

How can we teach students how to learn?



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Teaching students how to learn is a critical but perhaps underrated responsibility of teachers in higher education. Skilled educators provide students with training in how to learn, as well as subject-specific information relevant for their courses. To become skilled in this way requires being able to resolve conflicts or constraints that may arise. In this paper we identify typical conflicts encountered, and bring together a number of findings and suggestions in the literature on education that may assist teachers resolve such conflicts and plan effective learning activities for their students.

Introduction

“The hard part of teaching is not getting students to learn content: the hard part is getting them to learn how to learn and generate creative solutions.” (Wankat and Oreovicz 1998, p.1)

From both the institutional and research perspectives there is a need for teachers to take an active role in helping students in higher education learn how to learn.

University graduates are expected to be conversant in the language and techniques of their discipline and to have acquired additional relevant skills. In 1992 the National Board of Employment Education and Training of the Australian Higher Education Council lists “knowing how to learn” as one of the desirable “characteristics of quality” in graduates (Toohey 1999, p.71). And the University of Western Australia’s Mission Statement says “students ... are encouraged to develop the ability and desire ... to acquire the skills required to learn, and to continue through life to learn, from a variety of sources and experiences”

There is evidence from research on teaching and learning that knowing how to learn has definite benefits (Cooper 1995 and references therein). More recently, Bransford et al. (2000) identify three key findings in research on teaching and learning, with corresponding implications for teaching (summarised in Table 1).

Table 1. Key Teaching-Learning Findings and Their Implications

Teaching-Learning Finding	Teaching Implication
1. If their initial understandings are not engaged, students may not “deep” learn.	Teachers must tap into initial understandings of their students.
2. To become competent in some “area of inquiry”, students must have (i) a solid foundation of factual knowledge, (ii) an understanding of facts and ideas via a conceptual framework, and (iii) organisation of the knowledge in ways that facilitate future application.	Teachers must teach some subject matter in depth.
3. A “metacognitive” approach to instruction can help students become independent learners.	“Teaching of metacognitive skills should be integrated into the curriculum in a variety of subject areas.”

(Adapted from Bransford et al. 2000, p.14-21. The full text is available on line at <http://www.nap.edu>)

Our role as subject-area teachers

“The learner must choose to learn; learning is a responsibility that cannot be shared.”
(Novak and Gowin 1984, p.6)

“The teacher’s most basic responsibility is to design instruction that facilitates learning and encourages autonomy and independent thinking in students...”
(Murray et al. 1996, p.5)

We agree that the overriding purpose of higher education is “to foster higher order intellectual capacities in students” (Nightingale and O’Neil 1994, p.53). Toward this end, we assume it is appropriate to design instruction that includes the objective of enhancing student “metacognition.” Put simply, metacognition refers to reflecting critically on what one is doing (Biggs and Telfer 1987, p.146). Such instruction will include the provision of explicit how-to-learn activities in the classroom to raise student awareness of their own ways of learning. Ideally these activities should complement and link with materials and activities of other providers of how-to-learn experiences. Other providers include learning skills advisors or the like, who may provide study skills workshops, written materials, and one-on-one learning support for students. Western Australia’s four universities all have such providers.

An example of an activity aimed at enhancing students’ metacognition in lectures is to distribute a set of generic question stems which students can be encouraged to use during lectures. (See Crebbin et al. 1994 for an actual set.) Another example is to teach students concept mapping (see Novak and Gowin 1984) and have them apply it to course content. (See Ballantyne et al. 1997 for its application by a university lecturer.) Yet another example is to make explicit to students the processes one uses when lecturing. (See Brown and Atkins 1988.)

Conflicts in carrying out this role

In carrying out this role of including how-to-learn activities or learning strategies in the classroom, teachers may experience conflicts. How these are resolved can affect student dependency or independency in learning. For example, a teacher's initial approach may be one that emphasises "transmitting information to students" which is a "traditional or discipline based approach" (Toohey 1999, p.49-50). But teaching students how to learn may imply changing to a more "cognitive approach" emphasising understanding, with how-to-learn activities that aim to encourage student independence (Toohey 1999, p.55-57). Some teachers may feel uncomfortable about changing their approach. They may not be fully convinced about the potential benefits to students and therefore be reluctant to persevere with it. Also, they may not be confident of their own knowledge and skills in using a new approach. For example, Chalmers and Fuller (1995, p.189) noted initial uncertainty and tentativeness among teachers at an Australian university who were accustomed to "teaching subject matter rather than [teaching] learning strategies" and who had assumed that this was what students wanted and that students were already skilled learners. In other words, teachers may experience conflicts in their minds about whether and how to persevere with a new approach. What they do to resolve these conflicts can strongly influence whether students become more or less independent in their learning.

