

Motivational implications of problem-based learning for the preparation of social workers

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Abstract

A cross-sectional study was undertaken with Social Work students. Achievement goals formed the theoretical basis of the study which examined the extent to which a problem-based (or experience-based) approach influenced students' motivation to learn and approach to studying. Thirty-six first-year Social Work students (96% of intake) and thirty-four fourth-year Social Work students (98% of intake) completed two questionnaires, one about their Social Work courses and an identical questionnaire about a compulsory Psychology course. The questionnaires focused on students' perception of the achievement goals encouraged by lecturers, reported study strategies, and attitude towards the course. Fourteen first-year and twelve fourth-year students also participated in interviews about their reaction to Social Work and Psychology courses.

Analyses of the data showed that students perceived a stronger mastery achievement goal in the Social Work courses and a stronger performance goal in the Psychology course. Perception of a mastery goal was associated with reported use of effective study strategies and a positive approach to studying. The interview data supported the questionnaire data and provided additional information about motivational factors associated with PBL. The study concludes with a discussion of the relative contribution of long-term personality factors and situational cues to students' motivation to learn.

Introduction

Problem-based learning

Problem-based learning is a teaching approach used in higher education (Dochy et al., 2003; Gijbels et al., 2005). It is based on a set of assumptions about learning from experience. These have been identified by Boud and Feletti (1991) as:

- experience is the foundation of, and the stimulus for, learning
- learners actively construct their own experience
- learning is a holistic process
- learning is socially and culturally constructed

- learning is influenced by the socio-emotional context in which it occurs.

Savery & Duffy (1995, p.32-34) provide a set of instructional principles for problem-based learning: anchor all learner activities to a larger task or challenging project; support the learner in developing ownership for the overall project or task; design an authentic task; design the task and learning environment to reflect the complexity of the environment they should be able to function in at the end of learning; give the learner ownership of the process used to develop a solution; encourage testing ideas against alternative views and alternative contexts; and provide opportunity for and support reflection on both the content learned and the learning process.

Achievement goals

Achievement goal theory forms a theoretical background for the current study (Ames, 1992; Harackiewicz et al., 2002; McInerney, 2005; Dowson & McInerney, 2004). This theory was developed within a social-cognitive framework which explores specific mediating processes and focuses on the purposes that are pursued or perceived in an achievement setting. Two contrasting achievement goal constructs have received the most attention in the research literature. Researchers differ in their formulation and definition of these goals (e.g., Ames, 1992; Harackiewicz et al., 2002). Here the goals are referred to as *mastery goals* and *performance goals*.

Mastery goals reflect a focus on learning new skills through effortful learning and increasing in competence, attempting to understand the nature of the work, and trying to achieve a sense of mastery based on self-referenced standards. Performance goals involve either the avoidance of negative judgments by others by hiding the lack of perceived competence from others, or attainment of positive judgments of competence by trying to surpass other students, receiving public recognition and succeeding with little effort. Performance goals orient students to focus on their ability and self-worth, and to determine their ability by striving to outperform others, thereby demonstrating competence and superiority

According to Ames (1992), different patterns of cognition and emotion may be elicited by different goals or purposes for achievement activity. A positive pattern is more likely when individuals adopt a mastery goal orientation. For example, the mastery oriented students described within the Ames and Archer (1988) study evidenced an adaptive pattern in terms of their learning strategies, preference for challenging tasks, attitude toward the class environment, and beliefs about the causes of success and failure. In particular, when students perceived their class as emphasising a mastery goal, they were more likely to report using a range of effective learning strategies, prefer tasks and activities that offer challenge, have positive attitudes towards the class, experience interest and enjoyment, and believe that effort will produce success.

Ames and Archer (1988) demonstrated that a mastery goal orientation is associated with the use of effective problem-solving strategies, in particular meta-cognitive strategies such as reviewing material not understood, asking questions as they work, making connections between current problems and past problems, and less use of superficial behaviours such as copying, guessing and skipping questions. A negative pattern of cognition and affect can occur when academically struggling individuals are focused on their ability to perform and when interpersonal competition, normative standards, or public evaluation are emphasised. In these situations, individuals adopt a performance goal orientation where demonstrating or protecting one's self-worth is a primary concern (Dweck, 1986, 1999; Dweck & Leggett, 1988). With a performance goal orientation, individuals seek to maintain positive judgments of their ability and avoid negative judgements by seeking to prove, validate, or document their ability and not discredit it (Elliott & Dweck, 1988; Dweck et al., 1995). Individuals are concerned with being judged as able, and ability is evidenced

by being successful, by doing better than others, or by succeeding with minimal effort.

Achievement goal orientations are presumed to differ as a function of situational demands as well as to vary across individuals (Maehr, 2001; Maehr & Midgley 1996). Situational demands can affect the salience of specific goals, and this results in differential patterns of cognition, affect, and performance. For example, when social comparison has been made salient in a classroom, students focus on their ability and these perceptions of ability mediate performance and affective reactions to success and failure (Jagacinski & Nicholls, 1984; Jagacinski & Strickland, 2000).

On the other hand, when students perceive their teacher as emphasising a mastery goal, they are more likely to report using adaptive learning strategies, prefer learning tasks which provide challenge, like their class more, and believe that effort and success co-vary (Ames & Archer, 1988). Creating a high-mastery environment has the potential to improve learning and motivation for all students. Focusing on mastery aspects of learning such as effort, persistence, help-seeking and the diffusion of competition may help high-performance oriented students engage in mastery-oriented learning. According to Dweck's (1986) analysis, students who have a mastery goal orientation, regardless of whether they perceive themselves to be relatively high or low in ability, seek challenging tasks that provide opportunities to develop new competencies. They see their teacher as a facilitator and resource guide in the learning process, rather than as an evaluator.

Research questions for the present study

- Does a problem-based learning approach to a Social Work program affect students' motivation to learn and the study strategies they report using?
- Do these same students report a similar motivation to learn and similar study strategies in a traditionally structured Psychology course?
- To what extent does a problem-based learning approach encourage students to adopt a mastery goal orientation?
- To what extent does a traditionally structured university course (Psychology) encourage students to adopt a performance goal orientation?
- What are students' experiences of problem-based learning (Social Work) and a more traditionally structured university course (Psychology)?

