

# Different strokes

*Differentiating lessons within a classroom is still largely unexplored but technology can be a help*

Students learn at different paces and in different ways so presenting lessons in a form that suits every type of learner is a real challenge.

We've had streaming for a very long time but the real complexity arises when addressing the need to differentiate lessons within a single classroom. Even the concept of differentiation during a lesson and the various approaches to it are complex, there's any of a number of theories or definitions that you could reference. At its heart, though, differentiation acknowledges that learners are motivated by appropriate levels of challenges and choice.

When a curriculum is appropriately differentiated it can result in a high standard of education where formative assessment informs instruction, classroom routines flexibly cater to student needs and where all students and teachers share responsibility for outcomes.

Learning how to differentiate well involves a process of discovery, concept affiliation, pursuit of additional knowledge, and the persistence to follow through.

The key to making this possible is an appropriate use of social networking technologies that are becoming commonplace in the classroom. Encouraging a participatory student culture using student response systems and Web 2.0 tools will enable teachers to differentiate lessons and allow them to monitor each student individually.

When you are looking to differentiate lessons, a free flow of information and the



ability to monitor each student individually is a great place to start. A recent study by Macquarie University's Dr Matt Bower in conjunction with Keepad Interactive and Plumpton Education Community, investigated the use of Web 2.0 technologies and TurningPoint student response systems in addressing the need to have several paces and types of learning within a classroom.

"Many teachers agree that technologies can be used to enhance the curriculum, the question is how to best implement them to improve learning outcomes," he says.

Bower has been conducting a series of interactive teacher workshops in his research investigating the best ways of using technology in the classroom and instructing teachers in its use.

Student response systems, the various Web 2.0 facilities like wikis, the online course management system Moodle and social bookmarking enable teachers to then adapt lessons to suit.

As part of one of Bower's research projects, teachers from the Plumpton Education

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Community in suburban Sydney recently undertook a program of professional learning workshops to improve their ability to differentiate the curriculum for students and how technology could be used in that process.

“The sessions indicated how far you can go with this new approach. Significant differentiation methods with satisfying content for all could be achieved in a very short space of time with the appropriate professional learning program,” Bower says.

The program involved a two-hour workshop focused on Web 2.0 learning and teaching strategies; a two-hour follow up evening workshop on how to provide differentiated learning pathways depending on student ability levels; an optional two-hour individual mentoring session and a two-hour follow-up session to review what was learned and to gather feedback from participants.

The majority of teachers came to the workshop with experience using the TurningPoint SRS in their classes, particularly those teaching science and math subjects. Results from the first session indicated that many of those attending were at a novice level when using Web 2.0 technologies, however, once strategies for differentiation were discussed the participants quickly caught on.

Teachers were asked to use a wiki to put together a basic schedule of diagnostic questions for the SRS system at the most basic level. The teachers identified ways of differentiating the curriculum content, gaining better understanding of the precise meaning of the different cognitive process levels and dissected the curriculum content to create diagnostic questions at each of the levels which students could complete using the student response system. Teachers sought to create opportunities for each level of student ability, designing activities that leveraged Web 2.0 technologies to provide three alternative learning pathways; basic, intermediate and advanced.

At the basic level, “understand/remembering”;



Matt Bower

A differentiated lesson requires teachers to identify an approach to differentiation, understand how to deconstruct the subject matter into formative questions, apply student response technology to create diagnostic questions, analyse potential ways to differentiate activities, evaluate effective strategies for different students to access material and create alternative learning pathways using a range of social networking the technologies. Implementing this approach within a school requires an acceptance of a more participatory student culture and a willingness to use technologies that enable this.

the teachers outlined questions and distractors for planned lessons using the TurningPoint SRS to formatively assess students’ knowledge of terms and definitions. For instance, in the Science topic of Ecosystems, questions related to identifying types of root systems.

At the intermediate level of “apply/analyse” teachers suggested lessons using TurningPoint SRS to assess students’ ability to use their knowledge in certain situations, for instance, if germination is required at high tide what quality of seed coating would be most suitable.

The most advanced “evaluate/create” level involved teachers assessing problem solving and divergent thinking, for instance determining the best approach to wildlife management given a complex context.

The process of breaking lessons down into three levels is applicable across all subjects, from Mathematics to English to Science and History.

Bower found that teachers’ idea of differentiation sharpened throughout the program, progressing from broad generalised ideas to specific methods of providing a variety of different ways for students to access learning.

Not only did the program develop teacher conceptions relating to alternative learning pathways but also improved teacher practice with 13 out of 14 teachers stating that they differentiated their lessons after attending.

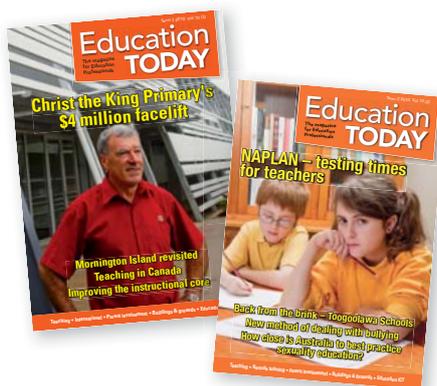
The reflective process in the program aided by the use of a wiki to showcase best practice examples as part of a Moodle online course management system resulted in discussions relating to the efficacy of technology in learning. Teachers’ self perceived ability to integrate technology into their teaching was significantly improved and most said that the program increased their enthusiasm for using technology.

“The use of the TurningPoint SRS gives students a voice, they can express themselves in a non threatening way, one on one with the teacher. The ability to share knowledge using online technologies gives the slower students access and insight into what the more advanced students are doing.

“From a teacher’s point of view differentiation using Web 2.0 tools and SRS require higher level thinking about the course material and demands advanced thought into concept representation using online tools,” Bower says. **ET**

Keepad Interactive  
tel 1800 463 279  
Matt Bower matt.bower@mq.edu.au  
Plumpton Education Community  
<http://web1.plumpton-h.schools.nsw.edu.au/>

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