

# Situated Motivation: An Empirical Test in an Accounting Course

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## Abstract

The enhanced motivation and performance benefits associated with the use of enriched work environments (i.e., high task identity, variety, and significance; worker autonomy; and frequent performance feedback) have been well established (Hackman & Oldham, 1975, 1976, 1980). The present study tests whether these benefits can also be achieved in the classroom setting. Students from a compulsory final-year accounting course were asked to report their level of motivation in and their perceptions about the enrichment of the course. As hypothesized, a positive and significant correlation was found between student perceptions of enrichment and their reported motivation. The results, obtained by running a series of regression equations which included a variety of teaching context and student level variables, are also reported. These regression results offer further insight into the relationship between enriched learning environments and motivation.

## Résumé

Une motivation rehaussée et une augmentation des performances sont associées à la mise en place d'un environnement de travail enrichi (par exemple grâce à une «high task identity» où l'ouvrier reçoit une explication globale de son processus de travail et s'épanouit dans cette connaissance, la variété et l'importance de ce travail, l'autonomie de l'ouvrier et de fréquentes appréciations sur ses performances), comme cela a été clairement établi (Hackman & Oldham, 1975, 1976, 1980). Cette étude a pour but d'examiner si ces améliorations peuvent être étendues à la salle de classe. Des étudiants de dernière année dans un cours obligatoire de comptabilité ont été sollicités pour rendre compte de leur niveau de motivation pour le cours et de la proportion de tâches enrichissantes qu'ils avaient trouvée dans celui-ci.

Conformément à l'hypothèse de départ, une forte corrélation a été trouvée entre la perception des étudiants quant au nombre de tâches enrichissantes dans le cours et leur niveau de motivation. Les résultats obtenus à partir d'une série d'équations régressives, qui incluaient une diversité de contextes d'enseignement et des étudiants de niveaux variables sont également inclus. Ces résultats approfondissent encore la relation entre un environnement d'apprentissage enrichi et la motivation qui en découle.

The promotion of high student motivation and performance is a basic goal of every educator. The accounting education literature addresses the achievement of this goal largely from an individual student characteristics perspective. Such individual level factors as university entrance test scores (Buckless, Lipe, & Ravenscroft, 1991), prior course grades (Doran, Boullion, & Smith, 1991), personality traits (Oswick & Barber, 1998), and race and gender (Carpenter, Friar, & Lipe, 1993) are

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commonly studied predictors of student motivation and performance.

Commonly missing from the accounting education literature's discussion of student motivation and performance is an understanding of the role played by the learning context. This omission is surprising. The general education literature has long argued for the dual importance of the learner's characteristics and the learning setting. Laurillard (1979), for instance, states that differences in student motivation and adopted learning strategies (i.e., deep and surface learning) are "largely due to external [learning setting] circumstances" (p. 397). Paris and Turner (1994) provide similar evidence.

They reveal how the type of learning task an educator adopts, which they dichotomize as open or problem-based versus closed or problem solving, has a significant effect on a student's motivation and chosen learning strategy. In particular, students who are exposed to open learning tasks are more likely to exhibit greater motivation, as well as choose a learning strategy that is more consistent with Biggs' (1987) deep learning approach.

The purpose of the present paper is to redress the imbalance and lack of attention that the business (and particularly the accounting) education literature is paying to the learning setting. The paper begins by discussing the relevant wider education literature on student motivation and performance. It next shows how this literature can be linked to the management literature's ideas about enhancing motivation through the design of "enriched" learning tasks. The paper then describes a study that tests the impact of enriched learning tasks on accounting students' motivation. In the final section, the paper's conclusions are presented.

### Student Motivation and Performance

Motivation is commonly defined as an individual's activation and degree of persistence in undertaking goal-directed behaviour. When an individual's motivation is high—that is, there is high activation, high persistence, and high goal-directed behaviour—achievement and performance will be high for that individual as well. Accordingly, the ability to promote and harness high levels of student motivation is an ongoing, never ending objective of all dedicated educators.

The ability to promote high student motivation is a function of both the student's personal characteristics, for example, prior knowledge, and the teaching context, that is, the learning methods relied upon (Biggs, 1994). Sadly, notes Biggs, it is all too often the case that models of learning focus exclusively on one or the other. He has labeled these two models student-based and teacher-based. When student achievement does not meet expectations, the inevitable results are finger pointing and blame apportioning. Under the first model students are seen as lazy or lacking ability or both, while under the second model teachers are perceived as incompetent or uninspiring or both.

The accounting education literature provides ample coverage of and exploration into the student-based model (see, for example, Buckless et al., 1991; Carpenter et al., 1993; Doran et al., 1991; Gul & Fong, 1993; Oswick & Barber, 1998). This literature, however, is largely silent on the impact that the teaching context can have on students. Such an impact is captured

by what education researchers call "situated motivation."

### *Situated Motivation*

Situated motivation is based on the simple and straightforward idea that some course designs are more motivating than others (Paris & Turner, 1994, p. 217). Accordingly, a student's inherent or baseline motivation will be enhanced or blunted by the motivating potential (or lack thereof) of the classroom setting. The challenge for educators is to design into their learning settings "prototypical characteristics" that encourage student motivation (Paris & Turner, 1994, p. 221).

One factor that has been commonly associated with the motivating potential of a learning context is the amount of autonomy provided. Students who are permitted the opportunity to choose and control their learning report higher motivation, greater commitment, deeper involvement, and more strategic thinking (Paris & Turner, 1994). For example, a study by Ryan and Grolnick (1986) reveals that students who report greater learning autonomy also report higher levels of motivation and interest in their schoolwork as well as greater confidence and self-esteem. The general tenor of these findings is further supported by deCharms (1968, 1984), Campbell and McMeniman (1982), Grolnick and Ryan (1987), Gibbs (1992), and Candy, Crebert, and O'Leary (1994).