Method

First year Social Work students (N=36, 96% of total intake for the year) and fourth year Social Work students (N=34, 99% of total intake for the year) were invited to complete a questionnaire on two occasions. The questionnaire was adapted from Ames & Archer (1988). Students were offered the questionnaires near the end of their respective academic year. On the first occasion, students responded about their perceptions of their experience-based course in social work. One week later the same questionnaire was provided to students, this time asking them to respond about their perceptions of a conventional instructional program (Psychology 1). On both occasions students used the same pseudonym so that the two data sets could be matched for analysis.

Questionnaire

The questionnaire had four sections: a set of items concerned with students' perception of the achievement goals encouraged by lecturers; a set of items concerned with students' reported use of study strategies; a number of single items measuring students' attitude toward the course, willingness to accept challenging tasks, perceived ability compared with other members of their tutorial group; and a series of attributional questions about the students' perception of the causes of their success and failure.

Achievement goals

A set of 33 items was designed to assess students' perceptions of the mastery and performance dimensions of the tutorial sessions of Social Work and Psychology 1. A modified version of the scales developed by Ames & Archer (1988) was used, with a number of items re-worded to suit the university environment and to emphasise the role of the lecturer more than individual attitudes of students. Items were prefaced with the heading 'In this Social Work course' or 'In this Psychology Course and students rated each item on a five point Likert scale ranging from 'do not agree at all (1), 'agree (3), 'to strongly agree' (5). Examples of the 17 items constituting the Mastery scale are as follows: "The lecturer makes sure I understand the work"; "Students are given a chance to correct mistakes"; "The lecturer wants us to try new things"; "Making mistakes is part of learning"; "Students are encouraged to work collaboratively"; and "I work hard to learn". Examples of the Performance scale are as follows: "Students want to know how others score on assignments"; "I really don't like to make mistakes"; "Only a few students can get a high grade"; and "Students feel bad when they do not do as well as others".

Learning strategies

Students' reported use of effective study strategies in studying for Social Work and for Psychology 1 was assessed using 18 items (four items written in the negative were reversed in coding) adapted from those used by Ames & Archer (1988) and three additional items. The items concerned planning strategies, elaboration strategies, that is, integrating new information with what has been learned previously, and monitoring strategies, that is, checking understanding. The items described strategies that were generic to the process of learning rather than specific to a discipline. For example, 'when I study for this course, I set goals for myself' (planning); 'when I study for this course I try to pull together the information from class and what I read' (elaboration) and 'when I study for this course, I stop every so often to make sure I understand what I just read' (monitoring). The items in the scale were prefaced with 'in this course' and students rated each item on five-point Likert scales from 'not at all typical of me (1) to very typical of me' (5).

Adaptive approach to learning

Students' approach to Social Work and Psychology was assessed by using four items measured separately on Likert scales; how relevant they found the course (1-not relevant at all, 5-very relevant); how interesting they found the course (1-not interesting, 5-very interesting); how enjoyable they found the course (1-not enjoyable at all, 5-very enjoyable) and how willing they would be to take further courses similar to Social Work or Psychology 1 (1-not willing at all, 5-very willing).

Challenge seeking

Students responded to two questions about their willingness to accept challenge. The question did not refer to actual tasks within Social Work or Psychology 1. They were asked how likely it would be that they would choose an assignment which would be difficult, but from which they would learn something useful (1-not likely at all, 5- very likely). They were then asked how likely it would be that they would choose an assignment that would be easy and for which they probably would get a high mark (1- not likely at all, 5-very likely).

Perceived ability

Students were asked to rate their ability in the course compared with other students in their tutorial group (1-one of the lowest, 3-about in the middle, 5-one of the highest). Use of a single item to measure perceived ability *relative* to that of others comes from the work of Nicholls (Nicholls et al., 1989) who argue that a single, clearly defined question with a suitable response scale provides an accurate measure of perceived relative ability.

Interviews

During the second phase of the study, first and fourth year students who completed the questionnaire were invited to participate in a semi-structured interview. Interviewees therefore self selected to participate. Students who wanted to participate in the interviews were given the opportunity to request an appointment with the first author via telephone or e-mail. This process was undertaken to preserve confidentiality. Additionally, interviews were organized within the researcher's scheduled consultation timetable which also provided privacy (It should be noted the first author is a faculty member of the School of Humanities and Social Science with teaching responsibilities across the three years of the Bachelor of Social Science program and not involved in the teaching or assessment of Social Work students). Participants were made up of fourteen first year students and eleven fourth year students.

Interviews were conducted in time frames of approximately 1.5 – 2 hours duration and were audio-taped for later transcription and thematic analysis. The semi-structured interviews which explored students' reported experiences of the social work and psychology curriculum were guided by a subset of 10 broad focus questions. The interview schedule included the following probes:

- How would you characterise experience-based learning?
- How would you describe the tutor's role?
- How would you compare experience-based learning with conventional instruction (in Psychology in particular)?
- In what ways has experience-based learning influenced your learning?
- What do you see as the strengths of experience-based learning?
- What are the limitations of experience-based learning?
- How would you approach a typical learning task? (Individual & Group)
- What are the challenges and limitations of groupwork?
- How relevant are the assessment tasks in experience-based learning?
- To what extent have the learning tasks encouraged critical thinking and self-reflection?

As noted in the interview schedule, a number of questions were posed in different forms, and repeated throughout the interview to cross-check accuracy and to elucidate differing perspectives and layers of meaning (Glesne & Peshkin, 1992; Morse et al., 2001; Polit et al., 2001). Students were invited to review segments of the tape when they wanted to clarify a particular viewpoint, or to allow the researcher to check for accurate comprehension of the students' meaning. Audio-taped interviews were transcribed.

To handle the large amount of relatively unstructured data, a relational data base management program, Access 2000, was used. This program allowed transfer of discrete thematic sections from each of the transcripts and facilitated the organization, sorting and retrieval-cross checking of material. Structurally, a separate field was created to accommodate broad emergent themes derived from each student's open dialogue and responses to specific research questions. Additionally, a field was constructed to gather together core themes (commonalities and unique constructs) which aided the refinement of more discrete categories for analysis and interpretation. In this paper, the interview data are not reported fully. They are used here to complement the statistical data and to

add additional information about the implementation of a PBL approach.

