Environmental influences on tertiary students' motivation to learn: Analyses of quantitative and qualitative data.

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Abstract

Approximately 400 students were enrolled in a child and adolescent development subject. The subject was taught by a group of lecturers who t ook turns to present a massed lecture to all students and then conducted weekly two hour tutorial sessions with smaller groups of students. Mid way through the year long subject a series of changes was instituted in a n attempt to increase students' motivation to learn. These included res ubmission of the major assignment after feedback from lecturers, the right to work cooperatively, choice of assignment topics, and the provision of a booklet for writing good assignments. Students completed a questi onnaire almost half way through the year before the changes were introdu ced, and a second questionnaire at the end of the year. In addition, 54 of these students were interviewed about their reactions to the changes introduced to the subject. Students' perceptions of the motivational " climate" of the subject were delineated in terms of mastery and performa nce achievement goals. Comparing the questionnaires, students perceived a stronger mastery climate at the end of the year and a weaker performa nce climate, they rated their ability higher, and they indicated greater enjoyment of the tutorials and the massed lectures. Analysis of the in terview data provided further insight into students' reactions to the ch anges introduced in the subject.

Introduction

An emerging theory of motivation focuses on the achievement goal or goals that aœperso n holds (Ames, 1992; Blumenfeld, 1992; Dweck, 1986; Nicholls, Patashnick , &œNolen, 1985). As Ames (1992, p. 261) describes it, a goal "defines a n integratedœpattern of beliefs, attributions, and affect that produces t he intentions of behavior ...œrepresented by different ways of approachi ng, engaging in, and responding toœachievementÑtype activities." The ad option of a goal, then, sets in motion aœparticular way of interpreting a nd responding to the world. Two types of goal inœparticular have been p roposed. Those who hold a performance (or egoÑinvolved)œgoal are concer ned primarily with demonstrating their ability (or concealing a lack ofœa bility) to others, and this is shown to best advantage by outÑperforming others,œparticularly if success is achieved with little

effort. Those w ho hold a mastery (orœlearning, or taskÑinvolved) goal want to develop t heir competence on a task orœincrease their understanding of a topic, and are prepared to work hard to achieve their goal.

Adoption of a mastery goal has been associated with the desire to gain in understanding of a topic (Ames & Archer, 1987), the choice of more diff icult ratherœthan easy tasks (Ames & Archer, 1988; Elliott & Dweck, 1988), focusing onœattributions to effort rather than attributions to abilit y (Ames & Archer, 1988;œNicholls et al., 1985), and reported use of more effective learning strategies (Ames &œArcher, 1988; Meece, Blumenfeld & Hoyle, 1988). In all, the adoption of a masteryœgoal "encourages child ren to explore, initiate and pursue tasks that promoteœintellectual grow th" (Dweck, 1986, p.1043).

On the other hand, adoption of a performance goal has been associated with aœtendency to avoid challenging tasks (El liott & Dweck, 1988), negative feelings suchœas shame and embarrassment f ollowing poor performance (Elliott & Dweck, 1988),œand use of "surface" s trategies such as rote learning (Meece et al., 1988). œSusceptibility to these maladaptive attitudes and behaviours is most pronounced inœstuden ts who feel they lack ability (Dweck, 1986). Because the focus of aœper formance orientation is demonstrating competence to others, the fear of a ppearingœincompetent (particularly pronounced in westernised countries) i mpels students to useœbehaviours such as cheating or rote learning that m ight hide incompetence in theœshort term but does little to help learnin g in the long term.ÃÃOrientation towards a goal has been demonstrated to be affected by individualœdifferences or to be induced by situational c ues (Ames, 1992; Dweck, 1986). Inœlaboratory situations, signals or cue s to subjects to subjects encouraging the adoptionœof one goal or the ot her can be presented clearly and unambiguously. In classrooms,œhowever, students may receive contradictory or confusing cues. For example, aœt eacher may exhort all students to work hard but at the same time single o ut theœmore able students by treating them in a particularly friendly an d informal manner. œIn addition, students within the same class may not a ttend to the same cues or mayœreact differently to the same cues (Weinst ein, 1989).ÃÃResearch has shown that teachers are perceived by their stu dents to encourage theœadoption of a mastery goal, a performance goal, o r both goals (though, as noted, notœall students perceive similarly). S tudents' perceptions that the teacher is encouragingœa mastery goal has b een linked with enjoyment (Ames & Archer, 1988; Archer,œ1992, 1993), wil lingness to tackle difficult tasks (Ames & Archer, 1988), andœreported u se of effective metacognitive strategies (Ames & Archer, 1988; Archer,œ1 992, 1993; Nolen & Haladyna, 1990; Meece et al., 1988). The present stu dy wasœan attempt to increase students' perception of a mastery climate o perating within aœuniversity subject by making a series of changes to it s operation.

