

# **Assessing the impact of learning environments on students' approaches to learning: comparing conventional and action learning designs**

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This study investigated whether students' approaches to learning were influenced by the design of university courses. Pre- and post-evaluations of the approaches to learning of the same group of students concurrently enrolled in a conventional course (lectures and tutorials) and an action learning-based course (project work, learning groups) were conducted. Students who reported themselves as more 'typically deep' in their approach to learning were consistent in their approaches across the different environments. However, students who reported themselves as more 'typically surface' were influenced to adopt deeper processing strategies in the action learning design. Students explained this 'deep shift' in terms of the greater expectations of learner activity and responsibility in the action learning design.

Does the design of an academic environment influence the approach students take to their learning? If academic environments do have an effect on students' approaches, is the nature and extent of this influence consistent for all students? How might individual differences play a part? These questions are both theoretically relevant and practically important for university educators. The present study seeks to contribute to the ongoing discussion regarding ways to positively influence students' approaches to study.

## **The construct of approaches to learning**

The way in which students approach their learning has received considerable attention from researchers. Despite an original wide variety of methodologies and descriptive terms, a clear consensus has emerged that students approach learning with

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either a 'deep' (striving for meaning and understanding) or a 'surface' (instrumental, reproductive and minimalist) orientation (Marton & Saljo, 1976; Entwistle, 1991). Biggs (1999) has elaborated these basic constructs by proposing that approaches to learning are a dual combination of a motive and complementary strategy. Motives, as the term suggests, are the reasons or aims students have for learning. Strategies refer to the actual methods used by students in learning the material. Thus a student with a surface motivation for learning in a particular situation would be seeking to reproduce course material in the required manner with minimal understanding and would be likely to employ surface strategies (namely, reproduction of the basics, verbatim recall) to achieve this. Entwistle (1991) characterises this as a concern with completing the task itself more than gaining knowledge. Students with a deep motivation for learning would seek to satisfy an intrinsic interest in the course and would be likely to employ deep strategies (namely, interrelating ideas, reading widely) to achieve this. Entwistle (1991) characterises this as a concern for active understanding and personal mastery. Biggs (1987, 1989) proposes that students seek congruence between their learning motives and strategies in a particular context. Thus an approach to learning can be understood as a process of students devising learning strategies to solve the challenges their motives have defined for them.

However, it should be recognised that the approaches students use in practice are influenced by a range of personal and situational factors. For example, Tang and Biggs (1996) report some students clearly seeing that a deep approach was 'the way to go' with assessment but not knowing how to do this. Relatedly, students' approaches may be somewhat strategic, varying as a function of their cue-seeking or sensitivity to the perceived demands of authority figures (Biggs & Watkins, 1996).

There is a general consensus that a deep approach to learning is desirable in higher education. Academics' conceptions of effective independent learners (Baird, 1988) and the appropriate goals of higher education (Percy & Salter, 1976; Collier, 1985; Ramsden, 1992) reflect the deep approach. Beyond rhetoric there is also research evidence to support an association between deep approaches and enhanced learning outcomes. Students using a deep approach appear more able to demonstrate their understanding (Trigwell & Sleet, 1990) or develop their conceptions of material (Prosser & Millar, 1989) and report greater development of generic skills (Lizzio *et al.*, 2002; Lizzio & Wilson, 2004a). Whether or not a deep approach to learning results in higher grades is less clear because of the moderating effect of the type of assessment used. Collectively, this pattern of findings would suggest the desirability of higher education students adopting a deep approach to learning, and provides justification for educators seeking to influence students towards deeper approaches. Indeed some have suggested this as the key task for higher education (Kember & Gow, 1989).

An important consideration is whether students' approaches to learning are consistent or variable across learning situations. Work on this question has been generally conducted within Biggs' (1989) 3P model which conceptualises the learning process in terms of three sets of variables: the learning environment and student characteristics (presage), students' approaches to learning (process) and learning outcomes (product). Overall, research suggests that while students may have a general

predisposition for either a deep or surface approach to learning, this is influenced by their perceptions of a specific learning situation (Ramsden, 1992; Biggs, 1999), which, in turn, may also be influenced by wider contextual demands such as part-time employment. For example, students' perceptions that they have clear goals and are receiving good teaching appear to promote a deep approach (Lizzio *et al.*, 2002; Wilson *et al.*, 1997). In contrast, a perception of a heavy workload (Kember & Leung, 1998) is associated with a surface approach. Attempts to design learning environments that 'shift' learners into a deeper approach have had mixed results. Educators appear to know a great deal about the factors that may contribute to poor learning outcomes and considerably less about the environmental conditions within which deep approaches may be facilitated (Ramsden, 1985; Laurillard, 1993).