A second factor associated with the motivating potential of a learning setting is the degree to which students can identify with and find interesting a given learning task or set of tasks. As reported by Pintrich and DeGroot (1990), tasks that are perceived as interesting and worthwhile result in greater student motivation than tasks that are perceived as uninteresting and not worthwhile. Similar findings have been reported by Schiefele (1991), Meece, Blumenfield, and Hoyle (1988), and Paris and Turner (1994).

A third factor associated with the motivating potential of a learning setting is the type and timing of the feedback provided. Students report higher motivation when feedback is relevant and timely (Baume & Baume, 1996). As such, Race (1995) encourages educators to reduce the time lag before feedback is given and, where possible, to make feedback a natural part of the learning task (e.g., computer-assisted learning).

In sum, learning situations are motivating when students experience autonomy, perceive a task as interesting and worthwhile, and are offered relevant and timely feedback. The next section of this paper connects these three basic ideas on student motivation to the management literature's concept of work enrichment and employee motivation.

### *Work Enrichment and Motivation*

Human performance, as the psychology literature has shown time and again, is a function of a person's ability and motivation. While ability is a generally stable personal attribute (e.g., a person's intelligence quotient), motivation is closely intertwined with the work or learning context in which people operate. In particular, and not surprisingly, motivation will vary depending on both the appeal of the task and the setting in which the task is presented (Lawler, 1973).

Hackman and Oldham's (1975, 1976) work enrichment theory has had an enduring and important influence on organizational practices for structuring work to promote high levels of employee motivation. According to Hackman and Oldham (1980), the motivating potential of work—which they define as both paid and unpaid—can be assessed from the following three dimensions: the task's characteristics, the amount of autonomy experienced by workers, and the presence of relevant and timely task performance feedback.

A task's characteristics are composed of the identity, variety, and significance a worker perceives the task to possess. In particular, tasks are more enriching when workers can see a job all the way through to its final stage versus being assigned to a work station that limits them to doing one small piece of a larger activity. Likewise, tasks are more enriching when workers exercise multiple skills and talents and not just one skill that is repeated over and over again. And finally, tasks are more enriching when workers feel the task is significant to the accomplishment of the organization's, or even society's, goals and needs.

Autonomy is synonymous with empowerment. Tasks that provide workers with greater scope to schedule the work (worker flexibility), assign the work (delegating responsibilities), and determine opportunities for re-engineering the work (employee suggestions for continuous improvement) promote job enrichment.

Feedback can also promote job enrichment. When relevant information is provided in a timely fashion, workers are more likely to make any needed adjustments to their work. Furthermore, frequent feedback makes it less likely that workers will be demoralized by realizing, at too late a point in time, that their previous efforts have been misdirected and their work is defective.

Work that is characterized as enriched—that is, having high task identity, variety, and significance; promoting worker autonomy; and providing relevant and timely feedback—is generally highly motivating. There is one caveat to this relationship between enriched work and enhanced motivation. Hackman and Oldham (1980) note that certain people have a dislike for enrichment and, when offered enriched tasks, may actually exhibit lower

motivation and performance. Consequently, Hackman and Oldham (1980) have argued that a variable, which they term growth need strength (GNS), moderates the link between enrichment and motivation.

GNS is a personal trait or attribute that defines a person's desire or propensity for personal challenge. People with high GNS relish tasks that challenge or stretch them. Accordingly, these people will find enriched tasks motivating and will exhibit high performance. People with low GNS, on the other hand, look to avoid situations that are difficult or challenging. Consequently, they see enriched tasks as too intimidating and will exhibit low motivation and performance.

The concept of GNS can be linked to need theories of motivation. In particular, people who have satisfied such basic, lower order needs as relatedness and existence will seek satisfaction from higher order needs of esteem and growth. Accordingly, these people will exhibit high GNS. Conversely, people whose needs of relatedness and existence are unfulfilled will remain focused on satisfying these needs and display low GNS (Spector, 1985).

In summary, there is a direct, and generally positive, association between enriched tasks and motivation. This association, however, is moderated by a personal trait termed GNS. Under situations of high GNS the association is strong, while under situations of low GNS the association is weak. Finally, work enrichment results from an ability to design tasks that are significant, offer workers a big picture view of the overall process, invite workers' skill and initiative, enable workers to schedule their work activities and commitments, and provide prompt and relevant feedback that allows workers to improve their performance.

### *Linking the Literature on Student Motivation with Work Enrichment Theory*

The education literature's ideas about student motivation can be readily linked to Hackman and Oldham's (1980) work enrichment and job motivation theory. For instance, the idea that student motivation is promoted when students identify with and perceive as interesting learning tasks can be linked to Hackman and Oldham's (1980) idea about the need to design tasks that are identifiable, exhibit variety, and are perceived as significant. Similarly, the idea of student choice and autonomy is paralleled by Hackman and Oldham's (1980) call for worker empowerment. And finally, the need for relevant and timely feedback is equally discussed under the education and management theories on student and worker motivation. In sum, the education and management literatures provide models of motivation that similarly tap both environmental settings and individual differences.

The ability to bridge the ideas on student and worker motivation presented in the education and management literatures offers the possibility to empirically test the relationship between learning environments and student motivation. Using what is commonly recognized as a highly reliable and valid instrument (the Hackman and Oldham Job Diagnostic Survey), the effect that the learning setting has on student motivation can be tested. In the remainder of this paper, a study that examines the effects of enriched learning environments on student motivation is described and the findings discussed.

### Enriched Learning Environments and Motivation

#### *Sample*

An undergraduate final-year management accounting course was chosen to test the link between enriched learning environments and student motivation. The course is entitled Management Accounting and Control Systems, and is intended to broaden students' appreciation of the role of management accounting in organizations. As such, it builds on each student's existing accounting and management knowledge by examining the social (e.g., group norms and cultural attitudes) and psychological (e.g., employee motivation and commitment) issues concerned with management accounting and control systems. An important aim of the course is to integrate management accounting into the overall management framework. In the process, students are exposed to examples of how accounting often serves purposes that are organizational in nature rather than technical.