Research methods

Both quantitative and qualitative data were gathered for the present study. Theœqualitative data, in addition to quantitative questionnaire data, added richer and moreœdetailed information about the social and p sychological processes engendered by theœchanges (Neuman, 1994). In rec ent years, the soÑcalled paradigm wars have abated,œwith recognition on b oth sides that the complementarity of the two approachesœ"serves better, fuller, and more satisfying understanding" (Salomon, 1991, p. 16). Inœh er review of achievement goal theory, Blumenfeld (1992) calls for resear ch thatœcontains "thick description" in which qualitative methods (the s ystemic approach inœSalomon's terms) supplement quantitative methods (th e analytic approach inœSalomon's terms).ÃÃEducational researchers engage d in questionnaire studies tend to isolate variables andœsearch for caus al relationships between a limited number of variables, and in soœdoing a ttempt to reduce the influence of context. However, a classroom full of œstudents presents a cluster of interrelated variables that change over t ime. The wholeœis more than the sum of its component variables (Salomon , 1991), with change in one exerting a pervasive effect on the cluster as a whole. The prese nt studyœrepresents an attempt to benefit both from the careful isolatio n of variables affordedœby the analytic approach and the authenticity an d emphasis on context afforded byœthe systemic approach.

Method and Instruments

The subjects of the study were students enrolled in a Bachelor of Ed ucation course atœthe University of Newcastle in a variety of specialisa tions (including early childhood,œprimary, and secondary). In their fir st year of the course, all students (approximatelyœ400) take a year long subject in child and adolescent development, commonlyœreferred to as Ed ucation 1. The subject is run by a group of lecturers (eight duringœthe time of the present study) who take turns to present a massed lecture a ttended byœall students. In addition to the massed lecture, there is a t wo hour tutorial held everyœweek for smaller groups of students (approxi mately 25 in each group) conducted byœone of the lecturers.

Towards the end of the first semester 1993, students were asked to complete aœquest ionnaire about their Education 1 subject. There were 354 students in th e firstœsample, including 110 males and 244 females. The contents of th e questionnaire areœdetailed below. After students completed the first q uestionnaire, a series of changesœ(listed below) were introduced into th e subject, changes designed to increase theœnumber of mastery goal cues to students.

(1) The major assignment, unlike the minor assignment comp leted during the firstœsemester, was to be submitted twice: the first s ubmission would result in a mark outœof 10 and written feedback about ho w the assignment could be improved; the secondœsubmission would result i n a mark out of 20, and therefore a total mark out of 30. œStudents also were required to

submit their plan for their assignment.

(2) Each stud ent was given a 33 page booklet (written by the present authors)œentitled "How to write an essay in TE115E."

(3) Subjects were given the cho ice of working alone on the major assignment orœworking with a partner, u nlike the minor assignment which had to be completedœindividually.

(4) S tudents were given a choice of topics for the major assignment, unlike t heœminor assignment where no choice was given.

Towards the end of the second semester, students were asked to respond to the sameœquestio nnaire they completed at the end of the second semester. There were som eœadditional questions concerning the changes to the subject that were i ntroduced. œThere were 319 students in the second sample, including 98 m ales and 221 females. œThere were 270 students who completed both questi onnaires. The great bulk ofœstudents at both times of testing were aged between 18 and 20, with a tail of older students.

