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Some determinants of success and failure in first-year university business units at private colleges

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Some determinants of success and failure in first-year university Business units at private colleges.

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USE OF THESIS

The Use of Thesis statement is not included in this version of the thesis.

ABSTRACT

This study investigates some of the determinates of academic success and failure (and dropout) from first year university level Business units at two private business colleges in Perth, Western Australia. Private business colleges are convenient vehicles for international and Western Australian students who do not possess adequate academic assessments for direct entry into university, and for students who might benefit from an enhanced pastoral support system, in the transition from secondary education to tertiary education. The study is important to private providers and to universities who are trying to help students succeed at university.

The study utilises a model of two dependent variables (achievement at first attempt and achievement at second attempt); five independent variables (motivation to achieve, outside work commitments, performance to expectations, family problems, and attendance); and three situation variables (age, gender and whether English is the first language of the student). The variables in the model were identified from various studies in the literature, as likely to be most strongly related to academic success or failure. The model suggests a number of bivariate relationships between the dependent variables and the independent variables and between the dependent variables and the situation variables. The model also suggests a number of joint relationships between the dependent, independent and situation variables.

The dependent variables were measured for eight first year units of study which are generic to Bachelor Degree programmes at most universities for Business or Commerce; Accounting, Economics, Finance, Information Systems, Legal Framework, Management, Marketing and Statistics. The sample consists of 195 students from

private provider A and 92 students from private provider B in Perth, Western Australia (a total of 287 students).

Data were collected by means of a questionnaire which was distributed to students in both private colleges in mid-semester 1996, and which students completed on a voluntary basis. Each of the independent variables were measured from student self-report data and the private colleges provided the individual student results in each of the eight Business subjects to use as measures of the dependent variables. Analysis took the form of cross-tabulations, zero-order correlations and multiple regression to test the relationships between the dependent and independent variables, as suggested by the model. The computer package SPSS (Statistical Package for the Social Sciences) was used for the analysis.

The conclusions relating to the zero-order correlations are presented in two parts: those relating Achievement at the first attempt and Achievement at the second attempt (as dependent variables) with the five independent variables and those relating the dependent variables with the three situation variables.

(i) The five independent variables have small or no correlations with the two dependent variables.

(ii) The three situation variables have small or no correlations with the two dependent variables.

In each case, the amount of explained variance in the dependent variable was 7% or less and hence the relationships are of no practical significance for any of the eight Business subjects, for students or private providers.

The conclusions relating to the multiple regression analysis are presented in three parts: those relating the dependent variables with the independent variables, those

relating the dependent variables with the situation variables, and those relating the dependent variables with the independent and situation variables together.

(iii) The five independent variables together account for less than 9% variance in the dependent variables.

(iv) The three situation variables together account for less than 10% of variance in the dependent variables.

(v) The five independent variables and the three situation variables together account for less than 15% of variance in the dependent variables.

These relationships are so small that they are of no practical significance for any of the eight Business subjects, for students or private providers.

While there do not appear to be any direct implications for private providers or students, flowing from this study, there are direct implications for further research. In particular, a better model needs to be developed that uses variables that can explain more of the variance in achievement at the first and second attempts. This may mean that different and better measures of the independent variables need to be made and that new independent variables need to be uncovered, perhaps, by interviewing students at private providers.

DECLARATION

I certify that this thesis does not incorporate without acknowledgment any material previously submitted for a degree or diploma in any institution of higher education; and that to the best of my knowledge and belief it does not contain any material previously written by another person except where due reference is made in the text.

CLIVE PRESTON OLIVER
31st January 1999

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The author wishes to thank all those individuals and educational institutions who have helped with this study. It could not have been successfully concluded without them.

I thank all the students for the data they generated. They allowed me the opportunity to further my own knowledge in an area of education which has fascinated me for many years now.

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Special thanks are offered to my family, for bearing with me, all through the rigours of my studies.

Clive Preston Oliver
31st January 1999

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Chapter 1

Introduction

Background to this study

This study examines some of the determinants of academic success and failure (or dropout) from first year university level business units, at two private business colleges in Perth, Western Australia. Students who are unable to secure a university place on their first attempt have various options available to them. While some students will repeat their Year 12 studies in an effort to raise their Tertiary Entrance Examination Scores (now called Tertiary Entrance Rank or TER), many will study at Technical and Further Education colleges, especially vocational courses. For other students who feel a repeat of Year 12 studies is undesirable and are still intent upon a university education, there is an attractive alternative in Western Australia. Private providers of education offer fully accredited academic courses which equate, with the approval of some universities, to completion of the first year of university Bachelor's Degree level study. The large majority of courses offered are in the Faculty of Business. The present study focuses on students at two of the largest private tertiary educational institutions in Perth, Western Australia, who are providing first year university courses in Business.

At the tertiary level, there are students who, for various reasons, feel that they are unwilling or unable to complete one or more of their units of study in the normally allocated time. In these instances, the student "withdraws" from the units in question and is allowed to repeat those units at some other time. Other students who do not withdraw from units, but who fail to achieve a successful grade in those units, are

required to repeat those failed units until they achieve a successful grade, in order to complete the prescribed number of units required to secure an academic award.

There are potentially, two main reasons why some tertiary level students at these private institutions need to repeat one or more of their first year Business units. Either they withdraw from a unit or units, before incurring an academic penalty, or they need to repeat the unit or units, because their initial attempt at a unit resulted in an academic fail grade. Often, students will withdraw before academic penalty because they anticipate failure due to a lack of preparation, a lack of motivation, or they face external pressures such as work commitments or family duties.

If their initial attempt resulted in a fail grade, then students are committed to repeat that unit in order to complete their programme of study. Alternatively, other students have, for various reasons, a strong need to achieve high grades. The need for better grades may be just to enable students to pass an overall course, of which the repeated unit comprises only one or more, unavoidable core units. Another need may be that students require grades of excellence in certain units for membership of professional bodies such as the National Institute of Accountants, the Australian Society of Certified Practicing Accountants, the Australian Institute of Management, or The Australian Marketing Institute. Certain students may require minimum grades for entry to certain academic institutions or certain courses run by academic institutions, such as, Masters Degree level programmes or Doctoral Degree level courses. If students feel that they may not reach that grade of excellence, then they may well consider the possible benefits (or their perceived notion of benefits) of withdrawing from the unit or units. This action will, in their minds, allow them time to heighten their chances of a successful assessment in a unit or units, at a later time.

The problem of failing or dropping out

Students who withdraw from units of study, or students who fail their units of study, cause difficulties for the educational institution where they study and there are four general areas of difficulty. The first difficulty is the extended duration of study time for the students, which results from their initial failure or withdrawal from a unit or units of study. This causes the graduation date to be delayed. Also, such an extension of study duration on the part of the failing or withdrawing students can delay or deny a replacement student a place within that institution. The resulting alteration to planned input and consequent output of student achievement has the potential to distort the overall evaluation of the institution's efficiency and effectiveness. It can also cause that institution to re-evaluate its timeline plans to accommodate the student.

The second difficulty facing the institution is a reduction of effectiveness in their control policies. This also has the potential to impinge on the effectiveness and efficiency of the strategic planning of the institution as a whole. Based on the "productivity" of the institution, administration staff numbers are allocated and of course the numbers and disciplines of tutors and lecturers are planned. In fact the whole institutional hierarchy might be affected in one way or another because of student "default" in their studies. This, of course, is far more serious for institutions such as the two private providers being considered in this study, because they are both full fee-paying institutions, catering mainly for international students.

The third difficulty, is where the students themselves consider they are not properly prepared for successful assessment. Here the institution needs to examine whether the problem lies with the student, the institution or both. This third area may well require some soul searching by the institution, to satisfy itself, that it is being as altruistic as

possible in its pursuit of academic excellence requirements. At the same time, the institution should remain loyal to the belief that no student should be disadvantaged through inflexible adherence to the regulation policies of the institution. The private education institution, by default, wears three faces, the business face, the face of academe, and the face of humanity and equity.

Fourthly, a large proportion of student withdrawals or repeats should cause the institution to question the suitability, difficulty and validity of units offered to students, or at least the way they are being taught. One would consider that if a successful entry level to the institution has been ascertained for students, then those students should under "normal" circumstances, have the ability to complete their course of study in a prescribed manner and within the normal duration allocated. The prescribed manner of study and the desired duration of study would have been previously evaluated and adopted by the institution itself and also by associated accreditation committees and government departments. Such evaluation of educational courses of study is generally considered to reflect and to incorporate current academic demands and also potential industry or professional body requirements. Of course, there are sometimes trends or extremes which have the potential to give a poor reflection or evaluation of that academic, industrial and professional mix. Therefore, the question needs to be asked as to whether the units of study can stand the test of time and give similar results to similar groups of students, in similar situations, with similar value to the students themselves and academia, industry and the professions.

The possibility for students to repeat units, from which they have withdrawn or failed, depends on the criteria set down by the educational institutions, the attitudes of the students and the counselling undertaken. Some institutions allow students to repeat a limited number of unsuccessfully graded units. For some students, it is expected that

their own perceptions and motivation are the dominant factors in whether or not they repeat units. For others, it is expected that counselling from the academic and administrative staff of the relevant institution are important determinants in regard to repeating.

Important also are the perceptions and motivation of the educational institutions involved. A limited amount of research has been carried out on these issues in relation to university level students, mainly in the USA. Baldwin, Hansen and Wasson (1989) investigated the ramifications of repeated first year college-level accounting course units in the USA; Clarke and Schwarz (1989) investigated the anxiety levels and achievement of introductory accounting students in the USA; Christopher and Debreceny (1993) predicted student performance in introductory tertiary accounting from secondary examinations in Western Australia; Eskew and Faley (1988) investigated the determinants of student performance in the first college-level financial accounting course in the USA; MacIver (1993) investigated the effects of improvement-focused student recognition on young adolescents' performance and motivation in the classroom in the USA; Pintrich (1989) investigated student motivation and cognition in the classroom in the USA; as did Weinstein (1994) in his evaluation of accounting students. The present study is different from any of these studies. It is carried out with first year university level students at two private colleges in Perth and uses a model which combines many of the variables used in these studies. These aspects are elaborated in later chapters, as appropriate.

General aims of the study

There are three main aims of the present study. The first aim is to investigate the relationship between students' achievement in Business units on the first attempt, as the

dependent variable, and five independent variables, motivation, performance to expectations, outside work, family problems, and attendance in the context of the three situational variables, age, gender, and language. The second aim is to investigate the relationship between students' achievement in Business units on the second attempt, as the dependent variable, and five independent variables, motivation, performance to expectations, outside work, family problems, and attendance in the context of the three situational variables, age, gender, and language. The third aim is to compare and to contrast the results from aims one and two.

Significance of the study

This study is important to the theory relating to repeating students. This study uses a general model which is applied to a specific case of students at two private colleges in Perth, Western Australia. It will, therefore, be testing a model which will extend existing theoretical models of repeating students at the first year level of university study.

At the same time, this study is also important to tertiary level institutions and the students they educate. It will provide new knowledge about repeating students at two private tertiary providers in Western Australia. First, for educational institutions, it will provide knowledge of the extension of the nominal duration of student study. This affects the planning processes of institutions. For the student, such an extension of study can result in delayed employment prospects and increased financial demands on a decreasing income. Second, it will provide new knowledge on whether the effectiveness of the control policies of the educational institution are potentially reduced. This can have either one of two effects on the academic progress of the student. A lack of institutional control policies can result in a lack of qualified direction for guidance of

that student, both on academic and pastoral levels. Third, it will provide new knowledge on the student's ability to prepare for successful assessment. Institutions may assume that all students are capable of the rigours of study and that they are adequately prepared for successful assessment when this is not the case. Fourth, it will provide knowledge on whether there is the potential for an increased number of student withdrawals from units of study or repeats of those units, due to external factors. Each of these reasons impacts on the educational institution in relation to potential effectiveness, efficiency and credibility and these are now explained.

As far as the university is concerned, there are administration costs involved in extending student study. The time consumed probably detracts from effectiveness and efficiency in other equally important areas such as initial enrolments for new students in the university. There is justifiable reason to investigate how much administrative time and money is allocated to students who withdraw and repeat units. These costs are additional to those costs originally allocated to each commencing student as initial entrants to the system. Typically, students who enrol for a course of study at a private college, will have incorporated in their fees, adequate compensation for the agent's commission and also an administration charge which allows for "normal" servicing of the student during "normal" progress through the course of study. Any deviation from the "norm" by default, incurs extra servicing of the student, which must result in extra costs. It is not unusual for a private college to charge a fee of between $80 to $100 for students who choose to change the structure or sequence of their course of study. This is very often used as a deterrent, to prevent students becoming whimsical in their studies. This small fee, in no way recoups the time spent by members of staff who are called upon to counsel the student, alter schedules, and update the student's records. This area may well increase in importance when considering cost levels within institutions who

rely either on highly competitive private markets of students supply, or on those institutions that are trying to set long term goals against a backdrop of government change. One example of change, is the recent government announcement that a certain number of student places at universities will be "sold" places (Horsell,1996). Also, proposed increases in the rate of the Higher Educational Contribution Scheme makes the choice of study at a university, or private college, at least partly a commercial decision.

How does the withdrawal from, and repeating of, units affect the overall strategic plans of the university in achieving continued academic excellence? Effective forward planning requires intelligent estimates which are reasonably accurate. To achieve a final goal on a predetermined timeline necessitates a prescribed rate of performance from the student body ensuring a constant, paced movement through the course of study, adhering to that same base timeline. A large number of student withdrawals or repeat students should cause any educational institution to question the reliability and validity of units offered to students. If too many students withdraw or repeat, then that timeline will be delayed and may ultimately result in a "clogged" system which is backed up so far as to preclude anticipated new entrants to the system. At the same time, it is necessary to ensure that incumbents in the current courses are legitimate. The tertiary institution bases the anticipated rate of success of students within its system on both the correct level of academic demands upon those students and also, on the basis that those students allocated to courses of study are indeed academically competent to gain the grades required to successfully complete their course of study. It is only if the institution is reasonably sure that it is satisfied with its goal timelines, and that it does have academically acceptable students, that it can ensure that material and human resources are correctly allocated.

If students themselves consider that they are not properly prepared for successful assessment, then the university needs to examine whether the problem lies with the student, the university or both. This calls into question the methodology of unit presentation and also of student and university expectations and, in particular, the standard format of lecture and tutorial ratios and alternatives like seminars and workshops. The unit content and course construction may need to be re-examined for current pertinence. Of equal importance, yet less often accepted, is the question of a student's competence with the English language. There is often a perception that international students who have English as a second language will be disadvantaged compared to those students who have English as a first language. However, it is also accepted that many local students have a very basic command of English. This study includes both "local" and "international" students and a comparison of their results will indicate whether or not either party carries an advantage or disadvantage based on competency in the English language.

Limitations of the study

There are five limitations to this study. Data are collected from students at two private business colleges in Perth, Western Australia. This limits the generalisability of the results within Western Australia and Australia. Since there are only four major private educational business colleges in Western Australia, the results would be applicable and of interest to the four colleges, but they are not strictly representative of the four colleges in Western Australia or of all similar colleges in Australia.

Since only Business units are included in the study, the results can not be generalised to other disciplines of study. However, while the results of this study are technically only applicable to core business units, they are likely to be similar to results of similar

studies using units from other disciplines; or at least, there are no reasons to believe that the results for business units should be any different, on average, from results in the other main disciplines. Universities in Perth provide eight units of exemption against the eight units successfully acquired in private institutions, under the nomenclature of Diploma of Business. Once the eight units of study in question have been successfully achieved, then they are exempted in such diverse bachelor degree disciplines as art, business (commerce), science, at the universities themselves. This is true for three of the main universities in Western Australia and also through programmes of articulation with other universities Australia-wide. The only problems arising from limited articulation arises from differing conceptual approaches to some areas or units of study.

The problem investigated in this study is likely to be complex. In order to simplify the problem, the model uses two dependent variables and five of the most common and influential independent variables. These independent variables, student motivation to achieve, outside work commitments, student performance to expectations, family problems caused through family commitments and attendance problems, may not be all inclusive of the reasons why individual students fail to successfully complete their chosen courses of study, but they are likely to be the most influential.

The 'real' situation is likely to be more complex than the model used. The interactions of the independent variables used in this study, in addition to those not included, might be more complex. Although the model used represents the variables involved in a simple manner, and lists those variables considered most important from the literature, the interaction of those variables does not lead to a simple evaluation. Cause and effect is a far more complex issue. Causes might involve four or five variables working together, rather than a simple "push and move" model.

There are two additional factors of difference between the two colleges used in this study. These factors relate to differences in grading procedure and also differences in duration of study. Both institutions have slightly different numeric percentage cut off points for their allocations of alpha grades and, accordingly, it may be difficult to cross-evaluate the academic standards achieved by the teachers themselves. College "A," provides its programmes of study on a trimester basis whilst college "B," follows the standard university style, two semester programme of delivery. This raises the issue of how students react to different time spans in which to absorb the same amount of information. The trimester approach allocates four hours of classroom delivery per week, per unit, over a thirteen-week period. This results in a total of 52 hours classroom delivery. The two-semester approach comprises three hours of classroom delivery per week, per unit, over a fourteen-week period. This also results in 42 hours of classroom delivery. The main differences are that college "A" (trimester), examines its students over a period of one week, in its fourteenth week. College "B" (semester), allows a revision break of at least one week, followed by an examination period spread over a two week period, the same as most universities. College "B" also includes a mid-semester break, the same as most universities. College "A" has twelve weeks of uninterrupted study, followed by one week of revision classes prior to the week fourteen examinations.

Structure of the thesis

The thesis is set out in nine chapters. The first chapter examines the problem of students failing, or dropping out from first year university level Business units, at two private business colleges in Perth, Western Australia. It states the general aims of the

study, in addition to the significance and limitations of the study. It also explains the structure of the thesis.

The second chapter of the thesis is a literature review. In this section, previous research from various disciplines is used to form a basis upon which this study of potential student dropout or lack of success in passing first year, university equivalent Business units is constructed. This review is complemented by a review of models of drop out conducted in various university studies. It also shows the variables affecting dropouts.

The third chapter of the thesis shows the model and theoretical framework upon which this study is based. It examines the predicted relationships between all the variables involved in the study. It also examines the predicted joint relationships between the dependent variables and all the independent and situation variables. Hypotheses are proposed for testing in this study.

The fourth chapter deals with the measurement of the variables and instruments. It explains how each of the dependent, independent, and situation variables is defined and measured. This chapter also shows how the instrument of data collection was structured and pretested.

Chapter five of the thesis deals with the sample and data collection, and makes a preliminary analysis of the data obtained. Chapter six analyses the results of cross-tabulations of dependent variables versus independent variables, and dependent variables versus situation variables. It also compares the data relating to first and second attempt comparisons. Chapters seven and eight investigate hypotheses regarding the relationship between the dependent variables and the independent and situation variables that flow from the model. Chapter seven investigates the zero-order correlations of the variables used in the study, and chapter eight analyses the multiple

correlations, or joint relationships between the variables (using multiple regression). Chapter nine provides a summary of the study and brings together all its conclusions. The implications for students, private providers, and universities and further research are discussed.

Chapter 2

Literature Review

Introduction

The literature relevant to this study is diverse and covers education, psychology and various subject disciplines. To bring some order to this literature, it is summarised here under various models relating to student dropouts - motivation, needs, theory X and theory Y, acquired needs, expectancy theory, cognitive motivation theories, goal setting motivation theory, educational psychology, extrinsic and intrinsic motivation and arousal - and the evidence for the main variables relating to student dropouts from university or college.

Most of the studies relating to the main variables about dropout and repeating college students come from the USA; examples include Baldwin, Hansen and Wasson (1989), Clarke and Schwarz (1989), Eskew and Faley (1988), MacIver (1993), Pintrich (1989), Weinstein (1994). However, there are also studies from Australia such as Christopher and Debreceny (1993) and Kember (1995). The majority of these studies are cross-sectional and quantitative in design.

One of the major models relating to student dropouts centres on the motivation of students. The process of arousing, maintaining and regulating specific patterns of behaviour is known as motivation (Dobson, Hardy, Heyes, Humphreys & Humphreys 1993, p.174). If lack of motivation is a major variable influencing students to drop out, then perhaps educational institutions would do well to identify the motivational dysfunction at an early enough stage to allow successful counselling leading towards successful completion of a unit at the first attempt. Traditional views of motivation are well known and range between needs theories and cognitive theories. They often begin

with "Needs Theories," and go through to Vrooms Expectancy theory (Schermerhorn, 1994; Robbins, 1994; Robbins and Mukerji, 1990). These theories have attempted to clarify what it is that motivates and why. They also attempt to explain how motivation can be applied externally to the benefit of the individual and a third party, in this case the student and the educational institution. If the problem exists within the teaching methodology of the institution itself, then new methods should be evaluated and, if deemed to be potentially more beneficial to both parties involved, they should then be implemented.

Theories on motivation and dropouts from various disciplines.

Needs Theories

There are five main needs theories. These are Maslow's Hierarchy of Needs (Maslow, 1943), McGregor's (1960) X,Y Model, McClelland's (1961) Acquired Needs Model, Vroom's (1964) Expectancy model and Locke and Latham (1984) and House's (1971) Goal Setting Motivation Model.

Maslow's Hierarchy of Needs model approaches the issue of needs through the recognition of five hierarchical levels; physiological, safety, social, esteem and self actualisation (Maslow,1943, p.370). Maslow contends that we can motivate an individual to exert an effort to achieve a goal by identifying the needs of the individual. An individual moves from the lowest level of needs, which are physiological needs, through safety needs, social needs, esteem needs and finally to self actualisation needs. Physiological needs are those dealing with such items as hunger and shelter. Safety needs relate to long term security of such areas as employment and self protection. Social needs secure belongingness and affiliation needs. Esteem needs include both self

esteem and external esteem related to self respect and the respect afforded by others. Self actualisation allows fulfilment of an individual's potential.

The simplicity of this theory and the relative ease with which it can be applied has resulted in wide recognition of its use. However, Robbins (1991, p194) states, "Maslow provided no empirical substantiation, and several studies that sought to validate the theory, found no support." For the purposes of this study it might be that a student could point to any one of these needs as cause for motivation. If a student has just completed secondary education and is setting the base foundations of an anticipated career, then the lower levels of Maslow's theory, physiological and safety, might well explain how that student might be motivated to work diligently towards an overall successful academic assessment. The levels relating to esteem and self actualisation might be related to established career persons continuing with tertiary level education in an attempt to either consolidate their career position through the addition of academic qualifications to their existing practical experience, or it might well be that the students need to gain extra tertiary qualifications to move to a higher position within their organisation in order to maintain career advancement.

McGregor (1960) with his X,Y model set out to show that subordinates are motivated very much by the assumptions made about them by their managers. McGregor (1960) believes that Theory Y managers are generally sympathetic to the individual's goals of seeking autonomy and self actualisation. Theory X managers on the other hand view their subordinates as generally lazy and untrustworthy, with no desire to succeed or to progress. This is very much a motivation response by the individual resulting from the style and/or attitude(s) of the individual (manager or teacher) motivator. His studies also worked on the principles of the satisfaction of needs. McGregor (cited in Kennedy, 1991, p.91) states that, "Man is a wanting animal - as soon as one of his needs is

satisfied, another appears in its place." This is in similar vein to Maslow's Hierarchy of needs.

McGregor's Y theory is of interest and relates to the present study. Y theory assumes that people are basically willing to be motivated and in fact seek the opportunity to be allowed the opportunity to achieve. This is linked to the type or style of leadership offered to them. It may well be that for the sake of this study, that this leadership style is extended to the student through such avenues of evaluation as the knowledge, guidance and empathy of tutors and lecturers in the students areas of academic study. The effectiveness and efficiency of the academic institution's structure and administration may all have a part to play in the motivation levels of students to continue with their studies in a manner most likely to result in academic success.

McClelland (1961), with his Acquired Needs Model, furthers the discussion of motivation through needs by a different approach. He viewed motivation from the aspect of needs based upon the individual's experiences through life. The first of the three acquired needs accounted for by McClelland is the need for achievement, where certain individuals are motivated by the opportunity to enjoy both intrinsic and extrinsic rewards from the ability to test themselves against predetermined goals. The second acquired need is the need for power. The motivation generated here lies in the ability to satisfy the individual's need to be in a position of control, influence or responsibility. Thirdly, McClelland investigates the need for affiliation where individuals are motivated to achieve through the support of their peers. This theory leans to a more intrinsic resolution of motivational requirements. Support for this view would be based on whether the successful assessment of a tertiary level business unit satisfies a student's need for achievement. The educational institution, through its assessment instruments, motivates a student to aim for as high an assessment as possible. It allows students to

reflect how much they have achieved from a starting point of non-achievement. The students can even compare their own achievement against their peers.

The need for affiliation points towards student needs for social support in their studies. If students need more social support, then being a member of a common group of study within an educational institution may well be enough motivation to enable successful academic assessment in their studies. This contrasts with the "external" student who studies by correspondence, off campus, in virtual isolation. This is not to imply that all external students suffer any disadvantage. Many students, for various social, work or personal reasons choose to adopt this method of study and are extremely motivated and successful in their studies. Of course, those external students who choose a correspondence course of study, often do so because they are unable to attend on campus lessons. For these students, who need the affiliation and social support of their peers, there is an obvious disadvantage.