The course is required for the Bachelors degree in accounting at a New Zealand university. In addition, the course is a required educational component for those business school students seeking professional accreditation with the Institute of Chartered Accountants of New Zealand. The university is located in a provincial city, and most students live close to the campus. Total course enrollment over the past six years has been 150-250 students per year. Approximately 75% of students are aged 20-22. The remaining 25% of the students generally range in age from 23 to 40. Due to the advanced nature of the course, virtually all students enrolled in the course are accounting majors.

The total enrollment is divided into five to eight sections/classes such that each class comprises no more than 30-35 students. Three to four members of the accounting department then take responsibility for two or three classes each. This "seminar" class approach to the course has been used since 1988. Each seminar class is subsequently divided up into 10 case

groups of three or four students for various course activities.

Each class meets weekly for two hours throughout an academic year of about 25 weeks. The fundamental structure of the course, in existence since 1989, is based on 10 major topics (e.g., budgeting, divisional performance appraisal, and strategic control). Two weeks (four hours) are devoted to each of the 10 topics. The remaining five weeks of the course are used for introductory materials, examinations, and a final review. For each topic there are two components: a seminar session and a case session. The first two-hour session is spent presenting, exploring, discussing, and understanding concepts pertaining to the topic. In the second two-hour session, students experience the application of those concepts to organizational contexts by using the case method.

The accounting course includes eight formally assessed pieces of student work: a seminar facilitation (10% of course grade), a case presentation (10%), a mid-year test (10%), two memos (20%), a case study (15%), a final exam (25%), and involvement in class discussions (10%). Final grades for this course typically range between C and A. Occasionally a few students (less than 5%) fail. In general, the multiple pieces of assessment provide students the opportunity to make amends for a poor piece of work.

The in-class group assignments typically produce grades that range between C+ and A+. The grades assigned to the group activities typically exceed the grades assigned to the individual take-home assignments. The latter generally range between D and A+. The superior group grades are largely a function of the peer pressure exerted by one's group members and the fear of being under-prepared and appearing silly in front of one's classmates. The test/exam-based assessments produce the greatest range of grades, with grades ranging between F and A+. Since the final exam is worth only 25% of a student's total grade, students enter the final exam largely knowing their final course grade.<sup>1</sup>

Although the basic structure of the course has remained unchanged for the past several years, the course has been the subject of an ongoing, 10-year enrichment attempt by two of the authors. Accordingly, the course has been designed to have high task identity, variety, and significance; high student autonomy; and frequent feedback on student performance. Originally, the seminar discussions were little more than two-hour lecture sessions or discussions dominated by the same few students willing to contribute. In recognition of the greater continuing student involvement now required in the course, the overall balance of assessment has evolved from 70% final exam / 30% grades received during the year to 25% final exam / 75% grades received during the year.

While the curriculum's subject matter focuses on organizational management control issues, the effective communication of this core knowledge represents but one objective of the course. An equally vital objective is to develop the students' learning skills and to promote within them a positive attitude toward the learning process. As a consequence, the course is intended to improve the students' oral, written, critical analysis, teamwork, and creative thinking skills, as well as their willingness to initiate action, to accept alternative points of view, and to demonstrate a realistic understanding of their personal shortcomings and limitations.

*Task variety.* Each of the eight formally assessed pieces of student work comprises a variety of subtasks which students undertake during their completion of the course. As a way of providing a flavour of the multitask nature of these eight activities, a detailed description of the student-facilitated seminar is provided.

Students, as part of a three- to four-member student group, are required to facilitate one of the course's seminar topics. Each topic has a management control theme and focuses on such issues as organizational culture, budgets, departmental and divisional structuring, strategy formulation and control, and service sector performance measures. In the process of executing their facilitator role, the student group undertakes a variety of preparatory tasks. Generally the first task is to meet as a group and identify, organize, and divide up the work. A visit to the library is typically the second task the group performs. Being charged with the responsibility of building upon the assigned class readings by introducing further relevant readings, students frequently conduct literature searches. As a third preparatory task, and as a way of gaining further insight into the topic, students interview local business managers. Sometimes these interviews will serve to provide the experience from which a role play or brief case study can be developed and used during the seminar.

Throughout the process of preparing for the facilitation, the student group will meet with its instructor to discuss its seminar approach. While about half of the student groups meet with the instructor only once, the other groups meet the instructor on multiple occasions (typically two to three).

Following the seminar facilitation, the group visits the instructor to discuss its performance and to clarify any outstanding matters related to the executive summary it will submit at the following week's class. The executive summary is meant to be a scholarly, succinct, seven page (not counting references, tables, or appendices) discussion of the seminar topic. The group is instructed to view practicing managers as its target audience.

In summary, the course consists of multiple graded activities that contain multiple learning tasks. As an

example, the seminar facilitation consists of several sub-tasks including group meetings, library research, meetings with practicing managers, meetings with the course instructor, an in-class facilitation, and the submission of an executive summary.

*Task identity.* Each of the eight major activities is designed to promote a learning experience that involves the completion of a whole piece of work. By presenting students with a whole piece of work, students are offered the opportunity to experience the multiple steps that typically characterize real world problems. As a result, students generally feel a great sense of ownership for and commitment to the final result.<sup>2</sup>

The student-led cases and seminars represent more obvious examples of whole pieces of work activities. Both activities require students to assume responsibility for the entire day's learning exercise. While some educators choose the completion point for such assignments to be the in-class presentation, the accounting course showcased here requires students to submit an executive summary as well. The executive summary requirement is included to further reinforce learner reflection. Regardless of whether an executive summary component is used, it is evident that the case and seminar experiences offer students a significant opportunity to assume responsibility for a whole piece of work and, in the process, provide them with a high degree of task identity.

Similar to the case and seminar, the course's other graded activities are designed to promote task identity. The memos and take home case study, for example, are written in such a way that students are confronted with a salient, full-bodied organizational issue. As a point of illustration, a recent memo topic posed the question: "Is the concept of a matrix organization in harmony with today's calls for lean organizations? Why or why not?"