Results

The statistical analyses are presented in the following order. First, the statistical properties of scales are checked for internal consistency, and for the climate scales, their inter-correlations within Social Work and Psychology and across Social Work and Psychology. Second, descriptive statistics for all variables are presented, accompanied by paired t-tests comparing students' responses in Social Work and Psychology. Third, zero-order correlations are calculated to examine relationships between theoretically relevant variables. Fourth, step-wise regression analyses demonstrate the influence exerted by perception of a mastery climate on motivational variables and reported use of effective learning strategies. Finally, there is a comparison of the responses of first year and fourth year students using independent t-test.

Development of scales

Mastery and Performance Goal Scales For both data sets (that is, students' responses to Social Work and to Psychology) a principal component factor analysis with a varimax rotation on the 33 items was conducted in an attempt to confirm an *a priori* classification of the items into mastery and performance goal categories. For the mastery scale, 14 items were selected on the basis of loading above .40 on the mastery factor in both data sets and below .30 on the performance factor in both data sets. For Social Work, the Cronbach alpha was .89, and for Psychology, the Cronbach alpha was .87. Because a mastery goal is concerned with developing competence, the items in the mastery scale focused on helping students to understand the work, working hard, acknowledging improvement, correcting mistakes, providing interesting tasks, and developing self-reliance. The items in the mastery scale are as follows:

Mastery items: "In this Social Work/Psychology subject..."

The lecturer wants us to enjoy learning about SW/PSY.

The lecturer stresses that hard work is the key to success in this course.

The lecturer gives us interesting work to do.

The lecturer makes sure we understand the work.

The lecturer wants us to learn how to solve problems on our own.

Students often do extra work because they want to gain more information.

The lecturer pays attention to whether I'm improving in my work.

The lecturer encourages trying even though we make mistakes.

We work hard because the lecturer wants us to know more about SW/PSY.

The lecturer encourages us to work for a high grade.

Students are urged to be self reliant in their work.

The lecturer wants us to try new and difficult tasks.

The lecturer wants us to present novel solutions to problems.

Students are given a chance to correct their mistakes

For the performance scale, nine items were selected on the basis of loading above .40 on the performance factor in both data sets (though for one item in the Social Work data set a loading of .32 was accepted) and below .30 on the mastery factor. For Social Work, the Cronbach alpha was .74, and for Psychology, the Cronbach alpha was .85. Because a performance goal is concerned with demonstrating competence to others, or hiding incompetence from others, the items in the

performance scale focused on competing with other students, negative emotions when students do not do as well as others in competitions, or worry when work is seen as difficult, and wanting to know the marks of other students in the group. The items in the performance scale are as follows:

Performance items: “In this Social Work/Psychology subject ...”

Students compete against each other to get high marks.

Only a few students can get high marks.

Students feel bad when they do not do as well as others.

Students try hard to get the highest grades.

Students compete to see who can do the best work.

The lecturer lets us know if we’re doing better or worse than other students.

Doing better than others is important to me.

Students want to know how others score on assignments and tests.

I worry when the work is difficult.

The main purpose of this part of the study was to develop scales to assess students’ perception of the classroom climate developed by Social Work lecturers and Psychology lecturers, and to link these perceptions with theoretically relevant variables. Because of this, analyses were conducted on the sample as a whole, not by year level. Year level analyses are reported at the end of this section.

Table 1 shows the correlations between the mastery and performance scales in the Social Work data set and the Psychology data set. The matrix also shows the correlation of the mastery scales between the Social Work and Psychology data sets and the correlation of the performance scales between the two data sets.

Table 1 Zero-order correlations between students’ perceptions of a mastery goal climate and a performance goal climate in Social Work and in Psychology.

	Mast (SW)	Mast (PSY)	Perf (SW)	Perf (PSY)
Mastery goal (SW)	1.00	-0.55***	-0.27*	0.54***
Mastery goal (PSY)		1.00	0.42***	-0.31**
Performance goal (SW)			1.00	0.07
Performance goal (PSY)				1.00

N = 70 * p <.05; ** p <.01; *** p <.001; SW = Social work, PSY = Psychology

First, to consider within-subject correlations. For Social Work, there is a negative correlation (r = -.27, statistically significant but not strongly so) between students’ perception of a mastery climate and their perception of a performance climate. For Psychology, there also was a negative correlation

($r = -.31$, statistically significant but not strongly so) between students' perception of a mastery climate and their perception of a performance climate. It appears, then, that students if students perceive a mastery climate in the subject, then they do not perceive a performance climate, and vice versa. Ames and Archer (1988) did not find a correlation between students' perceptions of classrooms. Other studies have had mixed results.

Second, to consider correlations across subjects. Students who perceive a mastery climate in Social Work do not perceive a mastery climate in Psychology ($r = -.55$). Students who perceive a mastery climate in Social Work perceive a performance climate in Psychology ($r = .54$). Students who perceive a performance climate in Social Work perceive a mastery climate in Psychology ($r = .42$). There is no correlation between students' perception of a performance climate in Social Work and their perception of a performance climate in Psychology ($r = .07$).

These correlations are difficult to interpret. The across-subject correlations suggest that students do perceive differences in the way they are taught, that is, there are more influences at work than individual differences among students in terms of their academic motivation. One could argue that students who are mastery-motivated as an individual disposition might perceive that their lecturers also are mastery-oriented: their individual dispositions colour the way they interpret the world. Similarly, students who are performance-oriented as an individual disposition might perceive that their lecturers also are performance-oriented.

The correlations (except for one) suggest otherwise, that students do perceive differences in the way lecturers set up their classes. In fact, some sort of contrast effect may highlight or exacerbate differences from one subject to another. So students who see Social Work as mastery-oriented do not see Psychology as mastery-oriented. Instead they see Psychology as performance-oriented. Students who see Social Work as performance-oriented see Psychology as mastery-oriented. The paired t-tests examining students' perceptions of mastery and performance classrooms (shown later in this section) did produce significant differences. Students perceive Social Work as more mastery-oriented and they perceive Psychology as more performance oriented.

Of course, there may be no contrast effect at work. Students' perceptions of one subject may not be influenced by their reaction to another subject. There was an interval of a week between students filling out the two questionnaires (one for Social Work and one for Psychology). This possible contrast effect does not occur with a performance climate. There is no relationship between students' perception of performance climate in Social Work and a performance climate in Psychology. In light of the other correlations discussed here, this lack of correlation is hard to interpret.