Achievement goals

This set of items was designed to assess students' perceptions of the mastery and performance dimensions of the tutorial sessions of Ed ucation 1. Aœmodified version of the scales developed by Ames and Arche r (1988) was used. œItems were prefaced with the heading "In this Educat ion 1 course" and students ratedœeach item on a five point Likert scale r anging from "do not agree at all" (1), "agree"œ(3), to "strongly agree." For the mastery scale, ten items were selected. Theœcoefficient alpha for the scale was .79 for the first data set and .82 for the second. œF or the performance scale, eight items were selected. The coefficient al pha for theœscale was .72 for the first data set and .66 for the second. The low alpha for theœsecond data set point to a less than adequate sc ale and any statistics derived from itœmust be accepted with caution. M ore details on the construction of the two scalesœare available from the first author. The mastery and performance scales were notœsignificantl y correlated in the first sample ($r=.07$), but correlated in the second sample ($r=.14$, $p<.05$). The items comprising the mastery and performa nce scales areœshown in Appendix 1.

Learning strategies

Students' reported use of effective strategies in studying for Education 1 was assessed using 18 items. Strategies included plannin g activities,œelaboration strategies which focus on integrating new info rmation with what has beenœlearned previously, and monitoring strategies which focus on checking understanding. œThe items were selected as stra tegies that are generic to the process of learning,œrather than specific to a particular discipline. The coefficient alpha for the scale wasœ.8 4

for the first data set and .84 for the second. The items in the scale were prefacedœwith "In this course" and students rated each item on fiv e point Likert scales fromœ"not at all typical of me" (1) to "very typic al of me" (5).

The following variables all were measured by single items using five point Likert scales, with 5 the positive end of the scale.

Relevance
Students were asked how relevant they found Education 1.

Interest
Students were asked how interesting they found Education 1.

Enjoyment
In two separate items, students were asked how enjoyable they found both the tutorial sessions and the massed lectures of Education 1.

Perceived ability
Students were asked to rate their ability in the subject compared with other students in their tutorial group.

Re-submission
In two separate items, students were asked how willing they would be to re-submit future assignments, and if they found re-submission h elpful in understanding the content of the assignment.

Booklet
In two separate items, students were asked how carefully they read the booklet, and how useful they found the booklet.

Cooperation
Students were asked if they thought the choice of working with a partner or working alone was a good idea.

Choice of topics
Students were asked if having a choice of topics for the assignment was a good idea.

Interviews
A sub-sample of 54 students were asked to participate in an audio-taped interview lasting approximately 40 minutes in which questions were as ked aboutœtheir motivational orientation in subjects at high school and a t university, the sorts ofœstudy strategies they employed to complete wo rk in these subjects, their attributionsœfor success and failure, and th eir reactions to the changes instituted in the Educationœ1 subject. The students were drawn from all specializations within the BEd degreeœand r epresented a wide range of achievement levels. For the present study, o nly dataœrelating to students' reactions to the four changes were analysed.

Results

This study was concerned with individual students' perceptions of the attitudes andœbehaviour of their tutorial lecturer, and the relation b etween these perceptions andœstudents' reported attitudes and behaviour.

Because of this, all analyses wereœconducted on the sample as a whole, not by tutorial group.

Descriptive statistics

Table 1 shows the means and standard deviations for variables that were measured at both times of testing. Table 2 shows the means andœstandard deviations for subjects' reactions to the change s introduced between the firstœand second times of testing. All the cha nges were well received, having a choice ofœtopics and reÑsubmitting the assignment receiving the highest ratings.

Correlational analyses

For both times of testing, students' scores on the mastery and performance goal scales were correlated with their reported use o f learningœstrategies, interest level of the subject, relevance of the s ubject, enjoyment ofœtutorials and massed lectures, and their perceived a bility. Results are shown in Table 3. As the correlations show, when the students perceived the lecture r to beœencouraging a mastery goal, they reported greater use of effecti ve learning strategies,œmore interest in the subject, more relevance of t he subject, and more enjoyment ofœthe tutorials and the massed lectures. The one significant correlation of perceptionœof a performance goal wa s with reported use of strategies at the first time of testing. œAlso, t here were significant correlations between perceived ability and percept ion ofœa mastery climate at both times of testing. These correlations w ith perceived abilityœwill be discussed in the next section.