### **Learning designs and students' approaches to learning**

Some studies have found an association between student approaches and curriculum design. For example, students in medical schools with a conventional subject-based curriculum report increases in surface approaches to learning over the first year (Coles, 1985; Hilliard, 1995). In contrast, students in problem-based medical programs report lower surface and higher deep approach scores (Newble & Clarke, 1986; DeVolder & DeGrave, 1989). Consistently, Sobral (1995) reports that medical students in a problem-based environment described their course as more personally meaningful than did students in a comparative conventional course.

Dart and Clarke (1991) sought to improve the depth of learning of tertiary students by modifying their learning environments. Four different groups of students were compared to determine the effect of four learning interventions (namely, negotiation of the curriculum, peer teaching, learning contracts and self-/peer assessment) on learning approaches over a semester of study. However, only small non-significant increases in deep approaches occurred as a result of these separate interventions. The only significant difference was a small increase in students' deep learning strategy (but not accompanying motives) in the intervention condition that had students develop learning contracts.

Some interventions have sought to influence students' approaches by developing their study skills and strategies. Biggs and Rihn (1984) report a study skills course with a particular emphasis on how to understand and relate concepts. Neither the surface motives nor strategies of students changed as a result. Their use of deep learning strategies increased, but not their corresponding level of motivation for deeper learning. Ramsden, Beswick and Bowden (1986) also investigated the effects of learning skill interventions on higher education students' learning processes. Contrary to expectations, the students who received the learning skill interventions showed a significant increase in surface approaches compared to those who did not. Post-semester interviews revealed that students had learnt to adopt a strategic approach depending on the requirements of the assessment. Clearly, the approaches students adopt are as much a matter of perception as skill.

Educational designs which target students' active involvement in, and responsibility

for, the learning process appear to have some success in deepening students' approaches to learning. Lizzio and Wilson (2004b) designed an advanced facilitation skills course as a cross-year 'on-campus practicum'. Third-year behavioural science students acted as 'peer consultants' to first- and second-year student client groups. The third-year students reported using significantly fewer surface and more deep approaches to learning in this active design than in concurrent conventional (lecture and tutorial) courses. Students also reported significantly greater development of meta-adaptive skills (e.g., learning to learn) than in conventionally-based teaching designs. The outcomes of this study are consistent with recent factor analytic research (Evans *et al.*, 2003) which suggests that a deep approach and adaptive control of learning, while distinct ideas, appear to be related to a common higher-order construct.

Interestingly some recent research has directly focused on students' self-regulation as a means of influencing approaches to learning. Gordon and Debus (2002) focused on the modification of course context to facilitate students' progressive shift from surface to deep approaches. The longitudinal development of pre-service teacher education students was monitored using a quasi-experimental design (treatment and control groups) over a three-year period from enrolment to graduation. The goal in the intervention condition was a 'cyclic growth' over time in the use of deep learning approaches. An emphasis was placed on influencing students' self-monitoring and goal-setting and repeatedly challenging them to examine their learning approaches during assigned tasks. The study reported an initial reduction in students' reported surface approaches, followed by later delayed increases in deep approaches to learning. Such program-level interventions may have particular value as correctives to the reported trends for the maintenance (and, at times, increase) of students' surface learning across the course of their degrees (e.g. Zeegers, 2001).

### **Influencing students' approaches to learning**

In the present study we sought to investigate whether a course designed along action learning lines would positively influence students towards deeper approaches to learning. Such designs are typically distinguished from conventional didactic lecture and tutorial discussion formats by their use of project-based learning, cooperative student interaction and critical reflection on experience as learning mechanisms. These are the design components that have been proposed to facilitate a deep approach.

