist perspective and are advocating a classroom environment which supports the active involvement of students in the teaching/learning process. However, the program does not constrain supporters from other perspectives as the open-endedness of the program allows participants to debate and argue for certain ways of teaching and learning which may not be perceived as "constructivist."

The fourth major component of the package is the supplementary readings. A set of 12 readings is used to inform various sections of the program. The text is in two forms—printed text in the booklet and electronic which can be accessed from the CD-ROM while working through the program. Most of the readings are illuminative and inform the program well. Others are less successful. It is suggested that this difference is potentially due to the authors' intentions of making the package accessible to a range of students.

In attempting to cater for both undergraduate and post-graduate audiences, the authors have tried to cater for too much diversity. A further limitation of the readings is their emphasis on mathematics education. Recognising that the package is centred around mathematics education, the authors suggest that it is applicable to a wider field—yet the readings focus on mathematics education, and the potential wider audience is not catered for.

If the program is worked through in the structured manner as outlined in the study guide, then the participant will be familiar with the video of the classroom and this section will help to consolidate the learning outcomes. Links to the classroom video in which the six components of quality teaching are exploited so that the participant is able to "see" the strategies used by the

teacher (and the students) have been carefully planned. This leads to a logical conclusion for the structured participant. Alternatively the "grazer" who pops in and out of program will still gain from this section whether or not the previous sections have been perused since the structure and supplementary readings provide substantial information. Either way, the participant will be provided with exemplars of the six categories and their subcategories of "quality teaching."

Overall, the program is an excellent resource for both undergraduate and postgraduate studies. It is relevant to mathematics education, although its structure makes it useful for other areas of teaching as well. However, the focus on mathematics and the supplementary readings does restrict it somewhat in the broader context since many of the underlying principles and philosophies are unique to mathematics education. I strongly recommend the package to teacher educators in the areas of mathematics education and foundation subjects because of its in-depth analysis of teaching and learning. The breakdown of aspects of the lesson allows for deeper analysis of the teaching process and will foster good observational skills in teachers. In regard to a formal lecture situation, a limitation of the program is the stilted nature of the video clips. It is recognised that this is not a criticism of the authors but rather the software used to create such programs. The program is an excellent resource both for teacher educators to guide their students through "quality teaching" and for independent learning environments. The latter is a particular strength given the changes that are inevitable in the evolving tertiary education sector where there is an urgent need for greater flexibility in teaching and course delivery.