Regression analyses

It might be expected that students who perceive themselves among the best students in the tutorial group would be the ones to us e effectiveœlearning strategies and to demonstrate a more enthusiastic a pproach to their workœthan students who see themselves as less capable. T o demonstrate that students'œperceptions of a mastery climate predicted u se of learning strategies, interest,œrelevance, and enjoyment over and a bove that of perceived ability, a series ofœhierarchical regressions was conducted, for both times of testing. Perceived abilityœwas entered fi rst into the regression equation, followed by a performance goal, andœla stly by a mastery goal. The results, produced in Table 4, show that, fo r the fourœdependent variables, a mastery goal makes a significant indep endent contribution toœthe total R squared, over and above the the contr ibution of perceived ability and aœperformance goal. The independent co ntribution of perceived ability is mostœpronounced for reported use of l earning strategies.

Changes from Time 1 to Time 2

It had been anticipated that making changes to the structure of the Education 1 subject would increase students' per ception of aœmastery climate and a more positive approach to learning: allowing re-submission ofœthe major assignment following feedback should e mphasise the importance of effortœin gaining success and the attitude th at mistakes can be corrected; providing a "how-to" booklet should emphasise that there are appropriate strategies that can be learnedœfo r writing a good assignment; allowing students to work with a partner sh ouldœencourage cooperation rather than competition among students; and p roviding aœchoice of topics (of relatively equal level of difficulty) sh ould allow students a someœsense of control of their learning and the ch ance to select a topic of personal interestœto them. For these analyses , the sample was restricted to students who hadœcompleted questionnaires at both times of testing (n=270). Dependent measures t-tests were conducted on students' perception of mastery and performance goals, theirœreported use of learning strategies, interest in the subject, relevance of the subject,œenjoyment of the tutorials and the massed lectures, and perceived ability.

Significantœresults emerged for a mastery goal (t=4.40, p<.001), a performance goal (t=-2.06,œp<.05), enjoyment of tutorials (t=2.49, p<.05), enjoyment of massed lectures (t=4.82,œp<.001), and perceived ability (t=2.68, p<.01). The results for interest almostœrea ched significance (p=.05).

Interview data

Tables 5, 6, 7, and 8 show students' reactions to the four changes introduced midway through Education 1. For re-submission of the majo r assignmentœ(Table 5), the reactions were overwhelming positive, with c omments about theœusefulness of receiving feedback, additional motivatio n, and help in understandingœthe topic of the assignment. For the strat egies booklet (Table 6), the great majorityœof students found it useful, particularly for referencing procedures and appropriateœstructuring of a n academic essay. For working with a partner (Table 7), students'œreact ions were mixed, with more than half not taking up the option of working withœa partner. A common reason for working alone was preferring to ta ke soleœresponsibility for success or failure of the assignment, not wan ting to let down, or beœlet down by, other students. Students who chose to work with a partner citedœreasons such as reducing workload or gaini ng additional ideas to their own. Foreœchoice of topics (Table 8), almos t all students thought it was a good idea because itœgave them the chanc e to choose something of interest to them, something they wouldœbe keen t o work on.

Discussion

Analyses of quantitative data

The results demonstrate that students' perceptions of a climate of a

subject, as encouraged by its lecturing staff, can be d elineated in termsœof a mastery goal orientation using an internally rel iable scale. However, it wasœmore difficult to delineate a performance g oal climate. This will be discussed inœmore detail later. Students' per ception of a mastery climate was linked to reportedœuse of effective lea rning strategies, interest, relevance, and enjoyment of tutorials andœma ssed lectures. As such, the criterion validity of the mastery goal scal e has beenœstrengthened by significant relationships with variables that point to an adaptiveœapproach to learning.