A central feature of action learning, as the name indicates, is the use of a learning project around which much of the learning and teaching activity is focused. Project work has been proposed as encouraging students to adopt a more involved and intrinsic orientation to study (Henderson & Nathenson, 1984). Gibbs (1992) proposes learner activity as a key factor in encouraging a deep approach. A second common feature in action learning designs is students functioning as cooperative structured peer-learning groups or learning sets. Such small groups (typically 3–6 members), usually working semi-autonomously but supervised by staff, plan and

undertake negotiated learning activities. The proposed educational benefits of enhanced student interaction and responsible engagement (Collier, 1985) of peer groups depends on whether students are pursuing clear and agreed learning outcomes and processes. Knowles (1986) argues that contract learning facilitates the development of students' internal locus of control in a learning setting. Given the empirical association of external locus of control with surface approaches, and internal locus of control with deep approaches to learning (Watkins & Akande, 1994; Cassidy & Eachus, 2000), the use of group learning contracts may contribute to a deep shift in students' learning. The third feature of action learning designs is the importance placed on critical reflection on learning activities and experiences. The extent to which students actually engage in critical reflection in large part depends on the extent to which the assessment methods employed have developing critical understanding (a defining aspect of the deep approach) as their goal. As has been reported on several occasions (Ramsden, 1979; Thomas & Bain, 1984), students can shift between surface and deep approaches to suit the assessment demands of their courses. Assessment processes such as peer teaching (students teaching other students) and integrative essays (involving synthesis of the experiential and theoretical) which require students to reflect on, consolidate, relate and communicate ideas require, by definition, deeper learning processes for academically successful outcomes.

### **Methodological considerations**

There are a number of methodological issues that need to be addressed if we are to more confidently assess the influence of particular learning environments and interventions on students' approaches to learning. As Kember *et al.* (1997) argue, the challenge is to use methodologies that allow innovations to be realistically assessed in naturalistic settings.

Some studies have reported a simple pre- and post-test comparison of a single group of students. An advance on this has been studies that have reported comparisons of the impact of two or more learning environments on students' approaches (Newble & Clarke, 1986; Kember *et al.*, 1997). However, the predominant approach has been to use a between-subjects design. That is to say, comparing different samples of students who are experiencing different learning environments. However, with a between-subjects design, interpretation of differences may be potentially confounded by any naturally-occurring variations between the group of students. A within-subjects design, where the same students concurrently engage in different learning environments, addresses this issue to a considerable extent. An added advantage of a within-subject design is that comparing the learning approaches of the same group of students across two learning environments allows valid comment on the relative stability of learning approaches.

Studies in this area of investigation are also susceptible to issues of sampling bias. These types of studies typically take a semester (as a minimum) to conduct. Any sizeable attrition or dropout of students (see, for example, Biggs & Rihn, 1984) may influence the direction of findings. Of equal significance is the extent to which

students are aware of the explicit purposes of the study (Dart & Clarke, 1991), or are motivated volunteers (Biggs & Rihn, 1984). Both of these situations limit the generalisability of findings to a wider student population. Finally, studies in this area have tended to make global comparisons of the effect of learning designs on cohorts of students. The direction and extent of influence of particular learning interventions may systematically vary as a function of individual differences in approaches to learning. Thus, a student's general or typical approach to learning may influence how he or she engages with, and is subsequently affected by, a specific environment or intervention.

In the present study we sought to address some of these methodological concerns. To control for potential group differences we utilised a within-groups approach comparing the same group of students concurrently enrolled in two contrasting learning environments. To control for potential response or expectancy effects, we ensured that students were not informed of the specific purposes of the study. To control for individual differences we obtained students' ratings of their typical approaches to learning at the beginning of semester and related these to their subsequent approaches over the semester.

In summary, the purpose of this study was to investigate whether a course designed to include components proposed to facilitate a deep approach to learning would result in students adopting deeper approaches to learning than in a conventional course design. We were also interested in understanding if any reported differences in the impact of the conventional and action learning courses on students' approaches was a function of their typical approaches at the start of semester. Finally, we were also interested to identify the relative contribution of specific design components (e.g., project work, student groups) to facilitating deep learning.

## **Participants**

Third-year behavioural science students who were concurrently enrolled in two courses of contrasting design (one a conventional lecture/tutorial design and the other an action learning design) were invited to participate in the study. Ninety-two per cent of these students (50 students: 40 females, age range 19–44 years, mean age 21.45 years; 10 males, age range 19–41, mean age 23.6 years) volunteered to participate in the semester-long study. Students were not aware of the specific purpose of the study. They were informed that the study focused on comparing their perceptions of and approaches to learning in different learning environments.