*Autonomy.* The accounting course emphasizes student responsibility for and control over their learning. During the academic year students are gradually invested with greater responsibility for learning. Consequently, what begins as a fairly equal sharing of learning responsibility between the teacher and the students finishes with substantial responsibility being exercised by the students.

As an example of this gradual shift in responsibility, at the start of the year the teacher is entirely responsible for organizing class sessions and setting the curriculum. By the sixth class meeting, however, when the first student-facilitated seminar occurs, responsibility for organizing the class sessions has begun shifting toward the students. While many students are initially shy and tentative about using the control they have been invested with, by the end of the year they are more con-

fidant, comfortable, and bold exercising their learning control.

In addition to offering students greater responsibility for their learning throughout the year, the various learning activities are themselves designed to empower the students. This empowerment is especially true for the case and seminar group activities. Student groups are wholly responsible for selecting the topics and cases for which they will assume responsibility, setting up group meetings to organize and allocate the work, and determining individual members' contributions to the in-class presentation and the executive summary.

*Feedback.* Feedback, both summative and formative, is provided on many of the sub-tasks. For example, a grade that is determined partly by the students and partly by the teacher is awarded to the in-class seminar facilitations and case presentations. Included with the numerical score is a set of written comments. These comments are intended to assist with the debriefing that immediately follows the seminar. Hopefully the feedback will prove useful to the group when it writes the executive summary and when it later prepares for its second group activity. The instructor grades the executive summary. Again, summative and formative feedback is included. The feedback will likely prove useful when the group writes the executive summary for its second group activity. Additionally, the feedback should benefit the individual group members when they write their memos and take-home case.

In addition to offering frequent feedback, it is important to offer timely feedback. While some tasks offer ongoing, instantaneous feedback, (e.g., mowing the lawn), there are many tasks that do not (e.g., a student essay). When feedback cannot be directly built into a task, then it is important to ensure that it occurs as soon as is practicable (Race, 1995). Consequently, the course instructors (and peers) provide summative and formative feedback on all student assignments either on immediate completion of the activity, or by the next class meeting following the activity. Two exceptions are the take-home written memos and case study assignments, where two class meetings pass before such feedback is provided. This two-week period, though representing a delay in feedback, offers the chance to provide constructive, considered, and comprehensive feedback. As the literature on feedback points out, quality feedback must not be traded off against fast feedback (Olson & Raffeld, 1987).

To recap, Hackman and Oldham (1980) find there is a direct, and generally positive, association between enriched work tasks and motivation. This association is moderated by a personal trait termed GNS. Under situations of high GNS the association is strong, while under situations of low GNS the association is weak. Hackman

and Oldham's (1980) findings have been developed from studies of workers in industrial organizations.

The management accounting course showcased in this paper is largely consistent with Hackman and Oldham's (1980) notion of enriched task environments. Consequently, we expect that high levels of perceived course enrichment will be associated with high levels of reported motivation. This relationship, however, is likely to hold only for those students who exhibit high levels of growth need strength. The following two research propositions capture these arguments:

1. Students who perceive the course as enriched will report higher levels of motivation than students who perceive the course as not enriched.
2. The link between perceptions of course enrichment and reported motivation will be moderated by GNS.

## Method

### *Instrument*

Hackman and Oldham's (1975, 1980) Job Diagnostic Survey (JDS) is a refinement of the Hackman and Lawler (1971) Yale Job Inventory (YJI). The JDS was specifically designed to measure each of the variables in the Job Characteristics Model. It consists of five main scales, commonly called the "core" scales, which measure task identity, task variety, task significance, task autonomy, and task feedback. The combination of these five scales produces a Motivating Potential Score (MPS). While the MPS in Hackman and Oldham's original work was based on the formula  $MPS = (Task\ Variety + Task\ Identity + Task\ Significance) / 3 * Autonomy * Feedback$ , the work enrichment literature equally provides for its calculation using a simple average of the scales when respondents fail to separately distinguish each of the scales (Bloom, Yorges, and Ruhl, 2000).

The JDS also includes questions measuring an individual's motivation and growth need strength. Multiple Likert items measure the respondent's internal motivation. Likewise, multiple Likert items measure the respondent's preference for stimulating and challenging work.

Hackman and Oldham (1975) originally tested the JDS using 658 individuals in seven organizations. Satisfactory measures of reliability and validity were observed. Since its inception, the psychometric properties of the JDS have been extensively tested. A review and evaluation of this literature by Taber and Taylor (1990) suggests that the JDS is able "to provide useful information about perceived job properties" (p. 467).

For the purposes of the present study, some minor adaptations to the JDS were made. First, some of the

**Table 1**

*Cronbach alphas for enrichment, GNS, motivation, subject interest, and work interest scales*

Scale	Cronbach alpha
Enrichment	.84
Growth need strength	.88
Motivation	.84
Subject interest	.78
Work interest	.50

items were reworded slightly to match the education setting. For example, the JDS item "After I finish a job, I know whether I performed well" was changed to "After I finish an assignment for ACCT302, I know whether I performed well." Second, a decision was made not to measure task significance. A task's significance is predicated upon the impact it has on society. The accounting course's classroom learning tasks do not result in the production or provision of a product or service that will significantly affect society. Accordingly, the classroom tasks will have low task significance.<sup>3</sup> Third, a few additional questionnaire items were included to enhance the measurement of the variable "feedback," supply information about the students' work and subject interests, and provide relevant demographic data.

The questionnaire was pre-tested using students from the Business School's Department of Management. A compacted copy of the questionnaire, which was scrutinized by our university's ethics committee, is included in Appendix A.

#### *Administration, Reliability, and Validity*

The instrument was administered to the course's entire year's cohort of students by the non-teaching author. That year's enrolment of 180 students was taught in six classes by four instructors, with two classes each taught by two of the authors and one class each taught by other instructors. The response rate was approximately 100%, but absences from classes on the day the instrument was administered meant we received responses from 148 students.