The link between a mastery climate and reported use of effective learning strategiesœis of particula r interest because students may choose not to use strategies with whichœt hey are familiar. This may reflect an attempt to protect a sense of sel fÑworth. Forœexample, writing an assignment at the last minute so that t here is no time to reviewœthe work or make revisions means that a good m ark can be attributed to high ability,œwhile a poor one can be attribute d to lack of effort. However, if the student's goal isœto understand a t opic (a mastery goal), then it makes sense to use strategies such asœrev iew and revision. There is no sense of shame attached to working hard.

The regression analyses demonstrated that a mastery goal orientation less ens theœimpact on students of their perceived level of ability. Seeing o neself as among theœtop students in a tutorial group was not the most im portant reason for finding theœsubject enjoyable, interesting, and relev ant. For use of learning strategies, thoughœperceived ability was an im portant predictor, a mastery goal also exerted aœsignificant and indepen dent influence. This study and others (see Nicholls et al.,œ1989) sugge st that a mastery goal orientation lessens the impact of perceived abili tyœon attitudes and behaviour.

The inability to form a robust performance goal scale may reflect the lack of aœstrong competitive focus within E ducation 1 (a similar problem

occurred with theœprevious cohort describe d in Archer, 1993). Even though grades are awarded at theœend of the ye ar (high distinction, distinction, credit, pass, fail), lecturers tend t o makeœlittle reference to grading practices during the year. Also, unl ike some universityœsubjects where more students are admitted into first year than can be accommodatedœin subsequent years, it is poor performan ce alone that leads to failure. Littleœinformation about performance re lative to others is available to students. It may beœthen that a robust performance scale did not emerge because lecturers involved in theœsubj ect provided few cues to students to adopt a performance goal. Indeed, n one ofœthe items comprising the performance scale refers directly to the lecturer thoughœthere were five items in the questionnaire that did (eg , "the lecturer gives moreœattention to students who do better on tests a nd assignments than other students"). œThe performance goal scale perhap s should be seen as indicating a personalœorientation rather than an ass essment of a

lecturer's orientation.

Students' perception of a mastery climate did increase significantly from the firstœtime of testing to the s econd, while there was a less marked decrease in students'œperception of a performance climate. It is argued that the increase in perception of aœmastery climate was the result of the changes introduced between the f irst andœsecond time of testing. There also was an increase in the enjo yment of the subjectœand this could be attributed to an increased master y orientation. The increase inœstudents' perceived ability is more diff icult to explain. It may have been the result ofœgreater confidence eng endered by requiring reÑsubmission of the assignment and aœsubsequent in crease in the mark for the assignment.

Apart from enjoyment and ability , there were no significant changes in variables œsuch as use of learnin g strategies that were expected to increase. Perhaps the changes made in the subject were too isolated. Ames (1992) argues th at foræmotivation of students to increase, change must be effected simul taneously to threeœaspects of the learning environment: the nature of t asks; the way tasks are evaluatedœand students recognised for good work; and the amount of autonomy accordedœstudents. With change in some of t hese aspects but not in others the motivationalœoutcomes may be confused .

Analyses of qualitative data
Analyses of interviewed students' reactions to the four changes produced some interesting and at times unexpected results that provided aœricher picture of the effect of the changes. Students' reac tions did not alwaysœprovide support for those predicted by achievement g oal theory, and at times theyœprovided additional insights. Also, with f our changes introduced into Education 1,œanalysis of interview data sugg ested that some changes engendered more motivationœto learn in students t han others.

The re-submission of the major assignment highlighted two different notions ofœassessment: assessment as ranking versus asse ssment as informative feedback. œMany of the students mentioned the usef ulness of receiving feedback about theirœwork - its strengths and its weaknesses - and therefore where future effort should beœexpended. Not on ly was fairly detailed feedback provided, they had to pay attentionœto i t to prepare their assignment for re-submission. For quite a few of the students,œthis presented a contrast to their typical approach to assess ment which was to findœthe mark they received, glance at the comments (i f there were any), and then "throwœaway" the assignment. That is, assessment was used only to get a sense of theirœranking within the class - one of the top students, about in the middle, or down atœthe bottom.