## **Procedure**

### *Comparison of the learning environments*

We compared two courses designed along contrasting lines. Both courses covered material common in the senior undergraduate curriculum of behavioural science and psychology programs. The specific content of the action learning course was

community psychology and the content of the conventional course was psychological assessment. Both courses involved four hours of class contact per week over a 13-week semester. In the conventional course, this involved two hours each of didactic lectures and tutorial discussion. In the action learning course, class contact involved interactive lectures and workshops. A major component of the action learning course was a fieldwork project (namely, investigating and reporting on a social issue) which students undertook in supervised learning groups of 3–6 members. The assessment for the conventional course emphasised an end-of-semester examination (multiple choice and short essays). There were also two within-semester practical laboratory tasks. The assessment for the action learning course emphasised a theory-practice reflective essay and the design and conduct of a peer teaching workshop, both based on the fieldwork project. There was also an end-of-semester short essay exam based on a prepared list of questions. The action learning course was designed and taught by the first author. A colleague not involved in the research study taught the conventional course.

### **Controlling for potential variation between the learning environments**

Students' learning approaches and outcomes can be influenced by a number of contextual variables beyond the actual design of a course. In particular, teaching quality (Ramsden & Entwistle, 1981; Lizzio *et al.*, 2002), workload (Kember & Leung, 1998) and students' interest in the learning task (Fransson, 1977). The comparative assessment of educational designs can also be confounded by 'good teacher effects' (Kember, 2000), where apparent differences between designs often disappear when taught by the same person. We thus sought to establish the similarity of these two courses on dimensions that might otherwise confound meaningful comparison. The university higher education unit independently conducted an evaluation of these courses in the previous year. Students rated (on a 7-point scale) the content curriculum of both courses as being of similar importance (5.0 v 5.0), the quality of teaching to be equally high (6.7 v 6.4) and the overall effectiveness of both courses to be very similar (6.1 v 5.9). The only point of variation was students rating the conventional course (4.5) as having a lighter workload than the action learning course (5.6). It was evident from students' qualitative comments and quantitative ratings that these two courses were exemplars of their design type.

### **Data collection**

Students completed the 42-item Study Process Questionnaire (SPQ) (Biggs, 1987) as a pre- (week 1) and post-semester measure of their approaches to learning in both courses. Students did not receive any feedback on their SPQ scores. The SPQ provides motive and strategy scores for deep and surface approaches to learning. Empirical studies have generally supported the validity of the measure (Hattie & Watkins, 1981; O'Neil & Child, 1984). Reliabilities (Cronbach's alphas) were calculated for each of the subscales of deep motive (.76), deep strategy (.74), surface

motive (.55), and surface strategy (.75) on students' responses in the present study. These were in the range reported for other studies (Wilson *et al.*, 1996).

In the first week of semester students were asked to rate themselves on the SPQ in terms of 'your typical or usual approach to learning'. In week 13 of semester students in the conventional design were asked to score the SPQ in terms of 'your approach to learning in this course'. In the following week the same students scored the SPQ in terms of their approach to learning in the non-conventional course. The SPQ was administered a week apart to ensure that students made distinct self-assessments of their learning approaches in each course. However it is acknowledged that there may be a potential order effect from successive administrations of the same instrument. While students completed the SPQ anonymously, they provided an identity code which enabled the three sets of responses to be matched.

This study was investigating how particular design features of the action learning course might influence students' approaches. Accordingly, students also progressively evaluated at different times over the semester, the effectiveness (1 'not at all' to 7 'very') of a number of teaching and assessment components. This 'just in time' evaluation strategy aimed to elicit students' ratings of design components at the point of optimal engagement. It was considered that this would provide a more valid measure of each separate component than concurrent end-of-semester evaluations that may be confounded by global perceptions of the course. Thus students evaluated the components at the following stages: learning group contract and participation (week 8), field work (week 10), supervision and peer teaching (week 12), workshops/interactive lectures and applied essay (week 14), and short answer exam (week 16).

## **Results and discussion**

### *Students' approaches in the two courses*

The first analysis investigated the relative influence of the two learning environments on students' approaches to learning. It was expected that students would report greater use of a deep approach and lesser use of a surface approach to learning in the action learning course. Students' reported use of deep motive and deep strategy and surface motive and surface strategy approaches was compared across the two courses. The differences between students' beginning of semester (week 1) and end of semester (week 13) SPQ subscale scores were calculated separately for the two environments and analysed by means of a repeated measures MANOVA. The independent variable was type of course (conventional, action learning) and the dependent variables were the difference scores for deep and surface motive and strategy. The multivariate F was significant ( $F(4, 89) = 4.21, p < .05, \eta^2 = .09$ ). Univariate analyses revealed that there were no differences in the levels of students' surface motives or strategies between the courses. However, students reported both higher levels of deep motive ( $F(1, 92) = 7.02, p < .01, \eta^2 = .21$ , means 25.7 v 23.9) and deep strategy ( $F(1, 92) = 5.34, p < .05, \eta^2 = .13$ , means 23.8 v 22.8) in the action learning course.