In his work on self-concept, Marsh demonstrates how we develop frames of reference (Marsh & Yeung, 2001). For example, how do students evaluate their competence in different disciplines such as mathematics and English. Do students compare their performance in English with the performance of their immediate peers (an external frame of reference) or do they compare their performance in English with their performance in mathematics (an internal frame of reference). He argues that most students use an internal frame of reference. So that they might evaluate themselves highly in English but low in mathematics (because their English marks are higher than their mathematics marks) even though they do better at mathematics than most of their peers.

The current data are not self-concept data, but a similar contrast effect may be operating. A student may be contrasting lecturing behaviour in Social Work and Psychology. So if she perceives that Social Work does not encourage students to compete, then she sees Psychology as strongly encouraging students to compete against each other. However, as noted previously, these correlational contrasts did not occur for perceptions of a performance climate.

Table 2 shows the means and standard deviations for all the variables as students rated them in Social Work and Psychology. Table 2 also shows the results of dependent measures t-tests that compared the Social Work and Psychology means. The mastery goal scale and the performance goal scale are reported as scores out of five. This was done to allow for ease of comparison because the scales contain different numbers of items (14 items in the mastery goal scale and nine items in the performance goal scale).

The t-tests comparing Social Work means and Psychology means show statistically significant differences in students' rating for all variables except *Perceived ability* and *Difficulty of the subject*.

Students perceived a stronger mastery goal climate in Social Work and a stronger performance goal climate in Psychology. They reported greater use of good study strategies in Social Work than in Psychology. They also indicated greater willingness to undertake challenging tasks in Social Work. They indicated more relevance in Social Work, more interest in Social Work, a willingness to take more of the same sort of subjects in Social Work, and more enjoyment in Social Work. They indicated more approachable staff in Social Work than in Psychology. Finally, combining Relevance, Interest, Enjoyment, and Take More Courses, they indicated a more positive approach in Social Work than in Psychology.

Correlational analyses

For Social Work and Psychology, students' scores on the mastery goal scale and the performance goal scale were correlated with all other variables. The correlations are shown in Table 3. For the mastery goal scale there was a number of statistically significant correlations for both Social Work and Psychology. Students who perceived a strong mastery goal in the classroom reported greater use of effective study strategies than students who did not perceive a strong mastery climate.

Table 2 Means and standard deviations for variables, within Social Work and Psychology, followed by paired t-tests comparing Social Work and Psychology.

	Social Work (n =70)		Psychology (n = 70)		
	Mean	St Dev	Mean	St Dev	t-test
Mastery climate #	3.69	0.64	2.64	0.63	7.83***
Performance climate #	2.88	0.60	3.43	0.75	-5.00***
Strategy use (18 items)	60.41	13.97	50.96	11.83	5.83***
Choose challenge (2 items)	6.94	1.78	4.71	1.86	7.88***
Perceived ability	3.23	0.78	3.13	0.72	0.80 ns

Relevance	4.56	0.85	3.16	1.10	8.26***	
Interest		4.24	0.94	3.21	1.23	5.72***
Take more subjects	4.03	0.93	2.80	1.21	6.43***	
Difficulty of subject	3.51	1.07	3.77	0.94	-1.43 ns	
Enjoyment	3.93	1.00	2.81	1.16	5.89***	
Approachable staff	3.63	1.02	2.69	1.22	5.21***	
Positive Approach #	16.76	3.09	11.99	4.07	7.55 ***	

p <.001 ***; ns = non significant

Mastery climate contains 14 items; reported here as a score out of five.

Performance climate contains 9 items; reported here as a score out of five.

Positive Approach is the sum of Relevance, Interest, Enjoyment, and Take more subjects.

These students also indicated a greater willing to undertake challenging tasks, a more positive attitude to study, and found the staff more approachable than students who did not perceive a strong mastery climate. Students who perceived a strong mastery climate indicated that this subject was more difficult than other subjects they were taking in Social Work, but not in Psychology.

For the performance goal scale there were fewer statistically significant correlations and no consistency across Social Work and Psychology. For Social Work, students who perceived a strong performance goal climate in the classroom were less likely to report using effective study strategies, less likely to opt for challenging tasks, and less likely to have a positive approach to studying than students who did not perceive a strong performance goal climate. For Psychology, the students who perceived a strong performance goal climate were less likely to perceive the staff as approachable than students who did not perceive a strong performance goal climate.

Table 3 Zero-order correlations between a mastery goal climate and a performance goal climate and motivational variables within Social Work and Psychology.

Variables	Social Work (n = 70)		Psychology (n = 70)	
	Mastery	Performance	Mastery	Performance
Strategies (18)#	.68***	-.34**	.57***	-.11
Perceived ability	.24*	.11	.22	.04
Choose challenge (2)	.46***	-.48***	.47***	-.16
Positive approach (4)	.47***	-.25*	.60***	-.03
Difficulty of subject	.34**	.02	.05	-.06
Approachable staff	.35**	-.15	.63***	-.30*

p <.05 *; p <.01 **; p <.001 ***

shows number of items in scale

These analyses suggest an interesting finding. That is, even though the t-tests show that students perceived a stronger mastery climate in Social Work than in Psychology, and that students perceived a stronger performance climate in Psychology than in Social Work, there were students who perceived a strong mastery climate in Psychology and students who perceived a strong performance climate in Social Work. When this occurred there were correlations with theoretically relevant variables. For example, students who perceived a mastery climate operating in Psychology reported use of effective learning strategies and opted for challenge. Students who perceived a performance climate in Social Work reported less use of effective strategies and less inclination to undertake challenge.

These correlations point to variation at the level of individual lecturer. It appears that the actions of some lecturers or tutors within the Psychology course encourage students to adopt a mastery goal and that the actions of some lecturers within Social Work encourage students to adopt a performance goal. It is interesting to note the very strong correlation ($r = .63$) between perception of a mastery climate in Psychology and perception of approachable staff. Even though the focus of the present study is the effects of a problem-based approach compared with a more traditional individualistic and competitively organized course, the influence of a lecturer's *individual teaching philosophy and style* must not be discounted. The present data did not identify individual lecturers or tutors in Social Work and Psychology. With the relatively small number of students involved ($n = 70$), analyses by lecturer would not have been feasible. However, with a bigger data set, multi-level modeling may have helped to tease out the effects of individual lecturer.