Principal factor analyses and reliability analyses were conducted to determine the quality of measurement. Appendix A indicates the items that comprise each of the variables (scales). The items were randomly ordered, although multiple ordered questionnaires were not used. Single factor solutions were clearly evident for the task characteristics (consisting

of task variety, task identity, task autonomy, and task feedback), growth need strength, motivation, work interest, and subject interest variables. The single factor solution for the task characteristics variable indicates that students did not distinguish between the separate JDS constructs. This outcome is consistent with the instructors' attempt to design an enriched learning environment as opposed to promoting enhancements on any specific work enrichment dimension, e.g., autonomy, feedback. Accordingly, the items comprising the task variety, task identity, autonomy, and feedback scales were averaged to form an overall enrichment score. In a like fashion, the items comprising the motivation scale were averaged to form a motivation score, and the same was performed for each of the other scales (i.e., GNS, work interest, and subject interest).

Cronbach alpha tests were used to measure further the scales' internal consistencies. As shown in Table 1, satisfactory reliability scores were observed for each scale. The only variable that violated the above trend was the work interest variable. This variable was not a part of Hackman and Oldham's (1975) original instrument, but was unique to this study. Although the work interest items yielded a single factor, the items comprising the variable exhibited a marginal to poor Cronbach alpha (see Table 1). For this reason it was decided to exclude the work interest variable from the further statistical analyses performed.

In addition to the factor and reliability analyses, the data were also examined for differences across class instructor. ANOVA tests were performed on the distributions of each of the variables across the six classes of students comprising the course. No statistically significant differences were observed for any of the separate classes or instructors, and so it was decided to pool the entire set of respondents.

#### Results and Discussion

Table 2 provides summary statistics on the study's key variables. The table includes means, standard deviations, and a correlation matrix. Correlations that are significant at the  $p < .05$  and  $p < .01$  level are indicated.

As shown in Table 2, the mean enrichment score for the course was 4.73 (on a 7 point scale, with 7 being the highest amount of enrichment). The spread in enrichment scores ranged from 2.75 to 6.00. While this spread in scores is interesting, it is not surprising. Hackman and Oldham (1976) have always affirmed the importance of defining the task characteristics as individual perceptions rather than objective characteristics of the setting. It is obvious and natural that for some students, whose

**Table 2**  
Means, standard deviations, and bivariate correlations

	Mean	Std. dev.	N	Motivation	GNS	Enrichment	Subject Interest	Work Interest	Job Hours	Courses Taken	Age	Years Working
Motivation	5.25	.79	148	1.00								
GNS	5.48	.86	148	.29**	1.00							
Enrichment	4.73	.65	148	.38**	.27**	1.00						
Subject interest	4.64	1.39	148	.40**	.33**	.37**	1.00					
Job hours	3.95	7.71	147	-.13	-.03	.05	.12	-.17*	1.00			
No. of courses	6.12	1.22	145	-.20*	.04	-.19*	-.20*	.14	-.12	1.00		
Age	22.20	3.35	147	.13	.02	.10	.18*	-.06	-.02	.24**	1.00	
Years working	1.31	3.02	146	.15	.04	.11	.18*	-.05	-.07	-.30**	.86**	1.00

\* p&lt;.05

\*\* p&lt;.01

**Table 3**  
Results of hierarchical regression analysis for student motivation and student and learning environment characteristics

Independent Variables	Beta coefficient	t-value	Significance
Step 1: Control variables			
Subject interest	.22	5.02	.000
Job hours	-.02	-2.39	.018
Number of courses	-.08	-1.63	.105
N= 143 F=11.62 p=.000 Adjusted R <sup>2</sup> =.18			
Step 2: Main effects			
Subject interest	.16	3.31	.001
Job hours	-.03	-2.73	.007
Number of courses	-.09	-1.73	.085
Enrichment	.26	2.57	.011
GNS	.13	1.76	.081
N= 143 F=10.37 p=.000 Adjusted R <sup>2</sup> =.25 ΔR <sup>2</sup> =.07			
Step 3: Main effects and interaction			
Subject interest	.16	3.29	.001
Job hours	-.02	-2.72	.007
Number of courses	-.09	-1.73	.086
Enrichment	.25	2.52	.013
GNS	.13	1.75	.083
Enrichment GNS	.01	.11	.913
N= 143 F=8.85 p=.000 Adjusted R <sup>2</sup> =.25 ΔR <sup>2</sup> =.00			