On the face of it, such a finding could be interpreted as indicating that the action learning course has the potential to influence the learning approaches of all students. Certainly, students reported higher levels of deep approaches in the action learning course despite perceiving it as involving a heavier workload than the comparative conventional course. Given the pattern of findings that surface approaches are generally associated with heavier workloads (Kember & Leung, 1998), the capacity of the action learning design to facilitate deep learning may even be underestimated in the present case. However, it may be the case that learning environments differentially impact on students depending on the approaches to learning they employ on entry. Accordingly, we sought to assess the influence of this particular environment on the learning approaches of students who reported themselves as more typically 'deep' or 'surface' in their approaches.

### **The effect of students' typical approaches to learning**

Students were categorised as 'typically deep' or 'typically surface' learners, based on their pre-semester responses to the SPQ (namely, 'your typical approach to learning'). Students who scored higher on a deep than a surface approach to learning were classified as deep learners ( $n=29$ , 58% of sample) and those who scored higher on surface approach were classified as surface learners ( $n=21$ , 42% of sample).

The difference in 'typically deep' and 'typically surface' students' deep motive and strategy scores between the two learning environments was analysed by means of a repeated measures MANOVA. The between-subject variable was typical approach to learning (deep, surface) and the within-subject variable was the deep motive and deep strategy difference scores. The multivariate  $F$  ( $F(2, 47)=3.20$ ,  $p < .05$ ,  $\eta^2=.12$ ) indicated that variations in students' use of deep approaches to learning were a function of their typical approach to learning. Univariate analyses revealed an interesting pattern. 'Typically deep' students were relatively consistent in their approach to learning and did not report any differences in either their motives or strategies across the two learning environments. On the other hand, 'typically surface' students ( $F(1,48)=6.54$ ,  $p < .05$ ,  $\eta^2=.15$ ) reported a significantly greater use of deep learning strategies in the action learning course (mean difference=2.14), but no corresponding significant increase in their motives for deep learning. Thus the action learning course did not have an impact on the students who reported themselves as typically deeper in their approaches to learning. It would appear that students who more typically take an approach based on understanding the material will tend to do so more consistently across courses, and may be less influenced by variations in design components.

However, the action learning design did impact on the behaviour (deep strategy) but not the motivation (deep motive) of students who were more typically 'surface' in their approach to learning. Interestingly, this shift in learning strategy, but not accompanying motive, has been found previously in studies seeking to influence students' approaches (Biggs & Rihn, 1984; Dart & Clarke, 1991). Clearly, learning behaviour is more amenable to environmental influence than underlying motivation.

Given that a learning approach requires an integration of both motive and strategy to be stable and sustainable, in Biggs' (1989) terms 'congruence', the generalisability or enduring quality of such shifts may be open to question.

### **Students' perceptions of components**

We then sought to clarify whether the specific learning (learning group contract, learning group experience, fieldwork task, fieldwork supervision, peer teaching, and workshop/lectures) and assessment (peer teaching, integrative essay and short-answer exam) components of the action learning course were perceived differently by students who were categorised at the beginning of semester as 'typically deep' or 'typically surface' learners. We conducted a discriminant function analysis using the ratings of the teaching and learning variables as predictors of membership of the two groups of 'typically deep' and 'typically surface' learners. The discriminant function ( $\chi^2(6)=6.18, p < .41$ ) indicated that students' typical approaches to learning did not predict their ratings of the effectiveness of the teaching components. We conducted a second discriminant function analysis predicting students' ratings of the effectiveness of the assessment items to the same two groups. Once again, the discriminant function ( $\chi^2(3)=4.18, p < .25$ ) showed that the two groups of learners did not differ in their ratings of the assessment components. Clearly, students' typical approaches to learning did not influence their perceptions of the relative effectiveness of the learning and assessment components of the course. Specific design components (e.g., individual assessment practices) were not identified as being more or less salient in enhancing deep approaches to learning.