Regression analyses

It might be expected that students who see themselves as among the best students in the class, compared with students who rate themselves as average or below average, would be the ones to report using effective study strategies, to be willing to accept challenging work, and to report a positive attitude to studying. In the present data, students' rating of their relative ability was correlated positively with perception of a mastery climate in Social Work ($r = .24^*$). There was a similar but not significant correlation between students' ability rating and perception of a mastery climate in Psychology ($r = .22$ ns). It might be then that the relationships between students' perception of a mastery climate and their reported use of learning strategies and an adaptive approach to studying reflect conceptions of themselves as competent learners rather than the effect of classroom climate.

To demonstrate that students' perceptions of a mastery climate predicted use of learning strategies, challenge seeking, and a positive approach over and above that of perceived ability, a series of stepwise regressions was conducted with perceived relative ability (measured as a single item with a five point Likert response scale with 5 representing the positive end), mastery climate, and performance climate entered as independent variables. The results are shown in Tables 4, 5, and 6.

For learning strategies, students' perceptions of a mastery climate is the most significant predictor of reported use of effective study strategies in both the Social Work data and the Psychology data. For challenge seeking in the Social Work data, perception of a performance climate was the most significant predictor, but with a negative rather than a positive Beta weight. Perceived ability was the next significant predictor of challenge seeking in the Social Work data. For the Psychology data, perception of a mastery climate was the only significant predictor of challenge seeking. For a

positive approach, with the Social Work data and the Psychology data, climate was the most significant predictor, followed by perceived ability.

Table 4 Stepwise regressions for Social Work and Psychology predicting Learning Strategies from independent variables Perceived ability, Mastery climate, and Performance climate (n = 70).

Reported Learning Strategies					
Social Work			Psychology		
Order of entry			Order of entry		
R ²	Mastery	.46 (Beta .56)	R ²	Mastery	.33 (Beta .53)
Increment in R ²	Ability	.04 (Beta .25)	Increment in R ²	Ability	.04 (Beta .21)
	Performance	.04 (Beta -.22)			
Total R ²		.54	Total R ²		.37

Table 5 Stepwise regressions for Social Work and Psychology predicting reported Challenge-taking from independent variables Perceived ability, Mastery climate, and Performance climate (n = 70).

Challenge seeking					
Social Work			Psychology		
Order of entry			Order of entry		
R ²	Performance	.23 (Beta -.45)	R ²	Mastery	.22 (Beta .47)
Increment in R ²	Ability	.20 (Beta .39)			
Total R ²		.48	Total R ²		.22

Table 6 Stepwise regression for Social Work and Psychology predicting a Positive Approach from independent variables Perceived ability, mastery climate, and performance climate (n = 70).

<i>Positive Approach</i>					
Social Work			Psychology		
Order of entry			Order of entry		
R ²	Mastery	.22 (Beta .41)	R ²	Mastery	.36 (Beta .51)
Increment in R ²			Increment in R ²		
	Ability	.07 (Beta .26)	Ability		.16 (Beta .41)
Total R ²		.29	Total R ²		.52

Comparing responses of first year and fourth year students

Finally, the responses of first year and fourth year students are compared. The results are shown in Table 7. Comparisons should be made with caution because the first year and fourth year students are comparing different Social Work subjects. The first year and fourth year students are responding about the same first year Psychology, but the fourth year students were enrolled in the Psychology subject three years previously, though the interview data indicate that students remembered the subject vividly.

The t-tests indicate that the fourth year students perceived a stronger mastery climate in Social Work than did the first year subjects, but the opposite with Psychology where first year students perceived a stronger mastery climate than fourth year students. Fourth year students perceived a stronger performance climate in Psychology. Fourth year students indicated greater use of effective learning strategies than first year students in Social work but not in Psychology. Fourth year students also indicated a more positive approach in Social Work than first year students but not in Psychology. Fourth year students rated Social Work more difficult than first year students. Finally, fourth year students rated their lecturing staff as more approachable in Social Work than did first year students.

Perhaps the more mastery-oriented responses of the fourth year students indicate a cumulative effect of four years of an experience-based curriculum. Because the present study is not longitudinal in design - the students were not followed over the four years of their course - this interpretation must be speculative. In addition, it is interesting to note that the first year students perceived a stronger mastery climate in the first year Psychology subject than did fourth year students. There had been some changes to the Psychology subject between the experiences of the fourth years and the first years: a new subject convenor was appointed and he instituted some changes in the first year psychology subject, including the addition of a text book and better coordination and preparation of the tutoring staff. One could speculate that these changes may have enhanced the

mastery climate of the Psychology classroom.

Table 7 Means and standard deviations for variables of first year and fourth year students, followed by independent t-tests comparing responses of first year and fourth year students.

	First Year (n = 36)		Fourth Year (n = 34)		t-test	
	Mean	St Dev	Mean	St Dev		
SW Mastery climate #		3.43	0.59	3.97	0.57	- 3.94 ***
PSY Mastery climate #	2.85	0.55		2.42	0.66	2.91 **
SW Perf climate #	2.76	0.48		3.01	0.69	ns
PSY Perf climate #	3.16	0.77		3.73	0.60	-3.46 **
SW Strategy use (18 items)	55.44	12.87		64.41	11.92	-3.03 **
PSY Strategy use (18 items)	49.81	10.93		52.18	12.77	ns
SW Challenge (2 items)	6.67	1.85		7.24	1.67	ns
PSY Challenge (2 items)	4.81	1.53		4.62	2.17	ns
SW Positive Approach	15.92	3.56		17.65	2.21	-2.45 *
PSY Positive Approach	11.64	4.11		12.35	4.06	ns
SW Difficulty	3.14	1.22		3.91	0.71	- 3.25 **
PSY Difficulty	3.83	1.08		3.71	0.76	ns
SW Approach staff	3.40	1.08		3.88	0.91	- 2.07 *
PSY Approach staff	2.86	1.20		2.50	1.24	ns

SW = Social Work; PSY = Psychology

p. < .05; p < .01 **; p < .001 *** ; ns = non significant

Mastery climate contains 14 items; reported here as a score out of five.