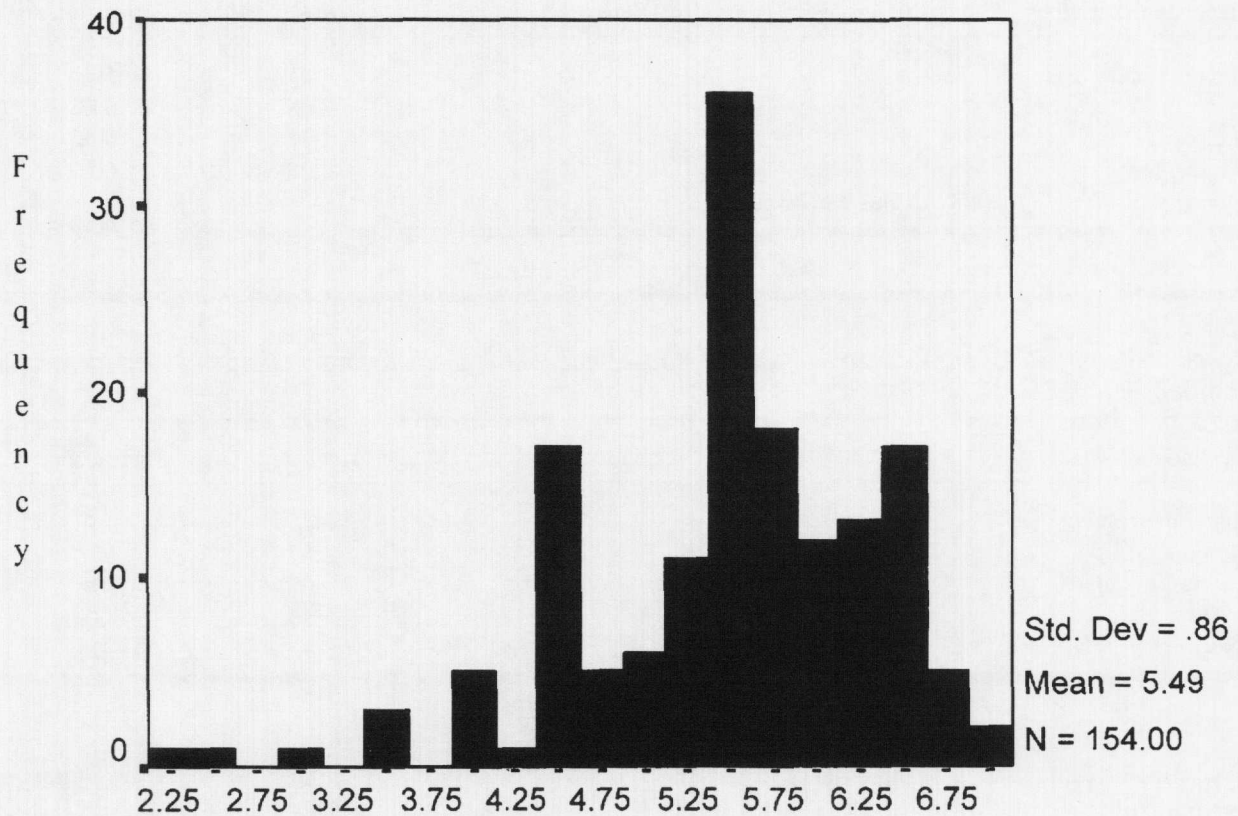
Note. This interactive term was centred using Cronbach's (1987) centring technique.

prior experiences may have been shaped by having worked before returning to complete their university studies or perhaps because they transferred into account-

ing from a different academic discipline, their perceptions of a course's state of enrichment will either pale or shine in light of these experiences.



Figure 1  
Histogram of student GNS scores



Due to the adequate range in enrichment scores, it was possible to calculate correlations between the enrichment scores and students' reported levels of motivation. Prior to undertaking this correlation analysis, however, a set of preliminary tests was performed to ensure that the variation in the motivation variable was not associated with such demographic variables as age, gender, or prior work experience. Accordingly, a Pearson correlation was used to examine the association between age and motivation, and ANOVAs were used to examine the associations between gender and motivation and prior work experience and motivation. All three tests revealed insignificant associations.

A Pearson correlation of 0.38 was calculated for the enrichment and motivation scores. This correlation was significant at  $p < .01$ . Thus, similar to what has been reported in studies of enrichment in the workplace, enriched learning environments are correlated with enhanced student motivation.

Further analyses were conducted to determine the relationship between the predictor variables of enrichment and GNS and the dependent variable of motivation. A series of regression equations were used. The statistical output generated from these regressions is shown in Table 3.

The first regression equation was designed to control for the effects that subject interest, number of courses taken, and weekly job hours worked have on motivation. As Table 3 shows, each of these variables had a significant effect on motivation. This baseline model explained 18% of the variance in the variable "motivation."

The second regression equation examined the further influence that course enrichment and student GNS has on student motivation. As shown in Table 3, enrichment has a significant and positive effect on motivation. While GNS has a positive effect on motivation, its  $p$ -value slightly breached the 0.05 level of significance.

**Table 4**

*Regression analysis for student motivation and student and learning environment characteristics for high GNS subgroup*

Independent Variables	Beta coefficient	t-value	Significance
Subject interest	-.05	-.54	.592
Job hours	-.03	-2.08	.043
Number of courses	-.18	-1.72	.093
Enrichment	.57	3.08	.004
N= 45 F=4.69 p=.003 Adjusted R <sup>2</sup> =.25			

**Table 5**

*Regression analysis for student motivation and student and learning environment characteristics for low GNS subgroup*

Independent Variables	Beta coefficient	t-value	Significance
Subject interest	.28	3.85	.001
Job hours	-.02	-1.63	.112
Number of courses	-.02	-.03	.804
Enrichment	.17	.88	.385
N= 46 F=5.70 p=.001 Adjusted R <sup>2</sup> =.30			

The new model explains 25% of the variance in the variable "motivation." Furthermore, the change in R<sup>2</sup> between the first and second regression models is significant,  $p < .01$ .

In a third regression model, the interaction term of enrichment and GNS was added. It was not possible to form an interactive term that was merely the by-product of the variables enrichment and GNS. High levels of multicollinearity were observed.<sup>4</sup> Consequently, the interaction term was centred using a statistical technique promoted by Cronbach (1987). As revealed in Table 3, this interaction term was not significant. Additionally, there was no change in the R-squared between the second and third regression models.

A possible reason for the non-significant interaction term in the third regression model and the GNS term in the second regression model may pertain to the distribution of the student GNS scores. As shown in Figure 1, the student GNS scores were largely restricted to the upper range of the GNS scale. Consequently, the ability to uncover an interaction effect may have been blunted by the large number of data points congregated at the high end of the GNS scale. Due to this set of circumstances, a decision was made to run subgroup regression analyses looking at students with high and low GNS. This was

accomplished by splitting the data into three equal groupings based on student GNS scores.<sup>5</sup>

The mean motivation score of the high GNS group was 5.30, while the mean of the low GNS group was 4.89. A one-way analysis of variance indicated a significant difference between the two groups at a  $p < .02$  level of significance.

Subgroup regression analyses were next performed on the high and low GNS groups. The variables of enrichment, subject interest, job hours worked during the week, and number of courses taken in the semester were entered in the regression equations.

Looking first at the high GNS group, enrichment and job hours were the only two significant variables (see Table 4). Higher enrichment scores produced higher levels of self-reported motivation, while higher number of job hours produced lower levels of motivation. The adjusted R<sup>2</sup> of this regression equation was 25%.