One student remarked: "The essays shouldn't be about the final mark, it

sh ould beœabout what you really know." Another said: "I hate it when you

do an exam, andœyou hand it in, you get a mark back, and they don't eve n give you your exam. Theyœsay it was fair enough, but it's confidentia l. But you don't know which questionsœyou got right and which questions you got wrong, so you can't improve upon them. œYou just keep making th e same mistakes over and over again. This way, when youœget the feedbac k, at least you know what you're doing wrong. So you can pick upœyour a ct a little bit."

Another interesting aspect which emerged about the re-submission of the majorœassignment was the sense of guidance, of knowin g what was expected, that detailedœcomments provided. For students who w ere nervous and unsure of their ability inœthe subject matter, this reli eved some of their tension and suggested ways in whichœweaknesses could b e overcome. This brings to mind the work of cognitiveœpsychologists suc h as Resnick (1989) who argue that learners benefit from theœguidance of experts who provide support, or scaffolding, which gradually can beœrem oved as the learners grow in competence and confidence. In keeping with theœbuilding analogy is the term cognitive apprenticeship, where the ap prentice practisesœunder the eye of an expert. One student said: "If y ou get to reÑsubmit it, you sort ofœlearn how to rectify that problem, s o the next time, you can look and say, well sheœtold me that I did this w rong, and that's how I rectified it, so I'll do that again."

A simila r emphasis on guidance and the comfort of having clear expectationsœemer ged in students' comments about the strategies booklet: they knew what w asœexpected of them. Without guidance in a relatively new field, many s tudents worryœabout their ability to cope. One student described use of the booklet this way: "Youœcould look at it and think, well yeah that' s what I have to do. And then you can putœyour work in and say, well it doesn't quite look the same. Why not? And you canœrefer back and have something to compare it to. It's all very well to say to a child,œlook , you put a full stop after the last word in a sentence, and you put a c apital atœthe beginning. But if they can't visualise it, then it's just like us. For me particularly, if I've got something there I can have a look at, I fee l more confident." œHowever, not all students felt this way. Some said t hey paid little attention to theœbooklet because they felt confident tha t they knew already how to write academicœassignments.

Students' overw helming response to having a choice of topics for the majorœassignment w as that they could select a topic of interest to them. In most instance s,œtoo, students drew connections between interest in a topic, willingne ss to expendœeffort, and to search for meaning. For example: "If you c an choose somethingœyou're interested in, you're more likely to read thr ough it, find out more information. œI mean, you're expanding your knowl edge. Whereas for something you really don'tœwant to do, then you'll ju st do what you have to and not go any further. And youœwon't learn anyt hing." Also of interest was the finding that few students selectedœwhat they saw as the easiest topic to do (there was no deliberate attempt on the partœof lecturers to provide topics varying in

difficulty). In fac t, a number deliberatelyœchoose what they perceived to be the hardest or the topic about which they had theœleast amount of prior knowledge.

It had been anticipated that providing choice would give students a greate r sense ofœpersonal control over their work. However, there were few co mments to supportœthis. In retrospect, this anticipation may have been u nrealistic. The majorœassignment was the only aspect of Education 1 whe re students could make a choice.œAll other aspects of assessment were fi xed, and students were not asked to assessœtheir own work or the work of others. We had considered allowing students toœassess their own assign

ments, but decided that with their lack of expertise inœdevelopmental ps ychology (this was a first year subject) this would be too difficultœfor them to do.

Students' comments about producing the major assignment wi th the help of a partnerœpointed to differing perspectives on collaborat ive work. In fact, more than half theœstudents interviewed worked alone . For some of these, this was a practical solutionœbecause they lived t oo far away from possible partners. But many did not want toœwork with a partner. There was a moral overtone to their reasons (for a discussion œof the moral aspect to cooperative groupings see Ames, 1984): they did n't want toœlet a partner down, they didn't want to be let down by a par tner, they preferred toœtake sole responsibility for the success or failure of the assignment.