The need for power is perhaps the most difficult of the needs to ascertain in the context of motivating students to succeed in their studies. It may well be that the ability to gain power and authority in their work life, outside the educational institution, depends upon results obtained from their studies. Alternatively, the students may not be so much concerned with qualifications, rather a more altruistic requirement for knowledge which can be used to influence and enhance their position in the workforce. The educational institution, therefore, needs to ensure that its educational courses are structured in a way that ensures an information flow relevant to contemporary requirements. If the educational institution offers such relevance, then they are more likely to motivate such students to success.

Motivation based on expectancy, resulted in The Expectancy Model offered by Vroom (1964). The expectancy of achievement by the student compared to the institution's

expectancy of that student's achievement is another important aspect of dropout from units of Business study. Vroom (1964) questions what motivates an individual to exert the effort necessary to achieve a performance which ultimately achieves a goal. Motivation to work towards success is in itself not always enough. The student needs to decide whether the effort exerted to achieve a goal realises an acceptable goal achievement outcome for that individual student. Vroom covers this area in his theory of expectancy . "People will do what they can do when they want to do it"(Schermerhorn, 1996 p351). Another slant on this theory might be the student's questions of the value of the reward from efforts of study. Is the level of effort required to pass a certain unit worth the passing of that unit? Alternatively, how worthwhile is it to expend varying levels of effort to achieve corresponding assessment grades compared to the lowest level of effort required to merely pass a unit of study? The student's level of motivation in this aspect may well be dictated by the approach taken by the educational institution in its auditing of individual courses and units of study. Perhaps students believe that in certain cases, a lecturer's expectations for successful assessment of a particular unit are unrealistic for the results obtained. This might indeed have a great influence on a student's motivation.

Another important viewpoint of motivation is based on the ability of a student to evaluate the probable achievement of a goal, based on the support and direction given to the student to achieve that goal. Locke and Latham (1984) and House (1971) take the view that the individual, in order to become motivated, requires the assurance of supportive guidance from superiors to satisfactorily achieve a goal which is of benefit to that individual. Their studies relate to the Goal Setting Motivation Model. Schermerhorn, 1996, p.352) states that, "Goals give direction to people in their work...goals establish a frame of reference for task feedback." This line of thought

incorporates a level of participation between a manager and subordinate, two way communication. Again, the direction and support offered by the student's lecturers, tutors and the institution of study may all have a profound effect on the motivation of a student. Some students flounder through lack of guidance in choosing a major area of study. Some may feel that they are being left to their own devices if lecturers or tutors are reluctant to allow student time for problems encountered in understanding the course material required to ensure successful academic assessment. Students who consider that they have little or no participation in their choice of goals may well become demotivated and be unsuccessful in their academic assessment. They may also withdraw from their study.

Cognitive Motivation Theories

Cognitive motivation theories are also important in trying to evaluate what is required to successfully motivate students to succeed, or, to evaluate why they have failed to succeed. One of the best known of the cognitive motivation theories is the Equity Theory proposed by Adams, as cited in Bartol, Martin, Tein and Matthews (1995, p.431), in their discussion of inequity and the equity theory.

> "According to equity theory we prefer situations of balance, or, equity, which exist when we perceive the ratio of our inputs and outcomes to be equal to the ratio of inputs and outcomes in comparison to another person."

This is an important area of motivation to a student, in as much as students are often very quick to "compare" assessments and support, based of course, on their own perception. This aspect is important in the motivation of students to succeed. If students perceive that there is any inequity of treatment amongst the student body, then they may well assume a negative attitude to the potential success or otherwise of their studies. If students believe that they have been unfairly assessed in a unit of study compared to

some other student who they perceive did no better work, then those students may well become demotivated. It takes a strong student to continue despite perceived inequity. The educational institution's approach to such an issue may well dictate the potential success or failure of students in their studies. Although students, according to Adam's equity theory, may try and change the rewards structure, or justify the inequity, they may also decide that the position is impossible or irreversible, and leave.

Opportunity and support theories.

Opportunity and support from the educational institution (Robbins, 1991, p 219) also affects the continued motivation and level of success of the student in chosen units of study. This helps to explain why it is not always the "intelligent" or "skilful" student who achieves the highest performance results compared to less "intelligent" or "less skilful" contemporaries. Often the committed support from the institution added to the student's own dedicated study, results in students achieving better performance results. Satisfaction also affects the motivation of students in their studies. Porter and Lawler, as cited in Bartol, Martin, Tein and Matthews, 1995 p 428, expanded Vroom's Expectancy theory to examine not only the individual's perception of whether the end reward justified the effort exerted for that reward, but also whether the achievement of that reward resulted in satisfaction to the individual.

Educational studies on motivation and performance from a psychological perspective

Performance and motivation in the classroom is often a reflection of the students perceptions of the interest value of the material studied, and the students perceptions of their own ability (Covington 1992; MacIver 1993; Pintrich 1989). It is often the case that the motivation outcomes expected by educators happen to be different from those of

the student and sometimes the two are at cross-purposes. An illustration of the differences in perceptions between individuals is given by Stipek (1993, p10): "teachers usually recognise the motivational problems of students who do not do well in school...children who do poorly in school have motivational problems...children who do well are highly motivated." This is an example of motivational success based purely on the conceptual evaluation of the educator. This is a biased evaluation of motivation relating to student results. "Even high achieving students can have motivational problems" (Phillips 1984). In a similar vein, Wentzel (1991), as cited in Stipek (1993), advises that children often have different goals to the teacher. Wentzel (1991), investigates three of the highest goals listed by students in their ranking of motivation. They were making or keeping friends (average grade students); having fun (lowest grade students); and learning (highest grade students). Maehr (1984) established five behavioural patterns that are able to be used as evaluations of motivation. They are the direction of an individual's attention and activity, persistence, whole-hearted or half-hearted activity level of the individual, continuing motivation, based on the individual's voluntary return to a task, and performance. Psychological approaches to the teaching methods used to cope with such areas as cultural differences, multicultural education and sexism, also have an effect on motivating students to succeed (Woolfolk 1993).

Intrinsic and extrinsic motivation

Competitive learning environments and the use of extrinsic rewards or punishment can also affect a student's motivation (Stipek 1993). Students can be motivated by either or both of intrinsic or extrinsic rewards. Woolfolk (1993, p337) tells us that intrinsic motivation is self motivating and requires no need for rewards or punishment as are required for extrinsic rewards. Indeed, intrinsic reward alone can not motivate all the

time and there is a need for extrinsic rewards to support intrinsic rewards. "Individuals learn best when they see themselves as engaging in learning behaviour for their own intrinsic reasons - because they want to rather than because they have to" (Stipek, 1993, p 59). When it comes to a question of "curiosity," Hunt (1965) and Kagan (1972) are shown by Stipek (1993, p65) to "claim that we are predisposed to derive pleasure from activities and events that provide us with some optimal (intermediate) level of surprise, incongruity, complexity or discrepancy from our expectations or beliefs." Csikszentmihalyi and Nakamura (1989) carried out a study on the dynamics of intrinsic motivation on adolescents. In their opinion (p.47), "The recognition of intrinsic motivation might yet have an important liberating effect on psychology." Their study explores why individuals choose to do what they do. They examine the difference of extrinsic motivation to intrinsic motivation. They suggest that one method, of ascertaining whether an individual is exerting effort to achieve a goal, is to ask whether that person would continue to exert that effort if there were no reward forthcoming. If the answer is no, then one could assume the effort expended to be for extrinsic reward. If the answer is yes, then the assumption is that the effort being exerted is for intrinsic reward. In their study, Csikszentmihalyi and Nakamura (1989), describe the "flow experience." This describes the feeling individuals experience when they enjoy what they are doing. This "flow" is the intrinsic reward for the effort exerted towards that activity. They conclude that students who enjoy the "flow experience" in their studies are subsequently intrinsically motivated and are likely to be successful in their studies.

Lepper and Hodell (1989) in their study of intrinsic motivation in the classroom investigated the change in the success of students when they are "bribed" into pursuing academic success based on extrinsic reward rather than continue with their natural inclination to approach their academic studies from an intrinsic vantage. At the same

time, Lepper and Hodell (1989), examine the change in educational approach suffered by individuals from early childhood through to adulthood. They view early childhood learning as being an eclectic experience with no boundaries, no time constraints and no obstructions. They describe learning at its intrinsic best. They ask (p.74), "What has happened to these formerly excited, curious, intrinsically motivated children?" Their conclusion is that the children have been placed into a system of learning which, "necessarily constrains and standardises their opportunities." They also ask whether or not natural intrinsic motivation has been supplanted by regimented extrinsic rewards (bribes). They conclude that it is a serious problem if extrinsic motivation is denied to the student and such a situation might well breed negative motivational periods in future study or certain areas of study. They acknowledge the necessity of extrinsic reward but suggest that (Lepper & Hodell, 1989, p.100), "relatively small motivational embellishments can, under appropriate circumstances, have positive effects not only on the student's enjoyment of the activity so embellished, but also on student's learning from the activity, their retention of the material learned, and their subsequent attitudes toward the subject matter being presented."

Arousal

Woolfolk (1993, p342) states that, "arousal complements motivation, sharpens motivation, heightens motivation. Teachers have to raise and lower arousal levels in their classes, depending on student's needs." The question of course is, what are those needs and how can the student be motivated, in what method, to accomplish satisfaction of those needs? Morris (1988) continues with the same theme of arousal in the classroom. In Morris' view, simple tasks achieved an optimum performance with a short

period of high arousal. Complex tasks on the other hand achieved optimum performance with a sustained low level of arousal.

The "Attribution Model" offers another perspective, whereby the student justifies success based upon the situation and variables facing that student. Weiner (1979) shows how students explain the situation by comparing their success or failure to personal ability and effort, which is then affected by interference from others through to policies which they perceive to be biased or unfair to them in one way or another. In addition, from the student's point of view, the act of withdrawal and repeat, or the achievement of a successful grade followed by a repeat does appear to be productive. The mean grade improvement in the study conducted by Baldwin, Hansen and Wasson (1989, p22) was 1.18 grade levels.

Arousal is individual and relative, but, basically the main variables which tend to cause students to drop out from units of study are the methods of assessment used, stress, memory capability, and the perception and empathic support of the agent (teacher or lecturer) of the educational institution. Winne and Marx (1989, p.253) in their cognitive-processing analysis of motivation classroom tasks conclude that ,"The explanation for student behaviour has three facets: (1) what students elect to do, (2) the temperament with which they act, and (3) their persistence in the presence of obstacles or alternatives." They conclude that, "..the fundamental difference between ...motivational processing as opposed to cognitive processing is the information that students think about, not how they think about it." Winne and Marx (1989) consider that in reality there is no discernible, evaluative difference between motivational or cognitive processing and that there is in fact an overlap with each other. It behoves the lecturer and tutor to be aware of the three facets mentioned in order to better motivate students

for successful academic assessment. Such awareness by the lecturer, should result in improved arousal of students.

Teachers give classroom tests to motivate student efforts to learn and to assess the outcomes of those efforts. "Students whose egos have been bruised by low test scores cry out against testing" (Ebel & Frisbie, 1986, p.1). For many students, the form and content of the unit evaluation may be the deciding factor. Those with good memory functions tend to be comfortable with regurgitation techniques which do not always establish the level, if any, of understanding of the subject, but give good grades. Others, with poor memory functions, tend to suffer stress which must in itself be dysfunctional in the extreme to successful evaluation. Another impact is the perception and empathy of the teacher to the subject, student members and their own profile. A well-motivated, well-taught and fairly evaluated student would not be expected under normal circumstances to need or want to withdraw from a unit part-way through nor to need or want to repeat that unit. Investigations into student anxiety in accounting introductory units (Clark & Schwartz, 1989, p. 159-167) gave inconclusive results using a behavioural shaping experiment. Hansen (cited in Woolfolk 1993, p 344) states: that negative arousal can explain, "Students who are very aroused because they are worried that they will not be able to complete a task satisfactorily, often end up with a feeling of anxiety."

Models of motivation from university studies pertaining to dropout

Many university studies into the problems of attaining student motivation have discussed the teaching of higher order skills. For example, Chance, 1986; Chipman, Segal and Glaser 1985; Nickerson, Perkins, and Smith (1985), Segal, Chipman and Glaser 1985; Sternberg, 1985, are quoted by Pintrich (1989, p.118) as believing that,

"most of the research and theory that has addressed the problem of teaching "higher order" skills has stressed cognitive and instructional variables as important components for fostering student learning." Pintrich (1989) points out that most motivational models include cognitive skills. Pintrich states (p.118) that, "For example, a college student may study for many hours a week, but if he is using ineffective or inefficient strategies, he will not do as well as a student who uses effective learning strategies." Pintrich's study was a combinative evaluation of the components which make up motivation. He lists these as value components, expectancy components, affective components and cognitive components. Motivational components according to Pintrich (p.120) are divided into three elements: one, students' beliefs about the importance and value of the task (value components); two, students' beliefs about their ability or skill to perform the task (expectancy components); and three, students' feelings about themselves or their emotional reactions to the task (affective components). He considers that these three motivational components are linked to cognitive strategy which results in achievement. Pintrich concludes that a flexible approach needs to be taken, as some students are very well self-regulated, but have lower levels of cognition skills ability whilst the opposite is true with others. Pintrich (1989) concludes that both motivational and cognitive skills require further study and that both aspects are a necessary requirement for achievement in a well mixed, well balanced manner. He quotes James (p.155), "A psychology of student learning that encompasses the mathematician and poet, fervour with measure, and passion with correctness." MacIver (1993) used existing theories in goal setting (Locke & Latham, 1984) and also achievement goal theory (Ames, 1992) to try to pinpoint weaknesses in current assessment methodology. He studied 23 middle school classes in the USA to gauge intrinsic motivation, reward structures in the classroom, and the accountability of the students themselves. His conclusions from the study were that

through the introduction of goal setting (support of the student and participation of goal setting with the student), students appeared to become higher achievers. He qualifies this conclusion by the addition that the student needs confirmation of the support of the teacher to succeed. MacIver (1993) states (p.209),

> "The current press for the institution of higher and even "world-class"standards in our schools will be counterproductive, if it increases the likelihood that the best efforts of educationally disadvantaged students will go unrecognised and unrewarded just because these students are starting out so far behind."

This statement relates to current institutionalised practices which require a standardised evaluation of student progress and assessment. For example, how does the act of assessment "scaling" affect motivation and hence, final achievement of students in their studies? MacIver (1993), also makes it quite clear (p.210) that teachers must believe themselves that all students have the ability to learn. He considers this to be a vital component to the successful motivation and achievement of the students. On this latter point, MacIver, (1993), stresses an element of caution when he quotes Finn (1991), as saying that, "The practice of giving low achieving children "positive reinforcement and favourable feedback... "a bad idea whose time has come." This relates to a motivational process of false encouragement despite lack of achievement which can backfire by making the student complacent rather than motivating the student to genuinely achieve.

Clarke and Schwartz (1989), studied the effects of anxiety and achievement on introductory, tertiary level, accounting students. They measured anxiety levels on a pre and post treatment using the State-Trait-Anxiety-Inventory, which was developed by Spielberger, Gorsuch and Lushene (1970). The State-Trait-Anxiety-Inventory model consists of two scales, each of twenty questions. The first is the A-State scale and deals with how the student feels at that moment in time, whilst the second (A-Trait scale)

questions general feelings. Theirs was a laboratory experiment to study the effects of an anxiety treatment programme and its effects on the reduction of anxiety suffered by students, and the potential gain in achievement levels through a reduction in anxiety by the introduction of such a programme. They found that in relation to college-level accounting, a behavioural intervention does have a measurable effect on reduction of State anxiety levels in their students. Clarke and Schwarz (1989, p.150) state that, "The term anxiety is commonly used to describe a transitory emotional state, but the term is also used to refer to personality trait." They state that anxiety is not in itself an indicator of lack of ability, on the contrary, because of an individual's ability, that individual's expectations regarding expected achievement and their ability or not, to reach those expectations can themselves become the rationale for anxiety. Clark and Schwarz (1989) further illustrate a lack of linkage between lack of ability and anxiety in the studies made by Lazarus (1974), Tobias, (1976) and Kogelmen and Warren (1978) who studied the phenomenon of "mathephobia" whereby despite there being no problems in specific skills or ability in the field of mathematics, many individuals suffered anxiety in that subject area and consequently were unsuccessful in those areas and avoided mathematically challenging careers.

Some students have a similar reaction to accounting studies. Despite minimal research into linking mathephobia to accounting, Clark and Schwarz (1989), refer to Burdick and Schwarz (1982) who used mathematical ability to predict success in intermediate accounting and also Clark and Sweeny (1985) who concluded that a good predictor of success in accounting studies was the grade achieved by the student in their college mathematics course. Overall, Clark and Schwarz (1989) concluded that despite evidence that anxiety intervention treatment appeared to be conducive to higher achievement, the State-Trait-Anxiety-Inventory instrument used to differentiate between high anxiety

students and low anxiety students could be flawed due to self declarations of students in relation to information used in the instrument itself. Another aspect of motivation and achievement in successful academic assessment can be examined by studies into the success of students who have initially failed to achieve a successful academic assessment on their first attempt at a unit or units of study within a prescribed course of study.

Baldwin, Hansen, Howe and Wasson (1989) conducted a study into the improvement in assessment results for students in introductory financial accounting who were repeating that unit. Students who repeated through initial failure and students who repeated through initial withdrawal (without academic penalty) were assessed in this study. No matter what the underlying reason for the student repeating the unit, Baldwin et al asked the question (p.10), "by just how much can the student expect to raise his or her grade by repeating the course?" Their study covered four colleges in the United States which comprised: (1) a large nationally known public institution. (2) a large nationally known institution, (3) a small regionally known public institution, (4) a small regionally known private institution.

The study by Baldwin, Hansen, Howe and Wasson (1989) builds upon studies by Jackson and Dawson-Saunders (1987) who investigated repeat through initial failure with their conclusion that (p.11), "Students having academic difficulty in the first year of medical school had repeated six times as many undergraduate courses as those first year medical students not having academic difficulty." Also, they draw on the studies by Broadbent, 1975; Daley & Bateman, 1978; Friedlander, 1980; Mately, 1978; Southerland & Lowry, 1985; and Thompson 1996, who investigated the issue of why students withdraw from a course prior to completion. Their conclusions listed such factors as job conflict, fear of a poor grade, dissatisfaction with instructor or course

content, or a change of major (Baldwin et al., 1989, p11). In their conclusion of results, Baldwin et al. (1989, p22) acknowledge a basic concept that any individual repeating study material for a second time should automatically have an improved understanding of the material contained within that unit or course of study. Their concern is, by how much will such a student improve in their achievement of a successful grade. They also mention the validity of a higher grade of achievement which is not indicative of a first attempt. As they state in their study (p.22), "Further we expect that a C grade earned the first time through a class may be a better indicator of student capability and performance than an A earned the third time through."

Their study showed that for repeat students there was a mean improvement of grades among the four institutions of 1.18 grade levels. For example, N to C, C to B, B to A, or according to the assessment grades used by each institution. Repeats by students who had initially withdrawn for whatever reason had a far different result. These students generally obtained lower than a C grade, in other words they failed to gain a successful grade in that unit. According to Baldwin et al. (1989, p22), these results imply that generous drop policies may merely be postponing an inevitable poor grade, since these students' grade performance is not satisfactory, even when they attempt the course a second time. These results were common for all four institutions used in the study.

Another area of interest is how much benefit students' gain from having studied in similar disciplines prior to tertiary level studies. Eskew and Faley (1987) studied the success rate of students in examination performance in a first level college financial accounting course by students who had previous high school or college experience in that area of study. Their study links the increase in demand for tertiary enrolments in to increased numbers of bookkeeping courses provided in high schools. Their study (p.138), questions, "Whether pre-college study of bookkeeping/accounting affects

performance in the first college level financial accounting course." Eskew and Faley's study (p.138) showed that Smith (1968), "found that high school exposure to bookkeeping positively influenced performance in college elementary accounting." They show Schroeder (1986) as believing that there is in fact no difference between the performance of students with one year of high school accounting coursework and those with none.

In their study, Eskew and Faley (1988 p.139), equated the performance of a first year financial accounting unit with the following factors; (1) academic aptitude, (2) past and present academic performance, (3) effort/motivation, (4) previous exposure to the same subject matter area, and (5) exposure to more generally related subject matter areas. They studied the data on a final sample of 352 students from an introductory accounting unit at Purdue University. Their conclusions were that according to their study, previous exposure to high school/college bookkeeping/accounting significantly affected performance outcomes in the tertiary level course of financial accounting. They acknowledge however, that at this point in time there is no evidence to suggest "how much" previous exposure is required and in fact whether previous exposure will have a multiplier affect on future performance results. They also suggest that the two groups, those with previous exposure to high school/college bookkeeping/accounting knowledge and those without might benefit by being separated and prescribed different texts and subjected to different assessments in order to more evenly evaluate their performance.

Christopher and Debreceny (1993), conducted a study on the prediction of student performance in introductory tertiary accounting from secondary examinations in Perth, Western Australia. They investigated the accuracy of the Tertiary Entrance Score in predicting success at Edith Cowan University's first semester accounting unit, Accounting 1. They state that (p.42), "Only approximately 37% of new students obtain

entry to the Bachelor of Business at Edith Cowan University through the Tertiary Entrance Examinations. More than 60% of these students choose to undertake a major in accounting." The study covered 657 new students who were successful in their tertiary examination entrance scores either in 1989 or 1990. These students had not previously sat for the Accounting 1 unit.

The model used by Christopher and Debreceny (1993), used six variables: one, Tertiary Entrance score; two, Mathematics mark; three, Tertiary Examination Entrance English mark; four, Australian Scholastic Aptitude Test Score; five, Course preference; and six, whether the student studied Tertiary Entrance Examination Accounting (p.44). Their expectation was that the level of Tertiary Examination Entrance Score would indicate the Accounting 1 performance of the students. Higher Tertiary Examination Entrance Scores would be expected to result in higher results in the Accounting 1 unit.

Their findings were that, apart from the Tertiary Entrance Examination English mark, students who achieved high scores in their Tertiary Entrance Score, mathematics mark, Australian Scholastic Aptitude Test, course preference and whether they studied tertiary entrance examination accounting, were more likely to pass the Accounting 1 unit. The exclusion of the Tertiary Entrance Examination English mark was explained by an assumption that students with a good mark in this type of subject might not be inclined towards quantitative type subjects and might therefore be more successful in other areas of study.

From the preceding studies, it becomes apparent that the variables related to student failure of a unit of study, or for withdrawing from a unit, are many and varied. The five most important appear to be external work commitments, family commitments, intrinsic and extrinsic motivation, prior exposure to similar subject matter, and cognitive and perceptive evaluations of the situation. While this list is by no means all inclusive, it

does provide the most important influences on academic dropouts. This leads to a model involving the main variables influencing students to academically dropout, which is explained in the next chapter (chapter 3).

Summary

This chapter reviewed studies into motivation and resultant behaviours in relation to dropout and success or failure in academic achievement. Theories covered included the early needs theories such as Maslow's Hierarchy of needs, McGregor's X-Y Theory, McClelland's Acquired Needs Theory, and Vroom's Expectancy Theory. These theories, based on the individual needs of the students, offered an initial option as to why students might be motivated, or otherwise, to become successful in their academic studies.

The next area covered was cognitive motivation theories, which help to explain a motivation based on the student's perception of equity in academic study, or at least in the academic equity of a particular unit of study undertaken by them. The chapter then covered the Goal Setting Theories and moved on to investigate such factors as opportunity and support, intrinsic and extrinsic motivation, arousal, reasons why students drop out of units, and the attribution theory.

Studies into such areas as, motivation, anxiety, validity of assessments achieved after more than one attempt, the benefits of earlier exposure to similar course material, and the predictive ability of Tertiary Entrance Scores as predictors of future academic achievement, were also viewed.

Chapter 3

The Model and Theoretical Framework

There are many variables involved in the analysis, and explanation of, why any particular students should pass, or fail, in their first or second attempt at any of their first year university level business units. The model used in this study simplifies the real situation in order to make it easier to understand and study. Only the most important variables are included in the model which sets out some simplified hypotheses that can be tested.

The model on page 40 shows the variables involved in this study. There are two dependent variables: achievement in the unit on the first attempt and achievement in the unit on the second attempt. The dependent variables are expected to reflect the effects of the independent and situation variables used in the model. The model indicates the independent variables and the situation variables which are expected to be related to the achievement of students, either on their first attempt of a business unit or upon repeating that same unit. There are five independent variables: motivation to achieve, outside work commitments, performance to expectations, family problems and attendance. It is expected that motivation is the most important independent variable affecting achievement inasmuch as anything which causes a reduction in motivation most probably results in a reduction in the amount of effort being put into study. Any reduction in the amount of time spent on study, be it by choice or by circumstance, has the potential to reduce the ability to assimilate all of the course content. This can result in students recognising that they are reducing their own chances of success in their unit(s). The efficiency of a student's study routine can also result in a similar self-realisation of impending success or failure in units of study. Conversely, a highly

motivated student who can foresee a relationship between study and success, is more likely exhibit an eagerness towards study. Such a student is more likely to engage in a more disciplined approach to study, and is more likely to employ efficient study practices. When motivation changes, so does the individual's perception of the value of the reward of achieving a successful grade in a unit of study. It is expected that the higher the motivation to succeed, the higher the achievement.

