**PERSONAL SPACE**

**STEVEN SCHWARTZ** *argues that psychology teaching should take heed of psychological research and offer more 'problem-based learning'.*

# Time to bid goodbye to the psychology lecture

STUDIES of learning and cognition have dominated psychology for 150 years. The findings of this research have had important implications for education (Bransford *et al.*, 2000). Yet, psychological research has had little effect on how psychology itself is taught. Most psychology students still sit passively through lectures or their high-tech equivalent, the PowerPoint presentation. This brief polemic argues that it is time to change the way we teach psychology. It is time to move from passive to active forms of learning – from absorbing facts to solving problems.

Back to the remote millennia of its origins, teaching has been the subject of intense philosophical discussion and empirical research. Although the precise terms change from time to time, educators fall into two camps – didactics and constructionists – those who wish to impart information to students and those who think students should learn for themselves. The Enlightenment philosopher Jean-Jacques Rousseau summed up the argument for the constructionists as follows: 'Put questions within [a student's] reach and let him solve them himself. Let him know nothing because you have told him, but because he has learnt it for himself. Let him not be taught science, let him invent it' (Rousseau, 1762/1966, p.564). Although many schools took up 'discovery' learning, universities remained staunchly didactic. Even Jean Piaget, who did more than anyone to show that learning is a process of discovery, still lectured to his students (Schwartz, 1987).

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**WEBLINKS**

Problem Based Learning Initiative: *www.pbli.org*

University of Maastricht PBL site: *www.unimaas.nl/pbl*

University of Delaware PBL site: *www.udel.edu/pbl*

But universities could not remain aloof for ever. In 1969 McMaster University introduced discovery learning in the form of 'problem-based learning' (PBL) into its medical curriculum (Feldman *et al.*, 1980). A major justification for the PBL approach was that it was based on psychological research (Norman & Schmidt, 1992). The implications of this research for medical education are straightforward (cf. Schwartz & Griffin, 1986):

- Expert doctors do not necessarily know more facts. There are too many facts for anyone to learn.
- Experts differ from novices in the way their knowledge is organised and applied. Specifically, experts know which subset of their knowledge applies to which problem and they can adapt their knowledge to solve new problems.
- Experts are aware of their own problem-solving process. They also know what they don't know, and can call on others for assistance.

This may sound like common sense, yet traditional medical curricula ignored all three. The curriculum began with the basic sciences and moved to organs and then organ systems with a large dose of pathology, and finally to actual people. There was little integration of basic sciences and clinical work, and almost no opportunity for students to transfer what they learnt about the basic sciences to clinical contexts. Assessment focused on factual knowledge with scant regard to whether students knew when or how to use what they had learnt. Almost no effort was made to develop metacognitive skills that allow people to adapt their knowledge to the demands of different contexts. The formative assessment required to learn new tasks was largely absent. Finally, there was little or no opportunity to work in teams, even though that is how many clinicians work (in the operating theatre, for example).

Although it covered the same material as a traditional course, the PBL curriculum was designed to imbed this knowledge in realistic cases where it could be integrated and organised. PBL begins by posing students a realistic problem and letting them discover the solution, with the lecturer as a guide. As more problems are presented, students learn to ask increasingly probing questions. They 'discover' the answers using their own library, internet and laboratory research. Unlike students in traditional lecture-based courses, students studying in problem-

based mode are able to relate everything they learn directly to the clinical context.

Because of the emphasis on discovery, students who graduate from PBL courses may actually know fewer facts than those who pursue lecture-based programmes (Albanese & Mitchell, 1993; Colliver, 2000; Vernon & Blake, 1993). But in a fast-moving field such as medicine, 'factual' knowledge is soon obsolete anyway. Graduates from PBL courses who learn how to solve problems are prepared for a lifetime of learning and discovery. They are also more satisfied with their education and more motivated (Norman & Schmidt, 2000).

PBL is now used in many fields including engineering, architecture and business. This trend will accelerate as academics and students continue to harness the enormous power of the internet. Not only does it provide students seeking solutions with access to databases around the world, but it can also provide access to sets of 'problems'. Lecturers around the world can post problem-based exercises on the web; these can be accessed and perfected by other academics, eventually providing a globally accepted curriculum for PBL in many different fields.

Internet chat groups also provide an excellent way for students to explore problems with their instructors guiding the way. In this way, lectures will give way to assisted problem solving, and passive learning will be replaced with deeper understanding.

So, it is time that psychology takes heed of its own research and adopts PBL. The first step is a change in mindset. Students are not empty vessels to be filled with facts, but active, inquiring human beings whose natural curiosity we must harvest. Most important, we need to redefine our jobs. We academics are not here to teach students, but to show them how to learn.

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## References

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