Similarly, students may experience conflicts when teachers try to introduce new how-to-learn activities. For example, if these activities conflict with students' initial conceptions of knowledge as essentially quantity of information, of teaching as transmitting information, and of learning as memorising information, then students may resent or resist them. Novak and Gowin (1984) and Chalmers and Fuller (1995) provide evidence of these student reactions. How the students resolve their conflicts can strongly influence whether they become more or less independent in their learning.

As well as internal conflicts or constraints such as those just described, there may be external conflicts or constraints. For example, if more time in class is taken up with how-to-learn strategies, then less time in class may be left for content, where content here refers to subject knowledge such as "facts, formulas, terms, names, dates, and so on" (Meyers and Jones 1993, p.34). Bertola and Murphy (1994, p.30) record the following comment by a tutor: "The most frustrating aspect of tutoring was running out of time, especially when I tried to teach skills as well as content." Again, Chalmers and Fuller (1995, p.189) write: "Teaching learning strategies takes time. Teachers have to establish a need for the strategy, explain it to students..." among other things.

Towards a resolution

"It is helpful to remember that what the student does is actually more important in determining what is learned than what the teacher does." (Schuell 1986 as quoted in Biggs 1999, inside cover)

Meyers and Jones (1993, p.33-34) suggest the following ways to alleviate the perceived conflict over time allocation between content and how-to-learn strategies:

1. Broaden the meaning of content to include "skills and understanding" as well as subject information.
2. Reduce subject information "to the essentials", leaving more time for "experiments with active learning."

Concern with teaching students how to learn and become independent learners is evident in the literature on active learning (Meyers and Jones 1993), critical thinking (Brookfield 1990), and mindful learning (Cooper and Boyd 1996). This concern involves an emphasis on teaching and learning processes (Cole and Chan 1994) and it comes from the cognitivist view of knowledge as something that is created by each learner.

Meyers and Jones (1993) note that subject information not dealt with directly in the classroom (e.g. lectures, tutorials, and seminars) can be assigned to students through reading and other tasks outside of the classroom.

Reduction in subject information and review of course content and objectives can be achieved by asking: “What do I want students to *know*... and be able to *do* ...?” (Meyers and Jones 1993, p.35). Ramsden (1992) emphasises the importance of linking content to expressed goals or aims and objectives in order to improve the quality of education by (a) enabling teachers to think more clearly about student progress and how it relates to their teaching and (b) enabling students to be clear about what learning is required for success.

Instructional components such as lectures and tutorials can be reviewed in like manner to the course itself. “Teachers can help students develop learning and thinking abilities at the same time as they teach subject matter by adjusting the ways in which they teach” (McKeachie 1987 as cited by Chalmers and Fuller 1995, p.15).

If we are to teach students how to learn, we face the problem of what teaching strategies to choose to be effective (Ramsden 1992). Killen (1998) provides a considerable amount of information on seven effective teaching strategies (direct instruction, discussion, group work, co-operative learning, problem solving, student research, and performance activities). He includes details on when these may be used, their strengths and limitations, and how they may be used and evaluated.

Chalmers and Fuller (1995) provide a systematic discussion and examples of learning strategies that may be taught, as well as methods of teaching them. They refer to learning strategies in three broad categories:

1. Cognitive strategies (involving rehearsal, elaboration, and organisation), which enable learners to retain, retrieve, and structure information.
2. Metacognitive strategies (including planning, monitoring, and self-regulation strategies), which help learners to become consciously aware of and manage their thinking processes.
3. Resource management strategies, which help learners manage their resources (e.g. time, support from others) and environment.

Depending on the perceived learning task – acquiring information, working with information, assessing learning, or personal management – the teacher may choose learning strategies from one or more of the above categories.

According to Chalmers and Fuller (1995), the evidence suggests that the teaching of a learning strategy is most effective when the teacher gives direct instruction about the learning strategy and about when, where, and why it will be effective; and provides opportunities for students to practise it, obtain feedback on their practice, and compare it with other strategies. This conclusion is supported by Brown and Atkins (1988) and Nightingale and O’Neil (1994).

Although there is no magic formula or fail-proof set of techniques that will ensure effective teaching (“no one can predict with certainty whether a certain method will work in a particular context”), principles of effective teaching can provide guidance in deciding how to teach (Ramsden 1992, p.125-126).