The independent variable, performance to expectations, is a perception-based variable involving a self-evaluation by students during their studies. For some students, their units of study are a continuation of previous studies at high school or other tertiary preparatory institutions. For others, it is a brand new area, full of new, untried and untested knowledge requirements. If the effort put into study is not reflected in results obtained by the student, then that student may well question the value or wisdom of continuing with that area of study. Hence, if students are not performing to expectations during the semester, they may well drop out, fail or have lower final results than students who are performing to or above expectations during the semester. It is expected that achievement in the unit on the first attempt should have a positive relationship with the independent variable performance to expectations.

Performance to expectation differs from motivation, in as much as it covers the whole spectrum of possible outcome of success. If a student expects failure, then, that student often performs to the level required to achieve that outcome. In the same sense, students may be either confused about their ability, or, they very often have a pre-determined view of their probable study outcomes. Some may suffer from a very low sense of their own ability, as stated by McInerny and McInerny (1994, p377), "why continue if one lacks ability?"

When students study on a part time basis, it is often because they also hold a full time job in the outside world. To be successful in their studies, these students need to be very skilful in the area of time management. Quite often, the independent variable of outside work requirements fluctuates for such reasons as unplanned "required" overtime, management crisis, interstate/overseas commitments or unseasonal demands. This often results in planned study hours either being eliminated or seriously reduced. The resultant stress of reduced study time is expected to result in withdrawal from, or failure of, the unit(s) studied. The model indicates that students who have outside jobs or spend a lot of time on outside jobs are, on average, less likely to perform at a high standard than other students.

Family commitments can have the same ultimate result as outside work. Such issues as unplanned illness of a family member can result in a student changing valuable study hours into carer hours. Unplanned child care can have the same result. Again, as in outside work, the resultant stress of reduced study time is expected to result in withdrawal from, or failure of, the unit(s) studied. The model also indicates that students who have family commitments or spend a lot of time on family commitments are, on average, less likely to perform at a high standard than other students.

The fifth independent variable is attendance. A unit of study is allocated a certain period of time which is deemed necessary for the teacher to deliver the content of the unit and for the student to absorb the content of the unit. If a student reduces the time for absorption of that unit content, then it follows that there is less time for that content and consequently a reduction in their chance of success. The model indicates that students who have poor attendance are, on average, less likely to perform at a high standard than other students. In the case of achievement in the unit on a second attempt, the same

variables discussed above may prove to be more controlled by the student, which in due course results in a successful final grade.

The three situational variables are age, gender and English as the first language. There are those who commence tertiary study direct from secondary study and those who return to study after being in the workforce. Gender may prove informative depending on specific subject selections or even overall success in all subjects. It is now established that the trend has been for more females to enrol in, and to successfully complete a business degree (Keef, 1992). Perhaps this enlarged pool of peer support, linked to positive action by governments and educational institutions towards the encouragement of female participation in academe has enhanced the motivational aspects of female success.

There is speculation that students whose first language is not English might be disadvantaged in their overall assessment, especially in non-quantitative subject areas. This study might show whether or not this variable requires further investigation. There is a need to establish whether there are any important differences between males and females in the achievement of academic goals. If any differences are found, then it might be necessary to re-evaluate the methodology of academic teaching and learning to eradicate any disadvantages to either gender. In his study of four groups of adolescents from 1180 secondary school students in Western Australia, Waugh (1995), concluded that there are some socialisation differences between males and females. In his study of the effect of gender on pass rates in the first year of university study, Keef (1992), found that certain groups of females achieved pass rates which were higher than those of their contemporaries.

Dependent Variables	Independent Variables	Situation Variables
Achievement in the unit on the first attempt.	Student motivation to achieve.	Age of the student.
Achievement in the unit on the second attempt.	Outside work. (Impinges on time and energy factors and reduces the effectiveness and efficiency of the student's time management process).	Gender. Is the student male or female.
	Performance to expectations (the student does not understand or can not cope with the demands of the unit content.	Is English the first language of the student?
	Family problems (there are often a great many extracurricular demands from the student's family such as illness, shared family time, family maintenance in general. Family support or non-support during study can greatly influence the outcome of the unit assessment for a student).	
	Attendance. Some students attend every lesson, others have unacceptable attendance levels.	

Figure 1: Model of Achievement in Business units.

Predicted relationship between the Independent Variables and the Dependent Variables

It is expected that there will be moderate positive relationships between the independent variables, and the dependent variable, of achievement. It is predicted that if students are well motivated, then they are likely to be successful in achieving a successful grade(s) in their studies at their first attempt(s). The student's level of motivation will be the result of that student's perception of the situation within the educational process, as described in chapter two of this study. If students are lacking in the motivation to approach their studies in a proper student-like manner, then it is unlikely they will be successful in achieving a satisfactory performance and assessment in that unit.

If students have outside work commitments which reduce or restrict their potential study time, then it would seem possible that the students would consequently be less likely to secure a successful result from their studies. However, a stress factor, such as work commitment, differs from individual to individual and this factor alone may not lead to any lowering of motivation. Therefore, highly motivated students with good time management skills may still be considered likely to secure a successful assessment in their unit or units of study. Any students who have work commitments which reduce their study potential may suffer from either stress, which is too much for them to cope with, or will be unable to keep up with their study. Such students will probably attract an unsuccessful assessment in their unit(s) of study.

Performance to expectations, is based on whether students consider that they can cope with, and fully understand, the demands of their unit or units of study. Those students who can cope with the demands of their units, are more likely to achieve a successful

assessment for that those units of study. Students who find it hard to understand the content and demands of their units of study would be unlikely to absorb the necessary material to a depth required by the assessment instruments of their units. Consequently they are in a position of potential failure in those units.

Family commitments can have a decisive impact on achievement for students. If students can cope with the stress involved through the inclusion of family commitments and have good time management skills, then they can be considered likely to succeed in their units of study. Again this is a similar situation to that suffered by students who have work commitments. If family commitments reduce the study time available to students or introduce stress levels with which find it difficult to cope, then they are in a position of likely failure in their units of study.

Students who exhibit good attendance behaviour are more likely to have assimilated one hundred per cent of the unit material and are therefore more likely to be successful in the outcomes of that unit. If students suffer poor attendance patterns, then it is probable that they are exposed to less than 100% of the unit content. It is also probable that, because of this reduction of knowledge, they have reduced their chances of success in their studies. A likely outcome would be failure in their units of study.

Predicted relationships between Situational Variables and Dependent Variables

It is expected that there will be a low positive relationship between the situational variables and the dependent variables. Although on the surface, age may be construed to be a chronological factor, it may be advisable to assume for this study that age also correlates to maturity. If students are old enough to recognise the benefits and merits of a good study programme then it is likely that they will be able to learn in a responsible

manner, which will then result in a probability of success in their unit(s) of study. It may well be that young students lacking in study discipline, or mature students finding it difficult to return to the discipline of study, will be likely to fail in achieving successful assessments in their unit(s) of study.

Depending on the general environmental situation of students and the support offered to them in their studies, both from the institution and their peers, it may well be that gender plays a significant role in the success of units of study. For a student of a specific gender who suffers from lack of support or choice of study courses preferential to them because of their gender alone, then it is possible that student will be lacking in adequate motivation. They may perceive that their levels of achievement are pre-ordained and if so, are likely to fail in their studies. Girls are often reported to be more mature and conscientious than boys.

It would seem probable to assume that success in any area of study would be related to an understanding of the information acquired in that unit of study. Therefore, if students had English as their native tongue or first language, one could assume those students are one step ahead in the area of preparedness. These students should then, "*ceteris paribus*", be in a position of likely success in their unit(s) of study. If English is not the native or first language of students, there is an immediate obstacle to the assimilation of information for those students in the prescribed time period. If such students find it difficult to understand information relayed to them, it is a probability that they will be unable to relate the required information at the time of academic assessment and will consequently fail.

Joint relationships

Of course it is likely that any student, at any time, may experience any permutation of the dependent variables, the independent variables and the situational variables. Groupings of such variables as work commitments added to family commitments would probably be representative of student failure in their studies. It would seem fair to conclude that any of the independent variables linked to dependent variable 1, would not necessarily be irreversible. Should one or more of the independent variables, added to the situational variables be linked to dependent variable 2, then it is unlikely that students would be able to reverse their potential prospects for failure in their studies.

It is highly probable that some students may experience such variable combinations as outside work commitments and family commitments, prior to their commencement of studies. Also, it is possible that some students are poorly motivated to achieve because of the disparity between their chronological age and their present level of maturity, which links itself to their pattern of attendance. A combination of gender and command of the English language, from a cultural perspective, may also be influential on student achievement.

Hypotheses

The hypotheses to be tested deal with the relationships between the dependent variables (student's achievement in the unit on the first attempt and the student's achievement in the unit on the second attempt) and the independent variables of student motivation to achieve, outside work commitment, performance to expectations, family problems, and attendance; and the relationships between the dependent variables and the situation variables of age, gender, and whether English is the first language of the student.

It is expected that there will be moderate positive relationships between achievement in the unit on first attempt and each of the independent variables student motivation to achieve, performance to expectations and attendance. It is expected that there will be moderate negative relationships between achievement in the unit on the first attempt and amount of outside work and family problems. It is expected that there will be low positive relationships between achievement in the unit on the first attempt and age, gender (females better than males) and English as the first language (yes better than no). These relationships can be tested with cross-tabulations and zero- order correlations. A similar set of hypotheses can be devised and tested in a similar way, in relation to the second dependent variable, achievement in the unit on the second attempt.

It is expected that there will also be some more complicated relationships between the dependent variables and the independent and situation variables than the ones referred to above. The model suggests a joint relationship between the dependent variables and the independent variables together, between the dependent variables and the situation variables together, and between the independent plus the situation variables together. These relationships can be tested with multiple regression analyses.

Summary

Chapter 3 sets out the model used in the study. It shows the dependent variables (achievement in the unit on the first attempt and achievement in the unit on the second attempt), the independent variables; student motivation to achieve, outside work commitments, student performance to expectations, family commitments, and attendance, and the situation variables; age of the student, gender of the student, and whether English is the first language of the student. The predicted relationships between the independent variables and the dependent variables, and between the situation

variables and the dependent variables, are discussed, leading to a set of hypotheses to be tested.

Chapter 4

Measurement, Variables and Instruments

Introduction

This chapter deals with the methods of measurement used for each of the dependent, independent and situation variables. Variables can be measured at one of four levels - categorial, ordinal, interval and ratio. At the categorical level, subjects are grouped as, for example, male or female and yes or no for English as the first language. At the ordinal level, subjects are ranked on the measurement aspect. At the interval level, equal differences in scale scores represent equal differences in the aspect being measured, but there is no true zero point. At the ratio level, equal differences in scale scores represent equal differences in the measured aspect and there is a zero point, representing a zero amount of the aspect. The dependent variables are measured at the ordinal level. The independent variables in this study are measured on scales which are at the interval or ratio level. The situation variables are at the categorial level except for age which is at the interval level. The measures used in this study are now explained in more detail.

Operationalising the Dependent Variables

The data on student results have been accessed from the computer files of the two educational institutions (private providers) involved in this study. The two dependent variables, achievement in the unit on the first attempt and achievement in the unit on the second attempt, are measured by using final assessment 'grades', given by the lecturers for those units. The two institutions used in this study, publish their final assessments differently. Institution 'A' uses a range of raw score marks between 0% and 100%. Students final grades are then determined by their position in this range: 0%-49% results

in a final assessment of 'N' which represents a fail; 50%-59% is a 'C'pass; 60%-69% is a C+, credit; 70%-79% represents a 'D', distinction and 80%-100% is 'HD', a higher distinction. This institution allowed the study results of both raw scores and grades. Institution 'B' issued results for the study on a final grading basis, omitting raw scores entirely. The gradings of institution 'B' follow the following raw score evaluations: 0%-49% is 'N', fail; 50%-59% is 'P', pass; 60%-69% represents 'C', credit; 70%-79% is 'D', distinction and 80%-100% is 'HD', a higher distinction. In order to arrive at as accurate a comparison of institutional marks as possible, two options are possible. The first is to try to translate institution 'B' grades into raw scores by taking a mid-range figure of each grade. The obvious problem with this option is in obtaining a score for a fail; 24.5% would be unrealistic for all failure scores when compared to institution 'A'. Instead, a second option of comparing common grades has been utilised. This results in the following setup with institutions 'A'and 'B'; N(N); C(P); C+(C); D(D); HD(HD). These are then translated to enable their insertion to the spreadsheet as; N(N) =5; C(P) =4; C+(C) =3; D(D) =2, and HD(HD) =1. Students who have no final assessment because of early withdrawal, or, because they did not take that particular unit during the period of the study have been recorded on the spreadsheet as a number 6. Students withdrawing after handing in assessable assignments were given that total assignment percentage according to the overall marks allocation programme.

These measures of the dependent variables are only rankings since the differences between 20% and 25%, 45% and 50%, 70% and 75%, and 90% and 95%, do not represent equal amounts of achievement. This method of assessment is an historical method of approach used by most academic institutions throughout the world. Hence there would appear to be substantial validity in its use. As academic standards are increased, it is normal for institutions to revise levels of student attainment against the

0%-100% scale. It is often the case that the range of scores are based on a normal distribution model. Similar outcomes after repeated use of such methodology allows confidence in the reliability of the scale.

Operationalising the Independent Variables

The independent variable Student Motivation to Achieve is measured using a modified version of the Motivational Strategies for Learning Questionnaire (Pintrich 1989), where students rate themselves on eight motivational items using the response categories strongly agree, agree, disagree, and strongly disagree (Questions 7-14 in the questionnaire, see appendix A). Strongly agree is allocated a score of 1, agree 2, disagree 3 and strongly disagree 4. Scores on the eight items were summed to produce a score on an ordinal level scale. This scale has been shown to be valid and reliable (Pintrich, 1989). The referents applicable to the definition, as perceived by the individual student are:

(a) the challenge to the student of the coursework content for new learning.

(b) interest of course assignments, irrespective of potential guarantee of a good grade.

(c) whether the coursework content is interesting to the student.

(d) whether the student "likes" the unit(s) of study.

(e) the importance, to the student of learning the course material.

(f) the students' views on whether understanding the subject matter of the course work is important.

(g) how useful the student views the course content post study.

(h) whether or not the student finds the course material of personal interest.

The independent variable, Outside Work, is measured using the student's average number of hours per week spent in outside work during semester 1, 1996. This is

intentionally an objective response relying on the individual student to reply with accuracy. This scale is set at the ratio level.

Performance to expectations is measured using a modified version of the scale used by MacIver (1993) to measure student's self-perceptions of ability and effort. This scale has been shown to be valid and reliable (MacIver, 1993). Students rated their responses to the eight items using four response categories (Questions 16-23 in the questionnaire, see appendix A). Scores on the eight items were summed to produce a score on an ordinal level scale. The referents, in the definition of this variable, are based on the following aspects, as perceived by the student:

(a) expectation of success in the course.

(b) expectation of good grades for the course.

(c) ability in subjects.

(d) ability in subjects compared to peers.

(e) evaluation of personal intelligence.

(f) natural ability in class.

(g) how hard the student works.

(h) how hard the student studies for tests.

Family Problems are measured using the average number of hours per week allocated to family care problems in semester 1, 1996. Again, the response to this question relies on the accuracy and honesty of the individual student. Attendance is measured by the actual hours of recorded attendance at the institution. Both of these are ratio level scales.

Operationalising the Situation Variables

For the situational variables, age was stated by the participants in years and months and is a ratio level measure. Gender is either male or female and is a categorical level

measure. The language variable is measured by either a yes or no response as to whether English is the participant's first language and is a categorical level measure. The variables age, gender and English are themselves not strict variables relating to achievement in the model. Age can be considered a chronological indicator of maturity for comparison between students, but age does not in itself measure maturity or commitment. It is related to the independent variables (such as motivation, performance to expectations and attendance) and hence to the dependent variables. Gender itself does not directly influence achievement but there are many social aspects which impact on individuals through their gender and are related to the independent variables, and hence to the dependent variables. English, can be measured to a certain extent for entrance levels to education. The testing usually incorporates listening, writing and speaking modes with each section being scored. Acceptable levels are then presumed to assure success in study.

Questionnaire

The questionnaire used to gather the data for this study comprised three parts. The first part was given to Institutions A and B so that they could provide the final grades in the eight subjects for each of the 287 students who complete parts 2 and 3. The eight subjects were Accounting, Economics, Finance, Information Systems, Legal Framework, Management, Marketing and Statistics. The final grades were used as the measures of the two dependent variables.

The second and third parts of the questionnaire were answered by the students. The second part, used measurements of the independent variables contained:

(i) Eight Likert type items measuring Student Motivation to Achieve;

(ii) One item on the number of hours spent during Semester 1/96 doing outside work to generate income whilst studying as a measure of Outside Work;

(iii) Eight Likert type items measuring Student Performance to Expectations;

(iv) One item on the number of hours spent during Semester 1/96 on family commitments such as carer of ill family member, child carer and family duties, measuring Family Work;

(v) One Likert type item measuring Attendance.

The third part of the questionnaire, used for measures of the situation variables, contained:

(vi) One item to measure the age of each student in years.

(vii) One item to determine the gender of the student.

(viii) One yes/no item on English as the first language

The full questionnaire is given in Appendix A.

Pretesting

The questionnaire was pretested before being distributed to the students in the two test groups. During the actual construction of the questionnaire, many of the questions used were discussed at length with academics at both the private colleges and also at one of the local universities linked to one of the private providers. Once a workshell questionnaire was available, it was pretested on twenty students at the university already mentioned. The students involved were part of a larger group of 42 students, and volunteered their services. The reason this particular group was chosen was because they were studying the same eight core units of a business degree as the students in the two samples of the private colleges. Unlike the private college students, the pretest questionnaire volunteers were first year students at one of the Universities linked to a

private provider used in the study. This meant that a similar sample was being used to ensure that the questions being asked were relevant to the students' study situation. The pretest resulted in eight changes being made: question 4; the inclusion of the written directive to proceed to question 7 if the student answered no, question 5; the inclusion of plural options, question 7; the directive to place a cross or tick for the answer, question 10; the inclusion of the words "the units in", question 20; the replacement of the word "smart" with the word "intelligent", question 25; was reworded to include "...allow me to cover all the course material necessary..." and also, replace SA with Strongly Agree, and so on, question 26; the inclusion of the words "..me to understand all the material necessary to ensure." The rewritten questionnaire was then discussed again with academics at both private college and university level. On question 15, specific semester (1/96), which was not originally included, was added.

Summary

This chapter discusses four levels of measurement (categorical, ordinal, interval and ratio) and describes how the dependent, independent and situation variables are measured in this study. This chapter also discusses how the questionnaire itself was formulated and pretested, prior to its administration to the two sample groups used in the study. The questionnaire had academic peer preview at both private college and university level and was then pre-tested on a group of twenty volunteer students at first year university level.

Chapter 5

Sample, Data Collection and Preliminary Data Analysis

The sample

The sample was taken from two of the four major private providers of tertiary education in Western Australia (institutions A and B) in 1996. The remaining two private providers were unwilling to participate due to concerns of sensitive market information. The sample represents the whole diploma (1st year university level) student population of each institution. Both institutions deliver their own accredited and registered diploma level awards which are individually linked to two separate Western Australian universities. Each diploma replicates the unit structure and content of the university link, and is delivered by academics who are either supplied by, or approved by, the relevant university. The universities involved also, actively, and, continuously, maintain university level academic standards in the individual diploma courses. The universities institute quality controls regarding assessment issues such as mid-semester assignments and final assessments, for students involved. The issue of university moderation and control is considered important in the final outcome of an equitable academic outcome without bias, in comparison between private college students, and those students enrolled on the university campus proper.

It was anticipated that a data collection for 400 students would be possible, representing 200 students from each institution. Unfortunately, private providers are at the mercy of market forces and their student intake numbers are often seasonal. Consequently it was not possible to obtain data for the 400 students hoped for. Both colleges were at similar seasonal averages of lower student intake during these data

collections. The sample consisted of 195 students from institution A and 92 students from institution B, a total of 287.

Data collection

Students from each institution were approached within the same week in order to distribute the questionnaires used for the initial data collection. At institution "A" it was necessary to canvass all the diploma classes with first year university equivalent units, over a period of four days, in order to offer the questionnaire to the whole Diploma level student population of that institution. The four day period was necessary because institution "A" does not use a system of mass lectures followed by small class tutorials. Institution "A" instead, has a number of small lecture groups who are committed to a single four hour teaching session comprising a two hour lecture, a one hour tutorial and a one hour workshop. The number of students offered the chance to partake in the study was 205. The number of students who voluntarily partook in the study from institution "A" was 195 students (94.6%).

Institution "B" follows the university format of one mass lecture of two hours duration, followed by small classes of tutorials on a separate day. It was easy to attend the one lecture to offer the opportunity to complete the questionnaire to the whole Diploma level student population. Of the available group of 108 students, 92 (85.2%) students voluntarily completed the questionnaire. Subsequently, after the trimester or semester had been completed, both institutions supplied the computer results of the students involved in the study.

The data for this study were collected through the direct, on-site distribution of questionnaires to the students at the commencement of their normal period of study, by the researcher personally. The students were advised that they were under no obligation

to complete the questionnaire, and that any who did, would be covered by anonymity. Students were advised that all completed questionnaires would be destroyed on completion of the trial. All questionnaires, whether completed or not, were then collected by the researcher. No problems were encountered during this process as both institutions afforded the researcher total support and all students were counselled as to the research benefits associated with their involvement. Data from the completed questionnaires were input personally by the researcher onto computer, utilising the software statistical package SPSS.

The assessment data collected from both institutions, A and B, were from computer printouts of the students' academic progress records. The records listed all units taken to the point of time when the questionnaires were completed, and also the results for the units assessed for that trimester (institution A) or semester (institution B), following the completion of the questionnaire. All data collected (relating to assessments and the questionnaire) were entered into the SPSS programme by the author, and an Information Technology technical assistant. Each entry was double checked at the point of input and was saved on a regular basis of manual save every ten completed entries. The data obtained have at all times been secured in a private office to which access is permitted only to the author and is under lock and key security. Confidentiality of data have been ensured at all times through the use of numbers instead of names. At the completion of the study, the raw data (questionnaires) will be destroyed.

Characteristics of the sample

The ages of the students in the sample ranged from 18 years of age to 32 years of age (see table 1). The majority of the students (268 or 93.4%), were between the ages of 18 - 24 years and only 19 (6.6%) were over 24. Apart from the fact that there are generally

more "younger" students than "older students in most educational institutions, it is also necessary to remember that all the students involved in this study are in private institutions. As such, full private education fees are paid for their education. Generally speaking, international students falling within the age group 18-24 years, are parent funded.

Table 1: Students by age

Age (Years)	Number	Percentage	Cumulative
18	27	19.4	9.4
19	54	18.8	28.2
20	57	19.9	48.1
21	42	14.6	62.7
22	41	14.3	77.0
23	33	11.5	88.5
24	14	4.9	93.4
25	3	1.0	94.4
26	7	2.4	96.9
27	1	0.3	97.2
28	3	1.0	98.3
29	3	1.0	99.3
30	1	0.3	99.7
32	1	0.3	100.0
Totals	**287**	**100.0**	

Academic providers at institutions A and B believe that attendance is an important factor of success in any unit of academic study. In most academic institutions, when discussions are held regarding the success or failure of a student or students in a particular area of study, one of the most common justifications is attendance. It is a general expectation among academics that most students will commence an area of study with little or no, previous knowledge of that subject. Any existing knowledge is usually accepted as a preparation base which requires expansion to complete the area of study successfully. Students with full existing knowledge of a subject area are usually granted an exemption, or recognition of prior learning for that unit. It is not usual academic procedure to "double-pass" a unit just to improve assessment results, especially at first year university level or equivalent.

Whether the students themselves agree to this concept or not is shown in their responses to the question of whether attendance for unit success is important. The importance of attendance to ensure coverage of all the necessary course material for success in a unit, elicited the following responses (see table 2). A total of 86% (246) of the students agreed that regular attendance was an important factor in successful study. This result itself reflects a generally accepted base upon which both the academic deliverer and the student agree, in principle at least.

Table 2: Attendance

Attendance	Number	Percentage	Cumulative
Not answered	1	0.3	0.3
Strongly agree	85	29.6	30.0
Agree	161	56.1	86.1
Disagree	34	11.8	97.9
Strongly disagree	6	2.1	100.0
Total	**287**	**100.0**	

Of the 287 students questioned, 68.6% (197) stated that English is their second language (see table 3). The remaining 31.4% (90) claimed English as their first language, but it must be remembered that depending on their country of origin, their first language may not be the accepted equivalent of Australian English. Even amongst the international student population, there are differences in the reception and delivery of the English language as a medium of understanding. It is because of such basic problems as diversified English language that special programmes have been structured, such as those delivered by Edith Cowan University of Perth, Western Australia, where many of the students from this study will complete the second and third years of their Bachelor's Degree.

Table 3: English as a first language

English	Number	Percentage	Cumulative
Yes	90	31.4	31.4
No	197	68.6	100.0
Total	287	100.0	

Of the 287 students in the sample, 36.6% (105) stated that they were required to make an allowance from their study hours for family commitments (see table 4). Their total commitments ranged from 1 hour per week (2.1%) to 70 hours per week (0.3%). Most of those affected needed to forgo an average of 5 hours per week. This is significant inasmuch as most students, being of international origin, are in Australia without their family. Only a few have the benefit of family support in Australia and generally speaking, such family members are often indirectly related, such as aunts or uncles. Cultural difference often dictates a certain "servicing" of family commitments, such as religious congregation, celebrations relating to birthdays and helping families in business activities and child care.