Performance climate contains 9 items; reported here as a score out of five.

The questionnaire data support the argument that students' perception of a mastery climate can be linked to theoretically relevant variables such as reported use of effective study strategies, willingness to undertake challenge, a positive approach to learning, and approachable staff. The findings also support the argument that perception of a performance climate can be linked to theoretically relevant variables such as reduced willingness to undertake challenging tasks, a less positive approach, and less reported use of effective learning strategies.

Interview data

Qualitative data parallel and amplify findings identified in the statistical analyses and lend support to the assertion that characteristics of the learning situation influence students' motivational goals. Classroom experiences reported by students in the interview data reveal situations with fairly explicit expectations, structures, and cues which influence behaviour and foster differing goal orientations. The interview data illustrate well the ways in which certain kinds of instructional demands and situational constraints relate to various cognitive and effective outcomes. The data highlight the significance of a wide range of teacher practices that contribute to the classroom environment. Linkages have been made to studies that have shown that different personal goal orientations can be induced by emphasising factors such as self or norm referenced standards of

evaluation, by increasing or decreasing interpersonal competition, or by allowing or not allowing retest opportunities or opportunities to improve performance by applying strategies and skills improving with use.

Additional insights emerging from the interview data illustrate a range of positive effects of the experience-based model. These include high degree of challenge, authentic tasks, self-directed learning, autonomy and choice, collaboration with peers, developing cognitive strategies (planning, monitoring progress and evaluating final products), cognitive engagement, a high level of interest, relevance of material, and developing a personal knowledge base.

Student reaction to the small groupwork aspect of the Social Work program, while positive overall, shows some disaffected students. These students spoke of struggles with problem-based group activities, lack of structure and teacher direction, overly demanding tasks, negative group dynamics, lack of trust and fear of interdependence on others to complete tasks, and inadequate collaborative skills. The concluding chapter considers implications for the curriculum, limitations of the study, and areas for future consideration.

This study illustrates a range of positive effects attributed by first and fourth year Social Work students to their experiences of a problem-based curriculum. However, it is important to reflect on the experiences of disaffected students, centred on initial anxieties with the learning approach, and their need for greater structure and direct teacher input. Additionally, students' concerns about groupwork, inadequacy of group skills, time commitments, and the dynamics of being interdependent require attention. It is interesting to note that themes from the present research, for example, students' initial struggles with the learning model, need for more structure and direct teacher input, and concerns surrounding groupwork, were addressed in the team's annual evaluation, review and planning retreat of the Social Work staff.

Some students reported problems when negotiating a shift to a largely student-centred curriculum from a previously structured secondary education program. One student articulated a disjunction between her preferred learning approach and the demands imposed by a problem-based curriculum. Negative group dynamics and problems with an equitable sharing of the workload to complete group projects were also identified. Some students felt that they initially lacked the skills to cope with a high degree of interpersonal interaction. While these themes were articulated by a small number of students, they remain significant given the power dynamics operating within any interpersonal or educational process. Moreover, these themes have implications for students' ability to engage with a challenging process of learning.

Rather than reiterating the optimistic "mantra" of the experience-based learning adherents, here is an opportunity to consider the strengths and weaknesses of this innovative teaching and learning model. Further, there is the potential to stay connected to the "lived-experience" of students, to be sensitive and receptive to innovations and to contribute to curriculum debate rather than slavishly remaining committed to one form of curriculum. The past decades of zealotry should become more open to discussion and critical review, tempered by a more balanced curriculum evaluation.

Role of the Tutor

The themes arising from the present study reflect issues highlighted within a broad literature concerning classrooms based on constructivist principles. Zimitat et al. (1994), for example, report that the tutors' facilitative role is essential during the foundation period to the success of experience-based instruction. The role of the tutor in experience-based learning is different from that of a tutor in a traditional didactic system. There are two roles of the experience-based learning

tutor: facilitation of the learning process via prompting and critical questioning; and assisting in group processes to ensure that students maintain focus.

Further, Eagle, Harasym and Mandin (1992) argue that the tutors' expertise produces congruence between learning and case objectives, and stimulates a greater number of learning issues and task objectives. Sobral (1995), whose work has been influential in the problem-based learning community, has extolled the benefits of peer-tutored groups compared with expert tutors. However, Lai & Tang (2000) argue that there is a relationship between an expert tutor involved with the group and effective group processes. That is, the tutors' role is integral to the success of the program. This includes provision of cogent and timely content and modelling of strategies and skills.

There is no evidence to warrant the omission of teachers' direct input, except the caveat that the educator maintains the philosophy and practice principles of experience-based learning, and does not revert to a traditional didactic approach to instruction.

The tutor should both know how to deal with subject matter and how to facilitate the learning process. Barrows (1992) wrote: "Tutors should be experts in the subject matter areas they teach and they should be experts in facilitating students' learning processes as well as in guiding tutorial group processes. There is no question that the ideal situation is for the tutor to be an expert as an educator and in the discipline being studied by students"(p.43-44).

Greening (1998) argues that the tutor's role is critical in problem-based learning. The tutor is well placed to provide scaffolding to learners. Greening counters the views of Sobral (1995) who positions the tutor as ideally non-expert and predominantly non-directive. Greening points out that the traditional problem-based learning emphasis on student independence and ownership of problems does not preclude the use of scaffolding to build layers of comprehension and to assist in the development of attributes required for meaningful learning (p.3).

Lai & Tang (2000) also challenge the traditional stance of problem-based learning. They argue that some forms of hybrid problem-based learning models should be considered, at least at the introductory phase, to gradually reduce the gap between students' previous learning experience and the type of learning promoted by a problem-based curriculum. Hybrid models of problem-based learning may overcome the limitations of a fully integrated problem-based learning curriculum.

Researchers and educators practising in diverse contexts of both secondary and tertiary education continue to raise concerns about the gap between the purist rhetoric and practice of problem-based learning. Such debates are beginning to open a dialogue which may stimulate a willingness to consider variations to the traditional problem-based curriculum. What is important is the generation of debate, and the opening-up of ideas and practices to critical reflection and review.

Limitations of the Study

This study has a number of limitations. First, methodologically there is the use of a questionnaire (Ames & Archer 1988) initially designed for secondary students. While it was modified to reflect the vernacular and structure of the tertiary context, it may have been open to various interpretations by university students. Further, while the questionnaires were distributed to students by a person other than the researcher, the students may not have responded in a completely open manner. They may have felt constrained to express positive perceptions.