Turning next to the low GNS group, an interesting contrast to the high GNS group occurs. In particular, enrichment proved to be a non-significant variable. In fact, the only significant variable was subject interest (see Table 5). High subject interest produced high levels of self-reported motivation. The adjusted R<sup>2</sup> for this regression equation was 30%.

In summary, this study suggests that enriched learning environments are associated with enhanced student motivation. Additionally, GNS moderates this relationship. The motivation of high GNS students is significantly and positively affected by course enrichment. Meanwhile, the motivation of low GNS students is largely a function of their interest in the subject matter. These results are consistent with Hackman and Oldham's (1976, 1980) research examining worker motivation.

These results are both gratifying and troublesome. As already noted, university student populations are likely to comprise students with high absolute GNS levels. As a result, the majority of students are likely to experience enhanced motivation. Nonetheless, students with low GNS have been left largely unmoved by our efforts, and this raises issues about whether we should compel such students to take our course, or offer them alternative (more teacher-controlled) formats or both. Such results also raise issues about how we might determine which students would likely benefit from an enriched learning environment, and which students might be better off in other more teacher-controlled environments. Should we, for example, administer the GNS instrument and/or other psychological instruments in advance of students taking a course in order to determine from which course they might benefit most? Such an approach clearly has ethical issues associated with it, which, while clearly important, would take too long to unravel here.

Alternatively, one wonders to what extent students might be "in touch" with their growth need strength. If students have a good sense of their own willingness to be challenged, then the difficult job of measuring it ex-ante may be unnecessary. Simply providing students with the option of taking courses under different environments may be sufficient to ensure students end up in courses that motivate them. Further research could certainly examine the extent to which measures of GNS coincide with student preferences for different styles or learning contexts, as well as the extent to which they are motivated.

A further result to be observed from this study is that no discernible differences were observed in levels of motivation, or indeed any of the other variables, across the six classes and across the four staff teaching the course. This result might suggest that the four teaching staff were of equal capacity when it came to motivating students. We believe differently, however. It is likely that the course places less emphasis on the role of individual teachers as motivating agents. The opportunity for, and indeed the need for, an energetic and emphatic orator to inspire and invigorate the students has largely been removed. Rather, the motivating potential of the course has now been designed into the fabric and context of the course, and appears to be somewhat independent of the

individual teachers involved. Certainly there is still a need for the individual teacher to provide encouragement, transmit enthusiasm, and offer constructive feedback. But we believe that this role, with its associated skills and capacities, is far less crucial than would be the case in a lecture-based course.

### Conclusion

There appears to be substantial scope for modifying the learning setting to enhance student motivation. For example, the general education literature commonly encourages educators to exhibit passion and animation, to model enthusiasm for the subject, and to relate learning topics to students' life experiences. Students who are exposed to this type of teaching will exhibit greater interest in the subject and, as a result, become more motivated.

Another approach for enhancing student motivation, as shown in this paper, can be achieved by enriching the learning environment. Consistent with Hackman and Oldham's (1980) job enrichment theory, this paper demonstrates that enriched learning environments are positively associated with student motivation. Also consistent with the theory is the finding that students with high GNS are most likely to benefit from the enriched learning environment. The motivation of low GNS students appears to be unaffected by enrichment. Instead, their motivation appears to be driven by their like or dislike for the subject.

While our results and experiences at enriching a course of study were drawn from an accounting course, we see no reason why the benefits cannot also occur in other business disciplines. Hackman and Oldham's (1980) job diagnostic survey and its task characteristics of identity, variety, autonomy, and feedback, seem to us to be universal. Further studies could help substantiate this belief, and the extent to which Hackman and Oldham's (1980) work can be used generally in the context of educational tasks.

Further work could also help establish to what extent students pursuing their own preferences for learning styles or learning contexts do act consistently with Hackman and Oldham's (1980) notion of growth need strength, and so choose the most motivating course formats. If growth need strength does in fact moderate the course enrichment-motivation relationship, as our results suggest, then this also raises issues about the extent to which educators need to provide alternative learning contexts.

Finally, and on a related point as far as our own academic subject is concerned, our results also raise issues about the efficacy of the accounting profession's (e.g.,

the Bedford Committee Report, AAA 1986; the Big Eight White Paper, 1989; the Accounting Education Change Commission, 1990; Sundem, Williams, & Chironna, 1990; IFAC, 1996) calls for educators to cast out lecture-based teaching formats in favour of learner-centred, enriched methods. Such an approach seems likely to benefit high GNS individuals significantly more than low GNS individuals, a consequence the profession might not have intended but might find desirable. But one wonders whether educators shouldn't be doing the best they can for all the students in their care at a given time. Educators, it can be argued, should be doing what's best for their students, and not what is necessarily best for those who subsequently seek to employ them. Accordingly, it may be best to maintain alternative learning contexts, unless of course it can be shown that low GNS students tend to remain unmotivated by all types of learning contexts.

#### Notes

- 1 The course grades are not normalized in any manner by the instructors and fall out as averages. To allay student fears of being in one section versus another, a provision exists in the course to adjust the overall course grades for a given class should its overall average grade be out of line with the other classes by more than one grade, e.g., a B versus a B-. No adjustments are made to individual assignments should their averages differ between classes. During the past 10 years that the instructors have run this course, no class grade adjustment has been required.
- 2 Students' feelings of ownership and commitment are evidenced in the student feedback we routinely collect and, along with other aspects of the course, have been discussed in Adler and Milne (1997) and Milne and Adler (1995).
- 3 As a point of illustration, the learning tasks of medical students, especially those students who are involved in their medical residencies, are likely to have a high societal impact. The students, in consultation with their residency advisor, will take actions that will affect the patient's quality of life or may even have life/death consequences. In contrast, the learning tasks of accounting students, especially for those tasks undertaken at the undergraduate level and in the classroom, are unlikely to have a societal impact. This, of course, does not preclude the fact that the actions of these accountants at a later date may have significant societal impacts, producing outcomes that affect an organization's employees or the community at large.
- 4 Variance inflation factors (VIF) of 300 and greater were observed.
- 5 Similar statistical results were observed when the data were grouped using a median split. The only difference between the two sets of subgroup regressions involved the level of significance reported for the variable of enrichment for the high GNS group. Whereas the p-value was significant at the .001 level of significance, it changed to 0.02 using the median split.