Table 4: Family commitments

Family (Hours)	Number	Percentage	Cumulative
0	182	63.4	63.4
1-5	30	9.4	73.9
6-10	25	8.7	82.6
11-15	15	5.1	87.8
16-25	25	8.6	96.5
28	1	.3	96.8
30	2	.7	97.6
35	2	.7	98.3
40	1	.3	98.6
48	2	.7	99.3
50	1	.3	99.7
70	1	.3	100.0
Total	287	100.0	

The sample is balanced when examining the make up of numbers based on gender. The sample consists 143 (49.8%) males, and 144 (50.2%) females (see table 5).

Table 5: Gender of students

Gender	Number	Percentage	Cumulative
Male	143	49.8	49.8
Female	144	50.2	100.0
Total	**287**	**100.0**	

From the sample of 287 students, 179 (62.4%), students indicated that they did not have any work commitments (see table 6); only 108 (37.6%) stated that they suffered a loss of study time. The number of hours worked ranged from 1 hour per week to 45 hours per week. A valuable check point here is 20 hours per week which is the maximum allowed to international students on a student entry visa to Australia. Of the 37.6% of students who work, 89.8% (97) work 20 hours a week or less. As most of the students in the study were not Australian citizens, or permanent residents of Australia, the result of 3.8% (11 of the total 287) admitting to more than 20 hours, would indicate that of the eleven involved, all were local students (Australian Immigration laws allow International students a maximum of 20 hours per week for work purposes).

Table 6: Work commitments

Work (Hours)	Number	Percentage	Cumulative
0	179	62.4	62.4
1-5	26	8.9	71.3
6-10	45	15.6	87.1
11-15	18	6.1	93.4
16-20	8	2.7	96.2
21-25	4	1.3	97.6
26-30	2	.6	98.3
31-35	4	1.4	99.7
45	1	.3	100.0
Total	**287**	**100.0**	

Preliminary data analysis

Tables 7-10 illustrate the preliminary results of the study in terms of passing and failing the units. Each of the individual units of study, which are typically representative of the first year university core units of study in Business, are examined. The eight unit

subjects investigated comprise Accounting, Economics, Finance, Information Systems, Legal Framework, Management, Marketing, and Statistics. The tables compare the resulting frequencies and percentage of success (and failure) of students at first and second attempt achievement in the eight subjects.

Results on first attempt

Table 7: Results of first attempt at individual units (% of total students 287)

	Account -ing	Econom -ics	Finance	Info-Systems	Legal Framework	Manage -ment	Market -ing	Stats.	Totals
Pass 1st attempt	49.5% (142)	58.2% (167)	20.6% (59)	56.1% (161)	36.2% (103)	63.8% (183)	38.3% (110)	62.6% (180)	1105
Fail 1st attempt	14.3% (41)	16.7% (48)	9.1% (26)	20.6% (59)	8.7% (25)	9.1% (26)	8.7% (25)	19.2% (55)	305
Not Applicable	36.2% (104)	25.1% (72)	70.4% (202)	23.3% (67)	55.1% (159)	27.2% (78)	53.0% (152)	18.2% (52)	
Totals	100% (287)	100% (287)	100% (287)	100% (287)	100% (287)	100% (287)	100% (287)	100% (287)	1410

The heading "Not Applicable" refers to those students who were not studying that particular unit at the time the survey took place. The reasons for this could be that, either they were in their first semester and were programmed to do that subject in their second semester or, if they held an exemption in that subject, they would not have been required to sit examinations at their respective institute of study and, hence, would not fit the category for first or second attempt, in the unit at their institute of study.

Of the 287 students, who were involved in a first attempt at a subject, the highest percentage pass rate was in the unit of Management with 63.8% (183 out of 287), (see table 7). The lowest pass rate percentage 20.6% (59 out of 287) was in the unit of Finance. Accounting had a pass rate of 49.5% (142 out of 287), with a fail rate of 14.3% (41 out of 287); Economics showed a pass rate of 58.2% (167 out of 287), and a fail rate of 16.7% (48 out of 287); Information Systems had a pass rate of 56.1% (161 out of 287), with a fail rate of 20.6% (59 out of 287); Legal Framework had a pass rate of

36.2% (103 out of 287), and a fail rate of 8.7% (25 out of 287); Marketing had a pass rate of 38.3% (110 out of 287), and a fail rate of 8.7% (25 out of 287), and, finally, Statistics had a pass rate of 62.6% (180 out of 287), with a fail rate of 19.2% (55 out of 287).

When the "Not Applicable" data are removed from the figures, the results have the same numeric values but their percentage values alter to; Accounting 77.58% pass, 22.42% fail; Economics 77.70% pass, 22.30% fail; Finance 69.36% pass, 30.64% fail; Information Systems 73.14% pass, 26.86% fail; Legal Framework 80.62% pass, 19.38% fail; Management 87.52% pass, 12.48% fail; Marketing 81.48% pass, 18.52% fail, and Statistics 76.52% pass, and 23.48% fail. These pass rates appear to be equal in all eight units (subjects) with the small variation being due to chance ($x^2_{7,\ p=0.05,\ critical} = 14.07$, x^2, = 4.23, see table 8).

Table 8: Actual and expected passes at first attempt

	Account -ing	Econom -ics	Finance	Info- Systems	Legal Framework	Manage -ment	Market -ing	Statis -tics
Actual	142.00	167.00	59.00	161.00	103.00	183.00	110.00	180.00
Expected	143.42	168.50	66.61	172.40	100.31	163.79	105.80	184.17

$X^2_{df=7} = 4.23$ $X^2_{critical\ df=7} = 14.70$ at p=0.05

Results on second attempt

Students who fail units, [305 out of 1105 (21.6%)], are required to pass those units at a subsequent time, usually, but not necessarily, as soon as possible after their initial failure in that unit. The results of this study show that on a second attempt (see table 9), Accounting had a pass rate of 3.2% (9); Economics 1.7% (5); Finance 1.7% (5); Information Systems 3.8% (11); Legal Framework 1.7% (5); Management 2.4% (7); Marketing 1.7% (5), and Statistics 3.8% (11).

When the "Not Applicable" data are removed from the figures, the results have the same numeric values but their percentage values alter to: Accounting 76.19% pass, 23.81% fail; Economics 58.84% pass, 45.16% fail; Finance 100% pass; Information Systems 92.68% pass, 7.32% fail; Legal Framework 85.00% pass, 15.00% fail; Management 88.88% pass, 11.12% fail; Marketing 85.00% pass, 15.00% fail, and Statistics 79.16% pass, and 20.84% fail.

Table 9: Results of second attempt at individual units (% of total students)

	Account -ing	Econom -ics	Finance	Info- Systems	Legal Framework	Manage -ment	Market -ing	Statistics	Tota -ls
Pass 2nd Attempt	3.2% (9)	1.7% (5)	1.7% (5)	3.8% (11)	1.7% (5)	2.4% (7)	1.7% (5)	3.8% (11)	58
Fail 2nd Attempt	1.0% (3)	1.4% (4)	0.0% (0)	0.3% (1)	0.3% (1)	0.3% (1)	0.3% (1)	1.0% (3)	14
Not Applicable	95.8% (275)	96.9% (278)	98.3% (282)	95.9% (270)	98.0% (281)	97.3% (279)	98.0% (281)	95.2% (273)	
Total	**100% (287)**	**100% (287)**	**100% (287)**	**100% (287)**	**100% (287)**	**100% (287)**	**100% (287)**	**100% (287)**	**72**

Out of 305 who failed a unit on the first attempt, 72 repeated a unit and 58 (80.55%) passed. That leaves 14 who have failed a unit twice and 233 who still have to have a second attempt at a failed unit. The pass rates appear to be equal in all eight units (subjects) with small variations being due to chance ($x^2_{7,\ p=0.05,\ critical} = 14.07$, $x^2, = 1.23$, see table 10).

Table 10: Actual and expected passes at second attempt

	Accounting	Economics	Finance	Info- Systems	Legal Framework	Manage -ment	Marketing	Statistics
Actual	9.00	5.00	5.00	11.00	5.00	7.00	5.00	11.00
Expected	9.67	7.25	4.03	9.67	4.83	6.44	4.83	11.23

$X^2_{df=7} = 1.23$ $X^2_{critical\ df=7} = 14.07$ at p=0.05

Summary

The sample consisted of 195 first year students from private provider A and 92 students from private provider B in Perth, Western Australia (total 287). The sample characteristics are summarised. They show that the age range of students within the sample was 18 – 32 years, with the majority being between 18 – 24 years of age. Of the 287 students, 86% agreed that it is necessary to ensure good attendance in order to succeed in each unit of study. Surprisingly, 68.6% of the students claim English as their second language. Family commitments impinged on the study time of 36.6% of the students, with an average of five hours a week dedicated to family commitments. The sample was evenly balanced genderwise, with 49.8% males to 50.2% females. Only 37.6% of the students admitted the need to sacrifice study time for work commitments, with 93.4% working fifteen hours a week or less.

A preliminary analysis shows that the pass rates at first attempt are not significantly different across the eight units Accounting, Economics, Finance, Information Systems, Legal Framework, Management, Marketing, and Statistics. The pass rates at the second attempt are also not significantly different across the eight units.

CHAPTER 6

Data Analysis (Part A): Cross-Tabulations

The relationships between the dependent variables and the independent variables and the situation variables are analysed by cross-tabulations, zero order correlations and multiple regression, and are covered in chapters six, seven and eight respectively. Chapter six examines the cross-tabulations between the dependent variables and the independent variables and, separately, between the dependent variables and the situation variables. These are set up in line with the model (see chapter 3, page 40). Chapter Seven examines the zero order correlations calculated between each of the dependent variables and each of the independent variables, separately, and between each of the dependent variables and each of the situation variables, separately. These correlations are used to test a number of hypotheses that flow from the model (see chapter 3, page 40). The model also suggests that relationships between the dependent, independent, and situation variables can be tested by multiple correlations. These are tested in Chapter Eight. Multiple correlations (using multiple regression analysis) are calculated between each of the dependent variables and the five independent variables together, and between each of the dependent variables and the situational variables together, and between each of the dependent variables and all the independent variables and all situation variables together.

Cross-Tabulations

An initial investigation of the relationships involved in this study was undertaken through cross-tabulations. This part of the data evaluation corresponds to the main aims of the study. A cross-tabulation is a joint frequency distribution of cases according to two or more classificatory variables (refer for example to Nie et al, SPSS Statistical

Package for the Social Sciences, 1975, p218). Cross-tabulations are also referred to as contingency analysis and the distributions can be statistically analysed by tests of significance. Here the chi square statistic will be used to determine whether or not the variables are statistically independent.

In undertaking this analysis, some problems were experienced with empty cells or cells with expected frequency less than five. Although this was not always possible, variables were recoded to eliminate some of these empty cells. However, empty cells remained an issue, particularly in regard to the second attempt achievement scores.

Cross-tabulations between the dependent variable (first attempt achievement scores) and the independent variables

In this chapter, cross-tabulation analysis was applied to the first dependent variable, achievement at first attempt, and each of the independent variables: student motivation to achieve, outside work, performance to expectations, family problems, and attendance. The analysis included all eight first year university subjects: Accounting, Economics, Finance, Information Systems, Legal Framework, Management, Marketing, and Statistics. The following tables (tables 11-25) represent the results of those same eight units which were deemed significant (from all the cross tabulations carried out), and worthy of further investigation and explanation. Many relationships were not significant and, because there are many relationships and reporting all of them is repetitive, only the most significant are reported in this chapter. Thus the cross-tabulations for Motivation to Achieve and Outside Work are not significant and are omitted.

Table:11

First Attempt at Information Systems by Expected Performance

Expected Performance	Information Systems (by %)					
	High Distinction	Distinction	Credit	Pass	Fail	Not Included
1 – 16 (low)	2.8	3.5	6.3	39.2	21.7	26.6
17 – 32 (high)	7.0	13.3	9.8	30.8	18.9	20.3

Chi square = 14.750, 5 degrees of freedom, sig at $\alpha = 0.05$, n = 220

Table 11 shows the results of student performance in the unit of Information Systems in relation to their expectations of performance. Students who expected to perform well were significantly more likely to receive higher scores in their first attempt at Information Systems than students who did not have this expectation, and vice versa. For example, only 2.8 percent of students with low expectations achieved high distinctions in their first attempt compared with 7 percent for those who had high expectations of succeeding. Alternatively, only 18.9 percent of students with high expectations of succeeding failed, compared with 21.7 percent of students with a low expectation of success. Those students who were not undertaking any particular unit during the period of data collection for the study were deemed, "Not Included" for expected performance results. "Not Included's" included those students who had previously completed that unit, were due to study that unit at some future stage of their studies, or, who had withdrawn from that unit prior to the imposition of academic penalty.

Table:12

First Attempt at Information Systems by Students' Perception of Attendance Needed for Success

Attendance Needed for Success	Information Systems (by %)					
	High Distinction	Distinction	Credit	Pass	Fail	Not Included
Strongly agree	5.9	14.1	9.4	27.1	21.2	22.4
Agree	3.1	5.0	7.5	42.2	16.8	25.5
Disagree or Strongly Disagree	10.0	10.0	7.5	22.5	32.5	17.5

Chi square = 19.942, 10 degrees of freedom, sig at $\alpha = 0.05$, n = 220

Students who agreed that their own attendance was necessary for success were less likely to receive high distinctions than those who disagree or disagreed strongly (with 5.9 percent of those who strongly agreed gaining high distinction compared with 10.0 percent of those who disagreed or disagreed strongly). However, those students who agreed or strongly agreed that attendance was important to achievement were more likely to achieve a Distinction, Credit, or Pass (19.1% Distinction, 16.9% Credit, 69.3% Pass),than those who disagreed or strongly disagreed (10% Distinction, 7.5% Credit, 22.5% Pass). Those who strongly agreed to the need of attendance for achievement suffered a 21.2 percent fail rate compared to 32.5 percent for those who disagreed or strongly disagreed, although, a combination of strongly agree or agree resulted in a 38 percent fail rate compared to the same disagree or strongly disagree fail rate of 32.5 percent.

Table:13

First Attempt at Marketing by Expected Performance

Expected Performance	Marketing (by %)					
	High Distinction	Distinction	Credit	Pass	Fail	Not Included
1 – 16 (low)	0.0	2.1	6.3	21.0	9.8	60.8
17 – 32 (high)	2.8	11.9	8.4	24.5	7.7	44.8

Chi square = 18.477, 5 degrees of freedom, sig at α= 0.005, n = 135

Students who expected to perform well were significantly more likely to achieve better scores in their first attempt at Marketing than students who did not have this expectation. For example, no students with low expectations achieved high distinctions in their first attempt compared with 2.8 percent for those who had high expectations of succeeding. Low expectation reflected a lower performance throughout the results for the Marketing unit with lower percentages of Distinction (2.1%), Credit (6.3%), and Pass (21%) results than those students with higher expectations, (Distinction 11.9%, Credit 8.4%, Pass 24.5%). Students with low expectations achieved a higher Fail result, 9.8% than those with higher expectations, 7.7%.

Table:14

First Attempt at Statistics by Expected Performance

Expected Performance	Statistics (by %)					
	High Distinction	Distinction	Credit	Pass	Fail	Not Included
1 – 16 (low)	2.8	6.3	5.6	44.1	22.4	18.9
17 – 32 (high)	9.9	15.5	6.3	35.2	15.5	17.6

Chi square = 14.487, 5 degrees of freedom, sig at α= 0.05, n = 235

Students who expected to perform well were significantly more likely to receive higher scores in their first attempt at Statistics than students who did not have this expectation. For example, 2.8 percent of students with low expectations achieved high

distinctions in their first attempt compared with 9.9 percent for those who had high expectations of succeeding. This trend continued for Distinctions (15.5%) and Credits (6.3%) for students with high expectations compared to those with lower expectations Distinctions(6.3%) and Credits (5.6%). However there is a reversal for the lowest Pass grade with those having low expectations achieving 44.1% Pass compared to 35.2% for those with high expectation.

Table:15

First Attempt Total Score by Expected Performance

	Total Score (8=high, 48=low)			
Expected Performance	< 33	33 - 36	37 - 40	>40
1 – 16 (low)	13.3	21.7	30.8	34.3
17 – 32 (high)	28.9	27.5	21.8	21.8

Chi square = 15.281, 3 degrees of freedom, sig at α= 0.005, n = 235

Note: Total scores for all first attempt subjects and then for all second attempt subjects were computed by summing results across all first and second attempt subjects respectively. A low total score (32 and less) indicates an average of at least a pass (8 subjects at an assessment of 4 [P=Pass] or less) and a high score (greater than 40 or 8 subjects at an assessment of 5 [N=Fail] or more) indicates that students have failed on average. Students who expected to perform well were significantly more likely to achieve better total scores (summed over all first attempt subjects) in their first attempt than students who did not have this expectation, and vice versa. For example, 28.9 percent of those expecting to do well achieved at least a pass average over their eight subjects compared with 13.3 percent of those who did not expect to do well.

Table:16

First Attempt Total Score by Family Problems

	Total Score (8=high, 48=low)			
Hours per week dedicated to family	<33	33 - 36	37 - 40	>40
0	21.0	23.2	22.7	33.1
1–7	18.9	18.9	37.8	24.3
8–14	8.0	48.0	24.0	20.0
15+	30.2	20.9	32.6	16.3

Chi square = 18.297, 9 degrees of freedom, sig at α= 0.05, n = 235

While there were contradictory results, students who devoted more time to their families generally achieved higher scores than those spending no time with families or those without family ties. Thirty percent of those spending 15 or more hours per week with their families achieved at least a pass average over their eight subjects compared with 21 percent of those spending no time with families. This is probably because those with families were more focused and used their more limited time, more productively, on average, than students without families.

Table:17

First Attempt Total Score by Students' Perception of Attendance needed for Success

	Total Score (8=high, 48=low)			
Attendance needed for success	<33	33 - 36	37 - 40	>40
Strongly agree	27.1	27.1	27.1	18.8
Agree	18.8	23.8	29.4	28.1
Disagree or Strongly Disagree	17.5	22.5	12.5	47.5

Chi square = 13.884, 6 degrees of freedom, sig at α= 0.05, n = 235

Students who strongly agreed that attendance was necessary for success were less likely to receive low scores in their first attempt than those who disagreed. Eighteen percent of those who agreed strongly or disagreed strongly had a fail average compared with 47.5 percent of those who disagreed.

Cross-tabulations between the dependent variable (second attempt achievement scores) and the independent variables

Similar to the analysis for the first dependent variable, cross-tabulation analysis was applied to the second dependent variable, achievement at second attempt, and each of the independent variables; student motivation to achieve, outside work, performance to expectations, family problems, and, attendance. The analysis again included all eight first year university subjects; Accounting, Economics, Finance, Information Systems, Legal Framework, Management, Marketing, and, Statistics. In this case however, Chi square was not significant for any of the cross-tabulations between the second attempt variables and the independent variables.

Cross-tabulations between the dependent variable (first attempt achievement scores) and the situation variables

Cross-tabulation analysis was applied to the first dependent variable, achievement at first attempt, and each of the situation variables; age, gender, and English as a first language. Like the previous analysis between dependents variables and independent variables, the analysis included all eight first year university subjects; Accounting, Economics, Finance, Information Systems, Legal Framework, Management, Marketing, and, Statistics. The following tables (tables 18-24), represent the results of those same eight units which were found to be significant (from all the cross tabulations carried out).

Table:18

First Attempt at Accounting by Gender

Gender	Accounting (by %)					
	High Distinction	Distinction	Credit	Pass	Fail	Not Included
Male	2.1	4.9	7.7	25.9	23.1	36.4
Female	3.5	4.2	18.8	31.9	5.6	36.1

Chi square = 23.530, 5 degrees of freedom, sig at α= 0.0005, n = 183

Although the differences were not great, female students (3.5%) were significantly more likely than males (2.1%) to achieve Higher Distinction scores in Accounting. Males (4.9%) were slightly more likely to achieve Distinctions than females (4.2%). Females (18.8%) quite significantly were more likely to achieve a Credit than males (7.7%). While males (25.9%) were less likely to achieve a Pass than females (31.9%), males (23.1%) were also more likely to fail than females (5.6%).

Table:19

First Attempt at Accounting by English as First Language

First Language	Accounting (by %)					
	High Distinction	Distinction	Credit	Pass	Fail	Not Included
Yes	3.3	1.1	7.8	21.1	10.0	56.7
No	2.5	6.1	15.7	32.5	16.2	26.9

Chi square = 26.030, 5 degrees of freedom, sig at α= 0.0001, n = 183

Although the results were not uniform across all grade levels, students for whom English was the first language were more likely than others to achieve a high distinction in Accounting; however, they were also more likely to withdraw, and more likely to obtain a low grade.

Table:20

First Attempt at Information Systems by English as First Language

First Language	Information Systems (by %)					
	High Distinction	Distinction	Credit	Pass	Fail	Not Included
Yes	10.0	10.0	5.6	44.4	21.1	8.9
No	2.5	7.6	9.1	30.5	20.3	29.9

Chi square = 23.687, 5 degrees of freedom, sig at α= 0.0005, n = 220

Students for whom English was a first language (10%) were more likely than other students (2.5%) to achieve a high distinction in Information Systems and they were also less likely to withdraw. Students with English as a first language also achieved higher achievement in Distinctions (10%) than those for whom English was not their first language. The trend reversed for Credit with students for whom English is not their first language achieving 9.1 percent compared to 5.6 percent for those for whom English is their first language. Students who claimed English as their first language achieved 44.4 percent Pass scores compared to 30.5 percent for students for whom English is not their first language. The fail rate was very similar between the two groups with 21.1 percent for those with English as their first language and 20.3 percent for those who did not have English as their first language.

Table:21

First Attempt at Management by English as First Language

English as First Language	Management (by %)					
	High Distinction	Distinction	Credit	Pass	Fail	Not Included
Yes	21.1	24.4	7.8	31.1	5.6	10.0
No	6.6	10.2	11.7	25.9	10.7	35.0

Chi square = 37.814, 5 degrees of freedom, sig at α= 0.0001, n = 209

Students for whom English was a first language were more likely than other students to achieve a High Distinction in Management and they were also less likely to withdraw. Students who claimed English as their first language were more likely to achieve Higher Distinctions (21.1%), Distinctions (24.4%) than those for whom English is not their first language (Higher Distinction 6.6%, Distinction 10.2%). Those with English as a first language were also more likely to achieve a Pass (31.1%) and less likely to fail (5.6%) than those students for whom English is not their first language. However, those students for whom English is not their first language were more likely to achieve a Credit (11.7%) than those for whom English is their first language (7.8%).

Table:22

First Attempt at Marketing by English as First Language

First Language	Marketing (by %)					
	High Distinction	Distinction	Credit	Pass	Fail	Not Included
Yes	2.2	10.0	4.4	17.8	3.3	62.2
No	1.0	5.6	8.6	24.9	11.2	48.7

Chi square = 11.702, 5 degrees of freedom, sig at $\alpha = 0.05$, n = 135

Students for whom English was a first language were slightly more likely than other students to achieve a High Distinction in Marketing and they were also less likely to withdraw. Students who claimed English as their first language were more likely to achieve Higher Distinctions (2.2%) and Distinctions (10%) than those who did not (1% and 5.6% respectively).Students who did not claim English as their first language were more likely to achieve Credit (8.6%), Pass (24.9%) and Fail (11.2%) than those who claimed English as their first language (4.4%, 17.8% and 3.3% respectively).

Table:23

First Attempt at Statistics by Gender

Gender	Statistics (by %)					
	High Distinction	Distinction	Credit	Pass	Fail	Not Included
Male	2.1	9.9	6.3	39.4	19.7	11.2
Female	10.4	11.8	5.6	39.6	18.8	7.0

Chi square = 11.132, 5 degrees of freedom, sig at $\alpha = 0.05$, n = 235

Female students were significantly more likely than male students to achieve a Distinction or higher in Statistics. Males were more likely to achieve a Credit and both genders were very similar in achieving Pass or Fail results. Female students were also less likely to withdraw from the unit.

Table:24

First Attempt Total Score by Gender

Gender	Total Score (8=high, 48=low)			
	< 33	33 - 36	37 – 40	>40
Male	14.8	19.7	29.6	35.9
Female	27.1	29.2	22.9	20.0

Chi square = 14.711, 3 degrees of freedom, sig at $\alpha = 0.005$, n = 235

Female students were more likely than male students to achieve higher overall scores in their first attempt. Fifteen percent of male students achieved at least a pass average over their eight subjects compared with twenty-seven percent of female students.

Cross-tabulations between the dependent variable (second attempt achievement scores) and the situation variables

Cross-tabulation analysis was applied to the dependent variable, achievement at second attempt, and each of the situation variables; age, gender, and English as a first

language. Like the previous analysis between dependents variables and independent variables, the analysis included all eight first year university subjects; Accounting, Economics, Finance, Information Systems, Legal Framework, Management, Marketing, and, Statistics. The following table (table 25), represents the only significant results, relating to those same eight first year units which were studied.