Second, potentially the interview data came from student volunteers who were in favour of innovative learning approaches. Although the interviewees appeared to represent a cross-section of the student body, this cohort may have experienced few problems with the learning model and had positive interpersonal interactions with Social Work teaching staff. Perhaps a bigger interview

sample would have provided more divergent opinions. Further, one can only surmise that the interviewees articulated a full picture of their experience within both Social Work and Psychology. Layers of subjective experience may have been overtly or covertly censored given the possible perceptions of power dynamics and the desire to present a positive portrayal of their experience within the learning environment (the researcher is a member of the Social Work staff).

The researcher also did not access the ethnographic context in which the students' reported experiences occur. The researcher did not observe the students in the everyday classroom context. In future studies, ethnographic approaches exploring the social, cultural or normative patterns in the natural setting of the classroom should be considered. From the perspective of an ethnographic understanding, the social world differs from the natural world because it is essentially a world of constructed interpretations and social meanings.

Thirdly, the cross-sectional approach of the study explored the perceptions of first and fourth year students. A longitudinal study tracking students over the course of the four year undergraduate program may have been able to demonstrate the cumulative effects of experienced-based curriculum. The present findings cannot be generalised beyond students' reported perceptions and experiences at one point in time.

It is also important to consider the possible effects of a committed teaching staff who embrace constructivist teaching philosophies and approaches. Both the foundation teaching staff, and ongoing appointments to the Social Work program, were committed to the Newcastle approach and have been instrumental in developing constructivist ideas and disseminating their curriculum innovations both nationally and world wide. This group of educators may exert a unique effect within this particular curriculum, an effect which is not readily generalisable to other settings or conditions.

Fourth year students were asked to reflect on a first year Psychology course, and compare this with their experience of Social Work over four years. Undoubtedly, questions can be raised concerning recall. However, it should be noted that students recounted specific content and elaborate perceptions which appeared grounded in reliable detail. Students are responding about multiple Social Work tutors and multiple Psychology tutors. As such, comparisons between students' experiences in Social Work and Psychology refer to experiences with many tutors. In this sense, the data are not clearly defined. On the other hand, the fact that clear differences emerged between students' perception of Social Work and Psychology suggests that the approach to teaching in these two areas transcend individual differences among tutors in their approach to teaching and learning.

Additionally, given that Social Work students were asked to compare Social Work and Psychology it is not surprising that there is a tendency to identify Social Work as the more interesting area of study. If the participants had been students majoring in Psychology who had taken a Social Work course the results may have been different. Indeed, it may be that the more positive reactions to the Social Work courses reflect students' desire to be Social Workers rather than the design of the Social Work program itself.

Discussion

This study extends earlier research about how classroom learning environments influence student learning, and emphasises the power of the classroom situation to influence students' views about the nature and purposes of learning. The study adds weight to the argument that learning environments can be differentiated in terms of specific informational cues that influence students' perceptions of the classroom context. Further, the structure of the learning environment can make different goals salient and consequently affect how students think about themselves, their tasks, and others.

Both quantitative and qualitative data demonstrate that both first year and fourth year students perceive a stronger mastery goal climate in the experience-based Social Work course and a stronger performance goal climate in the Psychology course. Students indicated a willingness to undertake challenging tasks in Social Work, perceived more relevance and interest, found the work more enjoyable, were willing to take more Social Work subjects, found the staff more approachable and reported using more effective study strategies in Social Work than in Psychology.

Interview data highlight the integral role played by classroom variables and teachers' instructional practices. In particular, qualitative findings support the arguments of Ames (1992) and Dweck (1986), that is, that goal orientation becomes evident when the teacher's instructional approach is designed to promote meaningful rather than rote learning, is adapted to students' interests, promotes positive peer relationships, and emphasises the intrinsic value of learning. Evaluation practices, task design, and grouping arrangements like those in the Social Work curriculum have been identified as significant structural features of classrooms that influence a wide range of motivational variables.

Nature of the Tasks

First year and fourth year Social Work students characterised the learning environment as providing variety and diversity of tasks. Additionally, students reported active engagement, autonomy and choice, relevance of tasks, and personal meaningfulness of the content and problem solving activities. The level of challenge embedded in the tasks, stimulation of interest, and encouragement to construct personal understanding of material, are significant positive effects of the learning program. These effects can be linked to an established body of research (Ames, 1992; Church et al., 2001) which emphasises the need for tasks that offer personal challenge, give students a sense of autonomy and decision making, and generate interest and enjoyment. Further, as discussed earlier, diverse and varied task structure diminishes students' opportunities to engage in social comparison, and as a consequence, performance differences within the classroom are less likely to translate into perceived ability differences.

Students described their experiences of the Social Work curriculum as providing opportunities to engage in novel tasks which presented differing levels of complexity, and they were encouraged to integrate knowledge by synthesising material. Students depicted this process as one of working towards deeper levels of comprehension. This focus on the development of an individual knowledge base and personal meaning system supports studies which demonstrate the power of the learning environment to elicit different goal orientations by emphasising either self-or norm-referenced evaluations (Church et al., 2000; Maehr & Midgley, 1996).

Evaluation Practices

Students in Social Work spoke of positive evaluation processes, practices, and mechanisms for constructive feedback. It was acceptable to make mistakes; errors were seen as a valuable part of learning. Further, they had opportunities to improve their performance. Constructive feedback provided specific suggestions for how this could be accomplished. There was a variety of evaluation practices which de-emphasised social comparison and the appearance of an ability hierarchy. The Social Work curriculum was designed to evaluate students' individual progress, a

process students contrasted with their experiences in other courses which emphasised social comparison and competition for limited grades or public recognition. Students spoke of the tutors' constructive and encouraging approach which highlighted students' strengths and capacity to improve. Individual consultation and the emphasis placed on personal improvement encouraged students to focus on their own effort and progress rather than focus on normative rankings.