### **Summary**

At the most general level of analysis, students reported higher levels of deep learning motive and strategy in the action learning as compared to the conventional course. However, this level of analysis proved to be misleading. Further analysis, differentiating students' typical approaches to learning, revealed a more fine-grained pattern of difference. Students categorised as 'typically deep' in their approach to learning were consistent in their approaches to learning across the two courses. However, students categorised as 'typically surface', while not motivated to be deeper learners, utilised more deep learning strategies in the action learning than the conventional course. This 'deep strategy shift' could not be explained in terms of the relative contributions of particular learning and assessment processes. As well, both 'typically deep' and 'surface' learners evaluated these components at similar levels of effectiveness.

An important implication of the above findings is that the often-used strategy of evaluating the differential impact of learning environments (e.g., problem-based compared to conventional) on students' approaches to learning in terms of the 'average effect for all students' may result in misunderstanding the actual effect on specific groups of students. It would seem that students' starting approach to learning

is an important consideration in understanding the potential influence of a course design on learning processes.

While we were clear as to the different effect of the two courses on students' approaches to learning, quantitative analyses of specific learning components did not explain the causes of such differences. We then sought to clarify this pattern of findings through discussions with the students themselves.

### *Students' understandings of the pattern of findings*

The purpose of this brief study was to better understand the pattern of findings from a student perspective. That is, we sought to involve students in not only providing, but also interpreting data.

### *Participants*

Ten students (6 female and 4 male), categorised as 'typically surface' on their pre-semester scores on the SPQ, volunteered three months after semester to participate in a brief (one-hour) focus group discussion. A person who was not involved in the teaching of the course facilitated the focus group.

### *Procedure*

Students were presented with the results of the course evaluation. The concepts of deep and surface learning were explained. Students were then asked to relate or explain the findings in terms of their experience of the action learning course. Notes of students' comments were made progressively during the discussion.

First, it is important to say that students were not surprised by the findings. They generally described these as 'fitting' their felt experience of the difference between the conventional and action learning courses. Students' initial explanations for the difference were predominantly focused on the theme of active learning (e.g., 'We had to do more learning by doing', 'The tasks required you to get involved'). This type of explanation is not surprising and is consistent with the argument that learner activity facilitates deep processing (Gibbs, 1992). However, when asked to explain how active learning (e.g., projects, peer teaching) may have influenced their approaches to learning (namely, increased deep strategy but not necessarily deep motive) students described themselves as being 'captured' by the course (e.g., 'You had no choice but to become involved in the topic', 'Because of the added responsibility it forced you to care', 'You had to do things at a deeper level than you would normally do'). It would seem that not only did the active aspects of the design influence these 'typically surface' learners, but also, and perhaps more importantly, the greater expectation of responsibility and interdependency with each other built into the learning process.

At a holistic level, students seem to be reporting an experience of being engaged in a 'web of accountability', where academic success is predicated on having to responsibly engage with the task (fieldwork project), their peers (learning groups

and learning group contracts) and other students' learning (peer teaching). The nature and extent of these expectations challenged the behaviour (more so than the intrinsic motivation) of students who might otherwise have employed greater surface learning strategies. Thus it may not be so much, as has been previously suggested, learner activity per se that contributes to 'deep shifts', but activity within a context which expects student responsibility and contribution. Students appear to be sensitive to the cultural messages about their role in the learning process that are implicitly structured into the design of courses.

#### *Limitations and future directions*

The present study used the original version of the SPQ to assess students' approaches to learning. There have been some criticisms of this instrument, particularly the stability and sensitivity of the surface scales (Burnett & Dart, 2000). This may explain in part the lack of variation in surfacing processing in this study. A revised two-factor study process questionnaire (R SPQ-2F) (Biggs *et al.*, 2001) has been subsequently developed specifically for the purposes of measuring student approaches in the context of course evaluation. This measure promises more reliable and sensitive measurement and should perhaps be employed in future studies of this type.

Present findings may also have been influenced by sampling procedures. The strategy of categorising 'typically deep' and 'typically surface' students by dividing the sample at the mid-point of the distribution may result in group membership being influenced by small variations in responses. Future research, with a larger sample, should seek to categorise by means of a tertile or three-way split of the student sample.