Table:25

Second Attempt Total Score by Gender

	Total Score (8=high, 48=low)			
Gender	< 33	33 - 36	37 – 40	>40
Male	62.0	17.5	2.2	18.2
Female	77.5	14.7	0.0	7.8

Chi square = 11.000, 3 degrees of freedom, sig at $\alpha = 0.05$, n =
Cells with expected frequency <5 = 25%

Female students were more likely than male students to achieve higher scores in their second attempt. Seventy-seven percent of female students achieved at least a pass average over their eight subjects compared with sixty-two percent of male students.

Conclusions

The conclusions regarding the cross-tabulation analysis may be presented in four sections. The first deals with achievement at the first attempt as the dependent variable and the independent variables, the second deals with the achievement at the first attempt as the dependent variable and the situation variables, the third deals with achievement at the second attempt as the dependent variable and the independent variables, and the fourth deals with achievement at the second attempt as the dependent variable and the situation variables.

Achievement at first attempt and the independent variables.

1. Students who expected to perform well were significantly more likely to receive higher scores in their first attempt at Information Systems than students who do not.
2. Students who agreed that their own attendance was necessary for success in the unit Information Systems were less likely to receive high distinctions than those who disagree or disagreed strongly.
3. Students who expected to perform well were significantly more likely to achieve better scores in their first attempt in the units Marketing and Statistics than those students who did not have this expectation.
4. Those students who expected to perform well were significantly more likely to achieve better total scores (summed over all first attempt subjects) in their first attempt than students who did not have this expectation.
5. For the units, Accounting, Economics, Finance, Information Systems, Legal Framework, and Management,there was no significant relationship between achievement at the first attempt and the independent variables motivation, outside work, and attendance.

Achievement at first attempt and the situation variables.

6. Students who achieved high distinction scores in Accounting were significantly more likely to be females than males.
7. Students for whom English was the first language were more likely than others to achieve a high distinction in the units Accounting, Management, Marketing, and Information Systems.
8. Female students were significantly more likely than male students to achieve a distinction or higher in Statistics.

9. Female students are more likely than male students to achieve higher overall scores in their first attempt.
10. For the units Legal Framework, Economics, and Finance, there was no significant relationship between achievement at the first attempt and the situation variables age, gender and English as a first language.

Achievement at second attempt and the independent variables and Achievement at second attempt and the situation variables.

11. For all the subjects Accounting, Economics, Finance, Information Systems, Legal Framework, Management, Marketing, and Statistics, there was no significant relationship between Achievement at the second attempt and any of the independent variables Student Motivation to Achieve, Outside Work, Performance to Expectations, Family Problems and Attendance and the situation variables Age, Gender and whether English is the first language of the student.
12. Female students were more likely than male students to achieve higher scores in their second attempt total scores overall in all eight units of study.
13. For all the units, Accounting, Economics, Finance, Information Systems, Legal Framework, Management, Marketing, and Statistics, there was no significant relationship between achievement at second attempt and the situation variables age, gender and whether English is the first language of the student.

Chapter 7

Data Analysis (PartB): Zero-Order Correlations

Introduction

Pearson product-moment correlations for pairs of variables are known as zero-order correlations because no controls for the influence of other variables are made. The Pearson correlation coefficient r is used to measure the strength of relationship between two, usually interval-level or ordinal level variables. The strength of the relationship indicates both the goodness of fit of a linear regression line to the data and, when r is squared, the proportion of variance in one variable explained by the other. Pearson r ranges from +1 (perfect positive relationship), through 0 (no relationship) to –1 (perfect negative relationship). The larger the absolute value of the coefficient the stronger the (usually) linear association. It would generally be considered that a correlation of less than 0.30 (either positive or negative) is of no or little practical significance. This is because 0.30 x 0.30 or 9 percent represents the amount of common variance in the two variables. A correlation between 0.30 and 0.50 is moderately positive, and a correlation over 0.50 is strongly positive and of practical significance, if the independent variable is manipulable.

The model and theoretical predictions from chapter three suggest a number of bivariate relationships between the dependent variables, the independent variables and the situation variables. The strength and direction of these relationships are tested by zero-order correlations.

Table:26

Zero-order correlations between the dependent variables (first attempt achievement scores) and the independent variables (N=287)

Variables	Motivation to achieve	Hours Worked	Expected Performance	Family hours	Attendance
Accounting	-0.00	-0.07	-0.07	-0.01	0.02
Economics	0.01	0.14*	-0.09	0.04	-0.04
Finance	0.10	0.06	-0.19 ***	-0.00	0.16**
Info Systems	-0.00	-0.01	-0.22***	-0.07	0.02
Legal Fwk	0.04	-0.06	-0.15 *	0.05	0.06
Management	0.00	0.05	-0.04	-0.08	0.05
Marketing	0.08	-0.00	-0.23 ****	-0.03	0.15*
Statistics	-0.12*	0.16***	-0.13*	0.08	-0.01
Total	0.03	0.09	-0.26****	-0.03	0.09

*α sig at 0.05 **α sig at 0.01 ***α sig at 0.005 ****α sig at 0.001

Some significant correlations were shown to exist between first attempt achievement scores and the independent variables, Motivation to Achieve, Hours worked, Expected performance and Attendance, although these made only small contributions to the common variance. Many of the correlations may be significant but they are small and for practical purposes they are useless because they only explain a small amount of variance in the dependent variable. It should be noted that some of the variables are manipulable (such as motivation to achieve) while others are not (such as family hours).

The best predictors indicated by the correlations were Hours worked as a predictor of achievement in Economics (contributing 2 percent to the common variance);Expected Performance and Attendance as predictors of achievement in Finance (contributing 4 percent and 3 percent respectively);Expected Performance as a predictor of achievement in Information Systems (contributing 5 percent); Expected Performance as a predictor of achievement in Legal Framework (contributing 2 percent); Expected Performance and

Attendance as predictors of achievement in Marketing (contributing 5 percent and 2 percent respectively);Motivation, Hours worked and Expected Performance as predictors of achievement in Statistics (contributing 1 percent, 3 percent and 2 percent respectively). When subject scores were summed to create an overall first attempt total, this was shown to correlate significantly with Expected performance. Expected Performance accounted for 7 percent of the variance in the total subject scores. When subject scores were summed to create an overall first attempt total, this was shown to correlate with Expected Performance (with this variable contributing 2 percent to the common variance).

Zero-order correlations between the dependent variable (second attempt achievement scores) and the independent variables

For both the first and second examination attempts, students were coded '6' whether they had withdrawn or had otherwise not sat the exam. If a student achieved a pass or higher in the first attempt and had a '6' for the second attempt, that student was shown as 'missing' for the second attempt and his or her results are not included in the following analysis.

Table:27 Zero-order correlations between the dependent variable (second attempt achievement) and the independent variables (N=287)

Variables	Motivation to Achieve	Hours Worked	Expected Performance	Family Hours	Attendance
Accounting	-0.01	-0.16*	-0.12	0.01	-0.08
Economics	-0.13	0.14	-0.05	-0.19 *	0.06
Finance	0.05	0.09	-0.06	-0.21 ***	-0.00
Info Systems	-0.14	-0.10	0.12	0.06	0.03
Legal Framework	-0.03	0.00	0.02	-0.33****	-0.06
Management	-0.19 *	0.01	0.05	-0.25 **	-0.03
Marketing	-0.04	0.03	-0.07	0.08	-0.00
Statistics	-0.09	-0.11	0.08	-0.04	-0.10
Total	0.01	0.04	-0.13*	-0.05	-0.08

*α sig at 0.05 **α sig at 0.01 ***α sig at 0.005 ****α sig at 0.001

Most of the significant correlations occur between second attempt achievement scores and the independent variable, Family Hours. The major predictors indicated by the correlations were, Hours worked as a predictor of achievement in Accounting (with hours worked contributing 3 percent to the common variance); Family problems as a predictor of achievement in Economics (contributing 4 percent); Family problems as a predictor of achievement in Legal Framework (contributing 11 percent);Motivation and Family Hours as predictors of achievement in Management (contributing 4 percent and 6 percent respectively). Since the amount of variance contributed is small, these independent variables are of no practical significance to the dependent variable, Achievement at the second attempt, for any of the eight Business subjects.

All the other correlations between the independent variables and Achievement at the second attempt are not significantly different from zero. They are, too, of no practical significance.

Table:28

Zero-order correlations between the dependent variable (first attempt achievement scores) and the situation variables (N=287)

Variables	Age	Gender	English
Accounting	-0.06	-0.12 *	-0.24 ****
Economics	-0.10	0.11	-0.14 *
Finance	-0.07	-0.08	-0.04
Info Systems	-0.04	0.11	0.22 ****
Legal Framework	-0.06	-0.04	-0.07
Management	0.04	-0.10	0.34 ****
Marketing	0.04	-0.07	-0.04
Statistics	-0.15 *	-0.16 **	-0.05
Total	-0.10	-0.18 ***	-0.08

*α sig at 0.05 **α sig at 0.01 ***α sig at 0.005 ****α sig at 0.001

Some significant correlations were shown to exist between first attempt achievement scores and the situation variables, Age, Gender and English as first language, although these generally made only small contributions to the common variance. The major predictors indicated by the correlations were, Gender and English as first language as predictors of achievement in Accounting (contributing one percent and 6 percent respectively to the common variance); English as first language as a predictor of achievement in Economics (contributing 2 percent); English as first language as a predictor of achievement in Information Systems (contributing 5 percent); English as first language as a predictor of achievement in Management (contributing 12 percent); Age and Gender as predictors of achievement in Statistics (contributing 2 percent) and 3 percent respectively).

When subject scores were summed to create an overall first attempt total, a significant correlation was indicated between the total and the situation variable, Gender (with Gender contributing 3 percent to the common variance).

Table:29

Zero-order correlations between the dependent variable (second attempt achievement scores) and the situation variables (N=287)

Variables	Age	Gender	English
Accounting	0.02	-0.04	-0.14
Economics	-0.01	-0.15	-0.03
Finance	0.02	-0.12	-0.04
Info Systems	-0.03	0.13	-0.07
Legal Framework	0.05	0.07	-0.05
Management	-0.01	-0.07	-0.11
Marketing	0.04	-0.11	-0.12
Statistics	-0.02	0.12	-0.09
Total	0.02	-0.16	0.01

*α sig at 0.05 **α sig at 0.01 ***α sig at 0.005 ****α sig at 0.001

No significant correlations were shown to exist between second attempt achievement scores, including the total score, and the situation variables, Age, Gender and English as first language. These are of no practical significance to the dependent variable, Achievement at the second attempt, for any of the eight Business subjects.

Table:30

Zero-order correlations between the dependent variables (first and second attempt achievement scores) (N=287)

1st Attempt	**2nd Attempt Scores**							
Scores	**Acctg**	**Econ**	**Fin**	**Info**	**Legal**	**Mgmnt**	**Mktg**	**Stats**
Accounting	0.45****	0.09	0.23***	0.05	0.14	0.01	0.07	0.13
Economics	0.01	0.33****	-0.01	0.03	-0.03	0.09	-0.00	0.12
Finance	0.26***	0.09	0.41****	0.15	0.10	-0.02	0.47****	0.10
Info Systems	0.15	0.12	0.16*	0.33****	0.10	0.11	0.05	0.09
Legal Fwk	0.43	0.15	0.10	0.23*	0.44****	0.03	0.18*	0.16
Management	-0.03	0.12	-0.00	0.03	-0.02	0.33***	-0.07	0.09
Marketing	0.29****	0.23*	0.30****	0.02	0.28****	0.10	0.36****	0.04
Statistics	-0.01	0.17	0.04	0.12	-0.02	0.02	-0.07	0.34****

*α sig at 0.05 **α sig at 0.01 ***α sig at 0.005 ****α sig at 0.001

As could be expected, all first attempt subject scores correlated significantly with the second attempt in the same subject (with contributions to common variance ranging from 11 percent to 20 percent, although the practical significance of these results is doubtful). Significant correlations were also shown to exist between some first attempt subjects and different second attempt subjects (for example, between the first attempt in Accounting and second attempt in Finance and between the first attempt in Finance and second attempt in Accounting).

Conclusions

Pearson product-moment correlations were calculated between the dependent, independent and situation variables in order to identify the significant and practical relationships. While some of the correlations are significantly different from zero, they are all small and of no practical significance. This is true for both dependent variables, achievement at first attempt and achievement at second attempt.

The conclusions relating to the zero-order correlation analysis are presented in four parts, relating to achievement at first attempt as the independent variables (part 1), achievement at first attempt and the situation variables (part 2), Achievement at the second attempt and the independent variables (part 3), and Achievement at the second attempt and the situation variables (part 4).

Part 1: Achievement at first attempt and the independent variables.

Motivation to Achieve

1. Motivation to achieve has a small negative correlation with achievement in Statistics at the first attempt ($r = -0.12$, $p<0.005$) and explains 1 percent of the variance in achievement. This correlation is of no practical significance.

2. Motivation to achieve is not significantly correlated to achievement at the first attempt in Accounting, Economics, Finance, Information Systems, Legal Framework, Management or Marketing.

Hours Worked

3. Hours Worked has a small positive correlation with achievement in both Economics and Statistics at the first attempt and explains about 2 percent of variance in achievement. The correlations are of no practical significance.
4. Hours Worked is not significantly correlated with achievement at the first attempt in Accounting, Finance, Information Systems, Legal Framework, Management or Marketing.

Performance to Expectations

5. Performance to Expectations has a small negative correlation with achievement at the first attempt in Finance, Information Systems, Legal Framework, Marketing and Statistics and explains up to 5 percent of variance in Achievement. The correlations are of no practical significance.
6. Performance to Expectations is not significantly correlated with achievement at the first attempt in Accounting, Economics and Management.

Family Hours

7. Family Hours is not significantly correlated to Accounting, Economics, Finance or Marketing .
8. Family hours has a small negative correlation with achievement at the first attempt in Information Systems and Management.
9. Family Hours has a small positive correlation with achievement at the first attempt in Legal Framework and Statistics. The correlations are of no practical significance.

Attendance

10. Attendance is not significantly correlated with achievement at the first attempt in Accounting, Economics, Information Systems, Legal Framework, Management or Statistics.
11. Attendance has a small positive correlation with achievement at the first attempt in Finance and Marketing. The correlations are of no practical significance.

Part 2: Achievement at the first attempt and the situation variables.

Age

12. Age is not significantly correlated with achievement at first attempt in Accounting, Finance, Information Systems, Legal Framework, Management or Marketing.
13. Age has a small negative correlation with achievement at first attempt in Economics and Statistics. The correlations are of no practical significance.

Gender

14. Gender has a small negative correlation with achievement at first attempt in Accounting, Finance, Management, Marketing and Statistics. The correlations are of no practical significance.
15. Gender has a small positive correlation with achievement at first attempt in Economics and Information Systems. The correlations are of no practical significance.
16. Gender is not significantly correlated with achievement at first attempt in Legal Framework.

English as First Language

17. English as First Language is not significantly correlated with achievement at first attempt in Finance, Legal Framework, Marketing and Statistics.

18. English as First Language has a small negative correlation with achievement at first attempt in Accounting. The correlation is of no practical significance.
19. English as First Language has a small positive correlation with achievement at first attempt in Management ($r = 0.34$, $p=0.001$) and Information Systems ($r = 0.22$, $p=0.001$). The correlations may be of practical significance through further studies.
20. English as First Language has a small negative correlation with achievement at first attempt in Economics. The correlation is of no practical significance.

Part 3: Achievement at the second attempt and the independent variables.

Motivation to Achieve

18. Motivation to Achieve is not significantly correlated with achievement at second attempt in Accounting, Economics, Finance, Information Systems, Legal Framework, Marketing and Statistics.
19. Motivation to Achieve has a small negative correlation with achievement at second attempt in Management ($r = -0.19$, $p=0.05$). The correlation is of no practical significance.

Hours Worked

20. Hours Worked is not significantly correlated with achievement at second attempt in Finance, Legal Framework, Management and Marketing.
21. Hours Worked has a small negative correlation with achievement at second attempt in Accounting, Information Systems and Statistics. The correlations are of no practical significance.
22. Hours Worked has a small positive correlation with achievement at second attempt in Economics. The correlation has no practical significance.

Expected Performance

23. Expected performance is not significantly correlated with achievement at second attempt in Accounting, Economics, Finance, Information Systems, Legal Framework, Management, Marketing and Statistics.

Family Hours

24. Family Hours is not significantly correlated with achievement at second attempt in Accounting, Information Systems, Marketing and Statistics.
25. Family Hours has a small negative correlation with achievement at second attempt in Economics ($r = -0.19$, $p = 0.05$), Finance ($r = -0.21$, $p = 0.005$), Legal Framework ($r = -0.33$, $p = 0.001$) and Management ($r = -0.25$, $p = 0.01$). The correlations are of no practical significance.

Attendance

26. Attendance is not significantly correlated with achievement at second attempt in Accounting, Economics, Finance, Information Systems, Legal Framework, Management, Marketing and Statistics.

Part 4: Achievement at the second attempt and the situation variables.

Age

27. Age is not significantly correlated with achievement at second attempt in Accounting, Economics, Finance, Information Systems, Legal Framework, Management, Marketing and Statistics.

Gender

28. Gender is not significantly correlated with achievement at second attempt in Accounting, Economics, Finance, Information Systems, Legal Framework, Management, Marketing and Statistics.

English as First Language

29. English as a first Language is not significantly correlated with achievement at second attempt in Accounting, Economics, Finance, Information Systems, Legal Framework, Management, Marketing and Statistics.

Chapter 8

Data Analysis (Part C): Multiple Regression Analysis

Introduction

The model used in this study suggests six joint relationships that can be tested. The first and second are the relationships between the two dependent variables (separately, achievement at first attempt and achievement at second attempt) and the independent variables (motivation, hours worked, performance, hours dedicated to family, and attendance). The third and fourth are the relationships between the two dependent variables (separately) and the situation variables (age, gender, and English as first language). The fifth and sixth are the joint relationships between the two dependent variables (separately) and the independent variables plus the situation variables together.

The method used to test these joint relationships is multiple linear regression. From the appropriate regression equation, the beta weights can be used to compare the relative influence of each independent variable on the dependent variables. These beta weights remain constant irrespective of the order in which the independent variables are entered into the regression equation. The analyses were undertaken using SPSS for Windows Linear Regression. (For a discussion of regression refer to Using Multivariate Statistics, Tabachnick, B and Fidel, L, 1989 and SPSS for Windows Basic System User's Guide, Norusis, M, 1992.).

Achievement at first attempt and independent variables

The multiple regression equation used to examine the joint relationship between the independent variables and the dependent variable, achievement in accounting at first attempt, takes the following form:

$Y = b_1x_1 + b_2x_2 + b_3x_3 + b_4x_4 + b_5x_5 + R$

Where:

Y = achievement in Accounting at first attempt

x_1= Motivation to Achieve

b_1 = regression weight for x_1

x_2 = work hours

b_2 = regression weight for x_2

x_3 = Performance to Expectations

b_3 = regression weight for x_3

x_4 = family hours

b_4 = regression weight for x_4

x_5 = Attendance

b_5 = regression weight for x_5

R = residual

The equations used to examine the joint relationship between the independent variables and the dependent variables, for each subject take a similar form.

Table 31

Summary of multiple regression analyses between the dependent variables and the independent variables (first attempt)

	Dependent Variables (β)								
Independent Variables	**Acc1**	**Econ1**	**Fin1**	**Infos1**	**Legfk1**	**Mngt1**	**Mark1**	**Stats1**	**Total1**
Motivation	-.024	.016	.033	-.056	-.010	-.025	.015	-.158	-0.045
Work hours	.074	.151	.068	.011	-.059	.058	.012	.157	0.109
Performance	-.086	-.116	-.163	-.235	-.147	-.033	-.209	-.180	-0.266
Family hours	-.021	-.049	-.015	-.080	.057	-.089	-.037	.080	-0.043
Attendance	.004	-.076	.114	-.012	.023	.056	.101	.001	0.047
Variance accounted for	1.2%	3.6%	5.7%	5.6%	3.1%	1.4%	6.7%	7.4%	8.3%
Significance <	ns	ns	.01	.01	ns	ns	.005	.001	.0005

Notes on Table 31

1. β refers to the beta weight (standardised regression coefficient) in the multiple regression equation
2. n = 283.
3. Ns = Not significant.
4. For the dependent variable in the multiple regression analysis, an extra measure, besides achievement in each of the eight subjects was used. This was Total Achievement, the sum of the scores in each of the eight subjects.

Multiple R in the equation for Achievement at the First Attempt is statistically significant for Finance, Information Systems, Marketing and Statistics. The independent variables account for about 6 percent of the variance in Achievement at First Attempt for Finance, Information Systems, Marketing and Statistics.

The standard regression weights (Beta weights) are small, in line with the results from the zero order correlations. The most important is Performance to Expectations and the Beta weights are about –0.2 for each statistically significant subject. This is interpreted to mean that if the independent variable Performance to Expectations is changed by +1 standard deviations, the dependent variable (Achievement at the First Attempt) changes by –0.2 standard deviations. This is a small inverse relationship. It means that a low Performance to Expectations is associated with a higher achievement (and vice versa), probably because it produces an incentive to improve.

Multiple R is not significant for Accounting, Economics, Legal Framework and Management where the independent variables predict only about 1 percent of the variance in Achievement at the First Attempt.

Achievement at first attempt and situation variables

The multiple regression equation used to examine the joint relationship between the situation variables and the dependent variable, achievement in accounting at first attempt, takes the following form:

$Y = b_1x_1 + b_2x_2 + b_3x_3 + R$

Where

Y = achievement in accounting at first attempt

x_1 = age

b_1 = regression weight for x_1

x_2 = gender

b_2 = regression weight for x_2

x_3 = English as first language

b_3 = regression weight for x_3

R = residual

The equations used to examine the joint relationship between the situation variables and the dependent variables, achievement in each subject, take a similar form.

Table 32

Summary of multiple regression analyses between the dependent variables and the situation variables (first attempt)

	Dependent Variables (β)								
Situation Variables	**Acc1**	**Econ1**	**Fin1**	**Infos1**	**Legfk1**	**Mngt1**	**Mark1**	**Stats1**	**Total1**
Age	-.047	-.135	-.078	-.075	-.058	-.092	.033	-.170	-.142
Gender	-.141	-.120	-.097	-.101	-.051	-.093	-.064	-.191	-.197
English	-.240	.147	-.038	.219	-.071	.345	-.047	-.040	.081
Variance accounted for	7.6%	4.8%	1.5%	6.1%	1.0%	13.0%	0.7%	5.9%	5.7%
Significance <	.0005	.005	ns	.001	ns	.0001	ns	.001	.001

Notes on Table 32

1. β refers to the beta weight (standardised regression coefficient) in the multiple regression equation
2. n = 283.
3. Ns = not significant.
4. For the dependent variable in the multiple regression analysis, an extra measure, besides achievement in each of the eight subjects was used. This was Total Achievement, the sum of the scores in each of the eight subjects.

Multiple R in the equation for Total Achievement is significant and the null hypothesis can be rejected. The numerical values for the beta weights, in order of importance in accounting for the variance are –0.197 for Gender, -0.142 for Age and 0.081 for English as a second language. Age and Gender are inversely related to Total Achievement indicating that female student are likely to achieve higher scores than males and older students higher scores than the younger ones. Altogether 5.7 percent of the variability in Total Achievement is predicted by knowing scores on these situation variables (that is, there is only a slight relationship).

For specific subjects, Multiple R is significant for Accounting, Economics, Information Systems, Management and Statistics. However, in all cases the amount of variability predicted by knowing scores on the independent variables is slight, the largest being 13 percent for Management. Beta weights are low in line with the small amounts of variance predicted.

Achievement at first attempt and all independent variables plus the situation variables

The multiple regression equation used to examine the joint relationship between the independent variables, the situation variables and the dependent variable, achievement in accounting at first attempt, takes the following form:

$Y = b_1x_1 + b_2x_2 + b_3x_3 + b_4x_4 + b_5x_5 + b_6x_6 + b_7x_7 + R$

Where

Y = achievement in accounting at first attempt

x_1= motivation to achieve

b_1 = regression weight for x_1

x_2 = work hours

b_2 = regression weight for x_2

x_3 = performance to expectations

b_3 = regression weight for x_3

x_4 = family hours

b_4 = regression weight for x_4

x_5 = attendance

b_5 = regression weight for x_5

x_6 = age

b_6 = regression weight for x_1

x_7 = gender

b_7 = regression weight for x_2

x_8 = English as first language

b_8 = regression weight for x_3

R = residual

The equations used to examine the joint relationship between the independent and situation variables and the other dependent variables, achievement in each subject and total achievement at first attempt, take a similar form.

Table 33

Summary of multiple regression analyses between the dependent variables and all the independent variables plus the situation variables (first attempt)

	Dependent Variables (β)								
Independent Variables	**Acc1**	**Econ1**	**Fin1**	**Infos1**	**Legfk1**	**Mngt1**	**Mark1**	**Stats1**	**Total1**
Motivation	-.020	.001	.028	-.071	-.013	-.051	.018	-.174	-.066
Work hours	.047	.128	.049	-.009	-.074	.042	.003	.120	.070
Performance	-.109	-.122	-.176	-.235	-.159	-.024	-.215	-.200	-.280
Family hours	-.043	-.047	-.020	-.079	.052	-.079	-.048	.051	-.052
Attendance	.015	-.083	.122	-.027	.034	-.038	.098	.008	.045
Age	-.069	-.134	-.106	-.092	-.094	-.100	.016	-.195	-.176
Gender	-.135	-.117	-.081	-.121	-.058	-.092	-.063	-.170	-.192
English	-.253	.145	-.063	.202	-.083	.340	-.077	-.040	.057
Variance accounted for	9.4%	8.2%	7.7%	11.6%	4.9%	14.0%	7.6%	13.3%	14.2%
Significance <	.001	.005	.005	.0001	ns	.0001	.01	.0001	.0001

Notes on Table 33

1. β refers to the beta weight (standardised regression coefficient) in the multiple regression equation
2. n = 283.