At this point we return to the internal conflicts or constraints identified earlier. Firstly, student resistance to how-to-learn activities relating to subject matter may be overcome by a combination of factors, including clear explanation from the teacher for all activities and content in the course. Chalmers and Fuller (1995) suggest that university teachers must address four key aspects (motivation, active learning, interaction with others, and acquiring a sound knowledge base) to encourage students to choose a deep-learning approach. They consider that if these aspects are neglected, then the teaching of learning strategies is likely to fail. Also, Biggs (1999) identifies factors that encourage students to adopt a surface-learning approach, and advises teachers to avoid such factors, as a first step in improving teaching. Trying to apply principles of effective teaching as described in Biggs (1999), Brookfield (1990), Brown and Atkins (1988), Nightingale and O’Neil (1994), and Ramsden (1992) for example, would be likely to help.

Secondly, teacher resistance to teaching how-to-learn activities may be overcome by some combination of reflective practice, support and interaction with colleagues, and training.

Both student and teacher resistance to the teaching of how-to-learn activities can be overcome by positive outcomes of student empowerment and teacher satisfaction when the teaching and learning have been effective. [See Ballantyne et al. (1997), Chalmers and Fuller (1995), and Novak and Gowin (1984), for examples.]

Concluding remarks

Teacher aims to help facilitate students learn how to learn, can be realised or achieved despite the conflicts that inevitably arise. There will always be more content than time. As individuals we can strive to strike a better balance between spending all our precious classroom time on content and empowering our students to become independent learners. Similarly, there will always be classrooms with a few students who don’t want to learn actively. While teachers cannot make students learn or know how to learn, providing them with the opportunity to do so is a key role and responsibility for instructors in higher education institutions. If we accept the challenge to provide that opportunity to those students who do want to learn we must then learn about learning and teach differently.

In this paper, we have researched and brought together suggestions and findings in the literature on education that have been vindicated in practice and that appear to be important to consider in planning to teach students how to learn. A key component of this planning process for the teacher is to develop and maintain a focus on the student.

References

- Ballantyne, R.; Bain, J., and Packer, J. 1997 *Reflecting on University Teaching: Academics' Stories*, Australian Government Publishing Service, Canberra.
- Bertola, P. and Murphy, E. 1994 *Tutoring at University: A Beginner's Practical Guide*, CEA Publications, Curtin University of Technology.
- Biggs, J. 1999 *Teaching for Quality Learning at University*, Society for Research into Higher Education & Open University Press, UK and USA.
- Biggs, J. B. and Telfer, R. 1987 *The Process of Learning*, Prentice-Hall of Australia.
- Bransford, J.D. ; Brown, A.L., and Cocking, R.R., eds. 2000 *How People Learn: Brain, Mind, Experience, and School*, National Academy Press, Washington D.C.
- Brookfield, S.D. 1990 *The Skillful Teacher*, Jossey-Bass Publishers.
- Brown, G. and Atkins, M.. 1988 *Effective Teaching in Higher Education*, Routledge.
- Chalmers, D. and Fuller, R. 1995 *Teaching for Learning at University: Theory and Practice*, Edith Cowan University, Perth, Western Australia.
- Cole, P.G. and Chan, L.K.S. 1994 *Teaching Principles and Practice*, Prentice Hall.
- Cooper, C. and Boyd, J. 1996 *Mindful Learning*, Global Learning Communities.
- Cooper, G. 1995 *Learning at The University of Western Australia*, University of Western Australia.
- Crebbin, W. and the CAUT Project Team 1994 *Teaching in Higher Education for Active and Lifelong Learning*, University of Ballarat, Australia.
- Killen, R. 1998 *Effective Teaching Strategies: Lessons from Research and Practice*, Social Science Press, Australia
- Meyers, C. and Jones, T.B. 1993 *Promoting Active Learning: Strategies for the College Classroom*, Jossey-Bass Publishers, San Francisco.
- Murray, H. , Gillese, E; Lennon, M.; Mercer, M., and Robinson, M. 1996 *Ethical Principles in University Teaching*, Society for Teaching and Learning in Higher Education, York University, Ontario.
- Nightingale, P. and O'Neil, M. 1994 *Achieving Quality Learning in Higher Education*, Kogan Page Ltd, London.
- Novak, J.D. and Gowin, D.B. 1984 *Learning How to Learn*, Cambridge University Press.
- Ramsden, P. 1992 *Learning to Teach in Higher Education*, Routledge, London and New York.
- Toohy, S. 1999 *Designing Courses for Higher Education*, Society for Research into Higher Education & Open University Press.
- University of Western Australia *Mission Statement*.
- Wankat, P., & Oreovicz, F. (1998). "Content Tyranny" in October 1998 PRISM. Available: http://www.asee.org/prism/october/html/october_teaching.htm