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### Appendix A Student Questionnaire

#### DEMOGRAPHIC DATA

- Name
- Male/Female
- Age
- Work full time before attending university
- Years of work experience
- Hours of work during term time
- Number of courses taken during year
- Qualifications held (e.g., other degrees).

#### SCALE DATA

Please indicate how *accurate* or *inaccurate* you perceive each statement to be for you. Write a number in the blank beside each statement, based on the following scale:

1	2	3	4	5	6	7
Very Inaccurate	Mostly Inaccurate	Slightly Inaccurate	Uncertain	Slightly Accurate	Mostly Accurate	Very Accurate

- |  |    |
|--|----|
| 1. I work hard in ACCT302 in order to get a job. M   |    |
| 2. I prefer having opportunities for personal growth and development in my university work.  | G  |
| 3. I prefer having opportunities to learn new things from my university work.  | G  |
| 4. ACCT302 requires the use of a number of complex or sophisticated skills.  | TV |
| 5. The opinions of my peers make a difference to how well I try to perform in ACCT302  | M  |
| 6. On the whole, I am motivated to perform well in ACCT302.  | M  |
| 7. I feel bad and unhappy when I discover that I have performed poorly in this paper.  | M  |
| 8. I work hard in ACCT302 so as not to let my group members down.  | M  |
| 9. I get frequent feedback on how well I am doing in ACCT302.  | F  |
| 10. The feedback in ACCT302 comes too late to be of much use to me. (R)  | F  |
| 11. My opinion of myself goes up when I do well in ACCT302.  | M  |
| 12. I prefer having chances to exercise independent thought and action in my university work.  | G  |
| 13. I enjoy studying about the design of management control systems.   | SI |
| 14. I work hard in ACCT302 in order to get good grades.  | M  |
| 15. When I finish university, I intend to work in a job that emphasizes financial accounting job skills, e.g., public auditing, commercial banking, investment banking, etc. (R) | WI |
| 16. ACCT302 requires the performance of a variety of tasks.  | TV |
| 17. I get quite a bit of feedback about how well I am doing from other students in ACCT302.  | F  |
| 18. I prefer having a sense of worthwhile accomplishment in my university work.  | G  |
| 19. ACCT302 is arranged so that entire pieces of work can be done from beginning to end.   | TI |
| 20. The feedback in ACCT302 is so general that it is hard to use it to correct my performance. (R)   | F  |
| 21. ACCT302 gives the chance to use initiative and judgement in carrying out the work.   | TA |
| 22. Just doing the work required in ACCT302 provides many chances for me to figure out how well I am doing.  | F  |
| 23. ACCT302 covers topics which are interesting to me.   | SI |
| 24. ACCT302 gives considerable opportunity for independence and freedom in how the work gets done.   | TA |
| 25. Most people in ACCT302 feel bad and unhappy when they find that they have performed the work poorly.   | M  |
| 26. When I finish university, I intend to work in a job that emphasizes management accounting skills, e.g., private accounting, consultancy, general management, etc.            | WI |
| 27. My own feelings generally are not affected much one way or the other by how well I do in ACCT302. (R)  | M  |
| 28. After I finish an assignment for ACCT302, I know whether I performed well.   | F  |
| 29. I prefer having stimulating and challenging university work.   | G  |

- 30. I prefer having opportunities to be creative and imaginative in my university. G
- 31. I feel a great sense of personal satisfaction when I do ACCT302 well. M
- 32. I get lots of feedback on how well I am doing in ACCT302. F
- 33. The evaluations I receive in ACCT302 are fair. F
- 34. I like learning about the management accounting techniques included in ACCT302. SI
- 35. Most people feel a great sense of personal satisfaction when they do ACCT302 well. M
- 36. I get lots of positive feedback on my performance in ACCT302. F
- 37. The feedback in ACCT302 is specific. It allows me to identify where I have it right and where I have gone wrong. F
- 38. I find out how well I am doing in ACCT302 from my group members. F
- 39. ACCT302 provides the chance to completely finish the pieces of work that are started. TI

(R) = reverse scored items. (M) = motivation, (G) = growth need strength, (TV) = task variety, (TI) = task identity, (TA) = task autonomy, (F) = feedback, (SI) = subject interest, (WI) = work interest.

For the following three questions, please *circle* the number which is the most accurate description of ACCT302.

1. How much *autonomy* is there in ACCT302? That is, to what extent does ACCT302 permit you to decide *on your own* or *within your group* how to go about doing the work?

1—————2—————3—————4—————5—————6—————7

Very little; ACCT302 gives me almost no personal "say" about how and when the work is done.

Moderate autonomy; many things are standardized and not under my control, but I can make some decisions.

Very much; ACCT302 gives me almost complete responsibility for deciding how and when the work is done

2. To what extent does ACCT302 involve you and your group doing "*whole*" and *identifiable pieces of work*? That is, does ACCT302 contain complete pieces of work that have obvious beginnings or ends? Or does it contain only *part* pieces of work which fit an overall piece of work, which is finished by other people?

1—————2—————3—————4—————5—————6—————7

ACCT302 contains only tiny parts of the overall pieces of work; the results of my/our activities cannot be seen in the final outputs.

ACCT302 contains moderately whole pieces of work; my/our contribution can be seen in the final outcomes.

ACCT302 involves doing whole pieces of work, from start to finish; the results are easily seen.

3. How much *variety* is there in ACCT302? That is, to what extent does ACCT302 require you to do many different things, using a variety of your skills and talents?

1—————2—————3—————4—————5—————6—————7

Very little; ACCT302 requires me to do the same routine things over and over again.

Moderate variety

Very much; ACCT302 requires me to do many different things, using a number of different skills and talents.