Multiple R in the equation for Total Achievement is significant and the null hypothesis can be rejected. The numerical values for the beta weights, in order of importance in accounting for the variance are –0.280 for Performance, -0.192 for Gender and -0.176 for Age. Altogether 14.2 percent of the variance in Total Achievement is predicted by knowing scores on these independent and situation variables (that is only a slight relationship).

For specific subjects, Multiple R is significant for all subjects except Legal Framework. However, in all cases the amount of variance predicted by knowing scores on the independent variables is slight, the largest being 14 percent for Management. Beta weights are low in line with the small amounts of variance predicted.

Achievement at second attempt and independent variables

The multiple regression equation used to examine the joint relationship between the independent variables and the dependent variable, achievement in accounting at second attempt, takes the following form:

$Y = b_1x_1 + b_2x_2 + b_3x_3 + b_4x_4 + R$

Where

Y = achievement in accounting at second attempt

x_1= motivation

b_1 = regression weight for x_1

x_2 = work hours

b_2 = regression weight for x_2

x_3 = performance

b_3 = regression weight for x_3

x_4 = family hours

b_4 = regression weight for x_4

x_5 = attendance

b_4 = regression weight for x_5

R = residual

The equations used to examine the joint relationship between the independent variables and the other dependent variables, achievement in each subject and total achievement at first attempt, take a similar form.

Table 34

Summary of multiple regression analyses between the dependent variables and the independent variables (second attempt)

	Dependent Variables (β)								
Independent Variables	**Acc2**	**Econ2**	**Fin2**	**Infos2**	**Legfk2**	**Mngt2**	**Mark2**	**Stats2**	**Total2**
Motivation	-.008	.044	.099	-.075	.017	.016	.041	-.051	-.048
Work hours	.006	.164	.098	-.036	-.106	089	.029	.093	.051
Performance	-.086	.004	-.086	-.126	-.145	-.034	-.142	-.033	-.133
Family hours	.007	-.058	-.016	-.072	.032	-.075	-.047	.066	-.060
Attendance	-.006	.008	.123	.037	.044	-.007	.105	.042	.065
Variance accounted for	0.7%	3.0%	5.6%	2.5%	4.2%	1.3%	4.6%	1.9%	2.8%
Significance <	ns	ns	.01	ns	.05	ns	.05	ns	ns

Notes on Table 34

1. β refers to the beta weight (standardised regression coefficient) in the multiple regression equation
2. n = 283.
3. Ns = not significant.

Multiple R in the equation for Total Achievement is not significant and the null hypothesis cannot be rejected. Beta weights are low, the highest being 0.133 for Performance, again, in line with the small amounts of variance predicted.

For specific subjects, Multiple R is significant for Finance, Legal Framework and marketing. However, in all cases the amount of variance predicted by knowing scores on the independent variables is slight and beta weights are low.

Achievement at second attempt and situation variables

The multiple regression equation used to examine the joint relationship between the situation variables and the dependent variable, achievement in accounting at second attempt, takes the following form:

$Y = b_1x_1 + b_2x_2 + b_3x_3 + R$

Where

Y = achievement in accounting at second attempt

x_1 = age

b_1 = regression weight for x_1

x_2 = gender

b_2 = regression weight for x_2

x_3 = English as first language

b_3 = regression weight for x_3

R = residual

The equations used to examine the joint relationship between the situation variables and the other dependent variables, achievement in each subject and total achievement at first attempt, take a similar form.

Table 35

Summary of multiple regression analyses between the dependent variables and the situation variables (second attempt)

Independent Variables	Dependent Variables (β)								
	Acc2	Econ2	Fin2	Infos2	Legfk 2	Mngt2	Mark2	Stats2	Total2
Age	.007	-.118	-.087	.002	-.015	.004	-.012	-.104	-.036
Gender	-.196	-.133	-.160	-.087	-.057	-.103	-.100	-.106	-.169
English	-.245	.103	-.071	.187	-.094	.274	-.071	-.069	-.003
Variance accounted for	9.2%	3.7%	3.4%	4.5%	1.2%	9.0%	1.4%	2.4%	2.8%
Significance <	.0001	.05	.05	.005	ns	.0001	ns	ns	ns

Notes on Table 35

1. β refers to the beta weight (standardised regression coefficient) in the multiple regression equation
2. n = 283.

Multiple R in the equation for Total Achievement is not significant and the null hypothesis cannot be rejected. Beta weights are low and are all inversely related to Total Achievement, the highest being 0.169 for Gender. For specific subjects, Multiple R is significant for all subjects except Legal Framework, Marketing and Statistics. However, in all cases the amount of variance predicted by knowing scores on the independent variables is slight, the largest being 9.2 percent for Accounting and 9.0 percent for Legal Framework. Beta weights are low, again, in line with the small amount of variance predicted.

Achievement at second attempt and all independent variables

The multiple regression equation used to examine the joint relationship between the independent variables, the situation variables and the dependent variable, achievement in accounting at second attempt, takes the following form:

$$Y = b_1x_1 + b_2x_2 + b_3x_3 + b_4x_4 + b_5x_5 + b_6x_6 + b_7x_7 + b_8x_8 + b_9x_9 + b_{10}x_{10} + b_{11}x_{11} + b_{12}x_{12} + R$$

Where

Y = achievement in accounting at second attempt

x_1= motivation to achieve

b_1 = regression weight for x_1

x_2 = work hours

b_2 = regression weight for x_2

x_3 = performance to expectations

b_3 = regression weight for x_3

x_4 = family hours

b_4 = regression weight for x_4

x_5 = attendance

b_5 = regression weight for x_5

x_6 = age

b_6 = regression weight for x_1

x_7 = gender

b_7 = regression weight for x_2

x_8 = English as first language

b_8 = regression weight for x_3

R = residual

The equations used to examine the joint relationship between the independent and situation variables and the other dependent variables, achievement in each subject and total achievement at second attempt, take a similar form.

Table 36

Summary of multiple regression analyses between the dependent variables and all the independent variables plus situation variables (second attempt)

	Dependent Variables (β)								
Independent Variables	**Acc2**	**Econ2**	**Fin2**	**Infos2**	**Legfk2**	**Mngt2**	**Mark2**	**Stats2**	**Total2**
Motivation	-.002	.032	.095	-.085	.017	.003	.041	-.057	-.050
Work hours	-.028	.142	.071	-.050	-.122	.078	.012	.073	.020
Performance	-.111	-.003	-.104	-.123	-.157	-.025	-.154	-.047	-.146
Family hours	-.026	-.058	-.029	-.075	.022	-.074	-.060	.063	-.071
Attendance	-.009	.004	.127	.017	.049	-.036	.106	.054	.058
Age	-.014	-.127	-.107	-.024	-.053	-.003	-.039	-.136	-.081
Gender	-.202	-.114	-.137	-.105	-.078	-.102	-.094	-.075	-.166
English	-.260	.101	-.096	.175	-.111	.273	-.100	-.072	-.020
Variance accounted for	10.6%	6.4%	9.2%	6.8%	6.1%	10.0%.	6.5%	4.6%	5.8%
Significance <	.0005	.05	.001	.05	.05	.0005	.05	ns	ns

Notes on Table 36

1. β refers to the beta weight (standardised regression coefficient) in the multiple regression equation
2. n = 283.
3. Ns = not significant.

Multiple R in the equation for Total Achievement is not significant and the null hypothesis cannot be rejected. Beta weights are low and all except Work hours and Attendance are inversely related to Total Achievement, the highest being 0.166 for Gender. For specific subjects, Multiple R is significant for all subjects except Statistics. However, in all cases the amount of variance predicted by knowing scores on the independent variables is slight, the largest being 10.6 percent for Accounting and 10.0 percent for Management. Beta weights are low.

Comparisons between first and second attempts

The relationship between the independent and situation variables and achievement, particularly in terms of total scores for the 8 subjects, is less likely to be statistically

significant for the second attempt than for the first. For both attempts performance is the main predictor of variance in total scores on the eight subjects. In considering individual subjects, Performance is not necessarily the main indicator and there is also not necessarily consistency in the order of importance of variables between the first and second attempts at a subject. Nevertheless, the independent and situation variables only account for a very small amount of variance in both the dependent variables and in all cases are of no practical significance.

Conclusions

The conclusions relating to the multiple regression analyses are presented in six parts in line with the suggested relationships in the model. These are the joint relationships between achievement at first attempt and the independent variables, achievement at first attempt and the situation variables, achievement at first attempt and the independent variables plus the situation variables together, achievement at second attempt and the independent variables, achievement at second attempt and the situation variables, achievement at second attempt and the independent variables plus the situation variables together. All the relationships are so small that they are of no practical significance.

Achievement at first attempt and independent variables

Multiple R in the equation for Achievement at the First Attempt is statistically significant for Finance, Information Systems, Marketing and Statistics. The independent variables account for about 6 percent of the variance in Achievement at First Attempt for Finance, Information Systems, Marketing and Statistics.

The standard regression weights (Beta weights) are small, in line with the results from the zero order correlations. The most important is Performance to Expectations and the Beta weights are about –0.2 for each statistically significant subject. This is interpreted

to mean that if the independent variable Performance to Expectations is changed by +1 standard deviations, the dependent variable (Achievement at the First Attempt) changes by –0.2 standard deviations. This is a small inverse relationship. It means that a low Performance to Expectations is associated with a higher achievement (and vice versa), probably because it produces an incentive to improve.

Multiple R is not significant for Accounting, Economics, Legal Framework and Management where the independent variables predict only about 1 percent of the variance in Achievement at the First Attempt.

Achievement at first attempt and the situation variables

Multiple R in the equation for Total Achievement is significant and the null hypothesis can be rejected. The numerical values for the beta weights, in order of importance in accounting for the variance are –0.197 for Gender, -0.142 for Age and 0.081 for English as a second language. Age and Gender are inversely related to Total Achievement indicating that female student are likely to achieve higher scores than males and older students higher scores than the younger ones. Altogether 5.7 percent of the variance in Total Achievement is predicted by knowing scores on these situation variables (that is, there is only a slight relationship).

For specific subjects, Multiple R is significant for Accounting, Economics, Information Systems, Management and Statistics. However, in all cases the amount of variance predicted by knowing scores on the independent variables is slight, the largest being 13 percent for Management. Beta weights are low.

Achievement at first attempt and independent variables and situation variables

Multiple R in the equation for Total Achievement is significant and the null hypothesis can be rejected. The numerical values for the beta weights, in order of importance in accounting for the variance are –0.280 for Performance, -0.192 for Gender and -0.176 for Age. Altogether 14.2 percent of the variance in Total Achievement is predicted by knowing scores on these independent and situation variables (that is only a slight relationship).

For specific subjects, Multiple R is significant for all subjects except Legal Framework. However, in all cases the amount of variance predicted by knowing scores on the independent variables is slight, the largest being 14 percent for Management. Beta weights are low.

Achievement at second attempt and the independent variables

Multiple R in the equation for Total Achievement is not significant and the null hypothesis cannot be rejected. Beta weights are low, the highest being 0.133 for Performance. For specific subjects, Multiple R is significant for Finance, Legal Framework and marketing. However, in all cases the amount of variance predicted by knowing scores on the independent variables is slight and beta weights are low.

Achievement at second attempt and situation variables

Multiple R in the equation for Total Achievement is not significant and the null hypothesis cannot be rejected. Beta weights are low and are all inversely related to Total Achievement, the highest being 0.169 for Gender. For specific subjects, Multiple R is significant for all subjects except Legal Framework, Marketing and Statistics. However, in all cases the amount of variance predicted by knowing scores on the independent

variables is slight, the largest being 9.2 percent for Accounting and 9.0 percent for Legal Framework. Beta weights are low.

Achievement at second attempt and the independent and situation variables

Multiple R in the equation for Total Achievement is not significant and the null hypothesis cannot be rejected. Beta weights are low and all except Work hours and Attendance are inversely related to Total Achievement, the highest being 0.166 for Gender. For specific subjects, Multiple R is significant for all subjects except Statistics. However, in all cases the amount of variance predicted by knowing scores on the independent variables is slight, the largest being 10.6 percent for Accounting and 10.0 percent for Management. Beta weights are low.

Comparisons between first and second attempts

The relationship between the independent and situation variables and achievement, particularly in terms of total scores for the 8 subjects, is less likely to be statistically significant for the second attempt than for the first. For both attempts, performance is the main predictor of variance. In considering individual subjects, Performance is not necessarily the main indicator and there is also not necessarily consistency in the order of importance of variables between the first and second attempts at a subject. Nevertheless, the independent variables and situation variables only account for a small amount of variance in both of the dependent variables and they are of no practical significance.

Chapter 9

Summary Conclusions and Implications

Summary

This study investigated some of the determinants of success and failure (and dropout) from first year university level units, at two private business colleges in Western Australia. Not all students are able to enrol directly into a university for tertiary study. Options available to such students include enrolment at a private tertiary college such as the two colleges utilised for this study. The reasons may include such factors as: the student does not have an acceptable academic background to move directly into a university place, a university place may not be available to students because they are not nationals of Australia, or, the English language capability of students may preclude them from a successful assessment at university at the time they enter into tertiary study.

A self-report questionnaire was circulated to two of the most established private tertiary colleges in Western Australia during a current semester of study. Completion of the questionnaire was voluntary for the students (N=287). Students answered questions on eight variables and the Private Providers gave their 1995-1996 results for eight common core Bachelor Degree Business units; Accounting, Economics, Legal Framework, Information Systems, Management, Marketing, Finance, and Statistics. The questionnaire was pretested and based on a model developed especially for this study. The variables in the model were taken from the literature. Only the variables that were expected to be most influential on achievement were used in the model in order to simplify a complex situation and make it easier to research.

The model was constructed using two dependent variables (achievement in the unit at first attempt and achievement in the unit at second attempt); five independent variables

(student motivation to achieve, outside work, performance to expectations, family problems, and attendance); and three situation variables (age, gender, and whether English was the student's first language). The data collected from both the questionnaire and the 1995-1996 results for the students were analysed through the use of the computer programme SPSS (Statistical Package for the Social Sciences) in line with the hypotheses suggested by the model. Analysis of the data was performed through cross-tabulations, zero order correlations, and multiple regression techniques.

Conclusions

The aims of this study were to predict success and failure (and dropout) of first year university units at private providers in Business units of study. The independent and situation variables measured in this study were not related, even moderately, to success or failure, at either the first or second attempt in any of the eight Business subjects. It must be concluded that the independent and situation variables cannot be used to predict success or failure and that a new model needs to be devised and investigated, probably with new variables and improved measures of the variables.

This section draws together the main conclusions from the data analysis chapters on cross-tabulations, zero-order correlations and multiple regression.

Conclusions from Cross-tabulations

The conclusions regarding the cross-tabulation analysis may be presented in four parts. The first deals with achievement at the first attempt (as the dependent variable) and the independent variables, the second deals with the achievement at the first attempt (as the dependent variable) and the situation variables, the third deals with achievement at the second attempt (as the dependent variable) and the independent variables, and the fourth

deals with achievement at the second attempt (as the dependent variable) and the situation variables.

Part 1: Achievement at first attempt and the independent variables.

1. Students who expected to perform well were significantly more likely to receive higher scores in their first attempt at Information Systems than students who do not.
2. Students who agreed that their own attendance was necessary for success in the unit Information Systems were less likely to receive high distinctions than those who disagree or disagreed strongly.
3. Students who expected to perform well were significantly more likely to achieve better scores in their first attempt in the units Marketing and Statistics than those students who did not have this expectation.
4. Those students who expected to perform well were significantly more likely to achieve better total scores (summed over all first attempt subjects) in their first attempt than students who did not have this expectation.
5. For the units, Accounting, Economics, Finance, Information Systems, Legal Framework, and Management,there was no relationship between achievement at the first attempt and the independent variables motivation, outside work, and attendance.

Part 2: Achievement at first attempt and the situation variables.

6. Students who achieved high distinction scores in Accounting were significantly more likely to be females than males.
7. Students for whom English was the first language were more likely than others to achieve a high distinction in the units Accounting, Management, Marketing, and Information Systems.

8. Female students were significantly more likely than male students to achieve a distinction or higher in Statistics.
9. Female students are more likely than male students to achieve higher overall scores in their first attempt.
10. For the units Legal Framework, Economics, and Finance, there was no significant relationship between achievement at the first attempt and the situation variables age, gender and English as a first language.

Part 3: Achievement at second attempt and the independent variables.

11. Female students were more likely than male students to achieve higher scores in their second attempt total scores overall in all eight units of study.
12. For all the units Accounting, Economics, Finance, Information Systems, Legal Framework, Management, Marketing and Statistics, there was no significant relationship between achievement at the second attempt and any of the independent variables.

Part 4: Achievement at second attempt and the situation variables.

13. For all the units, Accounting, Economics, Finance, Information Systems, Legal Framework, Management, Marketing, and Statistics, there was no significant relationship between achievement at second attempt and the situation variables age, gender and whether English is the first language of the student.

Conclusions from Zero-order correlations

The conclusions relating to the zero-order correlation analyses are presented in four parts relating to achievement at first attempt and the independent variables (part 1), achievement at the first attempt and the situation variables (part 2), achievement at the second attempt and the independent variables (part 3), and achievement at the second

attempt and the situation variables (part 4). In each case, the amount of explained variance in the dependent variable was 7% or less and hence the relationships are of no practical significance for any of the eight Business subjects, the students or private providers.

Part 1: Achievement at first attempt and the independent variables

Motivation to Achieve

14. Motivation to achieve has a small negative correlation with achievement in Statistics at the first attempt ($r = -0.12$, $p<0.005$) and explains 1 percent of the variance in achievement. This correlation is of no practical significance.
15. Motivation to achieve is not significantly correlated to achievement at the first attempt in Accounting, Economics, Finance, Information Systems, Legal Framework, Management or Marketing.

Hours Worked

16. Hours Worked has a small positive correlation with achievement in both Economics and Statistics at the first attempt and explains about 2 percent of variance in achievement. The correlations are of no practical significance.
17. Hours Worked is not significantly correlated with achievement at the first attempt in Accounting, Finance, Information Systems, Legal Framework, Management or Marketing.

Performance to Expectations

18. Performance to Expectations has a small negative correlation with achievement at the first attempt in Finance, Information Systems, Legal Framework, Marketing and Statistics and explains up to 5 percent of variance in Achievement. The correlations are of no practical significance.

19. Performance to Expectations is not significantly correlated with achievement at the first attempt in Accounting, Economics and Management.

Family Hours

20. Family Hours is not significantly correlated to Accounting, Economics, Finance or Marketing .
21. Family hours has a small negative correlation with achievement at the first attempt in Information Systems and Management. The correlation is of no practical significance.
22. Family Hours has a small positive correlation with achievement at the first attempt in Legal Framework and Statistics. The correlation is of no practical significance.

Attendance

23. Attendance is not significantly correlated with achievement at the first attempt in Accounting, Economics, Information Systems, Legal Framework, Management or Statistics.
24. Attendance has a small positive correlation with achievement at the first attempt in Finance and Marketing. The correlation is of no practical significance.

Part 2: Achievement at the first attempt and the situation variables

Age

25. Age is not significantly correlated with achievement at first attempt in Accounting, Finance, Information Systems, Legal Framework, Management or Marketing.
26. Age has a small negative correlation with achievement at first attempt in Economics and Statistics. The correlation is of no practical significance.

Gender

27. Gender has a small negative correlation with achievement at first attempt in Accounting, Finance, Management, Marketing and Statistics. The correlation is of no practical significance.
28. Gender has a small positive correlation with achievement at first attempt in Economics and Information Systems. The correlations are of no practical significance.
29. Gender is not significantly correlated with achievement at first attempt in Legal Framework.

English as First Language

30. English as First Language is not significantly correlated with achievement at first attempt in Finance, Legal Framework, Marketing and Statistics.
31. English as First Language has a small negative correlation with achievement at first attempt in Accounting. The correlation is of no practical significance.
32. English as First Language has a small positive correlation with achievement at first attempt in Management ($r = 0.34$, $p=0.001$) and Information Systems ($r = 0.22$, $p=0.001$). The correlations are of no practical significance.
33. English as First Language has a small negative correlation with achievement at first attempt in Economics. The correlation is of no practical significance.

Part 2 : Achievement at the second attempt and the independent variables

Motivation to Achieve

34. Motivation to Achieve is not significantly correlated with achievement at second attempt in Accounting, Economics, Finance, Information Systems, Legal Framework, Marketing and Statistics.

35. Motivation to Achieve has a small negative correlation with achievement at second attempt in Management (r = -0.19, p=0.05). The correlation is of no practical significance.

Hours Worked

36. Hours Worked is not significantly correlated with achievement at second attempt in Finance, Legal Framework, Management and Marketing.

37. Hours Worked has a small negative correlation with achievement at second attempt in Accounting, Information Systems and Statistics. The correlations are of no practical significance.

38. Hours Worked has a small positive correlation with achievement at second attempt in Economics. The correlation has no practical significance.

Expected Performance

39. Expected performance is not significantly correlated with achievement at second attempt in Accounting, Economics, Finance, Information Systems, Legal Framework, Management, Marketing and Statistics.

Family Hours

40. Family Hours is not significantly correlated with achievement at second attempt in Accounting, Information Systems, Marketing and Statistics.

41. Family Hours has a small negative correlation with achievement at second attempt in Economics (r = -0.19, p= 0.05), Finance (r = -0.21, p= 0.005), Legal Framework (r = -0.33, p= 0.001) and Management (r = -0.25, p= 0.01). The correlations are of no practical significance.

Attendance

42. Attendance is not significantly correlated with achievement at second attempt in Accounting, Economics, Finance, Information Systems, Legal Framework, Management, Marketing and Statistics.

Age

43. Age is not significantly correlated with achievement at second attempt in Accounting, Economics, Finance, Information Systems, Legal Framework, Management, Marketing and Statistics.

Gender

44. Gender is not significantly correlated with achievement at second attempt in Accounting, Economics, Finance, Information Systems, Legal Framework, Management, Marketing and Statistics.

English as First Language

45. English as a first Language is not significantly correlated with achievement at second attempt in Accounting, Economics, Finance, Information Systems, Legal Framework, Management, Marketing and Statistics.

Conclusions from Multiple Regression

The conclusions relating to the multiple regression analyses are presented in six parts in line with the suggested relationships in the model. These are the joint relationships between achievement at first attempt and the independent variables, achievement at first attempt and the situation variables, achievement at first attempt and the independent variables plus the situation variables together, achievement at second attempt and the independent variables, achievement at second attempt and the situation variables,

achievement at second attempt and the independent variables plus the situation variables together. All the relationships are so small that they are of no practical significance.

Achievement at first attempt and the independent variables

46. Multiple R in the equation for Achievement at the First Attempt is statistically significant for Finance, Information Systems, Marketing and Statistics. The independent variables account for about 6 percent of the variance in Achievement at First Attempt for Finance, Information Systems, Marketing and Statistics.

The standard regression weights (Beta weights) are small, in line with the results from the zero order correlations. The most important is Performance to Expectations and the Beta weights are about –0.2 for each statistically significant subject. This is interpreted to mean that if the independent variable Performance to Expectations is changed by +1 standard deviations, the dependent variable (Achievement at the First Attempt) changes by –0.2 standard deviations. This is a small inverse relationship. It means that a low Performance to Expectations is associated with a higher achievement (and vice versa), probably because it produces an incentive to improve.

Multiple R is not significant for Accounting, Economics, Legal Framework and Management where the independent variables predict only about 1 percent of the variance in Achievement at the First Attempt.

Achievement at first attempt and the situation variables

47. Multiple R in the equation for Total Achievement is significant and the null hypothesis can be rejected. The numerical values for the beta weights, in order of importance in accounting for the variance are –0.197 for Gender, -0.142 for Age and 0.081 for English as a second language. Age and Gender are inversely related to Total Achievement indicating that female students are likely to achieve higher

scores than males and older students higher scores than the younger ones. Altogether 5.7 percent of the variance in Total Achievement is predicted by knowing scores on these situation variables (that is, there is only a slight relationship).

For specific subjects, Multiple R is significant for Accounting, Economics, Information Systems, Management and Statistics. However, in all cases the amount of variance predicted by knowing scores on the independent variables is slight, the largest being 13 percent for Management. Beta weights are low.

Achievement at first attempt and the independent and situation variables

48. Multiple R in the equation for Total Achievement is significant and the null hypothesis can be rejected. The numerical values for the beta weights, in order of importance in accounting for the variance are –0.280 for Performance, -0.192 for Gender and -0.176 for Age. Altogether 14.2 percent of the variance in Total Achievement is predicted by knowing scores on these independent and situation variables (that is only a slight relationship).

For specific subjects, Multiple R is significant for all subjects except Legal Framework. However, in all cases the amount of variance predicted by knowing scores on the independent variables is slight, the largest being 14 percent for Management. Beta weights are low.

Achievement at second attempt and the independent variables

49. Multiple R in the equation for Total Achievement is not significant and the null hypothesis cannot be rejected. Beta weights are low, the highest being 0.133 for Performance. For specific subjects, Multiple R is significant for Finance, Legal

Framework and Marketing. However, in all cases the amount of variance predicted by knowing scores on the independent variables is slight and beta weights are low.