The limitations of conducting comparative research in naturalistic settings are worth repeating. An effort was made in the present study to ensure that the two courses were comparable on a number of key process dimensions (e.g. teaching quality) so that obtained differences in students' approaches might be meaningfully explained as a function of course design. While students evaluated the courses as equally important it is also possible that the differing curriculum content may have had an influence on students' approaches to learning. A pessimistic interpretation of the value of action learning designs is that the comparative differences in approaches might have occurred during the courses anyway. Future studies should explicitly control for the potential confound of curriculum content by employing time series or repeated case study designs in the same courses.

We should also be cautious about overgeneralising the educational benefits of action project-based designs on students' approaches. The 'deep strategy shift', while statistically significant, was also comparatively modest in practical terms. Indeed, the present study has only investigated the effect of limited presage factors on students' approaches. Future comparative research should seek to operationalise the complex relationship between presage (course design and student characteristics), learning process (student approaches), and learning products (learning outcomes and achievements).

The final question worthy of consideration is the limited time frame or 'window of

opportunity' which individual semester-long courses have to impact on students' approaches to learning. Clearly, there is a greater potential for positive influence if whole programs are coherently designed to address this challenge. The present study provides some tentative guidance in this regard.

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### **References**

- Baird, J. R. (1988) Quality: what should make higher education higher? *Higher Education Research and Development*, 22, 141–152.
- Biggs, J. B. (1987) *Student approaches to learning and studying* (Hawthorne, Victoria, Australian Council for Educational Research).
- Biggs, J. B. (1989) Approaches to the enhancement of university teaching, *Higher Education Research and Development*, 22, 7–25.
- Biggs, J. B. (1999) *Teaching for quality learning at university* (Buckingham, Society for Research into Higher Education).
- Biggs, J. B., Kember, D. & Leung, Y. P. (2001) The revised two-factor study process questionnaire: R-SPQ-2F, *British Journal of Educational Psychology*, 22, 133–149.
- Biggs, J. B. & Rihn, B. A. (1984) The effects of intervention on deep and surface approaches to learning, in: J. R. Kirby (Ed.) *Cognitive strategies and educational performance* (Orlando, FL, Academic Press).

- Biggs, J. B. & Watkins, D. A. (1996) The Chinese learner in retrospect, in: D. A. Watkins & J. B. Biggs (Eds) *The Chinese learner: cultural, psychological and contextual influences* (Comparative Education Research Centre, Hong Kong and Australian Council for Educational Research, Melbourne), 269–285.
- Burnett, P. & Dart, B. (2000) The study process questionnaire: a construct validation study, *Assessment and Evaluation in Higher Education*, 22, 93–99.
- Cassidy, S. & Eachus, P. (2000) Learning style, academic belief systems, self reported student proficiency and academic achievement in higher education, *Educational Psychology*, 22, 307–319.
- Coles, C. (1985) Differences between conventional and problem-based curricula in their students' approaches to studying, *Medical Education*, 22, 308–309.
- Collier, K. G. (1985) Teaching methods in higher education: the changing scene, with special reference to small group work, *Higher Education Research and Development*, 22, 3–27.
- Dart, B. C. & Clarke, J. A. (1991) Helping students become better learners: a case study in teacher education, *Higher Education*, 22, 317–335.
- DeVolder, M. L. & DeGrave, W. S. (1989) Approaches to learning in a problem-based medical program, *Medical Education*, 22, 262–264.
- Entwistle, N. (1991) Approaches to learning and perceptions of the learning environment, *Higher Education*, 22, 201–204.
- Evans, C. J., Kirby, J. R. & Fabrigar, L. R. (2003) Approaches to learning, need for cognition and strategic flexibility among university students, *British Journal of Educational Psychology*, 22, 507–528.
- Fransson, A. (1977) On qualitative differences in learning: effects of motivation and test anxiety, *British Journal of Educational Psychology*, 22, 244–257.
- Gibbs, G. (1992) *Improving the quality of student learning* (Bristol, Technical and Educational Services).
- Gordon, C. & Debus, R. (2002) Developing deep learning approaches and personal teaching efficacy within a pre-service teacher education context, *British Journal of Educational Psychology*, 22, 483–511.
- Hattie, J. & Watkins, D. (1981) Australian and Filipino investigations of the internal structure of Biggs' new Study Process Questionnaire, *British Journal of Educational Psychology*, 22, 241–244.
- Henderson, E. S. & Nathenson, M. B. (Eds) (1984) *Independent learning in higher education* (Englewood Cliffs, NJ, Educational Technology Publications).
- Hilliard, R. I. (1995) How do medical students learn: medical students learning styles and factors that affect these learning styles, *Teaching and Learning in Medicine*, 22, 201–210.
- Kember, D. (2000) *Action learning and action research: improving the quality of teaching and learning* (London, Kogan Page).
- Kember, D., Charlesworth, M., Davies, H., McKay, J. & Stott, V. (1997) Evaluating the effectiveness of educational innovations: using the Study Process Questionnaire to show that meaningful learning occurs, *Studies in Educational Evaluation*, 22, 141–157.
- Kember, D. & Gow, L. (1989) A model of student approaches to learning encompassing ways to influence and change approaches, *Instructional Science*, 22, 263–288.
- Kember, D. & Leung, D. (1998) Influences upon students' perceptions of workload, *Educational Psychology*, 22, 293–307.
- Knowles, M. (1986) *Using learning contracts* (San Francisco, CA, Jossey-Bass).
- Laurillard, D. (1993) *Rethinking university teaching: a framework for effective use of educational technology* (London, Routledge).
- Lizzio, A. & Wilson K. (2004a) First year students' perceptions of capability, *Studies in Higher Education*, 29, 109–208.