Encouraging Autonomy

Students indicated that there was autonomy, decision-making and reward embedded in the curriculum. Various studies have raised the importance of involving students in decision making (for example, Ryan & Deci, 2000), and have highlighted the relationship between a sense of autonomy and students' intrinsic interest. Students' feelings of self-competence tend to be higher in classrooms that are autonomy-orientated. Classroom structures that provide students with real choice increase the quality of student engagement in learning. Indeed, Ames (1992) argues that when teachers are seen as emphasising independent thinking in addition to content mastery, students are more likely to place value on using effective learning strategies. Conceptual understanding appears to be facilitated by conditions that minimise external controls, and at the same time, focus students on the task. Further, shifting the locus of responsibility from the teacher to the student may be an effective means of reducing the salience of differential ability levels in the classroom.

Students spoke of collaborating in authentic Social Work tasks. They valued working together to resolve dilemmas drawn from practice. A recurring observation was the connection with real tasks and challenges, as opposed to purely theoretical work, or drill. Working on real tasks helped to develop meta-cognitive strategies such as planning, monitoring progress and regulating behaviours. Collaborative group work encouraged elaborative and organisational strategies such as 'brainstorming', testing ideas, and problem-solving. The cyclic process of critical reflection, problem-solving and review undertaken in small group was pivotal in integrating and connecting new knowledge with previous knowledge.

As observed in the literature (for example, Weinstein & Mayer 1986), elaboration and organisational strategies result in deeper understanding of material than strategies such as rehearsal. Planning activities used within the group included setting goals, skimming texts before reading materials in depth, generating questions before reading a text, and doing a task analysis of the problem. Students who report using these types of planning activities perform better on a variety of academic tasks in comparison to students who do not use these strategies (for example, Pintrich & Schunk, 1996). There is a relationship between a mastery goal and reported use of cognitive strategies (Ames, 1992; Archer, 1994). A mastery goal orientation has been associated with students' use of effective problem-solving strategies such as reviewing material not understood, asking questions as they work, making connections between current problems and past problems, and less use of superficial behaviours such as copying, guessing and skipping questions.

Support of the Tutor

The pivotal role of the classroom teacher emerges as a major theme in the qualitative data. Students appreciated the supportive environment created by the teacher. Teachers stimulated interest, curiosity and enjoyment, provided constructive feedback, fostered supportive interpersonal interactions, and modelled conceptual and practical skills. In particular, students benefitted from working alongside the teacher to solve problems and generate outcomes. There was a sharing of perspectives and experiences and application of theory to practice. Teachers modelled the use of theory, critical reflective skills, and constructing a personal knowledge base.

In several ways the learning environment of the Social Work program provided conditions

consistent with a mastery goal climate. Both the quantitative and qualitative findings of this study highlight a range of positive features, discussed in the work of Ames (1992) and Pintrich (1989). These include the design of diverse and interesting tasks and learning activities, meaningful and constructive evaluation practices which focus on individual improvement and use of rewards, and the provision of authority or responsibility to students. Teachers' instructional approach is designed to promote meaningful learning, encouraging students to focus on mastering and understanding content rather than rote learning. Learning is adapted to students' interests, promotes positive peer relationships, and emphasises the intrinsic value of learning. Evaluation practices focus on individual improvement, is provided privately, recognises effort, provides opportunities for improvement and encourages the view that mistakes are a natural part of learning. Finally, tasks are designed and presented in a way that makes learning interesting, offers a variety of novel tasks, stimulates personal challenge, and encourages active participation and curiosity.

Encouraging Authenticity

A major theme of this research has been students' engaging with authentic tasks which are embedded in social experience and mirror real-world challenges. Students saw the learning activities as being anchored in larger tasks which conveyed a sense of wider relevance, meaning and interest. Further, students report being encouraged to develop a sense of ownership for the overall problem or task.

A fifth dimension involves students' opportunities to take leadership roles, and develop a sense of personal control and independence in their learning. Students characterise the learning environment as encouraging feelings of self-competence and autonomy. Examples within the interview data highlight opportunities for decision making and the breadth of variety in task design. Students report being encouraged to express their ideas in a wide variety of presentation formats and experimenting with differing mediums to construct individual responses to research projects.

The classroom as a social organisation impacts on student motivation. The Social Work program requires small group learning where there is a perceived shift from competition and social comparison (experienced in other coursework studies) to a milieu which fosters collaboration focusing on the value of joint effort. This finding is salient in light of the research where competition and social comparison have been found to elicit thought processes that probably impede learning and motivation. When social comparisons and normative evaluation are made salient, students tend to focus on their ability (or lack of ability) and may engage in debilitating self-evaluation or performance avoidance.

The instructional approach of the Social Work program shifts attention from the transmission of facts to a more active construction of meaning. The use of cooperative learning activities in the classroom can have a positive influence on motivational orientations. Activities with interdependent reward structures reduce students' concerns about failure and evaluation because responsibility for learning is shared. Several studies have documented the positive effects of cooperative learning activities on students' subject matter interests, involvement in learning, and other motivational variables (for example, Slavin, 1989).

In sum, this study adds to the understanding of classroom motivational environments. The achievement goal framework for exploring students' experiences of the Social Work curriculum has proven to be a powerful tool to 'unpack' perceptions of the classroom goal structure. For the most part, the findings demonstrated in this study are consistent with achievement goal orientation theory and research.

This study has illustrated the potential for a learning environment to encourage the adoption in

students of a mastery achievement goal. Students want to gain insight or skills, and learning is valued as an end in itself. This study highlights the way in which a range of teacher practices and classroom structures affect students' motivation to learn. However, one must be careful not to exaggerate the influence on students' motivation of a particular approach to teaching and learning. Problem-based learning particularly in its early days was pervaded by an air of zealotry. Adherents were convinced that a problem-based learning environment would automatically result in highly motivated students and high academic achievement. As the literature shows (Beveridge, 2006), the research results have been mixed, certainly not clear-cut. It is naive to propose that "the power of the situation" outweighs all other influences on students' thoughts, emotions, and behaviours. For example, personality characteristics, early experiences, and work and family commitments outside study would all be expected to influence how students approach their study.

It is commendable that academics carefully design learning environments that they anticipate will enhance students' motivation to learn and the depth of their understanding. The present study provides evidence that an experience-based learning environment does enhance students' motivation to learn. The interaction between a person, her personality traits, academic ability, and prior experience, and a new environment inevitably will be complex. If a situation is to *trump* personality traits and prior experience then its influence must be strong and pervasive.

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