Achievement at second attempt and the situation variables

50. Multiple R in the equation for Total Achievement is not significant and the null hypothesis cannot be rejected. Beta weights are low and are all inversely related to Total Achievement, the highest being 0.169 for Gender. For specific subjects, Multiple R is significant for all subjects except Legal Framework, Marketing and Statistics. However, in all cases the amount of variance predicted by knowing scores on the independent variables is slight, the largest being 9.2 percent for Accounting and 9.0 percent for Legal Framework. Beta weights are low.

Achievement at second attempt and the independent and situation variables

51. Multiple R in the equation for Total Achievement is not significant and the null hypothesis cannot be rejected. Beta weights are low and all except Work hours and Attendance are inversely related to Total Achievement, the highest being 0.166 for Gender. For specific subjects, Multiple R is significant for all subjects except Statistics. However, in all cases the amount of variance predicted by knowing scores on the independent variables is slight, the largest being 10.6 percent for Accounting and 10.0 percent for Management. Beta weights are low.

Comparisons between first and second attempts

52. The relationship between the independent and situation variables and achievement, particularly in terms of total scores for the eight subjects, is less statistically significant for the second attempt than for the first. For both attempts performance is the main predictor of variance in total scores on the eight subjects. In considering individual subjects, Performance is not necessarily the main indicator and there is

also not necessarily consistency in the order of importance of variables for first and second attempts at a subject. Nevertheless, the independent and situation variables only account for a very small amount of variance in both of the dependent variables and in all cases are of no practical significance.

Implications for students

The resultant analysis of data in the study shows that none of the independent or situation variables have any practical significance. Correlations are low, indicates that the independent variables (student motivation to achieve, outside work, performance to expectations, family problems and attendance), and the situation variables (age, gender and English as the first language), make no difference to student achievement at first or second attempt. This means that there are no direct implications from the results of this study for students or private providers.

By further investigating the relationships of the variables used in the study model, and methodology of measuring those variables, it would appear possible to pinpoint which of those variables is significant enough to bear further investigation in order that a higher percentage of students are successful in their first attempt at units of study. As discussed in chapter one, it is important to remember that initial unit failure results in a "blow out" in the student's study timeline. This "blowout" would be more manageable if the model used were sensitive in its analysis of data, utilising better measurement methodology.

The study shows that 86% (246) of the students agreed that attendance was necessary in order to achieve success in the eight Business subjects. However, the study also showed that students who believed in the importance of attendance were less likely to achieve a High Distinction. Perhaps students need to be aware that attendance by itself

is no guarantee of success, but rather, an opportunity to communicate their learning problems to the private institution in order that any period of attendance may be fully exploited for the benefit of student understanding of subject matter.

The study also showed that those students who felt motivated and comfortable in their ability to learn, achieved better than their counterparts who were not as motivated. Perhaps students need to be more aware of the importance of personal development in areas such as motivation to achieve, as a cover-all approach no matter which Business subject they undertake to study.

Data analysis in the study shows that not all (100%) of subject repeats (achievement at second attempt) are successful. Some students are under the impression, perhaps, that just by re-enrolling in a failed unit, that they are "entitled" to a pass, or "deserve" a pass. As the student was deemed capable of success at the commencement of their studies, it may be necessary for them to be made aware that they should utilise every avenue of support offered by the private provider during their second attempt at a unit, in order that they achieve success at that second attempt, and not a subsequent second fail.

The study indicates that females have a potential to achieve higher over all the eight Business subjects. Perhaps then, these students should feel more confident in demanding equal time and attention in the classroom, which theoretically, has historically been dominated by male students.

Additionally, there is the psychological consequence of initial failure on future success. Some students are very committed or strong in willpower and are able to overcome their initial failure, others are not so fortunate. Students, especially full fee paying international students, are sensitive to financial constraints. If the first year of study is not completed at the normally accepted rate of time then the student needs to

consider the implications for their remaining study. Some students may withdraw if the financial burden of study becomes too great.

Implications for private providers

As stated under implications for students, the results of the study are inconclusive for practical purposes. Future studies based on this study, but using additional variables and utilising alternative measurements may well afford practical implications, which will be of benefit to private providers.

The study shows that not all subject repeats are successful. This in itself should alert private providers to recognise the need for additional, individual support mechanisms to ensure second attempt success for such students. The study also showed that those who repeated subjects (14 failed and 58 passed) represented only 72 out of 305 students who were due to repeat a failed subject sometime in their study period. This should alert the private provider to the fact that a number of these students will not complete their studies in the nominal time-frame. Perhaps the private provider needs to ascertain the best approach, on an individual basis through individual counselling, in order that students do not unduly delay subjects they fear, which may result in them losing whatever knowledge they have gained in that subject, no matter how little.

In the study, students agreed that it is necessary to attend to achieve, the private provider needs to compare actual attendance to actual success of each student individually. This is covered to an extent by the necessity, according to student visa regulations, that international students must comply with a 90% minimum attendance to maintain their visa for study in Australia.

Private providers need to recognise the financial implications facing the students. In addition, students who fail to proceed at the normal rate of study may cause a bottle-

neck at the entry point to first year university studies. For a private provider, too great a failure rate is bad advertising and may well affect future student enrolment numbers. Private providers may find it beneficial to train their academic staff further in areas of pastoral care and include in such training, courses in counselling.

Implications for universities

Universities that allow students pathways of future study from private providers face similar problems to private providers when it comes to academic achievement of students. The study has shown no direct implications for universities. Future studies in the same area, utilising an altered model with additional variables and different methods of measurement may well provide practical implications for use by universities.

Continued failure at first attempt has the potential to either signal a lowering of academic standards to accommodate a higher pass rate, or it may be that more student counselling will be required to overcome the impulse to "overload" and hence increase the potential of initial failure in more future subjects undertaken by the student. The nominal duration of study for a Bachelor's Degree in Business or Commerce is three years. The nominal duration of study is based on the assumption that the average student will have the ability to succeed. If students increasingly fail to complete their programme of study in the three years, it raises questions on the legitimacy of student enrolment, or, questions the validity and reliability of the accredited courses of study on offer.

Implications for further research

There are three implications for further research. One involves developing a better model of the variables related to success and failure of students at private colleges preparing students for university. The second involves better measurement of the

variables in the model by using a model of the variables themselves together with a Rasch Measurement Interval Scale. The third involves a better way of investigating the relationships between the variables, perhaps by using a longitudinal model with multi-level modelling or path analysis.

Future studies need to identify student problems in areas additional to those variables used in the model for this study. The results from data used in this study would seem to signal a need for increased research on a longitudinal basis to perhaps "track" a group of students from the start of their studies in the private college to the completion of their degree at university. This could require a combination of qualitative and quantitative approaches.

It is possible that more significant data will be obtained with a different model comprising different or additional variables and alternative methods of measurement. These could be uncovered by interviewing students. A different model may well incorporate variables used in the present study but defined and measured by more complex variable models. Motivation, for example, could be defined by incorporating aspects such as:

1. Striving for excellence, standards, goals, tasks, effort and ability values;
2. Desire to learn, interest, learning from others;
3. Personal incentives (extrinsic rewards, intrinsic rewards, social rewards).

In addition, it may be that using a Rasch measurement of variables on an interval scale will produce results of more practical significance. Also more significant data may be produced through teacher interviews and student interviews covering additional variables such as perception of success or failure, ability and approach to study.

In addition to alternative measures for motivation, other variables could benefit from different measurement techniques. Rather than the one item scale used in the study for

English as a first language (yes/no), an interval scale may be a more sensitive evaluation of a student's ability in the actual use, and understanding of English, as the medium of academic delivery and assessment.

Attendance was measured in the study from a student perspective, using a four point scale from Strongly Agree, through to Strongly Disagree. The limited variation of data from this format of question would appear to reduce expectations of high correlation results. It would be more meaningful, perhaps, to introduce data from the database of each respective private provider to ascertain, and evaluate actual attendance percentages of each student involved in the study.

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Appendix 'A'
Questionnaire

A study in the comparison of achievement in business units between first and second attempt students.

Dear Student

Thank you for allowing the time to complete this questionnaire.

The aim of this questionnaire is to find why some students need to repeat first year Business units.

The questions you answer are all intended to benefit students undertaking studies at the tertiary level of education. Your answers will enable the teaching institutions to critically appraise their current methods of teaching and assessing the units you need to study to successfully complete your course of study.

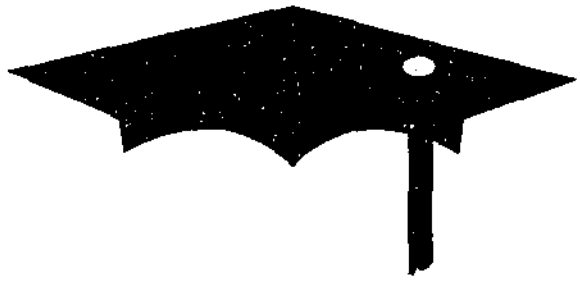
Complete confidentiality is assured to all students who are generous enough to complete a questionnaire. Your name is only required to link questionnaire information to examination results. No names will be used during the computer analysis of results and no individual or institution names will be published.

'These questionnaires will be destroyed after a period of six months.'

Copies of the report of this study can be obtained from Clive Oliver at the Faculty of Business, Edith Cowan University or telephone 307 9867.

Thank you again for your co-operation.

C.P.Oliver B.Bus (Acc), ASCPA, MNIA.



A study in the comparison of achievement in business units between first and second attempt students.

Your name:(Family).....

(Given names).....

Student Number:.....

1. What is your age? .....**(years)**$_1$.....**(months)**$_2$

2. Are you Male or Female? *Circle appropriate answer.* $_1$**M** / **F**$_2$

3. English is my first language. *Circle appropriate answer.*

$_1$**Yes / No**$_2$

The following questions relate to previous study:

4. Have you ever withdrawn from or failed any of the following first year tertiary Business unit at the first attempt? *Circle appropriate answer.*

Accounting	1**Yes** / **No**2
Economics	3**Yes** / **No**4
Finance	5**Yes** / **No**6
Information Systems	7**Yes** / **No**8
Legal Framework	9**Yes** / **No**10
Management	11**Yes** / **No**12
Marketing	13**Yes** / **No**14
Statistics	15**Yes** / **No**16

(If you answered no to all options in question 4 go straight to question 7)

5. If you answered **'yes'** to the last question. When you re-enrolled in that/those unit(s) did you pass that/those unit(s)? *Circle appropriate answer.*

Accounting	1**Yes** / **No**2
Economics	3**Yes** / **No**4
Finance	5**Yes** / **No**6
Information Systems	7**Yes** / **No**8
Legal Framework	9**Yes** / **No**10
Management	11**Yes** / **No**12
Marketing	13**Yes** / **No**14
Statistics	15**Yes** / **No**16

6. If you answered **'yes'** to the last question. Were you satisfied with the result you achieved? *Circle appropriate answer.*

Accounting	1**Yes** / **No**2
Economics	3**Yes** / **No**4
Finance	5**Yes** / **No**6
Information Systems	7**Yes** / **No**8
Legal Framework	9**Yes** / **No**10
Management	11**Yes** / **No**12
Marketing	13**Yes** / **No**14
Statistics	15**Yes** / **No**16

The following questions relate to your current units of study.

Please place a tick [ ] or cross [x] to indicate your answer

7. I prefer course work that is interesting and challenging so I can learn new things.

Strongly agree	[ ]1
Agree	[ ]2
Disagree	[ ]3
Strongly disagree	[ ]4

8. I often choose course assignments that are interesting to me even if they don't guarantee a good grade.

Strongly agree	[ ]1
Agree	[ ]2
Disagree	[ ]3
Strongly disagree	[ ]4

9. I think that the course material in my classes is interesting.

Strongly agree	[ ]1
Agree	[ ]2
Disagree	[ ]3
Strongly disagree	[ ]4

10. I like the subject matter of the units in this course.

Strongly agree	[ ]1
Agree	[ ]2
Disagree	[ ]3
Strongly disagree	[ ]4

11. It is important for me to learn the course material.

Strongly agree	[ ]1
Agree	[ ]2
Disagree	[ ]3
Strongly disagree	[ ]4

12. Understanding the subject matter in this course is important to me.

Strongly agree	[ ]$_1$
Agree	[ ]$_2$
Disagree	[ ]$_3$
Strongly disagree	[ ]$_4$

13. I think that what I learn in this course will be useful to me after college.

Strongly agree	[ ]$_1$
Agree	[ ]$_2$
Disagree	[ ]$_3$
Strongly disagree	[ ]$_4$

14. I think that the subject matter of this course is useful for me to know.

Strongly agree	[ ]$_1$
Agree	[ ]$_2$
Disagree	[ ]$_3$
Strongly disagree	[ ]$_4$

15.. On average, how many hours a week do you spend during semester 1/96 doing outside work to generate income to support you whilst you study?

.....**(hours)**$_1$

16. How well do you expect to do in this course?

Not very well	[ ]$_1$
Quite well	[ ]$_2$
Very well	[ ]$_3$
Extremely well	[ ]$_4$

17. How good do you expect your grades to be for your course?

Not very good	[ ]$_1$
Quite good	[ ]$_2$
Very good	[ ]$_3$
Extremely good	[ ]$_4$

18. How good are you in your subjects?

Not very good	[ ]$_1$
Quite good	[ ]$_2$
Very good	[ ]$_3$
Extremely good	[ ]$_4$

19. How good do you think you are in your subjects compared to other students?

Not as good	[ ]$_1$
Just as good	[ ]$_2$
Better	[ ]$_3$
Much better	[ ]$_4$

20. How often do you feel intelligent in class?

Not very often	[ ]$_1$
Quite often	[ ]$_2$
Very often	[ ]$_3$
Always	[ ]$_4$

21. How much natural ability do you have in your classes?

No ability at all	[ ]$_1$
Some ability	[ ]$_2$
Average ability	[ ]$_3$
A lot of ability	[ ]$_4$

22. How hard are you working to learn your subjects?

Not very hard	[ ]$_1$
Quite hard	[ ]$_2$
Very hard	[ ]$_3$
Extremely hard	[ ]$_4$

23. How hard do you study for tests in class?

Not very hard	[ ]$_1$
Quite hard	[ ]$_2$
Very hard	[ ]$_3$
Extremely hard	[ ]$_4$

24. On average how many hours a week do you need to allocate away from your studies for family commitments such as: carer of ill family member, marital family duties, child care etc, during semester 1/96?

.....(hours),

25. I feel my attendance is good enough to allow me to cover all the course material necessary to ensure success in my units of study.

Please circle your response

Strongly Agree	**Agree**	**Disagree**	**Strongly Disagree**
1	2	3	4

26. I am satisfied that my command of the English language is adequate for me to understand all the material necessary to ensure success in passing my first year Business units.

Please circle your response

Strongly Agree	**Agree**	**Disagree**	**Strongly Disagree**
1	2	3	4

End of questionnaire.

Again, thank you for your help.

Appendix 'B'

Data used in the study.

	ach1acc	ach2acc	ach1econ	ach2econ	ach1fina	ach2fina	ach1sys	ach2sys
1	5	5	5	6	4	6	6	6
2	4	6	4	6	5	6	3	6
3	6	6	5	6	6	6	5	6
4	4	6	6	6	6	6	6	6
5	5	4	6	6	4	6	3	6
6	2	6	6	6	6	6	3	6
7	5	4	4	6	5	6	4	6
8	3	6	2	6	6	6	6	6
9	2	6	4	6	2	6	5	3
10	3	6	4	6	4	6	4	6
11	3	6	4	6	6	6	3	6
12	4	6	4	6	5	6	4	6
13	3	6	6	6	6	6	6	6
14	6	6	6	6	3	6	3	6
15	5	6	5	6	6	6	6	6
16	3	6	3	6	6	6	3	6
17	3	6	1	6	6	6	6	6
18	5	5	6	6	6	6	5	4
19	1	6	6	6	1	6	2	6
20	5	6	4	6	6	6	6	6
21	4	6	5	6	6	6	6	6
22	5	6	4	6	6	6	6	6
23	4	6	4	6	6	6	6	6
24	4	6	6	6	6	6	6	6
25	3	6	6	6	6	6	3	6
26	3	6	5	6	3	6	6	6
27	4	6	4	6	6	6	6	6
28	4	6	6	6	6	6	4	6
29	6	6	4	6	4	6	6	6
30	4	6	6	6	6	6	4	6
31	6	6	2	6	6	6	6	6
32	6	6	6	6	6	6	4	6
33	6	6	6	6	3	6	3	6

1-1

	ach1legf	ach2legf	ach1mgt	ach2mgt	ach1mklg	ach2mklg	ach1stat	ach2stat
1	6	6	6	6	6	6	6	6
2	4	6	4	6	3	6	5	6
3	6	6	6	6	5	6	5	6
4	3	6	3	6	6	6	5	6
5	6	6	4	6	3	6	5	3
6	4	6	5	6	6	6	4	6
7	4	6	4	6	4	6	5	6
8	6	6	6	6	6	6	6	6
9	5	6	4	6	4	6	2	6
10	5	6	4	6	4	6	4	6
11	6	6	6	6	4	6	6	6
12	3	6	4	6	4	6	4	6
13	6	6	3	6	3	6	6	6
14	3	6	6	6	6	6	2	6
15	6	6	6	6	5	6	6	6
16	2	6	6	6	6	6	6	6
17	6	6	3	6	6	6	3	6
18	5	4	5	4	5	6	5	6
19	6	6	3	6	4	6	1	6
20	6	6	6	6	2	6	4	6
21	6	6	6	6	6	6	4	6
22	6	6	6	6	6	6	4	6
23	6	6	6	6	3	6	6	6
24	6	6	5	6	6	6	3	6
25	3	6	3	6	6	6	6	6
26	5	6	6	6	3	6	4	6
27	6	6	6	6	4	6	2	6
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29	6	6	6	4	6	4	4	6
30	5	6	5	6	6	6	6	6
31	6	6	3	6	2	6	2	6
32	6	6	6	6	6	6	3	6
33	6	6	6	6	4	6	4	6

	mtvation	work	perfmnce	family	attdnce	age	gender	english
1	11	0	22	0	1	20	1	1
2	18	0	14	35	3	19	2	2
3	16	10	14	0	1	27	1	2
4	18	0	18	0	1	23	2	2
5	8	15	16	20	2	23	1	2
6	15	28	13	0	2	22	1	2
7	13	0	23	0	1	23	1	2
8	13	11	13	0	4	23	1	2
9	15	0	12	0	1	22	1	2
10	14	0	17	0	1	20	2	2
11	13	0	20	0	1	19	2	2
12	16	10	16	0	2	20	1	2
13	10	10	19	25	1	19	1	2
14	11	0	27	3	1	22	1	2
15	13	0	16	0	2	19	1	2
16	13	0	14	14	2	19	2	2
17	16	0	18	14	2	21	1	2
18	18	15	12	20	3	24	1	2
19	16	0	19	24	3	28	2	2
20	17	7	17	10	2	21	1	2
21	13	7	22	0	2	24	2	2
22	17	5	16	25	3	22	1	2
23	16	3	20	0	3	23	1	2
24	16	3	17	4	3	18	2	1
25	15	0	16	0	3	18	1	1
26	16	20	14	0	2	23	1	2
27	10	5	17	0	2	28	2	2
28	17	0	13	0	2	22	2	2
29	16	0	14	0	2	24	2	2
30	13	0	20	0	2	23	1	1
31	12	0	17	0	1	18	2	1
32	17	12	12	0	2	21	2	2
33	13	0	19	0	1	19	1	2

	ach1acc	ach2acc	ach1econ	ach2econ	ach1fina	ach2fina	ach1isys	ach2isys
34	5	3	5	6	6	6	1	6
35	1	6	3	6	4	6	1	6
36	4	6	4	6	4	6	4	6
37	4	6	4	6	4	6	4	6
38	5	6	6	6	6	6	4	6
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46	6	6	2	6	2	6	1	6
47	3	6	4	6	5	6	4	6
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49	6	6	6	6	6	6	5	6
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63	4	6	4	6	4	6	4	6
64	4	6	6	6	4	6	3	6
65	6	6	5	6	6	6	3	6
66	1	6	3	6	6	6	2	6

	ach1legf	ach2legf	ach1mgt	ach2mgt	ach1mktg	ach2mktg	ach1stat	ach2stat
34	3	6	1	6	2	6	5	6
35	6	6	6	6	6	6	6	6
36	4	6	4	6	4	6	4	6
37	4	6	4	6	4	6	4	6
38	5	6	5	6	5	6	4	6
39	4	6	6	6	4	6	6	6
40	6	6	4	6	2	6	6	6
41	3	6	6	6	5	6	6	6
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46	6	6	6	6	1	6	6	6
47	6	6	5	3	4	6	4	6
48	6	6	3	6	6	6	6	6
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63	4	6	4	6	4	6	4	6
64	4	6	6	6	6	6	6	6
65	6	6	6	6	6	6	4	6
66	2	6	2	6	1	6	1	6

	mtvation	work	perfmnce	family	attdnce	age	gender	english
34	18	35	24	14	2	19	2	1
35	15	0	16	28	2	19	2	1
36	15	0	19	0	2	19	2	2
37	15	5	16	0	2	22	2	2
38	15	20	10	0	2	23	1	2
39	14	6	15	20	1	19	2	1
40	11	0	19	0	1	19	1	1
41	17	7	19	1	1	18	1	1
42	15	0	13	0	3	21	1	2
43	17	0	13	0	2	18	1	2
44	17	0	13	0	2	21	1	2
45	18	10	11	20	2	23	2	2
46	13	5	21	4	1	18	2	1
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52	14	0	17	0	1	20	2	2
53	17	4	18	0	2	20	1	2
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55	12	0	8	24	1	23	2	2
56	14	0	18	0	2	19	1	2
57	15	0	15	21	1	19	1	2
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63	14	0	13	0	3	23	2	2
64	14	0	17	0	2	22	1	2
65	13	20	19	0	2	21	2	2
66	13	0	25	0	1	23	2	2

	ach1acc	ach2acc	ach1econ	ach2econ	ach1fina	ach2fina	ach1isys	ach2isys
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77	5	4	4	6	5	6	1	6
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98	4	6	4	6	4	6	4	6
99	3	6	6	6	6	6	3	6

	ach1logl	ach2logl	ach1mgl	ach2mgl	ach1mklg	ach2mklg	ach1stat	ach2stat
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84	5	6	6	6	6	6	5	6
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93	6	6	5	6	5	6	6	6
94	3	6	3	6	3	6	2	6
95	6	6	5	6	6	6	4	6
96	6	6	6	6	6	6	3	6
97	3	6	4	6	4	6	5	3
98	4	6	4	6	4	6	4	6
99	6	6	3	6	6	6	6	6

	mtvation	work	perfmnce	family	attdnce	age	gender	english
67	17	10	16	0	2	21	1	2
68	17	1	16	10	1	21	1	2
69	17	32	19	0	2	18	1	1
70	12	0	20	7	1	18	2	1
71	13	0	19	5	3	19	1	2
72	18	2	17	48	2	20	1	2
73	14	20	21	30	2	22	1	2
74	16	0	17	0	3	22	1	2
75	14	14	16	0	2	19	2	2
76	12	0	12	14	4	23	2	2
77	16	0	13	0	3	22	1	2
78	14	10	19	0	1	19	1	1
79	14	10	24	1	1	21	1	2
80	15	0	21	0	2	29	2	2
81	16	15	20	0	1	24	2	2
82	12	0	14	0	1	21	1	2
83	12	5	13	6	2	22	2	2
84	15	0	4	0	2	23	2	2
85	15	2	15	0	2	24	2	2
86	16	0	14	15	2	21	1	2
87	17	0	21	0	2	20	2	2
88	18	2	16	2	2	20	1	2
89	4	0	16	0	1	19	2	1
90	19	0	22	0	2	20	2	2
91	14	0	16	0	2	23	1	2
92	19	0	16	0	2	29	1	2
93	17	0	9	0	2	21	1	2
94	16	0	18	0	2	22	2	2
95	18	0	14	0	2	20	1	2
96	17	0	10	0	2	20	1	2
97	16	0	13	0	2	20	2	2
98	4	7	15	0	1	20	2	2
99	16	0	15	5	2	18	2	2

	ach1acc	ach2acc	ach1econ	ach2econ	ach1fina	ach2fina	ach1isys	ach2isys
100	3	6	4	6	5	3	2	6
101	3	6	4	6	4	6	4	6
102	6	6	5	6	6	6	4	6
103	4	6	4	6	4	6	4	6
104	4	6	4	6	4	6	4	6
105	2	6	2	6	6	6	6	6
106	3	6	5	4	5	3	3	6
107	3	6	4	6	6	6	6	6
108	4	6	4	6	4	6	4	6
109	4	6	4	6	5	6	4	6
110	6	6	6	6	5	6	4	6
111	6	6	6	6	6	6	1	6
112	4	6	6	6	6	6	5	6
113	3	6	6	6	6	6	6	6
114	5	4	3	6	4	6	4	6
115	4	6	5	6	6	6	5	4
116	6	6	6	6	3	6	4	6
117	4	6	5	4	6	6	4	6
118	3	6	6	6	6	6	2	6
119	4	6	4	6	6	6	4	6
120	4	6	4	6	4	6	5	6
121	4	6	5	4	5	3	4	6
122	3	6	4	6	3	6	6	6
123	1	6	1	6	1	6	2	6
124	4	6	6	6	3	6	4	6
125	5	4	6	6	6	6	5	6
126	5	6	6	6	6	6	5	6
127	6	6	5	6	6	6	5	6
128	5	6	6	6	5	6	5	4
129	5	6	6	6	4	6	6	6
130	4	6	4	6	4	6	4	6
131	6	6	6	6	5	6	5	6
132	4	6	6	6	6	6	4	6