- Lizzio, A. & Wilson, K. (2004b) Action learning in higher education: an investigation of its potential to develop capability, *Studies in Higher Education*, 22, 469–488.
- Lizzio, A., Wilson, K. & Simons, R. (2002) University students' perceptions of the learning environment and academic outcomes: implications for theory and practice, *Studies in Higher Education*, 22, 27–52.
- Marton, F. & Saljo, R. (1976) On qualitative differences in learning: outcome and process, *British Journal of Educational Psychology*, 22, 4–11.
- Newble, D. I. & Clarke, R. M. (1986) The approaches to learning of students in a traditional and in an innovative problem-based medical school, *Medical Education*, 22, 267–273.
- O'Neil, M. J. & Child, D. (1984) Biggs' SPQ: a British study of its internal structure, *British Journal of Educational Psychology*, 22, 228–234.
- Percy, K. A. & Salter, F. W. (1976) Student and staff perceptions and the 'pursuit of excellence' in British higher education, *Higher Education*, 22, 457–473.
- Prosser, M. & Millar, R. (1989) The 'how' and 'what' of learning physics, *European Journal of Psychology of Education*, 22, 513–528.
- Ramsden, P. (1979) Student learning and perceptions of the academic environment, *Higher Education*, 22, 411–427.
- Ramsden, P. (1985) Student learning research: retrospect and prospect, *Higher Education Research and Development*, 22, 51–69.
- Ramsden, P. (1992) *Learning to teach in higher education* (London, Routledge).
- Ramsden, P., Beswick, D. G. & Bowden, J. A. (1986) Effects of learning skills interventions on first year university students' learning, *Human Learning*, 22, 151–164.
- Ramsden, P. & Entwistle, N. (1981) Effects of academic departments on students' approaches to studying, *British Journal of Educational Psychology*, 22, 368–383.
- Sobral, D. T. (1995) The problem-based learning approach as an enhancement factor of personal meaningfulness of learning, *Higher Education*, 22, 93–101.
- Tang, C. & Biggs, J. B. (1996) How Hong Kong students cope with assessment, in: D. A. Watkins & J. B. Biggs (Eds) *The Chinese learner: cultural, psychological and contextual influences* (Comparative Education Research Centre, Hong Kong and Australian Council for Educational Research, Melbourne), 269–285.
- Thomas, P. R. & Bain, J. D. (1984) Contextual dependence of learning approaches: the effects of assessments, *Human Learning*, 22, 227–240.
- Trigwell, K. R. & Sleet, R. J. (1990) Improving the relationship between assessment results and student understanding, *Assessment and Evaluation in Higher Education*, 22, 290–297.
- Watkins, D. & Akande, A. (1994) Approaches to learning of Nigerian secondary school students: emic and etic perspectives, *International Journal of Psychology*, 22, 165–182.
- Wilson, K., Lizzio, A. & Ramsden, P. (1997) The development, validation and application of the Course Experience Questionnaire, *Studies in Higher Education*, 22, 33–53.
- Wilson, K., Smart, R. M. & Watson, R. J. (1996) Gender differences in approaches to learning in first year psychology students, *British Journal of Educational Psychology*, 22, 59–71.
- Zeegers, P. (2001) Approaches to learning in science: a longitudinal study, *British Journal of Educational Psychology*, 22, 115–132.