Of the students who did work with a partner, a n umber said they did this to cutœdown on the work involved. On the face o f it, this may be seen as a maladaptiveœstrategy to reduce the complexit y of a task. In a another sense though it is anœadaptive strategy. Mas teryÑoriented students, with other tasks to be done, might useœthis to m aximise limited time. Other students said they worked collaboratively s oœthey could benefit from the ideas of other students. For example: "s o you canœincorporate both sorts of perspectives and end up with a bette r product", and "Iœthought it would be interesting to see how she goes a bout it...we bounced off eachœother with ideas." It also was interestin g to note that some parts of the collaborativeœexercise worked better th an others. Joining forces to gather information in theœlibrary and to d iscuss the broad outline of the assignment tended to be positiveœtimes. W riting collaboratively often did not work well, with some students admit tingœto coming close to blows.

Another somewhat negative response to co llaboration emerged in the interviews. œSome students admitted openly (o r in a more indirect fashion) that they didn't workœwith a partner becau se they were rejected by possible partners or that they felt theyœwere p oor students who would let down the team. For example: "I didn't want t oœdrag the other person down", "there's five of us that sit together in o ur Educationœclass. And the others picked the other person for convenie nce more than anything.

œAnd then I had a major panic attack about the a ssignment. I suppose I choose not to work with someone else because I wasn't competent in my own work, and I didn'tœwant to disable anyone else by being like that", "there's are a lot of people that areœgood friends with someone, but I'm not like that , so there wasn't anyone I felt Iœshould ask." Ames (1981, 1984) has in vestigated experimentally students' reactionsœto success and failure in c ooperative structures, demonstrating the strong negativeœemotions that c ome with group failure. The more competent members of the groupœare loo king for someone to blame, while the less competent members feel remorse œfor letting down the team. It seems obvious that these students had be en involved inœgroup work in the past and were aware of its ability to p roduce these emotions. œThere also is the public humiliation of having a n offer of partnership rejected.

Conclusion

The present study has demonstrated that the way lecturers approach their teaching - the attitudes and behaviour they display - is related to students'œmotivation to learn. Further, making changes (in line wit h achievement goal theory)œto the structure of a university subject can i ncrease students' perception of a masteryœclimate with its emphasis on e njoyment and understanding operating within theœsubject.

In general, the interviews with a sub-sample of the students involved in the studyœpro vide support for the questionnaire data, that the changes introduced did enhanceœstudents' motivation to learn. This was

particularly clear for three of the fourœchanges: reÑsubmission of the assignment, provision o f a howÑto strategies booklet,œand a choice of topics for the assignment . The fourth change, the choice of workingœalone or with a partner on t he assignment, produced more equivocal results, not onlyœin terms of the negative emotions that come with group failure or the humiliation of being rejected as a partner, but also with the finding that some tasks may be more amenable to a group approach than others. With cooperative groupin g of students aœwidespread educational practice these days, it might be w ell to bear in mind thatœthere is a "down side." The motivational effec ts of enforced collaboration or evenœencouragement to collaborate requir e more thorough investigation.

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Appendix 1

Items comprising the Mastery goal scale: The lecturer wants us to en joy learningœabout educational psychology/ The lecturer gives us interes ting work to do/ Theœlecturer makes sure we understand our work/ The lec turer wants us to learn how toœsolve problems on our own/ The lecturer p ays attention to whether I'm improving inœmy work/ The lecturer encourag es trying even though we make mistakes/ Studentsœare given a chance to c orrect their mistakes/ The lecturer stresses that hard work isœthe key t o success in this course/ We work hard because the lecturer wants us toœk now more about child psychology/ The lecturer wants us to try new and di fficultœtasks.

Items comprising the Performance goal scale: Students compete against each other toœget high marks/ Students feel bad when they d o not do as well as others/ Doingœbetter than others is important to me/ Only a few students can get top marks/œStudents don't care about the ma rks others students get (reversed)/ Students competeœto see who can do t he best work/ Students feel embarrassed to make mistakes inœclass/ Stude nts want to know how others score on assignments and tasks.