	ach1legf	ach2legf	ach1mgt	ach2mgt	ach1mktg	ach2mktg	ach1stat	ach2stat
100	4	6	3	6	3	6	4	6
101	3	6	2	6	4	6	5	4
102	6	6	4	6	6	6	6	6
103	3	6	6	6	4	6	2	6
104	4	6	4	6	4	6	4	6
105	6	6	2	6	6	6	3	6
106	5	3	5	4	2	6	4	6
107	3	6	6	6	6	6	2	6
108	4	6	4	6	4	6	4	6
109	4	6	5	6	4	6	4	6
110	5	6	3	6	6	6	.	6
111	2	6	6	6	6	6	1	6
112	6	6	6	6	5	6	6	6
113	4	6	2	6	6	6	4	6
114	4	6	4	6	5	3	5	3
115	4	6	5	4	3	6	3	6
116	6	6	6	6	4	6	2	6
117	4	6	4	6	4	6	4	6
118	6	6	6	6	6	6	1	6
119	4	6	6	6	4	6	4	6
120	4	6	4	6	4	6	4	6
121	5	5	3	6	3	6	4	6
122	6	6	6	6	6	6	4	6
123	2	6	1	6	2	6	1	6
124	4	6	3	6	5	4	6	6
125	5	6	4	6	4	6	5	5
126	6	6	6	6	4	6	6	6
127	6	6	6	6	6	6	4	6
128	6	6	6	6	6	6	4	6
129	6	6	6	6	5	6	4	6
130	4	6	5	6	4	6	4	6
131	6	6	5	6	6	6	5	6
132	3	6	6	6	6	6	6	6

	mtvation	work	perfmnce	family	attdnce	age	gender	english
100	12	0	20	24	2	23	2	2
101	18	15	11	0	2	23	2	2
102	15	0	12	0	1	19	2	2
103	17	0	17	0	2	20	2	2
104	13	0	17	0	1	21	2	1
105	17	0	14	14	2	22	1	2
106	15	0	21	25	1	20	2	2
107	18	0	15	0	1	19	2	2
108	15	0	19	0	2	20	2	1
109	16	25	16	5	2	20	1	1
110	6	0	21	0	2	19	1	2
111	15	8	12	10	4	30	2	2
112	14	10	21	4	1	22	1	2
113	13	0	21	0	1	22	2	2
114	13	3	21	0	2	21	1	2
115	15	10	15	0	1	19	2	2
116	15	0	15	0	1	18	1	1
117	15	0	17	8	1	23	1	2
118	16	0	17	0	2	22	2	2
119	9	15	21	21	2	21	1	2
120	16	0	17	0	1	28	2	2
121	13	0	10	0	2	23	2	1
122	13	0	15	0	2	20	1	2
123	16	0	19	10	2	25	1	1
124	16	0	18	5	2	21	2	2
125	18	3	10	0	3	20	2	2
126	13	12	13	0	3	21	1	2
127	12	3	21	0	1	21	1	2
128	16	0	16	0	2	22	1	2
129	12	0	12	0	2	24	2	2
130	9	20	25	25	1	23	1	2
131	8	21	20	15	1	19	2	1
132	14	35	15	0	3	19	1	2

	ach1acc	ach2acc	ach1econ	ach2econ	ach1fina	ach2fina	ach1isys	ach2isys
133	2	6	4	6	3	6	2	6
134	1	6	4	6	5	2	3	6
135	4	6	5	6	3	6	4	6
136	6	6	6	6	6	6	3	6
137	4	6	5	6	6	6	6	6
138	3	6	6	6	6	6	6	6
139	4	6	4	6	2	6	6	6
140	2	6	6	6	4	6	2	6
141	5	6	6	6	6	6	4	6
142	3	6	6	6	6	6	6	6
143	4	6	5	6	6	6	5	6
144	3	6	6	6	5	6	5	6
145	3	6	4	6	6	6	3	6
146	3	6	6	6	6	6	6	6
147	4	6	5	6	6	6	5	6
148	4	6	4	6	4	6	5	6
149	5	5	4	6	6	6	3	6
150	6	6	4	6	6	6	5	6
151	4	6	4	6	4	6	5	6
152	4	6	4	6	6	6	6	6
153	6	6	6	6	5	6	5	6
154	6	6	4	6	6	6	6	6
155	6	6	3	6	6	6	6	6
156	6	6	6	6	6	6	6	6
157	6	6	6	6	6	6	5	6
158	6	6	6	6	2	6	3	6
159	4	6	6	6	6	6	3	6
160	3	6	2	6	2	6	1	6
161	3	6	4	6	3	6	1	6
162	5	3	5	4	3	6	5	4
163	5	6	5	6	6	6	5	6
164	4	6	5	5	5	4	3	6
165	3	6	2	6	2	6	1	6

	ach1logf	ach2logf	ach1mgf	ach2mgf	ach1mklg	ach2mklg	ach1stat	ach2stat
133	3	6	3	6	4	6	4	6
134	3	6	4	6	2	6	3	6
135	4	6	5	6	5	2	5	6
136	4	6	4	6	2	6	6	6
137	6	6	6	6	6	6	6	6
138	5	6	4	6	6	6	5	6
139	3	6	6	6	2	6	6	6
140	3	6	6	6	3	6	2	6
141	6	6	6	6	5	6	3	6
142	3	6	3	6	6	6	2	6
143	3	6	4	6	4	6	4	6
144	6	6	6	6	4	6	6	6
145	6	6	2	6	3	6	4	6
146	4	6	3	6	6	6	2	6
147	6	6	6	6	5	5	4	6
148	4	6	4	6	4	6	4	6
149	4	6	5	2	5	6	5	6
150	4	6	4	6	6	6	6	6
151	5	6	4	6	4	6	5	6
152	6	6	6	6	3	6	4	6
153	6	6	3	6	6	6	6	6
154	6	6	5	6	5	6	4	6
155	3	6	6	6	6	6	6	6
156	6	6	6	6	6	6	5	5
157	6	6	5	6	6	6	6	6
158	6	6	2	6	1	6	6	6
159	6	6	3	6	6	6	3	6
160	2	6	2	6	2	6	4	6
161	3	6	2	6	3	6	4	6
162	4	6	4	6	3	6	1	6
163	6	6	6	6	6	6	6	6
164	5	3	4	6	3	6	4	6
165	2	6	4	6	3	6	2	6

	mtvation	work	perfmnce	family	attdnce	age	gender	english
133	8	10	21	2	1	23	2	2
134	14	0	20	3	2	19	2	2
135	15	8	17	0	2	19	2	2
136	12	25	22	2	1	18	1	1
137	13	20	20	2	2	21	1	2
138	12	0	14	0	1	21	2	1
139	12	10	20	10	1	22	1	2
140	14	2	12	0	2	26	1	2
141	14	6	17	0	1	18	1	2
142	15	0	17	0	2	21	2	2
143	13	10	21	0	3	26	1	2
144	14	10	20	6	1	19	2	2
145	13	0	20	0	1	19	2	2
146	16	0	19	0	2	19	2	2
147	17	0	15	0	3	19	2	2
148	11	0	11	0	1	21	2	2
149	14	8	16	15	2	19	2	2
150	13	0	20	0	2	20	1	2
151	14	6	18	0	1	18	2	2
152	13	0	17	0	2	22	1	2
153	11	0	23	0	4	20	1	2
154	11	10	16	0	2	20	2	2
155	17	0	12	0	2	21	1	2
156	14	0	19	0	2	21	2	2
157	17	5	17	0	2	21	1	2
158	15	12	22	4	1	18	2	1
159	17	0	15	0	2	20	2	1
160	9	0	21	0	1	18	2	1
161	10	11	19	0	1	24	2	1
162	17	0	19	0	2	21	2	2
163	11	0	15	35	2	29	1	1
164	16	0	17	70	3	18	1	2
165	17	0	20	0	2	24	1	1

	ach1acc	ach2acc	ach1econ	ach2econ	ach1fina	ach2fina	ach1sys	ach2sys
166	4	6	4	6	4	6	5	6
167	3	6	4	6	6	6	6	6
168	4	6	6	6	6	6	6	6
169	4	6	4	6	5	6	4	6
170	3	6	4	6	6	6	6	6
171	4	6	5	6	4	6	4	6
172	5	6	6	6	5	6	4	6
173	6	6	6	6	6	6	5	6
174	2	6	3	6	1	6	1	6
175	2	6	4	6	3	6	3	6
176	3	6	6	6	6	6	6	6
177	6	6	5	6	6	6	6	6
178	6	6	5	6	6	6	4	6
179	4	6	4	6	5	6	4	6
180	3	6	6	6	5	6	6	6
181	6	6	4	6	6	6	4	6
182	4	6	5	5	5	6	2	6
183	5	6	4	6	6	6	6	6
184	4	6	4	6	4	6	5	6
185	4	6	4	6	4	6	4	6
186	4	6	4	6	5	6	4	6
187	4	6	2	6	6	6	6	6
188	4	6	4	6	6	6	6	6
189	4	6	4	6	6	6	6	6
190	4	6	5	6	6	6	5	6
191	4	6	4	6	6	6	4	6
192	6	6	6	6	6	6	4	6
193	4	6	4	6	6	6	4	6
194	6	6	4	6	6	6	4	6
195	6	6	2	6	6	6	2	6
196	6	6	2	6	6	6	1	6
197	6	6	4	6	6	6	6	6
198	2	6	4	6	6	6	4	6

	ach1legf	ach2legf	ach1mgt	ach2mgt	ach1mktg	ach2mktg	ach1stat	ach2stat
166	5	6	4	6	4	6	4	6
167	6	6	3	6	6	6	3	6
168	2	6	6	6	2	6	2	6
169	4	6	5	6	4	6	4	6
170	6	6	6	6	6	6	2	6
171	5	6	4	6	4	6	4	6
172	6	6	6	6	6	6	2	6
173	6	6	6	6	5	6	5	6
174	6	6	6	6	6	6	6	6
175	4	6	4	6	2	6	3	6
176	3	6	4	6	6	6	6	6
177	6	6	4	6	4	6	4	6
178	6	6	6	6	3	6	6	6
179	4	6	4	6	4	6	4	6
180	6	6	3	6	6	6	3	6
181	4	6	6	6	4	6	6	6
182	2	6	4	6	5	4	4	6
183	6	6	6	6	6	6	4	6
184	4	6	5	6	4	6	4	6
185	4	6	5	6	4	6	4	6
186	4	6	4	6	4	6	4	6
187	6	6	3	6	6	6	1	6
188	6	6	6	6	6	6	3	6
189	6	6	3	6	6	6	4	6
190	6	6	6	6	6	6	2	6
191	5	4	4	6	4	6	4	6
192	6	6	4	6	6	6	6	6
193	5	6	4	6	4	6	4	6
194	6	6	1	6	6	6	4	6
195	6	6	1	6	6	6	1	6
196	6	6	1	6	6	6	2	6
197	6	6	1	6	6	6	4	6
198	2	6	6	6	6	6	4	6

	mtvation	work	perfmnce	family	attdnce	age	gender	english
166	14	0	19	6	2	22	1	2
167	13	0	17	0	2	20	2	2
168	15	0	21	0	1	20	1	2
169	13	0	17	0	1	23	2	2
170	13	0	17	0	2	19	2	2
171	17	0	15	0	2	22	2	2
172	13	7	20	0	2	19	1	2
173	15	0	14	48	1	20	1	2
174	15	0	20	15	1	18	2	1
175	12	0	18	0	1	21	2	2
176	14	0	15	0	2	20	2	2
177	15	13	16	0	2	19	2	2
178	13	0	11	0	2	19	2	2
179	17	15	17	10	2	19	1	2
180	16	14	10	20	2	19	1	2
181	12	10	19	15	1	20	2	2
182	17	0	18	0	1	20	2	2
183	16	0	15	0	2	19	1	2
184	13	0	20	0	2	22	2	2
185	13	0	19	0	2	21	2	2
186	13	10	23	0	2	22	1	2
187	16	0	15	0	2	20	2	2
188	17	0	11	0	2	20	1	2
189	19	0	14	0	2	21	2	2
190	15	0	20	0	1	20	2	2
191	11	10	15	0	2	18	1	1
192	13	0	12	0	1	20	1	2
193	15	10	19	15	2	20	2	2
194	12	6	16	7	2	23	1	1
195	17	0	20	0	1	20	2	2
196	13	0	23	0	1	21	1	1
197	12	0	13	0	1	19	1	2
198	12	0	17	0	1	22	2	2

	ach1acc	ach2acc	ach1econ	ach2econ	ach1fina	ach2fina	ach1lsys	ach2isys
199	6	6	2	6	6	6	4	6
200	6	6	4	6	6	6	4	6
201	5	6	4	6	6	6	5	6
202	4	6	4	6	6	6	4	6
203	5	6	4	6	6	6	5	4
204	4	6	4	6	6	6	4	6
205	6	6	4	6	6	6	2	6
206	6	6	4	6	6	6	4	6
207	6	6	4	6	6	6	5	6
208	6	6	4	6	6	6	5	6
209	5	6	4	6	6	6	4	6
210	4	6	4	6	6	6	4	6
211	6	6	2	6	6	6	1	6
212	6	6	5	6	6	6	5	6
213	6	6	4	6	6	6	2	6
214	6	6	4	6	6	6	4	6
215	6	6	5	6	6	6	5	6
216	6	6	4	6	6	6	4	6
217	5	6	4	6	6	6	5	6
218	6	6	5	6	6	6	4	6
219	6	6	5	6	6	6	5	6
220	6	6	4	6	6	6	4	6
221	6	6	4	6	6	6	4	6
222	6	6	4	6	6	6	4	6
223	5	6	4	6	6	6	5	2
224	4	6	5	4	6	6	4	6
225	4	6	4	6	6	6	4	6
226	6	6	5	6	6	6	5	6
227	6	6	4	6	6	6	5	6
228	6	6	2	6	6	6	2	6
229	5	4	2	6	6	6	4	6
230	6	6	4	6	6	6	5	6
231	6	6	4	6	6	6	4	6

	ach1legl	ach2legl	ach1mgt	ach2mgt	ach1mktg	ach2mktg	ach1stat	ach2stat
199	6	6	1	6	6	6	2	6
200	6	6	1	6	6	6	4	6
201	4	6	4	6	6	6	4	6
202	4	6	2	6	4	6	4	6
203	4	6	5	6	6	6	5	4
204	4	6	2	6	6	6	4	6
205	6	6	1	6	6	6	4	6
206	6	6	1	6	6	6	4	6
207	6	6	1	6	6	6	4	6
208	6	6	1	6	6	6	4	6
209	4	6	4	6	4	6	4	6
210	2	6	2	6	4	6	4	6
211	6	6	1	6	6	6	1	6
212	6	6	2	6	6	6	5	6
213	6	6	2	6	6	6	4	6
214	6	6	1	6	6	6	4	6
215	6	6	4	6	6	6	5	6
216	6	6	2	6	6	6	4	6
217	6	6	4	6	4	6	4	6
218	6	6	4	6	6	6	5	6
219	6	6	2	6	6	6	5	6
220	6	6	1	6	6	6	4	6
221	6	6	2	6	6	6	4	6
222	6	6	1	6	6	6	4	6
223	4	6	4	6	6	6	4	6
224	4	6	4	6	6	6	4	6
225	2	6	4	6	4	6	4	6
226	6	6	5	6	5	6	5	6
227	6	6	4	6	6	6	5	6
228	6	6	4	6	6	6	2	6
229	2	6	4	6	6	6	4	6
230	6	6	2	6	6	6	2	6
231	6	6	2	6	6	6	5	6

	mtvation	work	perfmnce	family	attdnce	age	gender	english
199	17	0	13	0	3	22	2	1
200	15	0	17	0	2	19	2	1
201	12	0	13	0	3	22	1	2
202	13	0	12	0	2	20	2	1
203	14	9	13	0	1	22	1	1
204	12	45	14	0	2	19	1	2
205	15	0	19	0	1	20	1	2
206	12	5	16	4	2	18	1	2
207	15	0	11	0	2	24	1	2
208	10	3	13	0	1	20	2	1
209	18	0	12	0	2	19	2	1
210	12	0	17	25	2	23	1	1
211	15	0	17	0	2	21	2	1
212	12	10	13	10	2	23	1	2
213	17	0	11	0	3	20	2	1
214	17	0	14	0	2	25	1	1
215	12	0	20	0	2	19	2	1
216	13	0	14	0	2	21	2	2
217	13	0	20	0	2	23	1	1
218	17	0	16	0	2	19	2	1
219	15	8	15	3	3	22	1	2
220	15	0	15	10	3	26	2	1
221	17	0	16	1	2	19	1	1
222	17	10	15	4	2	22	1	2
223	18	7	12	5	2	22	1	1
224	19	10	16	20	2	21	2	2
225	19	0	15	1	2	20	1	1
226	15	5	18	0	0	32	1	2
227	12	0	15	0	2	21	1	2
228	14	18	16	11	3	22	2	1
229	13	0	19	0	2	20	2	2
230	18	0	12	6	1	18	2	2
231	16	0	13	0	2	20	2	1

	ach1acc	ach2acc	ach1econ	ach2econ	ach1fina	ach2fina	ach1isys	ach2isys
232	6	6	4	6	6	6	4	6
233	6	6	4	6	6	6	4	6
234	6	6	4	6	6	6	2	6
235	6	6	4	6	6	6	5	6
236	6	6	5	6	6	6	5	6
237	4	6	4	6	6	6	4	6
238	5	6	4	6	6	6	4	6
239	4	6	5	6	6	6	4	6
240	6	6	4	6	6	6	4	6
241	6	6	4	6	6	6	2	6
242	6	6	5	6	6	6	5	6
243	6	6	4	6	6	6	4	6
244	6	6	4	6	6	6	4	6
245	4	6	2	6	6	6	4	6
246	6	6	4	6	6	6	4	6
247	6	6	4	6	6	6	4	6
248	6	6	4	6	6	6	4	6
249	4	6	4	6	6	6	4	6
250	6	6	4	6	6	6	4	6
251	6	6	4	6	6	6	4	6
252	6	6	2	6	6	6	4	6
253	6	6	5	6	6	6	5	6
254	2	6	2	6	6	6	2	6
255	6	6	5	6	6	6	5	6
256	6	6	5	5	6	6	5	4
257	4	6	4	6	6	6	4	6
258	6	6	5	6	6	6	5	6
259	6	6	2	6	6	6	2	6
260	6	6	5	6	6	6	5	6
261	2	6	2	6	6	6	2	6
262	6	6	4	6	6	6	5	6
263	5	4	4	6	6	6	5	4
264	2	6	2	6	6	6	1	6

	ach1legf	ach2legf	ach1mgl	ach2mgl	ach1mklg	ach2mklg	ach1stal	ach2stal
232	6	6	1	6	6	6	5	6
233	6	6	2	6	6	6	5	6
234	6	6	1	6	6	6	4	6
235	6	6	4	6	6	6	5	6
236	6	6	4	6	6	6	5	6
237	4	6	2	6	6	6	4	6
238	6	6	2	6	6	6	2	6
239	4	6	2	6	6	6	6	6
240	6	6	2	6	6	6	4	6
241	6	6	1	6	6	6	4	6
242	6	6	4	6	6	6	4	6
243	6	6	2	6	6	6	2	6
244	6	6	2	6	4	6	4	6
245	4	6	2	6	2	6	2	6
246	6	6	1	6	6	6	4	6
247	6	6	1	6	6	6	4	6
248	6	6	4	6	6	6	4	6
249	4	6	4	6	6	6	4	6
250	6	6	1	6	6	6	4	6
251	6	6	2	6	6	6	4	6
252	6	6	1	6	4	6	2	6
253	6	6	4	6	6	6	5	6
254	2	6	1	6	6	6	2	6
255	6	6	4	6	6	6	5	6
256	6	6	4	6	6	6	5	4
257	6	6	2	6	6	6	4	6
258	6	6	4	6	6	6	4	6
259	6	6	1	6	6	6	1	6
260	6	6	2	6	6	6	5	6
261	1	6	2	6	2	6	1	6
262	6	6	2	6	6	6	4	6
263	4	6	4	6	6	6	4	6
264	2	6	1	6	1	6	1	6

	mtvation	work	perfmnce	family	attdnce	age	gendor	english
232	14	10	14	10	2	24	1	1
233	17	15	16	0	2	20	2	1
234	8	0	15	10	1	22	2	1
235	12	0	23	0	2	26	1	1
236	11	0	17	0	3	20	1	1
237	15	0	16	10	2	20	2	2
238	17	0	17	24	3	22	1	1
239	18	0	16	15	2	24	1	1
240	15	0	16	20	2	18	2	1
241	18	0	17	10	1	23	1	2
242	11	0	17	0	1	20	2	1
243	20	0	20	0	4	20	2	2
244	15	3	9	50	2	19	1	1
245	10	20	21	4	2	21	1	1
246	16	0	12	5	1	23	1	1
247	15	0	19	12	1	26	2	1
248	16	10	20	0	3	18	1	1
249	14	0	16	0	2	20	2	2
250	15	0	18	30	2	23	1	1
251	15	0	21	0	2	20	2	1
252	15	0	20	20	1	24	1	2
253	16	30	17	40	2	20	1	1
254	13	0	17	20	2	26	1	2
255	14	6	16	3	3	21	1	1
256	16	0	.	0	2	21	1	2
257	18	0	15	0	2	20	2	2
258	20	10	14	0	3	18	1	1
259	16	0	26	0	1	21	1	1
260	14	0	21	0	2	19	2	1
261	15	0	19	0	3	22	1	2
262	15	0	11	0	2	23	1	1
263	11	10	16	0	2	20	1	2
264	16	0	19	0	3	18	2	2

	ach1acc	ach2acc	ach1econ	ach2econ	ach1fina	ach2fina	ach1isys	ach2isys
265	6	6	4	6	6	6	4	6
266	6	6	4	6	6	6	5	6
267	6	6	5	6	6	6	4	6
268	6	6	4	6	6	6	4	6
269	4	6	4	6	6	6	4	6
270	6	6	4	6	6	6	4	6
271	5	6	4	6	6	6	5	5
272	6	6	4	6	6	6	5	6
273	6	6	4	6	6	6	4	6
274	4	6	2	6	6	6	4	6
275	6	6	4	6	6	6	4	6
276	6	6	4	6	6	6	4	6
277	6	6	1	6	6	6	1	6
278	4	6	4	6	6	6	5	4
279	5	6	5	6	6	6	5	6
280	6	6	4	6	6	6	2	6
281	6	6	5	5	6	6	6	6
282	6	6	4	6	6	6	2	6
283	6	6	4	6	6	6	4	6
284	6	6	4	6	6	6	5	6
285	6	6	2	6	6	6	4	6
286	4	6	5	6	6	6	5	4
287	5	6	4	6	6	6	5	6

	ach1logf	ach2logf	ach1mgl	ach2mgl	ach1mklg	ach2mklg	ach1stat	ach2stat
265	6	6	1	6	6	6	4	6
266	6	6	4	6	6	6	4	6
267	6	6	2	6	6	6	5	6
268	6	6	4	6	6	6	5	6
269	2	6	4	6	6	6	5	4
270	6	6	1	6	6	6	5	6
271	4	6	4	6	6	6	4	6
272	6	6	2	6	6	6	5	6
273	6	6	2	6	2	6	1	6
274	4	6	2	6	6	6	4	6
275	6	6	2	6	4	6	5	6
276	6	6	2	6	6	6	5	6
277	6	6	1	6	6	6	1	6
278	4	6	4	6	4	6	4	6
279	2	6	4	6	5	6	5	6
280	6	6	1	6	6	6	2	6
281	6	6	4	6	5	6	5	6
282	6	6	1	6	4	6	2	6
283	6	6	1	6	6	6	4	6
284	6	6	2	6	6	6	5	6
285	6	6	2	6	6	6	1	6
286	4	6	4	6	6	6	5	4
287	5	6	4	6	6	6	5	5

	mtvation	work	perfmnce	family	attdnce	age	gender	english
265	10	10	19	20	1	19	2	2
266	17	0	13	0	2	20	2	1
267	15	8	16	8	1	22	1	2
268	15	0	11	0	3	18	2	1
269	16	0	17	10	2	22	2	1
270	20	25	17	10	2	22	2	1
271	12	10	17	2	2	25	1	2
272	12	0	13	15	1	19	2	1
273	17	0	15	0	2	22	2	1
274	14	32	17	0	1	22	2	1
275	13	0	15	0	1	21	2	1
276	18	0	16	1	2	26	1	2
277	15	0	17	0	4	20	2	2
278	14	0	12	0	2	21	2	1
279	16	0	22	5	2	20	1	1
280	13	2	23	6	1	18	2	1
281	14	0	25	0	2	18	2	1
282	12	0	20	20	1	24	1	1
283	12	0	19	21	2	22	1	2
284	16	15	12	20	2	21	2	2
285	13	0	21	1	1	23	2	1
286	16	14	21	0	2	19	1	2
287	18	5	12	24	3	23	1	2