

Reflecting on learning – continued

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Two recent letters^{1,2} have continued the correspondence initiated by Tomlinson³ on the role of reflection in teaching and learning. These letters report less successful (Gagan¹) and more successful (Maskill and Race²) attempts to introduce reflection as a routine part of the learning experience for students. We would like to add our own encouraging experiences to the current debate.

The final piece of work in our group exercises – *structured learning packages* (SLPs)⁴ – requires each participant to complete a written reflection exercise addressing the following (250 word) brief:

Describe how you have contributed to this team exercise and how the experience has allowed you to use, and develop, your key skills. *You should use this as an opportunity to practise writing about your achievements and also as a reflection on the exercise to identify where, and how, you have improved and where you perhaps need to concentrate on further improvement in the future.* Of the 89 responses, an overwhelming majority provide compelling evidence for a truly reflective learning process amongst participants. This takes the form of candid self-analysis of what they

thought they were good at before the exercises, what they improved at etc., with mention of specific positive steps which have been prompted by the exercise. Particularly pleasing were unsolicited comments such as those made about how participants felt that they had learned things from each other during the exercise. Only a handful of responses were pre-occupied with other matters, usually complaints from people who hadn't enjoyed the course (and even these were sufficiently reflective to acknowledge, if grudgingly, that they had benefited from the chance to practise speaking in public).

This written exercise is the culmination of a course where the whole 'culture' is designed to encourage reflection as a means to developing personal skills. The SLP begins with a classroom session where student perceptions of the nature and importance of key skills are discussed⁴. This includes each individual completing a skills profile form, discussing their responses with each other, and delivering a short team presentation on the strengths and weaknesses of their team. Discussion at this stage also focuses on teamworking skills in preparation for the teams tackling the first stage of the case study together. Subsequent plenary sessions focus on oral and written presentation skills in the same way, and other, *ad hoc*, sessions on using the literature have been held. Consequently, by the time the

students meet the concluding written exercise they are merely committing to paper the kinds of comments they have been making during discussions at the plenary sessions. This, presumably, is what Maskill and Race refer to as the 'framework of ideas'² which makes the process of reflection relevant, helpful and productive.

Courses where the explicit purpose is skills development present the type of learning experiences which are relatively easy to think about – generally 'learning by doing'. However, merely providing 'encouragement and opportunities to reflect'¹ might still prove counter-productive for many students if it were not for the familiarity they gain with the process during the course of our exercise. Our conclusion then would be that, in common with other issues in the area of skills, reflection cannot be 'bolted on' to existing courses but will be effective only if it occupies a central and familiar role in the learning process.

References

1. Gagan M, 1999, *U.Chem.Ed.*, **3**, 37.
2. Maskill R Race I, 1999, *U.Chem.Ed.*, **3**, 38.
3. Tomlinson J, 1998, Reflecting on learning, *U.Chem.Ed.*, **2**, 35.
4. Duckett SB Lowe ND Taylor PC, 1998, Addressing Key Skills in the Chemistry Curriculum: Structured Learning Packages, *U.Chem.Ed.*, **2**, 45.